

Calibrating the Instrument: How Reliable Is Eyewitness Testimony?

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Abstract: UFO reports of low and high strangeness depend on witness reports, but this anecdotal evