

Skeptical Successes and Ufological Failures: Opportunities in Uncomfortable Places

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Hew to the line; let the chips fall where they may.

For anyone keeping score in the long-running conflict between ufologists and skeptics over the reality of UFOs, the home team has fared none too brilliantly of late. Whether the cases are new, newly familiar, or old and well-known classics, the skeptics have taken shots with increasing frequency—and as I see it, with increasing accuracy. The opposition is on a roll, as ufologists who read the *Skeptical Inquirer* (presumably there are a few) must be all too aware. In those pages we can find conventional explanations for such well-publicized cases as the Valentich disappearance, movie footage of a supposed UFO from the Chilean Air Force, and the Cash-Landrum physical injury case.¹ Just in the past three years or so solutions have appeared for a giant UFO reported by multiple witnesses in the Yukon in 1996, and even the 1965 Exeter sighting, one that many of us—myself included—thought would stand forever as an unknown.² Other skeptics with ties to the *Skeptical Inquirer* and its parent organization have gunned down the Phoenix Lights.³ The problem is not just that skeptics offer explanations—they have always done that, just not always with very creditable results. The problem is that these recent explanations have been difficult to discredit. Instead of flimsy speculations the skeptics have presented hard facts and sound arguments to build a persuasive case that a conventional solution is the right solution for reports we ufologists have trusted were insoluble.

Those of us long convinced that UFOs are real might shrug off this string of successes and say that we have always known that most reports resolve into mundane solutions, so why get the jitters over more of the same? Why even worry about the loss of a few high-quality cases, since a few classics are bound to unravel from time to time in the light of new information or interpretation? We expect such casualties and leave them behind when they happen, since we can take comfort in a backlog as well as an incoming stream of unknowns, both of which continue to nourish our conviction that no matter how many reports turn out to be false alarms, a hard core of unconventional UFOs truly exists underneath it all.

My response is something more alarmist. The willingness of ufologists to take comfort in numbers is an example of the “bundle of sticks” fallacy—the false faith that many weak or untested reports combine to lend as good or better support for the reality of UFOs than a few strong reports. In fact the case for UFOs as a unique and significant phenomenon depends on the existence of at least one indisputable observation of an unconventional object in the sky. What constitutes an indisputably reliable observation and in what sense it is unconventional raise further questions, while the identity of UFOs as alien visitors, the issue that motivates so many ufologists, calls for recurrent observations and coherent patterns at the very least, in the absence of physical evidence for extraterrestrial origin. But these concerns remain secondary. They come to life only after establishment that a UFO phenomenon exists outside the realm of unusual natural or man-made events and the prodigious human capacity for error and imagination.

Ufologists are convinced that they hold a body of observations that proves the existence of UFOs. The number is a small percentage of all UFOs reported, but these best cases offer more than mere lights in the sky. They have the support of reliable observers, instrumental confirmation, unusual strangeness, and no viable conventional solution. These cases are worth standing up to defend as instances of a real UFO phenomenon. In their attack on these fundamental assertions, skeptics maintain that they can explain even the best UFOs in conventional terms and accuse ufologists of substituting new “unknowns” for solved cases, in a process that ignores the implication that if one past case after another has fallen, future cases will topple in their turn. In other words there is no unconventional UFO observation, not even one; and without this basis the entire structure of UFO belief collapses into ruin.

The stakes, then, are high: If the skeptics can make good on their claim that even the best UFO cases resolve into conventional terms on close examination, the primary support for the ufologists' argument disappears entirely, or at least diminishes to a few thin shreds convincing to no one but the already and stubbornly convinced. Nothing remains to interest scientists or attract the attention of people with any sense of critical judgment. UFOs then belong to the realm of true believers, as the skeptics have maintained all along.

In this light the skeptics' success in explaining major cases comes as more than a mere disappointment. It shakes the very foundation of credible unknowns. To have a viable UFO phenomenon, we must have some cases that are so good, so remarkable, so inexplicable that they stop all nay-sayers dead in their tracks. The loss of classic cases is especially disturbing in light of this requirement, since a case becomes a classic because it has faced repeated critical challenges and survived them over the years to stand as a shining example of an event with no apparent conventional identity. These enduring cases are the ones worth defending, worth citing to anyone who wants to know what reason we have to think UFOs are a genuine phenomenon and a serious issue. To lose such a case is to feel the ground erode beneath our feet.

Not every proponent of UFOs wants the truth. For many people UFOs constitute a faith, a hope, a commitment. To remove UFOs from their world would result in profound loss, a wrenching end of personal meaning and purpose, and therefore true believers will defend UFOs at all costs whatever the facts. Mere negative evidence and reason hardly stand a chance against such a vested personal interest. For my part, I want to know the truth whether it proves me right or wrong; and I feel certain that other serious ufologists share this commitment. I still accept the ultimate reality of the UFO phenomenon, but the skeptics' recent successes leave me with a sense of dismay and embarrassment, dismay that maybe the evidence for UFOs is not as unassailable as I had believed, embarrassment that ufologists failed to root out the shortcomings of these cases in the first place. Such failures certainly reflect poorly on the standards and expertise of the field, and even though the truth comes out in the end, such missteps also discredit all other cases handled by ufologists. Who would bother to listen to a source if it scores more errors than hits?

If nothing else the skeptics' victories—real or apparent—summon ufologists for some soul-searching. The rest of this paper will take a look at what skeptics do right and ufologists do wrong, then how we might tighten our practices to minimize the breaches that the skeptics are all too happy to exploit. The subject here will not be complex and controversial matters like abductions or Roswell. Attention will focus only on sightings reports, especially the richly illustrative examples of the Phoenix Lights, the Yukon UFO of 1996, and the "Incident at Exeter." These mirrors will reflect the good and bad of ufological practice. This paper will also include a glance at skeptics and how they have improved, at what to look for in a solid UFO case, and a few examples that still qualify as persuasive. Even if the skeptics shake up ufology, we still may find opportunities in adversity.

A Quick, Potted History of the Skeptical Opposition—The Air Force Years.

The Air Force. The first dispute over the existence of UFOs took place within the U. S. military establishment, and most especially within the Air Force, which became a separate branch of military service in September 1947 and immediately received flying saucers as a troublesome birthday present. Three successive programs held nominal responsibility for investigating UFOs—Project Sign (1948-1949), Project Grudge (1949-1951), and Project Blue Book (1952-1969). The personnel of Sign took the subject seriously and assembled the necessary expertise to understand it, for example hiring astronomer J. Allen Hynek as a consultant to weed out instances of misidentified astronomical objects. Sign members made as conscientious an effort as resources allowed to investigate sightings and accepted that after removal of mistakes, errors, and hoaxes, a significant fraction represented unknown objects, perhaps even extraterrestrial visitors.⁴

Opposing forces within the Air Force soon quashed this pro-UFO verdict and replaced Sign with the ominously titled Project Grudge, where the requisite mission was to explain away every case as something conventional, no matter how far-fetched the explanation might have to be. One example of this type of "solution" applies to the Rogue River, Oregon, sighting of May 24, 1949. For two and a half to

three minutes five witnesses watched a discoid object pass at jet-plane speed, shining by reflection of the afternoon sun. Binoculars revealed a metallic object with an upright fin at the rear and other structural features. What made the case especially noteworthy were the qualifications of the witnesses—four of them worked in aviation design and one, a draftsman, provided detailed drawings. This case would later qualify as one of the twelve “unknowns” admitted by Project Blue Book Special Report No. 14, but the Project Grudge record card has a note that there was “no data presented to indicate object could NOT have been an aircraft. Conclusion: AIRCRAFT.” In this case they were right. They just failed to note that the object was unlike any known aircraft.⁵

Remembered as the “dark ages,” the Grudge era gave way to a brief enlightenment of investigations in search of genuine answers while Edward J. Ruppelt led Project Blue Book through the UFO wave of 1952. Too many UFOs and the publicity they attracted proved too much of a good thing, so that the Robertson panel meeting in January 1953 defined the role of Blue Book once and for all as little more than a public relations front. The panel’s experts declared the nonexistence of UFOs as axiomatic, leaving only public response as a matter of concern. The public might get too excited about flying saucers and interfere with legitimate military interests; therefore, the job at hand was to allay that interest and strip UFOs of the aura of mystery they had acquired. An effort to shore up the Air Force’s stance with scientific analysis appeared in the 1955 release of Project Blue Book Special Report No. 14. It provided a statistical analysis of UFO cases received by the Air Force and a pretext to declare that no evidence for a coherent phenomenon emerged—in other words, UFOs did not exist. Once again the conclusion given the public did not square with the findings of the study. In one example, the reports of unknowns were observed for a longer duration and by better-qualified observers than the knowns, a difference that argued for qualitative superiority and generic distinction for the unknowns. No mention was made of these supportive aspects of the study, and no exploration of the implications followed.⁶

The shadow of a second dark age settled for good over Blue Book, leaving its staff to soldier on as the voice of a policy that allowed only superficial inquiry and conventional solutions. Even as late as 1968 nothing had changed, as can be seen from the response to events from October 24 that comprise one of the most impressive UFO cases of all time. Just after midnight ground crews at Minot Air Force Base in North Dakota began to report various lighted objects and three hours later ground control contacted an approaching B-52 to be on the lookout for anything unusual. Radar on the B-52 soon picked up an object the size of a tanker approaching at an apparent speed of 3,000 miles an hour. The crew prepared to bail out, but the object stopped dead in the air. Meanwhile both radio systems aboard the aircraft failed until the plane was a few miles from its landing field and the object fell away. Ground radar indicated that the object had landed and control asked that the B-52 pass over the site to try to make visual contact. Circling at 1,000 feet, the crew saw an oval object on the ground, glowing like molten lava and several hundred feet in length, with a bumper-like structure projecting from the front.⁷

Here was a case involving Air Force personnel and facilities with an abundance of evidence, strangeness, and potential security concern: The B-52 crew and fourteen people on the ground reported seeing unknown objects. Both ground and airborne radar picked up targets, and photographs of the B-52 radar screen confirmed a large and robust return. The object traveled at exceptional speed yet stopped almost instantaneously; a large unidentified object rested on the ground while the B-52 circled it twice. In a highly unusual occurrence, the radio systems of the B-52 failed simultaneously. The plane crewmen exceeded even the usual high qualifications for a B-52 since they held instructor ratings for their respective specialties.

If ever a UFO case called for the Air Force to investigate it, this was the one. In fact Blue Book sent no one to interview witnesses or look at the corroborative evidence, yet soon provided an explanation based on a few written reports and phone calls. According to this long-distance wisdom, various bright stars and perhaps the B-52 itself confused witnesses into thinking they saw luminous objects in the sky or on the ground. Ball lighting or natural plasma somehow created the radar returns and interfered with the B-52 communications systems, while a temperature inversion, thrown in for good measure, added to radar and visual distortions. Case closed, despite the improbabilities inherent in this ad hoc scattering of unsupported suppositions and outright contradictions of some of the witness testimony. Old habits survived long after the demise of Blue Book as the Air Force, confronted in 1994-1995 with a

congressional inquiry, trumpeted crash dummies as the source of “alien bodies” stories associated with the Roswell crash, overlooking the inconvenient fact that the crash tests occurred many years after the Roswell events.⁸ The final “Roswell Report” also included a volume of documentation the size of a Manhattan phone book, perhaps on the reasonable assumption that information overload would discourage anyone from comparing conclusions with facts.

The Air Force version of UFO skepticism was a complete disaster with repercussions that still reverberate today. It amounted to a propaganda campaign rather than a search for truth, with contrived answers that served only to deny and deceive, not to establish honest explanations or further scientific understanding. As its most ironic outcome, this ploy to feed the public a sedative of fictitious explanations began with hopes that everyone would forget about UFOs, but ended up causing just the opposite result. As early as 1950 when Donald Keyhoe wrote the closing chapters of *The Flying Saucers Are Real*, he exposed that Air Force personnel could not explain a list of cases even to their own satisfaction and yet, he noted with growing amazement and exasperation, each file was “officially listed as answered.”⁹ Keyhoe was first to publicize the striking disconnect between the genuinely puzzling cases received by Project Grudge, and the often meaningless explanations coming out of it. Something was painfully wrong here, and Keyhoe’s conclusion that the Air Force had something to hide, probably something of great importance, became the basis for public distrust of official handling of UFOs and a starting-point for countless conspiracy theories. But the fault lay with the government, not with Keyhoe. He was only the messenger. A failure to level with the public from the outset fostered perceptions that UFOs were a secret rather than a subject for shared inquiry, and this blunder gave all forms of criticism a black eye for many people with an interest in UFOs.

Donald H. Menzel. A prominent Harvard astrophysicist, Menzel published three books on UFOs—*Flying Saucers* (1953), *The World of Flying Saucers* (1963), and *The UFO Enigma* (1977). He became the most audible spokesman for scientific UFO skepticism over nearly three decades. The thesis he promoted was that atmospheric phenomena like halos, mirages, and temperature inversions created unusual appearances in the sky, often by distorting stars or planets, and witnesses mistook these sights for UFOs. Popular beliefs about alien visitation reshaped ambiguous oddities into fully formed spaceships, while hoaxes accounted for any leftover reports that natural phenomena and cultural expectations could not explain.¹⁰

There was nothing wrong with Menzel’s basic premise that most UFO reports had a conventional solution. In fact he did ufology a service by delineating how astronomical and meteorological processes created sights often mistaken for UFOs. His shortcoming lay in a failure to realize when he was overreaching, and in this respect he failed quite a lot. Take for example his explanations for three classic cases from 1948: On January 7 Capt. Thomas Mantell was killed when his F-51 crashed after pursuit of an object described from the ground as like an ice cream cone topped with red, and by Mantell at high altitude as metallic and tremendous in size. According to Menzel, “The patch of light, with little question, was what we ordinarily term a ‘mock sun,’ caused by ice crystals in cirrus clouds....” Then on the night of July 23, two airline pilots, C. S. Chiles and John B. Whitted, watched a flaming, cigar-shaped object zoom toward their DC-3, then veer away. The witnesses reported structures like windows brightly lighted, a dark blue fluorescent glow along the fuselage, and flaming red-orange exhaust. Menzel classed this case with other reports of cigar-shaped objects seen from aircraft as examples of mirages, with air layers of different temperatures bending light rays to present a dark object when silhouetted against a bright horizon, and a lighted object when seen against a dark sky. Lt. George Gorman reported waging a “dogfight” between his F-51 and a small luminous object that lasted for 27 minutes on the evening of October 1. As Gorman pursued the object, it evaded him time and again through turns and dives with several near-collisions, maneuvering at both high and low speed. Menzel agreed that the object was controlled by intelligence. “However, the thought that controlled it was [Gorman’s] own. But the object was only light reflected from a distant source by a whirlpool of air over one wing of the plane.”¹¹

Menzel took a less single-minded, one-size-fits-all position later in his skeptical career. The famous Father Gill sightings at Boianai, Papua New Guinea, in June, 1959, include a large structured disk that hovered in the air near the mission while human-like figures walked around on an upper deck. The following evening the object reappeared and once again Gill and a crowd of natives watched as the figures

went about their work. On this second night when Gill waved, the figures waved in response. Menzel did not question Gill's honesty but decided that his failure to mention Venus meant that the planet, then brilliant in the sky, was the real source of the sighting, stretched out of shape by astigmatism in Gill's eyes and made to appear inhabited with busy workers by the movement of his eyelashes. Confirmation of these events by the other witnesses did not count because they were natives and likely swayed by the opinions of their priest.¹²

Menzel attained something like bugbear proportions among ufologists. His name became synonymous with sophistic armchair dismissal of all UFOs, done with cocksureness and sometimes with ridicule but rarely by reckoning with any part of the report unless it fitted his explanation. The explanations themselves were not entirely implausible. They did require a stretch of the imagination sometimes, but in the end they were not so much irrational as just plain wrong. Even by Air Force standards he missed the mark, since the Air Force explained the Mantell UFO as a Skyhook balloon, Chiles-Whitted as a bright meteor, and Gorman as a light-bearing balloon. Whatever the merits of these solutions, they suited the reported phenomena better than Menzel's mirages, as he admitted in his second book.¹³ His treatment of the Father Gill case exemplifies the dangers of expounding answers without knowledge of the facts. Gill was in fact aware of a brilliant star in addition to the UFO, and he wore his glasses. Many native witnesses made drawings of what they saw just after the event, and not all of them could have the same visual defects as Gill; and moreover, they had far more independence of mind than Menzel gave them credit.¹⁴ All in all his explanations of many significant cases failed to explain anything.

His approach has not entirely disappeared, since British skeptic Stuart Campbell continued similar analyses of reports into the 1990s, though with no better results. In one bizarre instance, Campbell finished his explanation of the Tremonton, Utah, UFO movies taken by Delbert Newhouse in 1952 with the conclusion that "it is almost certain that Newhouse filmed mirages of groups of stars."¹⁵ The number of stars visible in the noonday sun of the Utah desert just about equals the number of people who find this proposal credible.

The Condon Committee. Billed as a "Scientific Study of Unidentified Flying Objects," the University of Colorado study, funded by the Air Force for over half a million dollars and lasting from 1967-1968, expended much effort but ground out a disappointing travesty of science. The study grew out of Blue Book becoming more of an image problem than an image manager during the continuing UFO waves of the mid-1960s. A series of highly publicized sightings in Michigan during the spring of 1966 highlighted the ineptitude of official investigations, with the public outcry over J. Allen Hynek's offhand remark about "swamp gas" providing the ironic catalyst for a plan to turn UFOs over to civilian scientific investigation. Despite the Air Force making clear that its motive was to escape its UFO public relations role, organizations like NICAP and APRO pledged to support the study since it looked like the nearest thing to a rigorous and unbiased scientific investigation that UFOs had ever received.¹⁶

These initial high hopes soon descended to distrust and despair as the project chairman, physicist Edward U. Condon, gave out public remarks that made clear his predisposition against UFOs. Then the "trick" memorandum surfaced, the administrators fired several key personnel and others resigned in protest. The project lost any pretense to an impartial examination of evidence and Condon's foregone conclusions in the final report, issued at the beginning of 1969, stated that the project found no evidence for a genuine UFO phenomenon and that science stood to gain nothing by further investigation of UFO reports.¹⁷

If these conclusions came as no surprise, they were made all the more bitter by actual findings that contradicted much of what Condon wrote. The report comprised a massive volume, some of it made up of peripheral material and padding, but much of it consisting of case investigations and analyses. Between a fourth and a third of the cases investigated by project members remained unexplained, and even some "explanations" read like a call for further science, like "some almost certainly natural phenomenon, which is so rare that it apparently has never been reported before or since."¹⁸ These unknowns include some of the most provocative and evidential cases, including instances with photographs or radar tracking. The real surprise is how inaccurately the conclusions reflect the findings of the study, and how readily other scientists and the media accepted this misrepresentation without question or closer inspection.

Far from being a waste of time and resources, the report holds considerable value for understanding attitudes, perception, radar, atmospheric phenomena, photographic trickery, and a host of other matters important to the study of UFOs. A more personalized treatment of the investigation experience can be found in *UFOs: An Insider's View of the Official Quest for Evidence* by Roy Craig, a chemist who became one of the most active investigators for the project. He explained how a mysterious buzzing sound in the air turned out to be the mating call of a species of small owl, and how Venus, Jupiter, and Sirius gave rise to several UFOs along with considerable local excitement. Perhaps most valuable was a reminder of how far some people would go to hoax a UFO. A Canadian mechanic named Michalak claimed to have encountered a UFO in a remote area and received a burn on his chest from the encounter. Detection of radioactivity in the region of the sighting added apparent support to the story. It then fell apart as Michalak led the investigators around in circles trying to find the landing site, while the radioactivity turned out to be the natural sort caused by uranium ores in the area. A more surprising example came to light as Craig examined photographs taken by a retired military officer who seemed quite sincere in his account of filming the UFO. Only when Craig discovered discrepancies in the sequence of the negatives did any suspicions arise, and he suddenly found himself persona non grata with the officer and his wife. Even though Craig sympathized with Condon and dismissed UFOs, he too admitted (albeit grudgingly) one case for which he could find no answer, an impressive radar-visual observation of a luminous object by the crew of an RB-47 for over an hour in 1957.¹⁹

Later in 1969 the Air Force closed down Blue Book and declared that the military no longer investigated UFOs. With this action the Air Force seems to have gotten what it wanted out of the project, along with a bonus of the media and scientific establishment discrediting UFOs before the public. For ufologists left smarting over the betrayal of their legitimate hopes for a fair shake, the project unfolded as a continuation of official policy voiced by Blue Book ever since 1953. This policy meant the subject would be treated only with lies, ridicule, and distortion, and now not even science could be counted on as an impartial judge, given the example of a study wherein science failed, prejudice triumphed, and opportunities went to waste. The Condon fiasco marked the climax and denouement of the Air Force approach to UFOs. This approach was skeptical in its results yet had nothing to do with philosophical skepticism or even a caricature of skepticism; rather the Condon project expressed denial as doctrine, the same continuity of policy that had won out at the expense of truth all along.

Ufology recovered from the Condon setback and actually enjoyed something of a golden age during the 1970s and 1980s as Hynek became a public advocate and new organizations like CUFOS set out to remedy the failures of government and science. Yet in a sense the enemies of ufology could not have done a better job of hindering UFO research if that had been their deliberate goal. The critics of UFOs lost so much credibility with proponents that an all but absolute polarization resulted. Proponents closed ranks and refused to listen even to reasonable objections, some stubborn enough to defend questionable claims even when they went to bizarre extremes (anyone remember the alien bases under New Mexico or the alien autopsy film?), until ufology looked like nothing more than a popular belief devoid of scientific moorings. As ufology became its own worst enemy the skeptics could attack the practices of ufologists and pay less attention to UFOs themselves. Instead of finding a path to scientific acceptance ufology alienated itself ever further from the scientific mainstream.

The Skeptical Opposition—The CSICOP Era.

Even as ufologists hardened their hearts and minds against any form of negative criticism, a more formidable generation of UFO skeptics honed their knives under the aegis of an organized movement against alleged pseudoscience and irrationality. In 1976 a number of scientists, academics, and journalists formed a cover organization for skeptical response to the growing prominence of scientifically questionable ideas in popular culture, the Committee for Scientific Investigation of Claims of the Paranormal (CSICOP), now the Committee for Skeptical Inquiry (CSI).²⁰ A bimonthly magazine, the *Skeptical Inquirer*, and a press, Prometheus Books, provide publishing organs for the investigations and viewpoints of skeptical researchers. The concerns of CSICOP/CSI cover a broad range of topics such as medical quackery, fringe archaeology, ritual abuse, creationism, ghosts, parapsychology, and cryptozoology, but UFOs have held and continue to hold a spot of special affection. Several CSICOP-affiliated UFO skeptics deserve special mention.

Philip J. Klass. An electrical engineer and editor for *Aviation Week and Space Technology*, Klass brought a background of education, experience, and familiarity with a broad range of aeronautical equipment to his UFO investigations. In the late 1960s he proposed that detached plasmas might account for some sightings, though this proposal won little support and he soon abandoned it in favor of a simpler key to the UFO mystery. His investigations convinced him that human error explained most UFOs and over 25 years, through a series of books, articles, and his own *Skeptics' UFO Newsletter (SUN)*, he pursued conventional solutions for UFOs with tenacious investigation and informed reasoning. He confronted proponents on their own turf by attending MUFON conventions and relished his role as “skunk at the garden party.” Phil Klass was the most vocal and most feared UFO skeptic of his generation.²¹

Klass never hesitated to attack the toughest cases. In his first book as an investigator, *UFOs Explained* (1974), he devoted extensive attention to the 1957 RB-47 radar-visual case that had stumped the Condon investigators and become a favorite “best-evidence” case for ufologists. The aircraft with three crewmen and three radar operators had flown from Kansas to the Gulf of Mexico to check out onboard equipment prior to overseas deployment. On the return trip as the plane crossed the Gulf Coast into Mississippi about 4:30 a.m., one operator picked up a signal with the frequency and characteristics of a radar emission. Strange to say, this signal traveled up-scope, approaching from behind the RB-47, passing it and finally crossing in front of it. Then around 5:10 a.m., after the plane turned west into Louisiana, a bright object approached almost head-on and the pilot warned that he might have to take evasive action before the object vanished to the right of the plane. Twenty minutes later radar again picked up signals from an object to the north that seemed to pace the aircraft, and at 5:39 the pilot spotted a bright light in the same direction as the signal. The one signal source then became two, and at this point the pilot turned the plane to pursue the light, now in the Dallas-Fort Worth area. Ground radar also confirmed the presence of a target. It stopped moving and disappeared as a visual object and as a radar target for both ground and airborne radar at 5:50. Thinking he had overshot the UFO, the pilot turned the plane and radar contact from the RB-47 was restored, though no further ground-radar contact was made. Four minutes later the plane appeared to overshoot the UFO again. At 5:58 the pilot spotted an unusual light though not in the direction of the radar contact. After a brief attempt to intercept this light, the plane, running low on fuel, returned to base and lost radar contact with the unknown while passing near Oklahoma City.²²

Klass questioned the assumption that all these events were interrelated. Taken one at a time, the strangeness of the incidents unraveled and conventional solutions became apparent. The initial radar incident posed two puzzles—the remarkably radar-like emission from the supposed UFO and its movement ahead of the RB-47 at what had to be supersonic speed. Strange as they seemed on the surface, both problems resolved if the plane tracked actual radar, and he learned that a unit near Biloxi emitted a signal frequency to match the observations. A commonplace malfunction of the aircraft’s detectors reversed the apparent direction of the source, so that the up-scope movement of the UFO amounted to nothing more than the ground radar receding into the distance as the plane flew by. The radar at another air defense station in Duncanville, Texas, created a pattern of coverage and gaps that corresponded with striking fidelity to incidents of radar contact and silence for the UFO throughout the plane’s passage over Louisiana and Texas. Moreover, plots of positions for the UFO during various radar contacts over those two states converged on the Duncanville locality. Even the “doubling” of returns was commonplace when a ground object reflected the radar. The ground radar picked up only an airliner arriving early in the Dallas area. A bright meteor was responsible for the first visual observation and bright stars in the same direction as radar contacts deceived the flight crew.²³

Ufologist Brad Sparks has reexamined the RB-47 case and contends that the facts do not present such a tidy case as Klass leads his readers to think. He concludes that this case offers positive scientific evidence for the existence of UFOs. In 2012 another skeptic, *Tim Printy*, who continues Klass’ mission on a website entitled “SUNlite,” faults the timings and positions necessary for Sparks’ argument to work and concludes that Klass made some mistakes, but most of his argument is sound and his conventional solution stands as the right explanation for the RB-47 “UFO.”²⁴

This case remains contentious and liable to reopening in light of new information or new analysis, but if anything, such continuing disputation serves as a tribute to the high explanatory standard that Klass

set. At his best he was not satisfied with secondhand information or armchair proclamations. He interviewed and corresponded with witnesses, pursued documents and records, consulted with experts and checked the essential facts. His argument was based on the best information available and a thorough understanding of the practical operation of the technology involved; the result was compelling, tight and seamless within and subject to challenge only if new facts emerged or if some reinterpretation could overturn his factual premises. Klass continued his efforts to shoot down the best UFOs, some that lent themselves to detailed technical analysis like the Coyne helicopter encounter of 1973 and others that led him to question the truthfulness of witnesses, like the Pascagoula and Walton abduction cases. For ufologists Klass was not often at his best and they faulted him for resorting to doubtful speculations when he lacked solid evidence, for character assassination and distortion of facts, anything to win an argument. Right or wrong, he confronted ufology with a formidable skepticism that was light years apart from the institutionalized ineptitude of Blue Book. Some of ufology's experts could oppose him toe-to-toe, but there was clearly a new sheriff in town.

James E. Oberg. Oberg, a computer engineer and writer on space exploration, worked extensively with NASA during the space shuttle era. This background made him a natural to explain UFO sightings caused by rocket launches and reentries, as well as sightings reported by—or attributed to—astronauts. In his book, *UFOs and Outer Space Mysteries* (1982) and his "Space Age Myths and Legends" website (www.jamesoberg.com), he tackles a swarm of tales and rumors surrounding supposed UFO sightings by the Apollo 11 astronauts on their way to the moon. The substance behind these rumors, slight as it is, lends itself to ready explanation as ice crystals and insulation flaking off the capsule, and some photographs of light reflections on the capsule windows. The larger story resides in the proliferation of fake yarns and spurious communications interceptions that strewed the pathway to the moon with countless alien interlopers. Oberg sorts through the multiple acts in this nonsensical circus with keen-eyed precision. In the same book he recounts the story of the Soviet "jellyfish" UFO of 1977. The extraordinary appearance in the sky soon had its explanation as the launch of a secret spy satellite, but in the absence of this information in the Soviet Union (aggravated by lame false explanations from the government) the event continued to excite widespread and growing rumors among the public. Before long the rumors spread to the West and enjoyed a second career of proliferation even though most serious ufologists accepted the rocket launch explanation.²⁵ Again Oberg traces the story to draw a double lesson—that many spectacular UFO events resolve into conventional solutions, and that the event often acquires its mystery only in media and believer treatments.

Robert Sheaffer is a professional writer whose wide-ranging interests in the field of paranormal claims have filled his regular column in the *Skeptical Inquirer* for some 30 years. UFOs have remained one of his favorite topics. His book, *The UFO Verdict* (1981; new edition titled *UFO Sightings: The Evidence*, 1998) traces Jimmy Carter's 1976 UFO sighting to the planet Venus, though only his tenacity in researching the actual date of the observation proved that the planet was actually visible.²⁶ His familiarity with astronomy served him well when attempting to explain several UFOs associated with the local wave around Exeter, New Hampshire, in 1965. He plotted the reported times and positions against the nightly movements of Jupiter to build a strong case that the planet was the bright object responsible for these sightings.²⁷ He considered a 2010 film of flying objects from the Chilean Air Force and concluded, along with other critics, that the fast-moving UFOs were nothing more than a species of shiny green houseflies darting in front of the camera lens.²⁸

Sheaffer, Tim Printy, and several other skeptics affiliated with CSICOP/CSI or active on the Internet participate in the three illustrative cases to be considered in the next section of this paper:

James McGaha served as an Air Force officer and pilot then became an astronomer. His familiarity with aviation and astronomical phenomena grounded him in two specialties that have proved of value in his work as a UFO skeptic.

Joe Nickell has served as a private investigator and stage magician, as well as a teacher of writing with a doctorate in English. This eclectic background has prepared him to handle both the human and information-gathering sides in his role as a skeptical investigator of a broad range of paranormal phenomena.

Tony Ortega was a journalist for the Phoenix *New Times* in 1997. He took advantage of his on-the-scene position to investigate the Phoenix Lights incident and expose misleading claims surrounding the

excitement. Since then he has continued to promote skeptical solutions for supposedly mysterious phenomena.

Benjamin Radford has served as editor of the *Skeptical Inquirer* and has specialized in the skeptical investigation of cryptozoological claims.

Brian Dunning posts regular skeptical investigations on his “Skeptoid” website (<http://skeptoid.com>), stating that “Skeptoid is a weekly science podcast dedicated to furthering knowledge by blasting away the widespread pseudosciences that infect popular culture and replacing them with way cooler reality.”

A final mention should go to the critical non-skeptic, *Allan Hendry*. Hendry, with a background in astronomy, served as the paid, full-time chief investigator for CUFOs from the mid-1970s till 1981, and during this time carried out field investigations of UFO cases with a thoroughness seldom seen before or since. He published *The UFO Handbook* in 1979 as a report on his experiences and a guide to the sort of errors commonplace in human observation and conception. Though he accepted that some fraction of cases remained intriguing unknowns, most UFO reports had conventional explanations and even a stimulus as familiar as the moon could mutate into a spaceship in the minds of excited witnesses. His book remains essential reading for anyone interested in UFOs—but unfortunately seldom read.²⁹

Three Case Studies—Phoenix Lights, Yukon, Exeter

To speak of a UFO case means a dossier of facts and interpretations, with the file growing as the number of witnesses and complexity of events increase. The factual side consists of witness descriptions; supporting evidence such as photographs or instrumental readings; and matters that investigators may determine from external sources, such as time, weather, and visible planets, or by direct inference from witness testimony, such as distance, size, and speed of an object. Interpretation covers the effort to relate the facts to one another and form a conclusion about what they mean. The case as we can know it consists not of absolute objective truth but of stories, and each narrator tells a version rendered unique by facts included or excluded, elements highlighted or downplayed, and interpretational choices that fit observations into one understanding or another. Each version reconstructs the event, now lost to sight and passed into imperfect memory of the witness, or imagined by an outsider who sees only through the testimony of the witness and personal preconceptions. Every reconstruction postulates an informal theory about what really happened, a version of events that approximates the truth with greater or lesser success.

For every UFO at least two interpretations arise, whether spoken or not. One tells the “ufological story” by combining fact and theory to portray a mysterious object with unconventional properties, perhaps mechanical qualities, and at least tacitly, an extraterrestrial origin. An opposing “skeptical story” rereads the same facts as an account of conventional phenomena like aircraft, the planet Venus, or satellite reentry, misunderstood by the witnesses or distorted by errors and expectations. Both theories depend on the same basic facts, though the lines between fact and interpretation are neither sharp nor firm. Eyewitnesses often mix elements of interpretation with their descriptions to lend their testimony a confusing slant, even if unintended. Significant points of contention will hinge on how to understand witness testimony itself. Ufologists are typically willing to take the statements at face value as the closest we outsiders can get to the original experience, while skeptics regard the witness as prone to error and subject to expectations or external influence. The skeptic’s skepticism of even observational “facts” obliges an interpretation of basic testimony that seems to the ufologist like a rejection of anything mysterious to save a faith in conventionality; and between such opposite poles flash the sparks of incompatible opinions.

The Phoenix Lights, Phoenix, Arizona, 1997

With numbers of witnesses estimated as high as 10,000, the UFOs that appeared over Arizona on the evening of March 13, 1997, created perhaps the greatest mass sighting of all time. Two events stand out as especially spectacular: The first occurred between 8:00 and 8:45 when many witnesses from Prescott to Phoenix to Tucson watched the slow flight of five lights in a V-formation; the second followed at 9:50-10:00 when a curving line of nine brilliant lights appeared one by one, hovered low in the sky southwest of Phoenix toward the Estrella Mountains, then disappeared one by one. Many witnesses reported that the lights were attached to an enormous chevron or boomerang-shaped craft. A number of

photographs and videotapes captured the lights and later became media sensations, though news of the sightings remained local until June when *USA Today* and CNN publicized the story. People from all walks of life reported their observations, even the governor of Arizona, Fyfe Symington III.³⁰

The Reported Facts. Witnesses began to report sightings even as the events were ongoing and have continued to step forward with testimonies even years after the fact. It was, to say the least, a confusing night, and the following selection of examples offers only a first approximation of the scope of events:

5:30. Three “V”-shaped objects and another of triangular shape hovered over the Crown King mountaintop and disappeared when two jets approached from Luke AFB.

7:30. Nine or ten lights hovered over the Superstition Mountains east of Phoenix.

7:50. “V” formation of five to seven lights attached to a V-shaped craft seen in Henderson, Nevada, headed toward Arizona.

7:45-7:55. Family in Stanfield watches for 10-12 minutes while a V-shaped object with five lights passes toward Phoenix.

7:50. Earliest reports of low-flying “V” formation of lights in the Prescott Valley; turned south.

8:00. Five lights in a V-formation seen in Kingman, Arizona. A row of lights observed from Scottsdale a little after 8. Earliest reports from Phoenix.

8:15. A police officer in Paulden, Arizona, saw a cluster of five orange lights flying southward; lights seen from Glendale.

8:15-8:17. Multiple reports from the Prescott area of 4-7 lights in a V-formation. A huge slow-moving chevron-shaped craft bearing five white lights approached the Prescott Valley from the northwest. The lights shifted into an arc formation and turned red as the craft veered toward Phoenix and shot off at high speed. Witnesses in Phoenix watched the arc formation approach at high speed then saw the lights revert to the V-formation as they slowed down to pass over the city at low altitude. The craft later zigzagged and hovered around the valley before turning south to follow Interstate-10. Two F-15s attempted to intercept one or more mystery objects at this time.

8:20-8:30. Several reports from Tempe.

8:25. A huge wide-angled “boomerang” craft bearing three groups of three lights passed the Prescott area toward Phoenix. An airline pilot reported the lights to Sky Harbor International Airport in Phoenix and an amateur astronomer dismissed them as a formation of airplanes.

8:28. “V” formation of lights videotaped over the Phoenix metro area; hovered over a car full of witnesses on I-10 and was reported over the Oracle area. The formation split up and the lights went in separate directions around Tucson. Meanwhile individual lights crossed the Phoenix metro area, and some appeared to dock with the large craft seen that night.

8:30-8:45. The largest craft, estimated at two miles wide, was a black structured triangle that appeared over North Phoenix with dozens of lights and apparent windows. Silhouettes of people in the windows were reported. The craft passed southward, sometimes lighted and sometimes in darkness.

8:45. Diamond-shaped formation of yellow lights reported from Saddlebrook, north of Tucson.

8:50-9:10. Witnesses in Chandler reported a narrow triangular vehicle with structural features and lights; lights seemed to leave and then return to it. The craft appeared to split in two, according to a witness at Gilbert.

9:30. Two military jets approached a wide-triangle UFO over North Phoenix.

9:50. Arc pattern of lights appeared over the Gila River area.

10:00. Second appearance of arc formation southwest of Phoenix, in some cases described as over the Gila River and in others as behind the Estrella Mountains. Several videotapes recorded these lights and repeated showings in the media elevated this episode to an iconic image.

10:00. A truck driver who had watched two amber lights for two hours along I-17 saw the lights stop and hover over Luke AFB. Three F-16s headed for the nearest object, which shot straight up and disappeared.

10:20. Several witnesses reported a giant disk, perhaps a mile wide and with lights around its perimeter, from Scottsdale Road. It turned toward the airport and reflected city lights off its underbelly before disappearing behind South Mountain.

10:45. Large triangle with V-cut to its trailing edge reported in Phoenix area.

10:50. Giant chevron object passed over north Phoenix.

11:00. Reports from Tucson, Casa Grande.

2:00 a.m., March 14. Hovering lights in “V” formation reported at Rainbow Valley. [Further reports from Nevada, New Mexico, and Sonoma, Mexico, on March 13 and the days preceding and succeeding that date, sometimes receive mention as part of the Phoenix Lights mystery. Warning: This summary reflects an understanding of events as due to multiple UFOs, whereas alternate interpretations simplify this picture. See Appendix A for a more detailed list of sightings.]³¹

An outstanding qualitative description of an eyewitness sighting comes from Tim Ley, who with his wife, son, and grandson watched the passage of a UFO from his home north of Phoenix. Shortly after 8 p.m. his ten-year old son spotted a small arc of five white lights floating in the northwestern sky. As the family watched the lights draw nearer, the pattern changed shape into an “A” without the lower bar. Ley suspected military helicopters at first, but the lights kept a perfectly rigid pattern for over 15 minutes and he decided the lights must belong to one rigid structure. By the time the object was about a mile away the witnesses could see the outline of a dark, sharp-edged shape against the stars, a shape that reminded him of “a carpenter’s square set at 60 degrees.” One light was set near the forward tip and two each on the two arms, all equally spaced and symmetrical. He described the lights as 6-7 feet in diameter and of a soft whiteness that did not illuminate the ground. For a moment one light flickered and seemed to divide into two. The object was silent as it passed perhaps 100 feet high and traveled 30 miles per hour, one arm directly overhead and estimated at 700 feet long, the entire craft so enormous that the witnesses had to turn their heads to take in the whole sight. A wavering motion distorted the stars near the object, as if they appeared through thick glass.

As the arm passed directly above, Ley saw that it was squared off with sharp edges. The boys ran into the street and yelled that they should follow the object in the car. While the object departed to the southeast, one light again seemed to split in two and waver for a moment before becoming steady again. The craft passed through a gap in the mountains and continued over Phoenix, reflecting the lights of the city from its surface and becoming lost among the aircraft lights and atmospheric haze several minutes later. Ley reflected that this object was an extraterrestrial craft and its occupants deliberately displayed their technology as a way to communicate with ordinary people, to send a message that they were here to help the world. He created a series of computer images to illustrate the craft and its appearance throughout the sighting.³²

The governor stated that between 8 and 8:30 he saw “a massive, delta-shaped craft silently navigating over the Squaw Peak in the Phoenix Mountain preserve. A solid structure rather than an apparition, it was dramatically large, with a distinctive leading edge embedded with lights.... As a pilot and a former Air Force officer, I can say with certainty that this craft did not resemble any man-made object I had ever seen.”³³

One major attraction of the Phoenix Lights was the photographic evidence collected, and especially the videotapes. At least seven videos recorded the 10:00 event and this imagery appeared in media news and documentary presentations to become iconic of the Phoenix Lights. Only one low-quality video showed a V-shaped formation of lights from earlier in the evening, the tape recorded by Terry Proctor in Scottsdale about 8:30. Even casual inspection of the footage from both events showed that independent motion was apparent among the lights, meaning that they were not attached to a larger rigid structure.³⁴

Official Explanations. Initial inquiries to Luke Air Force Base met with denials that any military aircraft were responsible for the lights, and even denials that the base had received any inquiries about mysterious lights. Many people protested that they had contacted this facility. The Air Force soon reversed itself and admitted that aircraft had dropped flares as late as 10:00, but within the Barry Goldwater proving grounds many miles beyond the Estrellas, not near Phoenix. In July an Arizona National Guard public relations officer, Capt. Eileen Bienz, discovered that flares had indeed been dropped at 10 p.m. by A-10 aircraft over test ranges southwest of Phoenix. Members of the Maryland National Guard confirmed that they had used flares in maneuvers that night, and about 10:00 jettisoned unused flares at an altitude of some 15,000 feet.³⁵

The Ufological Investigation. Ufologists' efforts to investigate the Phoenix Lights consisted of a report-gathering stage, a collation and interpretation stage, and an explanatory stage. Calls began to arrive at Peter Davenport's National UFO Reporting Center (NUFORC) even as the events unfolded. Witnesses phoned in dozens of reports over the next several days, and for years to come people continued to add their observations to his repository. Another magnet for reports was MUFON. Field investigator William F. Hamilton collected accounts and interviewed witnesses then published perhaps the first article about the Lights in the ufological literature in the May 1997 *MUFON UFO Journal*. He too witnessed the 10:00 lights and a friend, Tom King, took one of the well-publicized videos.³⁶

Once investigators caught their breath a realization set in that many people were reporting the same object. Hamilton sorted through the confusion to identify seven types of UFOs: In two cases the UFOs were formations of orbs (individual lights), the first group seen over the Superstition Mountains at 7:30, the Gila River at 9:50, then south of Phoenix at 10:00. The second group, a V-formation of 5-7 orbs, started in the Las Vegas area and flew southeast at low altitude over the Prescott Valley at 7:50, the Phoenix metropolitan area by 8:28, and then on to Oracle and Tucson. Four cases involved very large triangular objects with lights attached, one a mile-long chevron with five lights that appeared over the Prescott Valley at 8:15 and soon after over Phoenix; another with boomerang or wide-V shape and bearing five groups of three lights passed Prescott then visited Phoenix at 8:25; another triangular craft with lights at each corner appeared over Chandler; and a black triangle estimated to be two miles wide, with a light at each wingtip and windows along the leading edge, crossed northern Phoenix between 8:30 and 8:45. The final distinct type was a mile-wide disc-shaped UFO that reflected city lights off its underbelly in its flight over Phoenix at 10:20.³⁷

Other interpretations of the data further consolidated the sightings to recognize, for example, that the V-formation of lights first seen near Las Vegas was probably the same object seen to bear five groups of three lights as it flew over Phoenix at 8:25. Given the margins for error in reported times of observation, this same object might account for the lighted triangle over Phoenix between 8:30 and 8:45. The number of UFOs in the sky that night remains a matter of controversy. The media simplified events to leave only the passage of lights in a V-formation from Prescott to Phoenix and on to Tucson between 8:00 and 8:45, and the appearance of an arc of lights southwest of Phoenix at 10:00.

Another Arizona MUFON investigator, Richard F. Motzer, noticed a peculiarity in the distribution of witnesses—several videos recorded the 10:00 lights and they became celebrated images of the events of the evening, yet few people reported these obviously brilliant lights. A disproportionate number of witnesses reported only the 8:30 lights or objects, and Motzer soon recognized a likely reason. The people who videotaped the 10:00 lights all resided in elevated areas surrounding Phoenix, whereas people living in the populous valleys saw nothing of these lights. He plotted their directions from several scattered photographers on a map and the lines converged on a point beyond the Estrella Mountains. Not only would flares disappearing behind the mountain peaks account for the lights winking out one by one on the tapes, but the same mountains would block view of the flares entirely for people at lower elevations. Motzer concluded that the Air Force answer was the correct one, and flares dropped during a training exercise beyond the Estrellas were responsible for the 10:00 lights. He also suspected that many witnesses of earlier lights saw a V-shaped flight of lighted aircraft, just as the Air Force said, and the “sighting of the decade” was conventional after all.³⁸

Later analyses confirmed Motzer's findings for the 10:00 event. A video analysis expert for Cognitech, Inc., examined the images for the Discovery Channel. He superimposed the night footage of the lights with daytime footage of the mountains taken from the same positions as the witnesses, and the disappearance of the lights coincided with their positions when dropping behind the ridgeline.³⁹ Bruce Maccabee, an optical physicist, triangulated the distance of the lights in two videos and arrived at 70-80 miles, well beyond the Estrellas and corresponding to the military test area where aircraft dropped their flares on March 13. The appearance, spread, and motion of the lights also suited flares, and Maccabee concluded that they probably explain the videotaped sightings from 10:00.⁴⁰

Numerous objections met the flare explanation. Some claimed the lights were in front of the mountains, that the color was wrong for flares, that military flares differed in number and motion, and that

flares from the test range were not regularly visible from Phoenix. Maccabee addressed these objections in an addendum to his initial study and found convincing solutions consistent with his earlier conclusions. Jim Dilettoso claimed that his organization, Village Labs, developed a scientific technique for spectrum analysis of the video images, and concluded that no flares or any other manmade source was responsible for the lights. He became a media celebrity, but experts roundly dismissed his techniques as faulty and his conclusions as unfounded.⁴¹

In contrast to the considerable effort expended on the 10:00 lights, ufologists paid little critical attention to the earlier events. Most ufologists accepted anecdotal testimony of vast triangular craft bearing lights as proof that something truly strange had happened. The aircraft possibility and an alternative proposal that pranksters sent up fire balloons in response to the first reports met with little or no response.

The Ufological Story. The Phoenix Lights experience was confusing and complex, unfolding over several hours and hundreds of miles as witness after witness glimpsed some brief part of the larger whole. As a consequence the story began as fragmentary personal accounts rather than a single narrative and evolved through recurring attempts into an interconnected unity.

1. The first version simply recognized a multitude of sightings leading to the appearance that a whole armada of UFOs invaded Arizona skies on the night of March 13.
2. A second version emerged as investigators winnowed down the UFOs to a few distinctive types and recognized a pattern of movement across Arizona from the northwest to the southeast.
3. As a matter of convenience and popular appeal, the simple version that restricted events to a V-formation of lights between 8:00 and 8:45 and a line of lights at 10:00 came to dominate most discussions of the Phoenix Lights.
4. Controversy gathered around the 10:00 event as evidence pointed to military flares over a distant proving ground as the source of the lights most often videotaped and aired on TV. A strong case led to widespread consensus with only a few holdouts.
5. Although the 10:00 lights dropped from the UFO story, the earlier sightings provided a robust mystery with multiple witnesses adamant that they saw something more remarkable than flares and ready to elaborate on their sightings. In the detailed accounts of Tim Ley and others, the Phoenix Lights grew into more than mere lights as they became attachments on an enormous V, chevron, or boomerang-shaped structure, the dark, silent mass of which blotted out the stars. The testimonies differed on certain points—some people saw the lights as independent objects, others felt that they were connected, and still others reported lights attached to giant triangular forms; some declared that the lights flew at high altitude while others stated that they passed low and slow overhead. Several witnesses drew illustrations that solidified the image of an unmistakably artificial craft crossing the night sky [see Appendix C].

Less widely reported claims that fighter jets attempted to intercept the UFOs garnished the story with sensational “proof” for the extraordinary importance of the lights.⁴² The reticence of the Air Force to admit that anything unusual happened and denial of any radar contact further hardened popular distrust of authorities. Even the flare explanation itself turned into conspiratorial fodder when assertions circulated that the military dropped flares in a deliberate attempt to discredit the real Phoenix Lights.

The Skeptics’ Investigation. Like the more inquiring ufologists, skeptics followed up on the plausibility of the Air Force’s flare explanation and arrived at the same conclusions: The famous videos showed distant flares dropped at high altitude by the Maryland National Guard. Both skeptics and most ufologists agreed on this solution to the 10:00 event. It was over the earlier events that the two camps divided. Where ufologists dropped all discussion of the aircraft explanation as they settled on the 8:00-8:45 events as real UFO activity, several skeptics built a case that the “V” was nothing more than a conventional fly-over.

Tony Ortega, a writer who published the results of his investigations in the *Phoenix New Times*, sailed against the tide of popular opinion to blame the lights on a formation of jets at high altitude. This conclusion was not just supposition. Ortega backed it with some telling evidence. A young amateur astronomer with a ten-inch reflector on a Dobsonian mount observed the formation at 60X (probably 43X) magnification and easily resolved each light into a pair of lights attached to the wings of aircraft. This

observer was experienced in observing passing aircraft and the flexible mounting of his instrument made such tracking easy. A second strand of evidence in favor of jets was the progression of reports of a V-shaped formation from Prescott at 8:15 to Tucson about 8:45, meaning the formation flew at a jet-like speed of 400 miles per hour. The Terry Proctor video showed lights in the “V” moving in relation to one another, behavior appropriate for a formation of separate aircraft and once again confirming the conventional identity of the lights.⁴³

Another skeptic, Tim Printy, added that several other witnesses recognized the lights as aircraft. One was Rich Contry, an Air Force veteran, who left his car to examine the V-formation with binoculars and saw five aircraft with their running and landing lights on. The cockpit crew of an American West airliner sighted the formation of lights at 8:30 and learned from air traffic control in Albuquerque that they were seeing a flight of CT-144s. Printy went on to calculate that the aircraft flew at an altitude of 19,000 to 40,000 feet at a speed of at least 300 m.p.h., which would suit the timing for the V-formation as it passed from near Las Vegas across Arizona to Tucson. Lack of radar contact at the Sky Harbor (Phoenix) airport could have resulted from only the lead aircraft providing a transponder signal and the traffic control operators honestly not relating it to the reports of a V-shaped object, or perhaps the military aircraft flew so high that they had no legal or practical reason to provide a signal at all.⁴⁴

The Skeptical Story. Lured out at nightfall to look at the Hale-Bopp comet, many people paid more than usual attention to the night sky and took notice of a flight of lighted military aircraft as it passed over Arizona. The aircraft seemed to fly slowly due to their high altitude even though they moved at jet speed, and a common perceptual error known as “contour illusion” provided the appearance of a dark object behind the lights. In this way human imagination connected the separate lights of the five unseen aircraft into running-lights attached to the bottom of an enormous but illusory V-shaped craft.

Some people, alerted about 10:00 by local news that UFOs had appeared over Phoenix, went out to search the skies and a few living at higher altitude spotted flares dumped by aircraft finishing a military exercise some 60-80 miles from the city. The videos show the brilliant lights in typical flare arrangement and blinking out as they descend behind the mountain ridges of the Estrellas. Repeated showings of these videos by the media convinced many people that a UFO invasion had occurred, and since the mountains typically hid flare drops, most people in the lower valleys were unfamiliar with the sight. All other supposed UFOs that night resulted from different perspectives and descriptions of these two events, confusion over the timing or a readiness to relate some mundane appearance like lights from air traffic to the so-called UFOs once the subject became newsworthy.

Bottom Line. The Phoenix Lights continue to thrive as a genuine UFO event in ufological literature, the media, and public sentiment. Leslie Kean treated the case as a major UFO incident in her 2010 book, *UFOs: Generals, Pilots, and Government Officials Go On the Record*.⁴⁵ Witnesses continue to step forward, and remain adamant that they saw a structured craft with lights rather than flares or any other conventional sight. Yet an abundance of facts lie on the table for anyone to see, and those facts point with unmistakable directness toward the earthly proposals offered by the Air Force, Richard Motzer, Tony Ortega and his fellow skeptics.

Nearly all investigators and an overwhelming amount of evidence affirm that the 10:00 lights were distant military flares. Public opinion remains suspicious, but debate is largely over and these sightings no longer pose as unknowns. The earlier events, especially reports of huge lighted V-shaped craft, are now synonymous with the Phoenix Lights and witnesses as well as ufologists have dug in to defend these objects as true UFOs. An explanation of these sightings as lighted aircraft flying in a V-formation has sound credentials as well, even if as compelling an analysis as Bruce Maccabee performed for the flare event was not possible. This answer aired at an early date and has circulated with added evidence for support, yet ufologists, the media, and popular opinion have surrounded the V-lights with an aura of mystery largely unchallenged except by a few skeptics. The failure of internal criticism to reckon with a plausible conventional possibility is both striking and deserving of further consideration.

Two unfortunate errors combined to enflame public resistance against conventional explanations. One was confusion of the 8:00 and the 10:00 lights, two unrelated events that media treatment and public

understanding combined into episodes of a unified occurrence. The second was widespread distrust of conventional explanations by people convinced that something extraordinary had happened, a distrust nurtured in large part by failures to distinguish two events with separate causes. The flare explanation as the answer for all sightings met with indignation from many witnesses who insisted that they knew what flares looked like and the earlier lights were not flares. Brian Dunning's otherwise lucid argument for the role of flares on the "Skeptoid" website overstepped in this way and undercut the credibility of the skeptical case. He included a letter from a woman whose protest illustrates the problem: She wrote that she and her husband were flying that night and saw flares to the west over the Goldwater range. But besides this familiar sight, "there was a second set of lights that night—the V-shaped formation.... That formation, whatever it was, flew directly over us at a much higher altitude than the flares." She thought it might have been a military flight, but yes or no, she concluded, "please, don't insult our intelligence by telling us they were flares." Instead of reckoning with these two distinct observations, he dismissed them with a brusque "The Phoenix Lights were flares. Deal with it."⁴⁶ In this case it would turn out that the witness was right.

As a consequence of this confusion the proponents and critics of the Phoenix Lights as a UFO event talk at cross-purposes. The proponents can rightly speak of events not caused by flares while the critics can just as legitimately speak of flares as a cause. A failure to draw proper distinctions leaves witnesses resentful that the critics dismiss them as naïve and too brainless to distinguish distant flares from a giant aerial craft, while the proponents exasperate the skeptics in their unwillingness to accept flares even when they are appropriate. This hostility poisons any chance of reconciliation. The large number of witnesses and the publicity given their sightings creates a sense of community that further reinforces belief. I saw it, my neighbor saw it, people all over town saw it, the media say it's so; we confirm one another and no one can tell us any different, least of all someone who didn't even share the experience. A powerful dynamic of common cause solidifies the proponents, both witnesses defending their integrity and UFO advocates who have a vested interest in the Phoenix Lights being real UFOs. These people resist any opposition to their beliefs and lean on fellow believers for support. No conventional explanation stands a chance no matter how reasonable, and unfounded rumors like flares set off as deliberate deceptions rationalize any unwelcome evidence.⁴⁷ Strong feelings and the sanction of a community of belief protect the ufological story from detractors, and very probably, from the truth.

Regarded without passion or defensiveness, the evidence is clear: The 8:00 events were not flares but they were conventional, caused by a formation of lighted aircraft flying at high altitude. We would like to know the precise identity of the planes, and have radar confirmation, but even without these pieces of the puzzle their absence has reasonable explanations and in no way cast doubt on the general conclusion. Any effort to overthrow the aircraft explanation on such minor technicalities is merely grasping at straws. The objection that witnesses reported more unidentified lights than the V-formation that night is true enough, but once a credible explanation breaks the thread of events in the central story of a supposed giant craft crossing the state, the other reports describe individualistic sightings that could have other conventional sources like the lights of air traffic. Right or wrong, the UFO version is no longer defensible. The conventional solution is so plausible that the witness testimonies, for all their sincerity, may appeal to emotions but have no leverage in rational judgment. [For a detailed presentation of the evidence behind these conclusions, see Appendix A.]

The inescapable conclusion has to be that the skeptics got it right about the Phoenix Lights. Ufologists did well with the 10:00 events but slipped up with the earlier sightings, quite ignoring the evidence for aircraft and the plausibility of this explanation in an instance of apparent eagerness to salvage one spectacular UFO event out of the Phoenix Lights. In explaining both cases the skeptics won while ufologists lost both their UFOs and their credibility.

Giant UFO "Mother Ship," Yukon Territory, Canada, 1996.

The Reported Facts. On the evening of December 11 multiple witnesses reported an enormous UFO bearing multiple lights.⁴⁸ The sightings took place along a 200-mile stretch of the north-to-south Klondike Highway. The Yukon case ranked as one of the ten best UFOs of all time in the documentary film, *Best Evidence: Top 10 UFO Sightings*, and has enjoyed widespread esteem among ufologists for the good reasons that the incident was spectacular, had multiple independent witnesses, and received an

outstanding investigation. Testimonies from five witnesses in the Fox Lake area, four near the village of Carmacks, and six from the village of Pelly provided graphic descriptions of the event:

(Fox Lake.) One witness saw a single light to the NNW while he was just south of Fox Lake and kept it in sight through the time he drove along the 11-mile length of the lake. At a point just north of the lake he lost sight of the light because of oncoming traffic, then saw three rows of rectangular lights one on top of the other passing slowly eastward behind a hill.

Two other witnesses in separate cars watched the UFO cross Fox Lake from west to east, slow and seemingly low and nearly overhead, so that they saw the underside. One drew the object as a thick disk with a row of lights around the rim and a large white light underneath. When overhead the object's outline appeared oval. The other witness said, "A group of bright lights were hovering over the highway far ahead of us.... The closer...I came the more the object seemed to grow bigger and bigger. It was a huge ship with colored lights around its edges.... Its bright colored lights lit up the tremendous land around us." His drawing showed an enormous object shaped somewhat like a washtub on the bottom, covered with a shallower pan on top. Two rows of rectangular windows spread across the midsection and three strips of orange light flanked the rows of windows, while smaller lights outlined the edges of the craft. Seen from underneath, seven rectangular white lights formed a circle while one outer circle of lights rotated clockwise and another counterclockwise. The lights were bright enough that he could see his shadow. He spent some 60 seconds trying to find a camera but then the UFO suddenly accelerated out of sight to the southeast. The time was 8:30.

A husband and wife sighted the UFO from the southern end of the lake. For him the object appeared as two long parallel rows of rectangular lights, the upper row a little shorter than the lower. Several small, barely visible lights outlined a dome over the rows, and clusters of red or yellow lights accompanied the object front and back, while a white searchlight beam shone down from the front. She reported one long row of rectangular lights, with multiple flashing lights front and back and a white beam from the front scanning the ground. She noted the time and it was 8:23. Both witnesses agreed that the object moved slowly (10-20 miles per hour), was low above the lake, first appeared to the NNW and moved east. They lost sight of the object behind some trees after viewing it for about a minute.⁴⁹

(Carmacks.) One of four witnesses driving together noticed a group of lights as they approached Carmacks; about a mile later the other three saw the same sight and they pulled over. The first witness said, "It had three circular [orange] lights in back spread right out, and they were flashing. And the front was all pure white lights, not flashing. And this thing was huge.... Closer to the length of a football field, and there was no noise." The second witness drew an oval of five large orange lights mingled with smaller white lights, and when asked how large the object was, he said it was huge and held out his arms at a 60-degree angle. The third witness spoke of three lights and said that they took a long time to emerge from behind a hillside, indicating enormous size. Both the first and second witnesses located the UFO in the northwest at the beginning. It moved to their right (NE), then turned south according to the first witness, and faded out after two minutes or so (disappeared after ten minutes, said No. 2). No. 1 said the time was 7:00.

Another Carmacks witness noticed a light outside in the northeast while watching TV and had time to call his family to observe a row of four large red-yellow lights, followed by smaller orange and green lights and with white sparkles dropping away, moving left to right just over the treetops. The sight covered a span in the sky of one foot at arm's length. The lights blinked out one after another. The man estimated the time at 9 or 10 p.m. but maybe as early as 7.⁵⁰

(Pelly.) When a trapper near Pelly first saw the UFO between 8 and 9 o'clock, it was west of him and traveling northeast. He suspected an airplane but quickly realized the movement was too slow. What he saw was a long row of about a hundred small rectangular lights, with a shorter row of seven larger rectangles centered above the lower row. All the lights were white or yellowish. The stars were blotted out over a large oval area around the lights. A light soon beamed from the bottom of the object and swept the ground once. A green beam shone out from the front and two beams shone out from the rear. The bottom was 250-300 yards above the ground and the object was low and so large that "I had to turn my head from

one side to the other to view the whole thing. It must have been about $\frac{3}{4}$ of a mile long.” The UFO turned toward him then stopped suddenly when he covered his flashlight, hovering 300 yards away, then moved off toward the northeast again at 5-10 miles per hour. He took his eyes off the object for a few moments while he sought a clearer view and found the object was gone, after observations lasting four minutes.

Pelly witnesses 2 and 3 were driving in open country with a good view of the north when they spotted “a whole big cluster of stars,” one describing four large white lights and a “grid” of smaller blue and green lights to the right, the other saw two groups of scattered lights with a row of lights in between. The constellation of lights was as long as the Big Dipper and traveled low on the horizon, moving from left to right (west to east). The lights blinked out one by one as if a switch turned them off. The duration of the observation was three or four minutes, said No. 2, time enough to stop the car, get out and view the object, said No. 3, for a total of 30 seconds.

Pelly witnesses 5 and 6 saw a distant row of lights moving from northwest to northeast about 8:30. One large square yellow light led seven smaller square lights and the group appeared 8-12 inches long at arm’s length. The lights disappeared behind a hill after three minutes. Witness 7 watched with Nos. 5 and 6 but described the object as a large oval (two feet at arm’s length) with rows of lights along the side and the glow from unseen lights on the far edge, while rows of three to six larger white lights trailed the oval on both sides. She said the object speeded up as it approached the hill and disappeared after being visible for five to ten minutes.⁵¹

To summarize the descriptions, all witnesses saw multiple lights moving together and usually described the brightest as aligned in a row. Most witnesses reported smaller lights of various colors, preceding, following, and surrounding the larger lights. Some said the larger lights were round; some called them rectangular, even window-like. All descriptions locate the lights to the north and moving left to right (west to east), though one witness states that the lights turned southward. Most descriptions place the lights low on the horizon, though two Fox Lake witnesses say the UFO passed nearly overhead and allowed them to see the underside. The witnesses concur that the flight was slow and silent, with one witness saying that the lights changed direction to approach him and stopped for a few moments. The lights seemed to accelerate as they departed, according to two witnesses. Estimates of the duration of observation ranged from about half a minute to ten minutes, with two to four minutes being the most common value given. The time of the event also varies from as early as 7 p.m. to as late as 9 or 10, but one witness said she noted that the time was 8:23 and several others cited 8:30. For some witnesses the lights passed behind a hill or trees. The size of the object impressed nearly everyone. All witnesses agree that the lights spanned an arc of sky at least 20-25 degrees long and some claimed considerably more. Many believed the lights were attached to a larger dark object of enormous size and compared it to a football stadium or larger.

The Ufological Investigation. Three years passed before Martin Jasek, an engineer and representative for UFO*BC, learned of the sightings and began an investigation. He identified a total of 31 witnesses by early 2000 and interviewed 19 in depth; 14 witnesses provided drawings. The witnesses made their observations at Fox Lake (the southernmost location, just north of Whitehorse), and the villages of Carmacks, Pelly Crossing, and Mayo (the northernmost). None of the witnesses submitted a report to authorities and only a few had spoken in public about the sightings. Jasek authored a 43-page report published by UFO*BC in June 2000, *Giant UFO in the Yukon Territory*, which included summaries of witness testimonies and calculation of the size of the UFO based on witness testimony. These triangulations gave results of a half mile to a full mile as the diameter of the object.⁵² He considered and rejected various conventional explanations like hoax, aurora, mirage, meteor, military aircraft, and fire balloons. A Russian space vehicle launched on December 11 could not have been responsible, he argued, because it should not have been visible as far east as the Yukon, and because the observed object was too large and structured for a launch vehicle to explain.⁵³

The Ufological Story. On that December night in 1996 a mile-wide craft without conventional explanation passed into view for dozens, probably scores of witnesses separated by as much as 200 miles. A composite illustration well publicized in the literature and on the Internet shows an enormous pan-over-washtub craft with a double row of rectangular windows along its midsection and many smaller lights in

regular arrangements across its surface, with a lighted underside and a searchlight shining toward the ground.⁵⁴ This object flew at a low level and slow speed before speeding or vanishing out of sight. Ufologists value this UFO for its multiple independent witnesses, giant size, and complex configuration that, they argue, demonstrate objective observations of an undeniably unconventional object.

All participating witnesses regarded the object as something extraordinary and several explicitly identified the object as a “UFO,” among them Fox 3, who flashed his headlights to signal the craft, then thought better of trying to communicate. In later discussions he made clear that he thought he had seen an alien spaceship, and seemed to feel disappointment that it did not contact or abduct him.⁽¹⁰⁾ Fox 4 was familiar with the abduction-themed movie, “Fire in the Sky,” and feared for the safety of the two-year old with him in the car. Witness Pelly 1 also believed the object was a UFO, that it reacted to his flashlight by approaching, and that perhaps the searchlight from the object was searching for him. Pelly 7 thought the object might be something from another solar system. Jasek concluded that the giant UFO or UFOs was “most likely a product of non-human intelligence and a technology far beyond current scientific knowledge....” He also deplored the ridicule that confronted the witnesses and made them hesitate to speak out about their experiences.⁵⁵

The Skeptical Investigation. Robert Sheaffer reports that British skeptic Ian Ridpath set in motion a new examination of the case in 2012. James Oberg contacted Ted Molczan, a Canadian expert on earth satellite orbits and reentries, who identified a ready source for the sighting. Another satellite expert confirmed and refined this work. Oberg and Sheaffer posted these findings on their blogs and Sheaffer published an account in his “Psychic Vibrations” column in the September-October 2012 issue of *Skeptical Inquirer*.⁵⁶ Both men have met with vociferous objections from the UFO community.

The Skeptical Story. The launch of the Russian satellite Cosmos 2335 on December 11, 1996 provided the visual stimulus for the Yukon sightings. Reentry of the second stage booster rocket occurred just before 8:30 p.m. and corresponded to the time most often cited by the witnesses. This sight would have appeared to the north of all the witnesses and moving left to right low on the horizon, while calculations show that at Pelly the debris would have passed under the Big Dipper, just as Pelly 2’s drawing shows. The fiery disintegration of the booster produced a train of lights and streaks of light, some large and some small, spread out over perhaps several dozens of degrees of arc in the sky. Much brighter than any other body in the sky at the time, these lights overwhelmed stars near the path and give the appearance that a dark object blotted out the stars. The passage of the train may have occupied as much as a few minutes, and the “blinking out” reported by several witnesses may have been the final burnout. Far from close at hand or slow-moving, the reentry occurred at a distance of some 145 miles and traveled at supersonic speed. Reports that the object changed direction, responded to humans, or caused electrical interference were illusory.⁵⁷

Objections that the skeptical argument ignores much of the eyewitness testimony themselves ignore the likelihood that human misperception and misconception shaped the reports. A complaint that the Yukon sightings unfolded over one to three hours rather than a few minutes overlooks the prospects for error in estimates of time, especially after three years between the event and the interviews. Most timings, including two from witnesses who said they actually checked a clock, converge on 8:30 when the reentry occurred.⁵⁸ Estimates of duration that extend the sighting as long as ten minutes probably also express subjective rather than objective time. The case of Fox 1 is distinct because he says he watched a single light over the lake throughout the time it took him to drive along its 11-mile length, certainly ten minutes or more. When he reached the northern tip an extended light was visible and a few seconds later after some traffic passed, he saw rows of rectangular lights. The latter part of his report corresponds to sighting the reentry but the initial light requires another solution, perhaps a source not associated with the reentry or confusion in timing. Two reports of the object passing nearly overhead and a report that the UFO turned south do not square with a distant reentry, but these are “outlier” descriptions more likely attributable to human excitement and error than to accurate reporting.

Bottom Line. The reentry is a verifiable fact and should have been visible to the UFO witnesses. If they did not see it, then two of the most spectacular aerial sights of a lifetime occurred at the same time and these witnesses missed one of them. Taken as factual descriptions of lights in the sky, most witness

descriptions correspond quite closely to the visual appearance of a reentry and need little or no force-fitting to match that pattern. Only their interpretations and less certain sights like the dark UFO carrying the lights steer the witnesses astray. [For further illustrations of reentries interpreted as structured UFOs, see Appendix B.]

The Incident at Exeter, New Hampshire, September 3, 1965.

Eighteen-year old Norman Muscarello was headed for Navy boot camp in three weeks. He had sold his car and depended on hitching rides to visit his girlfriend, but on the return trip traffic was scarce and he had to walk most of the 12 miles home. At 2 a.m. as he crossed a rural area three miles from Exeter, an experience began that would become a classic UFO case, one that J. Allen Hynek regarded as exemplary of the close encounter of the first kind.⁵⁹

The Reported Facts. In a statement to Project Blue Book, Muscarello said that a “group of five bright red lights appeared over a house about a hundred feet from where I was standing. The lights were in a line at about a sixty-degree angle. They were so bright, they lighted up the area. The lights then moved out over a large field and acted at times like a floating leaf. They would go down behind the trees, behind a house and then reappear. Only one light would be on at a time. They were pulsating: one, two, three, four five, four, three two one. They were so bright I could not distinguish a form to the object. I watched these lights for about fifteen minutes and they finally disappeared behind some trees... At one time while I was watching them, they seemed to come so close I jumped into a ditch to keep from being hit.”⁶⁰

Muscarello ran to the close-by farmhouse and knocked on the door, but no one answered. He was soon able to flag an approaching car and ride to the Exeter police station. The officer on duty saw that Muscarello was visibly agitated and radioed Officer Eugene Bertrand to investigate. Bertrand had already heard an account of a mysterious object about 1 a.m., when a frightened woman motorist reported that a big light had followed her. He returned to the station, listened to Muscarello’s story, and decided to take the young man back to the scene, arriving at the open field about 3 a.m. In his statement to Blue Book, Bertrand said: “When we had gone about fifty feet, a group of five bright red lights came from behind a group of trees near us. They were extremely bright and flashed on one at a time. The lights started to move around over the field. At one time, they came so close I fell to the ground and started to draw my gun. The lights were so bright, I was unable to make out any form. There was no sound or vibration but the farm animals were upset in the area and were making a lot of noise. When the lights started coming near us again, Mr. Muscarello and I ran to the car.”⁶¹

Bertrand radioed a fellow officer, David Hunt, who arrived in a few minutes as the lights moved away. Hunt stated: “Upon arriving at the scene, I observed a group of bright red lights flashing in sequence... After observing the lights for a short period of time, they moved off in a southeasterly direction and disappeared in the distance. The lights appeared to remain at the same altitude which I estimate to be about one hundred feet.”⁶²

Bertrand agreed that the altitude was about a hundred feet and added that the lights always maintained a sixty-degree angle, and when “the object moved, the lower lights were always forward of the others.”⁶³ In a later interview with ufologist Raymond Fowler, Bertrand described the lights as attached to an object as big as a barn and likened their brightness to facing automobile headlights at close distance. He said of the object, “It lit up the entire field, and two nearby houses turned completely red. It stopped, hovered, and turned on a dime.”⁶⁴ His sighting lasted some ten minutes, and the animals quieted down after it departed. The lights flew off toward the town of Hampton and a call to the police station from Hampton soon followed as an excited man reported that a UFO was chasing him. Many UFO reports occurred in this local area during the fall of 1965, some 60 of them in the several weeks following the Exeter incident.⁶⁵

The Ufological Investigation. The three witnesses filed reports with Pease Air Force Base and Project Blue Book. J. Allen Hynek was able to access these reports and printed them in *The Hynek UFO Report*. A week after the sightings Raymond Fowler traveled to Exeter and interviewed the two police officers (Muscarello was out of town). He obtained detailed statements, drawings, and questionnaires that

cleared up certain important points, like the fact that the UFO at its closest compared in size with a grapefruit held at arm's length. Fowler also visited the site and mapped the events. The report of his investigation is published in the *Congressional Record* for April 5, 1966, as part of a hearing on unidentified flying objects by the House Committee on Armed Services.⁶⁶ John G. Fuller, a columnist for *Saturday Review*, took an interest in the UFO reports from the Exeter area, and thoroughly intrigued after a talk with Fowler, began his own investigation. Fuller's articles appeared in *Saturday Review*, *Look*, and *Reader's Digest*, then finally in a best-selling book, *Incident at Exeter* (1966). With an inherently remarkable event, painstaking investigation, and three witnesses to all appearance honest and careful in their descriptions, this well-publicized case has stood out through the following years as one of the best UFOs of all time.

The Ufological Story. A local UFO flap occurred in New Hampshire and adjacent areas during the fall of 1965. Some sightings occurred before the well-publicized Exeter incident and many more followed in subsequent weeks. The most spectacular sighting concerned a UFO the size of a house or barn that flew at about 100 feet over houses, fields, and surrounding wooded areas. One witness saw this object for some 15 minutes beginning at 2 a.m., then an hour later the first witness and two police officers watched a return appearance. This object bore a line of five red lights, slanted at a 60-degree angle, which flashed one at a time in rapid back-and-forth sequence. The lights illuminated the surroundings and shone too brightly for observers to make out the shape of the object bearing the lights. This UFO sometimes wavered in the manner of a falling leaf and occasionally drew so near that the witnesses crouched in fear of being struck. One police officer also feared that the intense lights would burn him. Livestock in the nearby barns reacted with kicking and agitation while the UFO was present and quieted when it departed. Apparent confirmation for this UFO came from a frightened woman motorist earlier in the evening who reported that a red-lighted object had pursued her, and from a man in a town to the south, in the direction the UFO was flying, who phoned the police after 3 a.m. to report that a UFO had chased him.

Skeptical Investigations and Answers. The initial Blue Book response to the sighting labeled it due to stars and planets seen through an inversion, a reflex response having no relationship to the reports of the witnesses. The possibility that airport landing lights caused the sighting failed when no one at the UFO observation site saw any such lights when they were turned on as a test. A more meaningful answer came from Pease Air Force Base, located near Exeter, wherein blame for the sightings fell on nighttime maneuvers associated with "Operation Big Blast" on the evening of September 2. Various military aircraft involved offered potential candidates for the supposed UFO. One hitch in this solution lay in the fact that the sighting at 3 a.m. occurred an hour after the nominal ending of all Big Blast activity. Another obstacle was Officer Bertrand's familiarity with military aircraft at night, the consequence of his Air Force service in refueling operations. He argued that he knew what nighttime refueling looked like and the object he saw in no way resembled such aircraft or activities. A newspaper reporter's proposal that an advertising aircraft provided the source of the UFO was dead on arrival, both for the unlikelihood that an advertiser would waste any effort on hours when nearly everyone was asleep, and for Fowler's investigation that confirmed no activity by the advertising company in the area. In light of Bertrand's complaints to the Air Force, Blue Book changed its verdict on the case to "unknown."⁶⁷

An explanation for the Exeter case has continued to be a goal for skeptics over the years. Proposed solutions include a plasma ball detached from nearby power lines (Phil Klass), fire balloons (Larry Robinson), the planet Jupiter (Robert Sheaffer), a practical joker flying a kite with flasher lights attached to the string (Martin Kottmeyer), and a KC-97 Air Force tanker participating in the Operation Big Blast maneuvers (James McGaha and Joe Nickell).⁶⁸

The problem with most of these solutions is that they raise more questions than they answer. Neither evidence nor theory supports the idea that plasmas can separate from power lines and float freely through the air. Sheaffer compared the times and positions of several Exeter-area sightings in the fall of 1965 and noted that they corresponded to the position of Jupiter in the night sky. While the planet undoubtedly explains some of the fall 1965 sightings, it looks nothing like what Muscarello and the police officers described, neither does it fly hither and yon around the countryside. Fire balloons require pranksters to operate late at night in a rural area without much prospect of a witness to appreciate their handiwork, and a brisk wind to carry the balloon as the witnesses described. Weather records from Pease

AFB indicate very light winds that night. How a fire balloon could create rapid and regular flashes remains a puzzle for which this theory offers no satisfactory solution. The kite proposal explains the “falling leaf” motions of the UFO, but for the sake of this success we have to believe that someone ran around a rural area in the small hours of the morning, in and out among the trees without ever entangling the string and with the superhuman alacrity of Springheeled Jack. Somehow this nocturnal kite-flyer also managed to maintain a perpendicular angle between the witnesses and the string at all times; otherwise the 60-degree appearance would fail, and the lights would stack vertically when seen at an edge-on angle. This never happened despite considerable movement for both the witnesses and the alleged kite.

The (Most Successful) Skeptical Story. A fresh challenge appeared in the November-December 2011 issue of *Skeptical Inquirer* when James McGaha and Joe Nickell undertook a “cold case” investigation to explain the Exeter sighting. For them the key to the mystery was the sequencing lights. McGaha recognized this effect from his military flying experience as the lights that guided aircraft to a refueling boom aboard a KC-97 tanker. Not only were such tankers stationed at Pease AFB and certain to have participated in Operation Big Blast, but they could account for both the five flashing red lights and the 60-degree angle, since the boom inclined at approximately that angle. A slow-moving tanker would circle the rendezvous area, perhaps appearing to chase a witness on the ground, while the boom would flutter in air currents to give the “falling leaf” effect.

Of course ufologists responded to this challenge and their rebuttals ranged from ad hominem attack to trenchant analysis, with the most convincing arguments coming from Martin Shough, a Research Associate for NARCAP whose technical acumen stings the skeptical hypothesis with formidable objections and perhaps, in the end, brings forward a better solution.⁶⁹ The various arguments against the McGaha-Nickell thesis center around three general points:

1) There are ample reasons to doubt that any tanker was in the air at the time of the sightings. The Air Force considered refueling as the cause early on but dropped the idea because the logs provided no evidence for such operations underway at the necessary place and times. In fact all maneuvers should have finished by 2 a.m., so even if by some stretch refueling could explain the 2 a.m. sighting no such operations should have been in progress an hour later. Officer Bertrand was familiar with night refueling operations from his Air Force service and made it clear that the UFO did not resemble these activities. Many sightings occurred in the Exeter area before and after the Muscarello event. Even if that one case falls, the others still remain and could not all be byproducts of the Big Blast exercise.

2) The appearance presented by a KC-97 does not fit the witness descriptions. McGaha and Nickell argue that the five flashing red lights were guiding lights on the belly of a KC-97, probably reflected off the refueling boom, which explains the 60-degree angle of the observed lights while the wobble of the hanging boom created the “falling leaf” appearance. Though this argument holds superficial appeal, the fact remains that the naked eye could not resolve the guide lights individually unless the tanker was closer than one mile, and in practical terms the distance would have to be less than half a mile. Taking the suggestion that the guide lights reflected off the boom leads to an even more improbable situation, since the boom is not a mirror reflector. The refueling altitude for a B-47 is at least 13-14,000 feet, at which distance any swing of the boom would be imperceptible and not able to create the falling-leaf effect. Moreover, both the tanker and the B-47 would carry anti-collision beacons and standard position lights but the witnesses reported no such observations. The boom proposal also suffers from the fact that the witnesses said the lower light always led, whereas the highest light would lead if the witnesses really saw lights reflected off the boom. According to one critic, only two of the guide lights are red, with two others amber and one green. As a final and telling qualitative implausibility evident even to the layman, no plane three miles high looks as big as a house, dazzles the eyes, and illuminates the ground.

3) Problems of distance and speed refute the tanker explanation. The two police officers reported that they watched the UFO cross from northeast to due north. This movement covers about a 45-degree segment of the sky. Taking two conservative figures—five minutes rather than ten for the duration of observation, and one mile as the maximum distance for the eye to resolve the separate lights—a calculation of speed for the object comes to ten miles an hour, an impossibly slow speed for a KC-97. Muscarello described the object as a line of lights nearly overhead at one point, while Bertrand compared the object’s

size to a grapefruit when nearest—in both cases the tanker would have to be far closer than one mile, and its movements even slower than 10 miles per hour. As a corollary, if the aircraft flew so close it should produce audible noise. If a B-47 accompanied the tanker, the noise should have been even more perceptible. Yet the witnesses heard nothing.

These criticisms raise substantive and reasonable objections against the tanker hypothesis that the skeptics have not addressed. A plausible answer may deflect a few of the complaints—for one, the issue here is the Muscarello event and any other sightings in the Exeter area must be answered on a case-by-case basis. Whether the others are UFOs or conventional settles nothing about the case at hand. The brilliance of the red lights might have been relative rather than absolute, the effect of only moderate brightness on eyes adapted to the dark of a moonless rural night. The issue of colors for the KC-97 guide lights needs clarification. Martin Shough gives evidence that they are two red, two amber, and one green; another says four red with a blue or dark green panel in the middle.⁷⁰ Confusion also surrounds the number and types of aircraft flying on the night of the sighting. The Air Force stated that ten B-47s participated in the Big Blast training exercises but all had landed by 1:35 a.m. The head of Project Blue Book, Major Hector Quintanilla, Jr., wrote that an additional five B-47-type aircraft not associated with Big Blast were operating in the area. No other information confirms this assertion and the time is uncertain in any case, but Officer Bertrand stated that he saw a B-47 flying at high altitude after the 3 a.m. UFO had departed.⁷¹ We read nothing anywhere about the presence of KC-97s, but enough uncertainties remain—and probably always will—about the type and timing of air traffic on that night to leave open at least a narrow possibility.

The case for the tanker might also benefit from the rare occasions where differences occur in witness testimonies. John Fuller's book includes some questionable details that perhaps can best be explained as the work of a reporter more concerned with the flavor of a testimony and the dramatic presentation of a story than with strict factual exactitude. Peter Davenport reports some idiosyncratic and contradictory facts in his interviews, but he was 17 years old at the time and Exeter was his first UFO investigation.⁷² We are fortunate to have the personal statements that the witnesses sent to Blue Book and Fowler's investigation, which nailed down many important factual details by having the police officers fill out NICAP report forms. Yet some discrepancies appear between even these two most dependable sources. To recognize the most serious, Officer Bertrand in his statement speaks of the same five lights that Muscarello reported, but draws only four lights on his NICAP report for Fowler. Officer Hunt reports only "two or three red lights flashing in sequence" on his form. Even as fundamental a matter for the explanatory process as the number of flashing lights suffers a degree of uncertainty, and counterarguments in favor of the tanker might potentially find a toehold in such a gap.

A resort to speculation can answer a few of the other points in opposition to the tanker hypothesis. If a KC-97 did participate in Big Blast and remained in the air as late as 3 a.m., we need not assume that it actually performed refueling operations. To dock with a B-47 at low altitude over populated areas at night would be foolhardy, but given that a training exercise was the purpose of the maneuvers, a "dry run" with the boom lowered and the guide lights in action would give the crew some experience with a minimum of danger. And if this hypothetical tanker flew as low as the angular size estimates imply, its lights might seem to chase people on the ground and its sound, perhaps blanked out by the frightened humans, did register with the animals as dogs barked and horses kicked in their stalls. And now consider that the Air Force, embarrassed by maneuvers running overtime and aircraft frightening civilians and upsetting livestock, entered into "cover-our-ass" mode and asserted that they had abandoned the late-night airways to bats, owls, and UFOs before the famous sightings ever began. If the Air Force treats UFO events with denial as a matter of course, why not resort to the same strategy in other compromising situations? Plausible scenarios are easy enough to imagine; the only problem is that they remain purely imaginative, a matter of speculation without a shred of supporting evidence.

When we come to matters of size, speed, and distance, no wiggle room remains. Martin Shough makes clear that the hard mathematical facts of these issues prove fatal to the tanker hypothesis. Consistent witness testimony portrays not a twinkling point-source of light but an extended object, in fact quite a large object sometimes hovering, sometimes flying across a significant arc of the sky. The duration of the sightings is considerable. In the second incident Bertrand and Muscarello had time to see the UFO, react to

it, flee to the cruiser, and radio Hunt; Hunt had time to arrive and then joined the others to watch the object for some time. A lot happened in those ten minutes and we can trust that the timing is at least accurate and maybe even conservative. In this instance a gross overestimate seems out of the question. Even with a generous underestimate for elapsed time and a minimally feasible distance estimate that can accommodate the witnesses' observations, the tanker must fly too slow to stay in the air. This impossibility only increases if we bring the tanker close enough to truly suit the descriptions. No mental acrobatics to introduce hypothetical turns or maneuvers seem capable of compensating for the slowness that the mathematical facts impose. In the end the only viable conclusion appears to be that, both literally and figuratively, the tanker as well as the explanation based on it simply won't fly.

The skeptics' explanation fails in its presented form, but the incident at Exeter is still not free of potential entanglements with military aircraft. Martin Shough even proposes an alternative scenario in which B-47s are the cause. He says that

...if the UFO was caused by aircraft, the red flashers were rotating anticollision beacons or the like on a number of individual aircraft flying in formation at much greater distance, which would help explain the slow angular rate across the sky, and possibly the silence also. Several beacons rotating out of phase with a spin rate of a couple of seconds could possibly give the chance impression of flashing in sequence as described. And of course the angular separation of five planes flying abreast on in a left or right echelon could at least start to fit the reported and implied angular sizes.⁷³

He summons no enthusiasm for this explanation because it is a theoretical possibility without practical probability. A flight of B-47s had to be present or the chance of this answer being the right one equals zero, and the Big Blast B-47s presumably responsible were all accounted for as out of the air half an hour before the first sighting. At the very least these planes were on landing approach NW of Pease (itself 10 miles from the scene of the sighting) and very low in the sky. Blue Book ultimately classified the Exeter UFO as unidentified because they could find no aircraft to blame, though not for lack of trying.

The Bottom Line. It would seem that the Exeter case has eluded the skeptics after all and has no business counting as a victory for conventional explanations. Anyone desiring to defend the case as a genuine unknown does not simply cling to a baseless wish. A rational foundation continues to exist for holding on to this one. Yet for my own part I feel that this latest round of debate has weakened this classic, for reasons that may seem indirect and call for some elaboration.

With its multiple witnesses, prolonged observation, appearance as an extended object, and recurrence twice in an hour, the Exeter UFO clearly poses a strong case. It also presents several striking features that a conventional solution must explain, most notably the five red flashing lights, their rapid regular sequence, their 60-degree tilt, their significant brightness, and the reported lead of the lowest light whenever the UFO moved forward. The "falling leaf" motion and animal reactions are classic attributes of UFO sightings, but explicit in the Exeter reports. Also noteworthy are the movements of the object from place to place, sometimes hovering, sometimes approaching until almost overhead, but always maintaining an altitude only a little over treetop height of about 100 feet. A hoax is out of the question and Norman Muscarello remained puzzled by his experience till his death in 2003 at age 55.⁷⁴ The usual-suspect errors like planets and stars or everyday aircraft do not work here, so if a conventional solution can succeed at all, an out-of-the-ordinary one seems obligatory.

Three solutions have addressed the phenomenology of the sightings with partial success. The kite prank can explain flashing red lights at an angle and a fluttering motion is characteristic of kites, while the excited human witnesses might have disturbed the animals; but this answer raises too many additional questions to count as a serious contender. A KC-97 tanker brings an attractive solution to the table. Its five sequencing guide lights match the flashes of the UFO with an exactitude that seems more than coincidental. The fluttering attributed to the refueling boom and its 60-degree angle also sound appealing, though close examination renders them improbable by reason of their mechanics, while irreconcilable problems of speed and duration appear to overthrow the tanker possibility beyond redemption. Here too a clash of theory and facts defeats a promising solution. The half-hearted B-47 explanation cobbles together various possibilities

not particularly convincing in themselves, assembled not because any evidence exists that such an arrangement actually took place but because by a stretch of the imagination this arrangement could possibly work. It ignores the familiarity of the witnesses with military air traffic from nearby Pease AFB. It takes liberties with the testimony of the witnesses by assuming that the descriptions are not as consistent as they appear on paper, and that several events contributed to the sightings, like a group of B-47s always at greater distances than the witnesses imagined and probably more than one flight operating in the area. The witnesses would have to be wrong about elevation, wrong about distance, wrong about unity of operation among the lights. Much direct testimony has to undergo reinterpretation or be rejected altogether to salvage a theory that is no one's first choice.

None of the conventional explanations inspire much confidence, but sound reason for doubt persists nonetheless. One fact is a certainty--a military training exercise was underway on the night of the sightings. This issue remains the elephant in the living room, a situation too enormous with possibilities to ignore. These exercises placed a number of aircraft in the air with at least a possibility of presenting unfamiliar and startling configurations to onlookers, and not necessarily the refueling operations that Bertrand had the experience to recognize. This strand of possibility seems to run up against an impassable barrier if all Big Blast aircraft landed before the sightings began. The Air Force statements confirm this supposed fact, but are they true? Or are they true only insofar as one spokesman knew? Or did this spokesman give what is known today as a "Microsoft answer," a straight and narrow response to the wording of an inquiry that is so literal it doesn't answer the meaning of the question at all? The SAC aircraft participating in Big Blast were not necessarily the only aircraft with a potential to create "UFO" sightings. We have Quintanilla's five B-47s, and if they amount to no more than rumors, the aircraft like a B-47 that Bertrand observed demonstrates at a minimum that the Air Force statements do not cover all conventional aerial activity. A genuine UFO may have brought up the rear on that eventful night, but the fact remains that we do not know—and probably never will—the full background, so the coincidence that the Exeter sightings followed so closely after the maneuvers leaves me with a nagging suspicion, admittedly intuitive more than substantive.

Even if we accept that various aircraft were flying around Exeter, this situation submits a messy proposition rather than an easy solution. A flight of aircraft, probably B-47s, has to circle the area of the sightings at 2 a.m. then again at 3, stay around long enough to cover the duration of the sightings, and present the visible phenomena reported by the witnesses. Only by introducing a bundle of speculations and what-ifs can such an explanation begin to work, and without evidence that any of these events really occurred, the result makes for a flimsy, unsatisfying solution. Yet in the end an outsider, a curious individual who needs convincing that the Exeter object was a UFO, has a choice: Either I must believe that some improbable combination involving military aircraft at an hour when they all should have bedded down for the night was responsible for the incident at Exeter, or I must believe that an alien spaceship just happened to show up on the very night of Operation Big Blast. Both options call for an extension of faith, but one asks only for commitment to a degree of credulity while the other demands an extreme, a change in kind in my understanding of the world. One maintains the conventional and requires only a step; the other means a leap into the unknown. As long as a viable possibility for a conventional solution remains, Exeter loses its leverage to change minds. The object still may have been a visitor from another world, but this possibility has diminished in probability. Without further evidence to support the UFO or to foreclose the conventional aircraft, the simpler choice wins a reluctant victory and Exeter falls off every ufologist's top-ten favorites list.

The skeptics were wrong about Exeter. Their investigation was too shallow to recognize its own shortcomings and their victory lap was premature. Yet even though the KC-97 hypothesis did not solve the Exeter sighting, there was nothing foolish about the proposal. It addressed critical aspects of the eyewitness testimony and resurrected interest in conventional aircraft with flashing sequential lights associated with military maneuvers, matters that clearly deserved closer examination. The Exeter skeptics earn credit for actually advancing the debate. In the end a ufologist provided the better conventional solution, but only as a result of the dialogue that the skeptics opened. Otherwise Exeter would have gone unchallenged, a sterling classic and exemplar of a genuine UFO when in fact some vulnerabilities undercut it yet went unrecognized for nearly 50 years. In the aftermath we still may lack a full and convincing understanding of what the Exeter event was, but we have learned to appreciate what it was not, though

perhaps at the expense of having to reduce somewhat the “UFO value” we place on a sighting that previously seemed unassailable.

What Went Right and What Went Wrong

These three examples offer insights into strengths and weaknesses of the ufological investigation process, and to decisions about which reports describe genuine UFOs. Some rules of thumb for choosing, investigating, and defending worthwhile cases will serve as a framework for the discussion:

- 1) The sighting was an authentic event with documentation to show that it was more than a hoax, rumor, or literary fabrication.
- 2) The object observed has obvious intrinsic interest.
- 3) Descriptions of the object are rich in information.
- 4) Witnesses of the object are dependable, credible persons.
- 5) Corroborating testimony supports the case. This support can come from the testimonies of multiple witnesses, from instrumental evidence like photographs or radar, or from physical evidence.
- 6) The evidence is detailed enough that investigators can “do some science” with it and add to their understanding, for example estimate distance, size, and speed of motion from the reported observations.
- 7) The testimonies provide coherent accounts and confirm one another.
- 8) Some similarities tie the case in question to other UFO descriptions.
- 9) A thorough investigation gathers testimony and supplemental evidence, preferably soon after the event and directly from the witnesses, with inspection of the site and with regard for exact positions, time, and angular size of the object.
- 10) After critical examination and thorough consideration of conventional alternatives, the case survives as a genuinely puzzling anomaly.

No doubts overshadow the observational authenticity, intrinsic interest, and multitude of detailed accounts for these three cases. They present ample credentials as observational realities given the multiple witnesses of reliable character in each instance, and independent witnesses for the Phoenix and Yukon sightings. A basic defense for the credibility of all these cases could echo Officer Bertrand when he said of the Exeter UFO, “There was something there. Dave Hunt and the kid saw it. We weren’t all seeing something that wasn’t there.”⁷⁵

All three examples illustrate that ufologists were not wasting their time on faraway lights in the night. These sightings presented apparent objects of extended size and rich detail, viewed for a sufficient duration to allow careful observation. Photographs and videotapes support the Phoenix Lights, while triangulation allowed distance calculations for the Phoenix Lights and size estimates for the Yukon UFO. The consistency of descriptions—of the V-shaped craft in Arizona, the huge object with multiple tiers of lights in the Yukon, and the red-flashing UFO at Exeter—marks one of the most striking and persuasive characteristics of these cases. UFOs with a “boomerang” shape have become commonplace in the past two or three decades, and gigantic craft bearing multiple lights also have plenty of precedent. The Exeter UFO has no exact parallel, but the sequencing lights interpreted as flashes around the circumference of a round craft draw this sighting toward familiar territory, while the “falling leaf” motion is classic UFO.

A great deal of investigation went into each case. Many Phoenix Lights witnesses reported to NUFORC or detailed their sightings on the Internet; MUFON investigators questioned witnesses and gathered photographic evidence. Martin Jasek sought out multiple Yukon witnesses and collected detailed, informative verbal descriptions as well as drawings of the object. Not only did the Exeter witnesses write out their own statements, but Raymond Fowler went to the site and interviewed the two available witnesses only days after the event. His use of NICAP report forms guaranteed the collection of vital information in a standardized format. The investigators in each case published extensive accounts of their findings and collated the multiple accounts to reconstruct a plausible sequence of events, a coherent hypothetical story of what the witnesses actually saw.

Ufologists did not automatically jump to the conclusion that a UFO caused the sightings. Many investigators considered conventional alternatives, and in the case of the 10 o'clock Phoenix event, concluded that distant flares were responsible. Jasek listed aircraft, meteors, and various other possibilities but found them wanting for one reason or another. Bertrand stood his ground against the Exeter object being any sort of military aircraft for the reason that he was familiar with such activity, and one by one such proposals as an advertising aircraft, kite hoax, or KC-97 tanker met with well-founded and persuasive refutation from investigators who truly did their homework. No doubt ufologists wanted these objects to be UFOs and welcomed all evidence that supported this conclusion, but they also built sound arguments that the 8 o'clock Phoenix Lights could not have been flares and a KC-97 tanker could not have created the Exeter events. Ufologists engaged with their critics and defended the UFO status of these sightings in terms of evidence and reason, while the putative UFOs seemed to survive the criticism as genuine UFOs.

According to a reasonable checklist of ten desirable characteristics, these three sightings ought to be UFOs and cases of the highest quality. Their ufological defense has been both evidential and rational, but the unfortunate truth is that this defense is probably wrong in two cases and possibly wrong in the third. The skeptics may well be correct that each of these UFOs has a conventional explanation. Ufologists obeyed a Ten Commandments of investigation to arrive at their conclusion; they were righteous but not right despite their adherence to procedures that should have led to the desired goal. The disappointing conclusion must be that even the best ufological methodology cannot guarantee a putative UFO will turn out to be the real thing after all. Despite its methodological strengths the ufological approach suffers from internal weaknesses and a closer look is in order to separate the good from the bad.

These three examples illustrate much that is best in ufological practice. No one can accuse ufologists of settling for sparse or secondhand information. They demonstrate a passion for collecting reports and aim to base their research on direct eyewitness testimony, gathering as thorough and as detailed a sample as humanly possible. Investigators of the three cases accumulated extensive quantities of reports and supplementary evidence like videos and followed up with in-depth interviews to clarify the observational facts straight from the witnesses. If ufologists go wrong, it is not for lack of basic data.

A ufological investigation typically takes the witnesses seriously, without much second-guessing or reinterpretation of the testimonies from the start. Here too the investigators followed the lead of their informants and accepted their descriptions as the factual foundation on which to base interpretation; so that, for example, if witnesses said they saw lights mounted on a dark, V-shaped form, that mysterious object became the given reality to explain. At least critics cannot accuse ufologists of completely distorting the testimonies and forcing them to conform to some preordained doctrine.

Efforts to assemble coherent stories out of the mass of collected details also steered close to the testimonial evidence. The result in the Phoenix case was multiple objects, several of various triangular configurations and at least one of a rounded form, taking several different tracks across the state at different times. In the Yukon case a narrative fitting the reports assumed that one object appeared at different places along a major highway over one to three hours. For Exeter the same red UFO appeared twice at low altitude over a farmstead and frightened two motorists the same night. All three cases permit a UFO scenario that adheres closely to reports despite the large number of witnesses and their different points of vantage. Ufologists can boast with some accuracy that they merely followed the witnesses' lead.

Ufologists may always start out with a desire to find UFOs, but they did not ignore other possibilities in these cases. Conventional alternatives received consideration and met rejection only because no alternative seemed viable. Nothing surfaced in continued disputes with skeptics to persuade ufologists that they were wrong to treat these cases as the real deal. Ufologists may have reached the conclusion they wanted but they arrived only after a rational process of elimination for conventional competitors and continuing defense against challengers.

In the end a ufological investigation is not a farce. Even if ufologists make no secret that they want real UFOs for an outcome, the process is not synonymous with confirming a foregone, hand-picked conclusion. Much hard work and good intention go into the effort. Yet on the obverse side of these very strengths lie some less evident but still consequential weaknesses. To start with the least controversial

element of a ufological approach, even the accumulation of all available evidence does not qualify as an absolute good. This step has unquestionable importance but runs a risk often realized in practice when ufologists let too many facts obscure the total picture. The Phoenix Lights illustrate the problem as the skies seemed to fill with UFOs as one report after another came in. Disagreements persist as some proponents fall back on the apparent multiplicity of objects to dispute both flares and a single flight of aircraft as explanations, but this acceptance embraces the confusing welter of reports and ignores later reflection that winnowed down the number of independent objects to two events responsible for most of the sightings. While it is better to have too much data than too little, simple accumulation cannot serve as a goal in itself and data require discriminate understanding to become useful information.

A more hazardous practice lurks in the preference of ufologists for literalist readings at the expense of judicious interpretations. The word of the witness counts for much and yet it is not sacrosanct. An investigation has to be more than a conduit for testimonies. It also has to add value to the raw data through an active process of understanding, whereby investigators engage in careful but unsparing critical evaluation to help make proper sense out of the literal testimonies. All three of these reports show the readiness of witnesses to regard lights as part of some dark background object, with the Phoenix Lights described as attachments to an enormous V-shaped craft, the Yukon UFO as an object the size of a stadium bearing multitudes of lights, and the flashing Exeter lights as carried on a house-sized object. In each case the lights are plain enough but the dark craft less so, indefinite or even inferential, and perhaps for good reason. Ufologists need to question the very existence of the dark craft on the grounds that such an appearance could be due to “contour illusion,” a common perceptual phenomenon when viewing lights against a dark sky, but a concern that seldom arises in ufological discussions of these cases. Even when the witness is certain, the investigator should hold back. Such restraint matters here because experience teaches that the dark object can seem clear-cut and absolutely real yet still turn out to be illusory. In their fidelity to the literal text ufologists hesitate to question certain elements of testimony, and in this willing narrowness of vision they may overlook some critical truths as grievously as the skeptic who ignores the word of witnesses altogether.

Once the time comes to construct a scenario of events, ufologists labor at a disadvantage under their self-imposed limitations. If they try to account for all testimony and take every report at face value, then the human errors and distortions inherent in that information mix with the legitimate facts. The result is a half-truth that misleads their own understanding and provides detractors with an easy target. As a case in point, the Yukon sightings spread over several hours if we accept all witness time estimates, and a reentry event clearly would not be possible over such a long period. Yet the most definite timings when witnesses actually checked a clock limit the sighting to the same short period, and a time that happens to coincide with the reentry. A literalist reading of the times creates a UFO where selection of the best-case evidence resolves the sightings into a conventional event—clearly a significant difference in outcomes. Perceptions of time are vulnerable to subjectivity, and critical rejection of some reported times as probably erroneous is not only reasonable, but clears away a major obstacle to solving the case. In this instance an exercise of judgment better serves the truth than strict adherence to the word of every witness.

An important consideration for understanding witness accounts and their ufological interpretation must focus on the expectations, wishes, and predispositions that guide the thinking of the various participants. Understanding an anomalous event means to connect it to some established framework. For ufologists a well-developed system of facts and meanings about UFOs provides that framework. It is accepted reality for ufologists and lays out a ready template for constructing their understanding of newly reported observations. The ufologist investigating a sighting asks questions and hears answers attuned to prior knowledge of the nature of UFOs. At worst this process imposes expectations in spite of anything contrary that the witness says; more often the imposition is more subtle, with the investigator slanting or selecting words of the witness to square with UFO doctrine in ways that seem more like a clarification than an alteration of the report.

The fact that a witness often shares UFO ideas goes far to lend the ufologist a helping hand. UFOs occupy such a familiar place in popular belief and cultural mythology that any unknown objects seen in the sky today almost inevitably receive explanations in ufological terms. As a case in point, scarcely a week passed after the disappearance of Malaysia Airlines Flight 370 on March 8, 2014 than rumors began

to circulate that a UFO had snatched the aircraft out of the sky. (“Malaysia Airlines Flight 370 unofficial disappearance theories,” http://en.wikipedia.org/wiki/Malaysia_Airlines_Flight_370_conspiracy_theories). In the absence of answers conspiracy theories began to fill the void, some of them borrowing the idea of aliens as suitable instruments to account for the mystery. The witnesses in the three cases discussed here were willing enough to regard their sightings as UFOs, reported them as such, and attributed to them the properties expected of UFOs. Since ufologists shared the same ideas, investigators and witnesses joined in the common goal of casting these experiences as UFO events. The story that ufologists told mixed facts with interpretations and expectations yet scarcely differed from the story that the witnesses told, so that one story reinforced the other in happy agreement.

This shared version of reality provides mutual reinforcement for the prior beliefs of both witnesses and ufologists, with the downside that a readily accepted UFO solution may appear more inevitable than it should. A narrative that tells the story of a UFO event relates a mixture of facts and speculation. A picture of what the witnesses saw shows the supposed object but also mingles truth and fiction in uncertain proportions. The “visual mythology” associated with these cases exemplifies how the “alien spacecraft” version of a UFO event can thrive from preferential treatment. Widely circulated illustrations of the Phoenix Lights have promoted the image of a V-shaped craft as the real object in the sky, though only some witnesses described the sightings in such definite terms. Witness drawings of the Yukon UFO show disembodied lights or a few lights on a vague object, yet most people see the finished picture of an enormous tub-shaped object with rows of windows and lighted up like a Christmas tree. This artificial image shapes most popular ideas about how the object really looked. The Exeter UFO has had many portrayals over the years. A *Reader’s Digest* illustration for an article by John Fuller showed an object like a cluster of red grapes; a version J. Allen Hynek used during his lectures pictures the UFO as a row of five circular lights. Neither of these versions imposes a machine-like identity, but the Time-Life book, *The UFO Phenomenon*, renders the UFO as a disk with flashing red lights around the rim, while a cover of Ray Palmer’s *Flying Saucers* magazine from 1967 leaves no doubts by showing a metallic disk with windows, fins, jets, and air intakes. All it needed was a license plate and chrome grill to complete the image.⁷⁶ [See Appendix C for examples of the visual mythology related to these three UFO events.]

The illustrations in all three cases have furthered a conviction that the sightings were so unambiguous and well-defined that the only legitimate question is, “How could anyone look at these pictures and doubt that the witnesses saw mechanical craft of unearthly origin?” These illustrations are dramatic but misleading. They do not reflect witness testimony with accuracy. Like the verbal construct of the sighting, they reflect choices ufologists make in how to tell the story, what to notice in the testimony and what to overlook, what to emphasize and what to downplay. These choices seem truthful and accurate to ufologists but betray a preference, perhaps largely unconscious, that the sight in the sky corresponded to the ufological ideal of an alien spaceship. Whether in visual or verbal form the UFO myth, like all myths, threatens to replace sloppy, ambiguous reality with an improved version, a clear and meaningful picture appealing to the public and ufologists alike, with no drawback aside from the inconvenient fact that it is a fiction or partial truth.

To speak of a “UFO mythology” does not mean to dismiss the subject as a mere false belief. In fact the term honors the complexity and rational integrity of a well-structured system, replete with its own accepted facts, meanings, and consequences, that equips the ufologist with a ready kit of intellectual tools to assimilate new observations and understand an unknown phenomenon according to the internal truths of the system. At the same time our ufological understanding is hypothetical, its factual building-blocks often putative rather than proven, its structures of understanding speculative rather than demonstrable. Many of those facts depend entirely on lowly-valued anecdotal testimony. Ufology does not share the experimental evidence and consensus support of an accepted science and therefore its version of reality remains mythical, a self-contained system of knowledge that may or may not be true. The burden of proof that UFOs are real outside their own belief system lies with the proponents.

Anyone attempting to separate truth from wishes and illusions about UFOs must also contend with issues of personal commitment and social pressures. Skeptics and ufologists bring their own agendas to a UFO case. One side sees only the misidentification of conventional sights and a credulity that corrodes the rational order of society; the other side sees exciting new knowledge and the chance to be on the forefront

of one of the most important discoveries in history. Both sides think they know the truth, both want to win, both will fight tooth and nail for their cause. Spectacular, well-witnessed, well-publicized events like the three cases discussed here raise the stakes for both sides. Ufologists see “ambassador” cases, the kind to send out to a hostile public and win it over, the kind to defend at all costs as the best examples of the claims ufology promotes. When a governor backs one case and Hynek another, its value grows beyond simple rational argument to become a matter of ego and prestige for both sides; long familiarity adds to the investment. Once personal involvement tips over from mere curiosity into commitment, emotional ties to the case entangle with rational connections and retreat becomes difficult or ceases to be an option. The more entrenched this commitment grows, the more the committed resist any question or doubt. Ufologists are sure they have a handle on evidence for an amazing and important truth but they cannot persuade the opposition, to their considerable frustration and anger. As a result the dispute often veers away from evidence toward conspiracy theory and ad hominem attacks. The discussion itself becomes personal, emotional, sometimes ugly. A more corrosive atmosphere for dispassionate evaluation of the truth can hardly be imagined.

The witnesses adhere with similar tenacity to their experience. They may bow to authority on quanta and dark matter since these things are remote and recondite, but an experienced anomaly places the witnesses on the front line and they defend the fact of the experience and perhaps also their rough-and-ready understanding of it against any contrary skeptics. An experienced anomaly is a very personal matter and likely to inspire more emotional defensiveness than rational defense. Ufologists side with witnesses to defend their truthfulness and to oppose the undeserved ridicule that often befalls them. An embattled union takes shape and once the wagons circle, social solidarity keeps everyone behind the defensive perimeter loyal to the common cause. The defenders expect the worst from the opposition and resist even a reasonable conventional solution like flares for some Phoenix sightings. Again truth falls as a casualty in the crossfire.

By far the most perilous step in an investigation occurs when ufologists decide on the meaning of the data they have gathered. However thorough, voluminous, and meticulous the testimonies may be, they need interpretation and explanation to make any sense. The investigator’s choice stamps an identity onto the case that holds more importance for everyone involved than all the testimony and all the hard work that went into collecting it. Whether the case is a matter to forget or to treat as a revolutionary challenge to current consensus opinion starts here, and here begins the process of disputation over the truth of the chosen identity. The same data can support either a conventional or an unknown conclusion depending on the reasoning behind it, and the decision, along with all the arguments pro and con that it inspires, often depends on more than straight objective evidence. This outcome can turn on such unwelcome factors as errors, preconceptions, or shortcomings in knowledge.

These influences weigh on ufologists’ conclusions in all three of the examples. Observational errors—like the illusion of a dark object behind lights and a readiness to regard separate lights as part of one solid object, mistakes about size and distance, and subjective perceptions of the duration of an event or the sense that an object reacts to the presence of a witness—create testimonial “facts” that are dramatic and compelling, but false. Left to stand unchallenged, these false facts lead to persuasive stories or illustrations and go out into the world to persuade the public that the evidence confirms genuine UFOs of high strangeness. Take away the desired appearances and the cherry-picked evidence, give equal weight to alternatives and unsupportive testimony, and an apparently robust case may diminish to a thin, pale shadow of its former self. Whether ufologists will face these flaws and follow up with the right questions remains uncertain. The three sightings met preconceptions for a desirable UFO event so well that resistance confronted even the most substantial criticisms, and the cases circulate today in the UFO literature as examples of the best evidence for UFOs without regard for the significant strikes against them.

Some ufologists are hard-nosed and duly skeptical. Richard Motzer suspected the 8 o’clock Phoenix Lights were aircraft and the 10 o’clock sightings were flares from an early date; Martin Jasek tried out a list of alternatives before deciding none of them could explain the Yukon UFO. Some ufologists also bring deep expertise to their explanations. Bruce Maccabee and others plotted one formation of Phoenix lights to a military test range far from the city for convincing proof of flares. Martin Shough’s expertise triumphed when he determined that the attractiveness of a KC-97 as the source of flashing lights at Exeter

could not save this explanation from the mathematical incompatibilities of distance and duration. These examples are persuasive and impressive. The ufologists' conclusion that all three cases are genuine UFOs rests on solid credentials whether that decision is right or wrong in the end. Intensive fact-finding investigations gathered ample evidence that an anomalous event occurred, while efforts to find viable conventional solutions were conscientious yet still they failed. Without an alternative, only UFOs remained as an explanation. As far as the investigators' facts and reasoning go, the UFO conclusion wins out as the best available. Maybe some of the effort was clumsy or partisan or overly rhetorical, but at least ufologists made a good-faith effort to reach the truth, and if it just happened to favor the outcome they desired, then, after all, somebody had to be right.

Despite the seeming fairness of the fight, a hard and unfortunate fact about the truth is that it is neither democratic nor fair. Hundreds or even thousands of witnesses to the Phoenix Lights thought they saw either a formation of five lights or a V-shaped craft bearing these lights. One witness turned his telescope on the lights and recognized five lighted aircraft. One against a thousand does not carry much weight in democratic terms and one dissenting voice out of a thousand scarcely seems worthy of notice. Many witnesses have decried the aircraft explanation as wrong, or accused the dissenting witness of incompetence. Yet he had the experience, the right equipment, and reached a tenable conventional solution that also happened to square with the video tape showing independent motion among the lights. This one witness saw better than the thousand who lacked a good telescope, knowledge of the appearance of aircraft when seen through that telescope, or readiness to accept a conventional solution. His expertise and situation prepared him to be the better observer, and for that reason his lone testimony outweighs a thousand others. At least anyone receptive to a conventional solution and willing to accept it as more likely than an alien spaceship can choose the airplane solution with a reasonable confidence that it is true, even against the governor and multitudes of sincere witnesses and earnest field investigators—not fair, just true.

A telling fact in favor of a conventional solution for the Yukon UFO was the reentry of a Russian rocket over northern Canada at the time of the sightings. In this case witnesses described appearances that conformed to other observations of space debris burning in the upper atmosphere. The ufologists investigating this case considered and rejected this possibility, but their reasoning depended on some of the times cited by witnesses and some assumptions about position that ruled out the visibility of the reentry where the witnesses were located. This reasoning was sound but its factual basis was not. Some reported times were inaccurate, while skeptics consulted an expert with authoritative knowledge of the reentry event and found that timings and positions coincided too closely to doubt that the reentry was responsible for the sightings. The ufologists worked hard and well to reach their conclusion but the skeptical expertise trumped their limited and faulty knowledge—again not fair, but true.

An emergent theme in these reflections is how the right knowledge provides the key to solving UFO cases. A case like Exeter that seemed iron-clad against conventional explanation as skeptics tried one wrong key after another finally opened, at least a crack, for a scenario with multiple military aircraft. Real-world events do not necessarily have one solution, or a simple solution, or a tidy solution. The real world is complex and difficult, its puzzles insoluble even to a roomful of bright and tenacious people, until someone with just the right knowledge or perspective or insight hits on the answer. Like a crossword puzzle clue, the result may seem obvious once it is found but until then appears meaningless and destined to remain forever unknown. The wonder is that successes come as often as they do, given the diversity of causes that might lead to a UFO sighting. Not so much a cause for wonder, under these circumstances, is the failure of ufologists to discover a conventional solution even when one underlies a case.

Licking Wounds, Moving On

In the final balance, ufologists carry out much good work in their pursuit of UFO cases, yet their effort is not good enough. The quest to establish irrefutable cases out of testimonial evidence succeeds in finding unknowns, but however baffling these cases may be for the moment, they rate as no more than temporary unknowns. Not every case gets solved, but history has proven to be on the skeptics' side. Sooner or later the right knowledge meets the right case and the result brings a conventional solution even for a formidable, high-quality unknown, and reinforces the skeptical faith that it is just a matter of time before every other unknown falls as well—or that we all might as well assume that a conventional solution

is pending if only enough people waste the time to find it. Without even a sure “unknown” in hand we fall far short of what we really want, which is a case “known” for a certainty to be out of this world.

This assessment poses a pretty grim prospect. Does it mean that ufology is a futile pursuit, a fool’s errand or a mere eccentric hobby with no purpose or future? Let’s say that, in the first place, we ufologists have taken an inflated view of the number of good UFO cases and the quality of cases in the “unknown” category. We know that most UFO reports do not describe real UFOs. We give lip service to this fact but treat it as inconsequential because we fool ourselves into believing that an abundance of good unknowns sustains our core tenet that UFOs are real. Yet most of this remainder of unknowns, intriguing to us because it consists of the reports most promising as real UFOs, actually falls into a vast “gray area” of uncertainty since while no one can disprove them, neither is any foolproof evidence in hand. Our cup is not running over. We don’t have the alien body or a piece of incontrovertibly extraterrestrial technology. We have only testimonies and sometimes the added support of photographs, radar returns, or ground traces; but in the end we have the word of fallible witnesses and support that seems never impervious to doubt or contrary interpretation. Sometimes the sum of evidence for a case is good, but never good enough, never free of some crack or loophole through which a skeptic can slip. The most sensational UFO evidence comes burdened with doubts about its authenticity; the most authentic evidence lacks the strength to revolutionize the prevailing view of our place in the universe, or even to change many minds.

So even if visiting alien spaceships are solid enough to kick and hear them clang, and as real as a car in the driveway, is there any way to prove this fact is indeed a fact with the evidence we have? In any hard-science sense, the answer is no. No sufficiently hard evidence has come forward to attract the attention of the scientific community. That answer ends the conversation for people with no interest in the vast number of sightings and claims, speculations and assertions that the subject of UFOs has created since 1947. These people can fall back on human error and cultural imagination to explain all the excitement and go about their business without giving the subject a second thought. For the rest of us—those whose interest has grown piece by piece over a span of time or arrived with a sudden epiphany, those who base their judgment on cumulative evidence or respond to something more intimate like a personal experience—a sweeping dismissal seems too glib. A feeling remains that something of significance underlies the reports, elusive as it is to grasp given all the confusion, verbiage, dead ends, and failures that have characterized the field from its beginnings till today. A feeling is not much to go on, not when ufologists seek to earn the status of a science for their subject. Still, the real and proper science that UFOs deserve has never been done, and that fact in itself leaves an opening to argue that any negative conclusion owes more to formality than inquiry.

Of course it’s a long way from lamenting the disinterest and disrespect the subject continues to suffer, and some future state wherein UFOs receive the sort of unbiased examination any phenomenon of nature deserves. I have no illusions that any event or change of heart will suddenly close that distance, but I will suggest a few cautious steps that might help steady the uneasy position of ufology today.

One point we need to remember and emphasize: Human eyewitness testimony is not worthless. Over the years meteors or space-junk reentries have inspired lurid tales of spaceships with lighted windows flying at treetop level, and skeptics have pointed to these examples as proof positive that eyewitness testimony is unreliable [see Appendix B]. This warning alerts us to a real problem. Such reports are often full of errors, misperceptions, and distortions; subject to social, media, and cultural influences; prone to rethinking and reshaping to satisfy expectations and desires. Human observation, memory, and description are not ideal instruments for conveying the truth about an event, and the extreme examples of error can be truly extreme. Yet those same reentry cases so popular with the skeptics actually show a surprisingly positive image of witness abilities when taken as a whole. The Air Force received 78 reports of the Zond-IV space probe reentry in 1968. Most informants gave accurate descriptions of the event, and when distortions crept in they were usually minor and predictable, like the misuse of the term “formation” for the lights, or inaccurate estimates of distance and speed. Only a few witnesses submitted consistent accounts that bore little resemblance to the actual stimulus of several burning lights a hundred miles high over the earth. The observers who adhered to the truth or committed minor deviations far outnumbered the small minority that turned a conventional event into a spectacular “UFO” sighting.⁷⁷

A second axiom worth remembering is that if a genuine UFO phenomenon hides within the masses of UFO reports, that truth cannot hide forever. If UFOs are real, some cases will resist conventional solution because they have no conventional solution. The collection of “good” cases, the high-information and high-reliability unknowns, is most likely to concentrate instances of the real phenomenon. Not every case will turn out to have a genuine UFO for a cause, but this body of quality unknowns is the right place to start the search. This UFO “gold” is not easy to recover from the mass of low-grade “ore,” and requires the water of investigation to wash away the dross and the fire of criticism to purify the sample; but the vigorous and proper application of these processes hold out the best possibility of finding a payoff. The effort may prove discouraging but one certain way to fail is to quit trying altogether.

We also have a body of impressive experiences that may result from genuine UFOs. The list may be shrinking, but here are a few examples that still pose a challenge and deserve the dignity of individualized consideration:

- 1) The Robozero Marvel, Russia, August 15, 1663.
- 2) Father William Gill CE-3, Boiani, Papua New Guinea, June 26 and 27, 1959.
- 3) Minot Air Force Base Radar-Visual Sightings, North Dakota, October 24, 1968.
4. The Coyne Helicopter CE-2, Mansfield, Ohio, October 18, 1973.
5. Cash-Landrum Physical Effects Encounter, Huffman, Texas, December 29, 1980.
6. Southern Illinois Police Case, January 5, 2000.
7. O’Hare Airport Disk, Chicago, Illinois, November 7, 2006.

By any standards these cases count as high-quality UFO reports. They hold intrinsic interest and rest on the testimony of multiple reliable witnesses, some with superior credentials as observers. The UFOs present sizable objects visible for sufficient time for the witnesses to make detailed observations. Radar backs up the Minot report and photography the police case, while physiological effects associated with Robozero and Cash-Landrum and effects on machinery in the Minot and Coyne cases appear related to the presence of the UFO. An explanation for the “cookie-cutter” hole in the cloud requires remarkable energy output from the O’Hare disk. These cases have undergone investigation by both proponents and skeptics followed by intensive critical scrutiny. Skeptics have challenged each of these cases, sometimes with multiple explanations, but the core claims have withstood all attacks and endure as suggestive evidence for an unknown phenomenon.

Remarkable though they are, not even these “best” cases count as air-tight certainties. The witnesses turn out to be fallible in some peripheral matters—for instance, Father Gill mistook some stars seen through broken clouds for auxiliary UFOs. Critics have proposed solutions that seem far-fetched and unpersuasive, yet they are not entirely out of the question: and I cannot forget that a year ago I would have included Exeter in this list. While these accounts describe undeniably unusual observations, their oddity does not immediately lead to an extraterrestrial conclusion. Some sort of unfamiliar military technology, for example, might be responsible for the Illinois Police case and a hoax derived from the little-known mental condition known as Münchausen Syndrome is a possible solution for Cash-Landrum, providing these cases with explanations at once “unknown” yet conventional.

We cannot claim that these cases prove the existence of visiting spaceships. The evidence in hand falls a long mile short of allowing that conclusion. We cannot even assert beyond a reasonable doubt that they represent convincing examples of an unknown phenomenon. The best we can say is that they describe UFOs, and then only in the sense of something unidentified according to our present knowledge. In time and in light of the right understanding they too may fall into doubt like Exeter.

Even though these cases cannot offer us the certainty we crave, they still present observations that are remarkable enough and reliable enough for ufologists to defend as “unidentified” in a positive rather than just a generic sense. They illustrate that the UFO literature contains multiple reports of events interesting and unusual enough to deserve curiosity on the part of proponents and skeptics alike, and to call for careful, open-minded investigation. Such cases are few in number out of the thousands and tens of thousands of UFOs reported over the years, but they are sufficiently puzzling to rate better than superficial, armchair dismissals. No certainties can be assumed about where the investigation will lead or what the

answer will be. The case may unravel under close examination and we cannot take for granted that even the most seemingly foolproof example will live up to expectations. To decide that a case is defensible means only that it reaches a threshold of potential, a credibility that is high within the context of UFO reports overall and high enough to mark a departure from the unworthy claims that critical outsiders often see as the only kind ufology has to offer. The unknowns, if any, wait within these defensible cases.⁷⁸

To find and promote cases worthy of defending, ufologists need to continue doing the things they do best. Dedication to collecting a database of multiple and accurate reports is always time well spent. Field investigations and direct interaction with witnesses provides a depth of understanding that no armchair study can achieve. Attention to the descriptions and thoughts of witnesses is both respectful and the closest an investigator can get to the experience itself. Asking the right questions of witnesses and gathering basic facts like time, position, and apparent size will repay the investigator with vital data to evaluate the case.

As good as ufologists are in some respects, we must also face the fact that we have not been good enough and need to improve our performance. Whether in the role of investigator or interpreter, the ufologist has to act as more than a conduit for the words of others. The investigator has to accept the role of interpreter in an effort to understand what the witnesses are saying, and the interpreter needs to become a critic of everything from explanations to asserted observational facts. This role is not easy and perhaps even uncongenial. It requires awareness not only of the interpretations the witness has already imposed on an experience, but also of the investigator's wishes and preferences. It requires the willpower to set personal desires aside, and to deal tactfully but critically with witness opinions even—and especially—when they agree with one's own.

A case in point recurs in the overt statements of some witnesses and in the rhetoric sometimes implicit among ufologists as well. The argument runs that the sighting must have been a UFO because no one can prove otherwise—offer alternatives or possible explanations, maybe; but prove the object was not an alien spaceship, no doubter can do it. This argument wins the proponents a victory, but it is a victory of the feeblest sort. It adds no positive evidence to back up the reports, no reason to favor the UFO interpretation over any other interpretation, and thereby lacks any persuasive power. Whether consciously or unconsciously we sense the impossibility of proving a negative and react to the worthlessness of an argument based on this tactic—unless, of course, personal preference clouds our judgment. Whatever witnesses say or we ourselves prefer, a better assumption holds that most purported UFOs really are conventional and will prove to be so sooner or later. Current practice typically accepts a report as a UFO then fights tooth and nail against giving it up even against strong evidence to the contrary. In fact the burden of proof weighs on the proponent, and even if reports describe genuine spaceships the great majority of them will offer inadequate proof and remain condemned to a limbo of uncertainty, no matter what our gut feelings or preferences tell us. Taking this stance helps forestall personal commitment and opens the mind for more objective evaluation that gives conventional possibilities a fair chance. It also cures ufologists of an offensive habit of thought, one that we object to in skeptics when they imply, “it can't be, therefore it isn't,” but too often condone in ourselves when we say, “it must be, therefore it is.”

The assumption of a conventional solution pushes back the possibility of a genuine UFO to the last stage of the game. Sherlock Holmes said that once you have eliminated the impossible, whatever remains, however improbable, must be the truth. This maxim has guided conscientious ufologists for a long time, and standard investigative procedure rightly includes an effort to identify conventional solutions before eliminating them. Only when all conventional answers appear impossible does the verdict of an unknown apply. Yet even this seemingly reasonable practice can mislead. An unknown phenomenon is not the same as a genuine UFO, though ufologists often take this unwarranted leap. The “unknown” in this case means simply “not known” rather than something more. Though aircraft and the reentry of space debris seemed out of the question during initial investigations, later information reopened these possibilities and converted the unknowns into probable conventional causes. The elimination method is essential but limited in how much it tells us. It works only insofar as information is adequate, and with admission that the information available at a given time is unlikely to be the last word.

The goal of ufology, like the goal of any scientific or scholarly study, is to find out the truth. Whether or not we like what we find makes no difference. What matters is the truth, and its pursuit requires a discipline strong enough to ignore prejudice and preference, ego and pride. In this light the importance of expertise in understanding a UFO report cannot be overemphasized. There is simply no substitute for it, no methodology or approach that can outmaneuver it. Access to the broadest possible range of experts raises the chances that someone will bring to bear the right knowledge, the one key to fit the narrow and inaccessible keyhole that opens the way to the right answer. Ufology attracts many talented people, but we could improve our chances if we—and pardon the heresy—invited skeptics to participate in our deliberations. They may bring skills or knowledge that ufologists are lacking, and their different perspective might allow them to see what ufologists overlook. Their success with the cases examined here serves as a creditable resume. They are as prone to error and bias as ufologists and we do not have to accept their solutions as final or anointed, but the old hostility between our two camps does nothing to serve the cause of truth. If we can swallow our pride and resist the temptation to lash out against any statement we do not wish to hear, we might perhaps establish a peaceful working relationship beneficial for solving cases that can be solved and singling out the ones that cannot. In the process maybe their attitude toward UFOs, as well as ours, will change for the better, from a contest to win to a cooperative venture in understanding. At a minimum, we need all the help we can get if we want to understand our subject.

A thawing of relationships with skeptics does not mean accepting the worst of their approach. We do not have to discard the word of the witness whenever it fails to fit the conventional model of choice, but we have an obligation to search for weaknesses, alternatives, and common errors that might undo the mystery of the event. The ufologist's basic task coincides with the skeptic's—it consists of filtering out likely or possible conventional causes; then for the ufologist, only if the case remains a strong candidate does defense become an option, and only after surviving much critical give-and-take does a case qualify for consideration as a genuine UFO. The ufologist can still see a positive side in the evidence and will probably part company with skeptics on this issue. What matters most is that the difference of opinion be based on evidence and reason rather than belief, and disputation over the differences be conducted with respect, rationality, and an awareness that even our best evidence may sometimes turn out wrong. And finally if the evidence in a case turns against them, ufologists should face the facts and let go.

This paper has not been an easy one to write. I will not cherish it as a favorite, or expect anyone else to like it. At the same time it has been a labor of obligation, the consequence of seeing strong UFO cases fall to skeptical examination and realizing that the negative evidence was visible all along. The resulting shock to my complacency alerted me that I had taken too much for granted, questioned too little, and followed the herd in collective credulity. Whatever lies behind the UFO phenomenon, whether it proves to be the most important discovery of the ages or crumbles into dust and ashes in our hands, the subject deserves serious study from all sides irrespective of preferences, wishes, and agendas. Any effort to build a case for the reality of that phenomenon depends on the quality of basic reports. All else builds on that foundation; and if these remarks can help strengthen it, or even just disturb my nodding fellows as my own nap was shaken, then I have succeeded in my purpose. In this sense I see the recent successes of skeptics not as a cause for despair but as a call for ufologists to cast off bad habits, improve their efforts, and revitalize the field to meet, rather than just disparage, the skeptics' challenge. Our setbacks may yet prove to be opportunities.

Postscript.—I published a version of this paper, entitled “Is the Anomalist on a Fool’s Errand?” in the January 2014 issue of the online journal *Paranthropology* (v.5, no.1, pp. 4-31). About three months later I learned that the paper had attracted some attention, and not of the welcome sort. A discussion thread at the TLC Brotherhood website (no longer available) raked me over the coals for giving aid and comfort to the enemy and, effectively, giving up on ufology. I am diagnosed with “anomaly fatigue,” blamed for dabbling beyond my depth in matters for which I have no expertise, and accused of praising skeptics for their successes while condemning ufologists for their failures, when in fact the skeptics have a checkered record and ufologists deserve more credit for critical thinking than I acknowledge.

I regret leaving such impressions, first because they have distressed persons I admire and even count as friends, and second because they are quite the opposite of my intentions. For the sake of

perspective, this present paper is the one I started last year after I read a series of case-solving articles in *Skeptical Inquirer* and felt stung by their consequences for ufology. Then and now, I think the skeptics succeeded in several instances, and those successes called for a response above and beyond indifference, dismissal, or knee-jerk refutation. Then and now, I think the skeptics raise important questions that we must address and accommodate. Last June I gave a talk at the Society for Scientific Exploration meeting based on the thoughts I was working on in this paper. Soon after, I received an invitation to an Esalen conference in October and again turned to the subject that currently occupied me, preparing the paper titled “Is the Anomalist on a Fool’s Errand?” I borrowed the Phoenix Lights, Yukon, and Exeter cases as a platform to address themes and concerns particular to the conference, primarily scientific procedures and their appropriateness for the investigation of anomalous phenomena. The UFO examples served their purpose but left no room for details and full explanations of the stated conclusions. Jack Hunter, the editor of *Paranthropology*, asked to publish the “Fool’s Errand” paper and I was happy to let him have it, but that version’s superficial treatment of the UFO cases appeared well before this version, which was intended for CUFOS all along. It clears up hazy issues like who “the skeptics” are and treats the ufological issues in depth.

While I felt the body of this paper dealt adequately with the Yukon and Exeter cases, the Phoenix Lights posed a larger and more complex problem that required substantial elaboration. I also found some entrenched support for the 8 o’clock Phoenix events as genuine UFOs, and felt I should “show the work” down to its gritty details so that curious readers could judge for themselves whether or not a conventional solution applies. The result is an appendix that grew nearly as long as the main paper. As I researched the case I soon became aware that the available information was scattered and chaotic, in need of a start from the beginning to organize a working sample of cases then compare the details. In a sense I have done what the skeptics should have done to back up their argument, though while they take the short cut and I take the long way around, we arrive at the same conclusion.

I am well aware that my academic training does not prepare me for technical analysis of UFO reports. Even the simplest income tax form challenges and usually defeats my mathematical acumen. Yet it should be clear that the aspects of the Phoenix Lights and the Yukon case that I tackled did not call for high-tech solutions, only the low-tech grunt work of gathering a sample of cases, counting details, and applying some elementary geometry. A great deal can be learned from comparison of simple but vital data like time, direction, and shape, as I hope the discussion demonstrates, and without this groundwork no advanced analysis is possible. This sort of fine inspection of available information lies within the capabilities of almost anyone, yet ufologists have largely neglected the opportunities for critical examination in favor of taking someone else’s word that the evidence adds up to a genuine UFO. If the skeptics point out embarrassing holes in that argument, the fault is not theirs. They have simply—and rightly—caught us and shamed us for intellectual laziness.

In cases where technical experts had a contribution to make, I was more than happy to bow to them. Bruce Maccabee turned his know-how on the later phase of the Phoenix Lights and established that they were caused by flares. Martin Shough’s analysis of Exeter drives thoroughly convincing nails into the coffin of McGaha and Nickell’s KC-97 hypothesis. I am less familiar with Ted Molczan, but he seems to be a legitimate expert on satellite reentries and his argument that the witnesses of the Yukon UFO actually saw a reentry appears solid. I gladly drew them into my evaluation of each case because such knowledge is vital to understanding UFO reports and a necessary step in separating real unknowns from unrecognized conventional phenomena. To ignore or reject well-argued expert testimony when it is available would in fact violate one of the main propositions of this paper—that ufologists must to seek out and heed the best expertise, wherever we happen to find it. I would also invite experts to apply their knowledge to my treatments of the UFO cases mentioned here and let me know if my evaluations are on target or off the mark.

Though I may have given the impression that all’s right with the skeptics and all’s wrong with ufologists, that was neither my intent nor my belief. I am well aware that skeptics have a spotted record, especially with the genuinely puzzling UFO cases. In fact the rare occasion of skeptics scoring several successes in a row was enough to shock me into taking up the pen—or word processor—in response. I am also well aware that ufology has enough in-house talent to weed out a great many unlikely reports and

defend worthy cases. My purpose has not been to portion out blame according to desserts, but to recognize that ufologists should do better. The evidence for a conventional solution to the Phoenix Lights was accessible yet it went overlooked. Ufologists embraced an unconventional solution with few questions asked until skeptics pointed out the good reasons against it, and some continue to cling to the UFO solution in spite of strong counterevidence. In the meantime this case rose in status as an exemplary unknown, not just in popular ufology but even in more authoritative literature, like Leslie Kean's book, making for an even more embarrassing final reckoning. Such a failure speaks poorly for the standards of the field. Whether the skeptics' house is dirty or clean lies beyond our control, but we have both the opportunity and the obligation to see to the good order of our own. It was this responsibility that I addressed.

I would like to conclude by assuring everyone that I have not lapsed into despair, lost interest, or given up the ship. But the fact remains that ufology continues to strive for scientific respectability and to approach UFOs and associated anomalies from a scientific standpoint. Whether or not this approach is best or even feasible makes little difference when practice concentrates almost entirely on scientific study, and as long as that commitment holds its place, we have an obligation to see that it is done right, insofar as we can. Whether we approach anomalies scientifically or by some other investigative instrument, it still seems necessary to me that we identify events or accounts of events that only seem strange and separate them from events without conventional explanations. Then and only then can we recognize the truly strange. As things stand, too many conventional events masquerade as anomalies and pass undetected to clutter our databases and confuse our understanding. Deep pondering of such mysteries will lead nowhere unless we invest the time and effort to exclude the false mysteries from the start—garbage in, garbage out.

This paper began in 2013, went through additions and revisions in 2014, and now in 2017 appears in its full form. I hope this more complete statement of how I arrived at my conclusions will correct any bad impressions of earlier versions. I also hope readers will embrace the intentions even if the literal text continues to offend. My purpose in writing it was to lift up the standards and practices of ufology, not to tear down the field; but maybe some harsh and provocative statements can help serve that goal. In the end I hope this apology and a clearer expression of my intentions will serve to rehabilitate my good name, and let me jump a few leaps ahead of the party pursuing me with tar and feathers.

¹ James McGaha and Joe Nickell, "The Valentich Disappearance: Another UFO Cold Case Solved," *Skeptical Inquirer* 37, no.6 (Nov.-Dec. 2013, pp.46-49; Robert Sheaffer, "Flying Saucer or Fly: The Case UFO Skeptics Have Been Dreading," *Skeptical Inquirer* 36, no.4 (July-Aug. 2012), pp.18-20. Robert Sheaffer, writing in his "Psychic Vibrations" column, "Between a Beer Joint and a Highway Warning Sign: The 'Classic' Cash-Landrum Case Unravels." *Skeptical Inquirer* 38, no.2 (March-April 2014), pp.28-30 (also on his "Bad UFOs" website under the same title, <http://badufos.blogspot.com/search?q=cash+landrum>). Sheaffer raises important questions about this famous case: The physical injuries could not be due to ionizing radiation or the witnesses would have received a lethal dosage; no photographs or radiation readings confirm the alleged physical traces at the encounter site; whether witnesses or investigator ever found the actual site is questionable; medical records respecting the physical injuries of the witnesses have never been released. As Sheaffer rightly says, "You cannot simultaneously cite alleged medical symptoms as proof of a UFO encounter while refusing to release the medical records that might confirm or refute the claim." He does not deny that the witnesses presented physical injuries, but explains them as examples of Münchhausen syndrome, self-inflicted injuries

or feigned illness that the witness uses to attract attention and sympathy. He further speculates that the reason for withholding medical records is that doctors may have concluded that the injuries were indeed the result of this sort of hoaxing behavior. Sheaffer's case is strong but not definitive. Ufologists ruled out ionizing radiation in favor of non-ionizing microwave or ultraviolet radiation (matters I am not qualified to judge). Münchhausen syndrome may be the medical verdict but we have to ask if there is positive evidence for it as opposed to a default conclusion, based on the assumption that UFOs don't exist, therefore the injuries had to be self-inflicted. The lack of transparency with respect to the medical records is troubling, but in the absence of an explanation of the reasons, I am not yet willing to give up on this case.

² Sheaffer, Robert. "'Top Ten' UFO Case: Yukon, Canada, 1996—Busted!" *Skeptical Inquirer* 36, no.5 (Sept.-Oct. 2012), pp.22-23. James McGaha and Joe Nickell, "'Exeter Incident' Solved! A Classic UFO Case Forty-Five Years 'Cold,'" *Skeptical Inquirer* 35, no.6 (Nov.-Dec. 2011), pp.16-19.

³ Ortega, Tony, "The Great UFO Cover-up," <http://www.phoenixnewtimes.com/1997-06-26/news/the-great-ufo-cover-up/full/>; Tony Ortega, "The Phoenix Lights Explained (Again)," in *eSkeptic: the E-Mail Newsletter of the Skeptics Society*, May 21, 2008, <http://www.skeptic.com/eskeptic/08-05-21/>. Ben Radford, "The Mysterious Phoenix Lights," *Skeptical Inquiree* 32, no.4 (July-Aug. 2008), http://www.csicop.org/si/sho/mysterious_phoenix_lights/.

⁴ Clark, Jerome. *The UFO Encyclopedia*, 2nd ed. Detroit: Omnigraphics, 1998, pp.747-748; Michael Swords and Robert Powell, *UFOs and Government: A Historical Inquiry*. San Antonio: Anomalist Books, 2012, pp.48-67

⁵ Clark, 745-747; Swords and Powell, 71-87, Rogue River case, 83-84.

⁶ See Clark, 730-742 for Blue Book, 806-808 for Ruppelt, and 802-804 for Robertson Panel. For Robertson see also Swords and Powell, 170-200.

⁷ Tulien, Thomas, "A Narrative of Events at Minot Air Force Base," <http://minotb52ufo.com>. For the Blue Book response see Kevin D. Randle, *Project Blue Book Exposed*, New York: Marlowe & Co., 1997, pp.151-163.

⁸ McAndrew, James, *The Roswell Report: Case Closed*. Headquarters United States Air Force/U.S. Government Printing Office (Washington), 1997, pp.1-3.

⁹ Keyhoe, Donald, *The Flying Saucers Are Real*. New York: Fawcett Publications, 1950, p.158.

¹⁰ Menzel, Donald H. *Flying Saucers*. Cambridge, MA: Harvard University Press, 1950, pp. vii-viii.

¹¹ Menzel, *Flying Saucers*, pp.22, 12-15, 19.

¹² Menzel, Donald H., "UFOs—The Modern Myth," in Carl Sagan and Thornton Page, eds., *UFOs—A Scientific Debate*. Ithaca, NY: Cornell University Press, 1972, pp.146-153.

¹³ Menzel, Donald H., and Lyle G. Boyd, *The World of Flying Saucers*. Garden City, NY: Doubleday, 1963, pp.37-38, 110-113, 80.

¹⁴ Clark, *UFO Encyclopedia*, pp.452-453.

¹⁵ Campbell, Stuart, *The UFO Mystery Solved*. Edinburgh: Explicit Books, 1994, p.97.

¹⁶ Clark, *UFO Encyclopedia*, pp.946-957; Swords and Powell, pp.306-332.

¹⁷ Condon, Edward U. (director) *Scientific Study of Unidentified Flying Objects*. New York: E. P. Dutton & Company, 1969, pp.4-5.

¹⁸ Condon, p.140.

¹⁹ Craig, Roy. *UFOs: An Insider's View of the Official Quest for Evidence*. Denton: University of North Texas Press, 1995, pp.3-13, 14-27, 82-93, 134-150.

²⁰ Frazier, Kendrick, Barry Karr, and Joe Nickell, eds., *The UFO Invasion*. Amherst, NY: Prometheus Books, 1997, pp.11-12.

²¹ Clark, pp.564-566

²² Klass, Philip J. *UFOs Explained*. New York: Random House, 1974, pp.186-195.

²³ Klass, *UFOs Explained*, pp.196-215.

²⁴ Brad Sparks in Clark, *UFO Encyclopedia*, pp.761-790; Tim Printy

²⁵ Oberg, James E. *UFOs and Outer Space Mysteries*. Norfolk, VA: Donning Company, 1982, pp.37-64, 161-181.

²⁶ Sheaffer, Robert. *UFO Sightings: The Evidence*. Amherst, NY: Prometheus Books, 1998, pp.18-27.

²⁷ Sheaffer, *UFO Sightings*, 150-159.

²⁸ Sheaffer, Robert, "Flying Saucer or Fly: The Case UFO Skeptics Have Been Dreading?" *Skeptical Inquirer* 36, no.4 (July-Aug. 2012), pp.18-20.

²⁹ Hendry, Allan. *The UFO Handbook*. Garden City, NY: Doubleday & Company, 1979, pp.283-285.

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- ³¹ A chronology and sense of the confusion associated with the night of March 13, 1997 can be found in Peter Davenport, "Summary of 'Phoenix Lights' Event," http://www.nuforc.org/EncyclopediaPhoenix_Lights.htm (also <http://www.ufoevidence.org/documents/doc1276.htm>); Davenport, "National UFO Reporting Center News Release: UFO Events Over Arizona March 13, 1997," <http://www.nuforc.org/CB970313.html>. William F. Hamilton, "Phoenix Sightings Summary Report," <http://www.ufoevidence.org/documents/doc1509.htm>.
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- ³⁴ Still from Terry Proctor video on cover of *MUFON UFO Journal* no.351 (July 1997); discussion of Proctor and 10 o'clock videos in "The Phoenix Lights Case—In Depth," <http://www.abovetopsecret.com/forum/thread256734>.
- ³⁵ Hamilton, William F., "Phoenix Sightings Summary Report," <http://www.ufoevidence.org/documents/doc1509.htm>; "A New Official Explanation for Phoenix UFOs," <http://www.theanomalieschannel.com/archive/cni-news/CNI.0686.html>.
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- ³⁷ Hamilton, *Phoenix Lights Mystery*, pp.88-92; also in "What were those lights in the Phoenix sky?" (June 19, 1997), <http://www.timstouse.com/UFOs/phoenixlights.htm>.
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- ³⁹ Ortega, Tony, "The Hack and the Quack," *New Times News* (March 5, 1998), <http://www.phoenixnewtimes.com/1998-03-05/news/the-hack-and-the-quack/full/>. Section on 10:00 events in "The Phoenix Lights Case—In Depth," <http://www.abovetopsecret.com/forum/thread256734>.
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- ⁴² UFO Casebook Files, "The Phoenix Lights, 1997, Arizona" (section on military involvement), <http://www.ufocasebook.com/phoenixlights.html>.
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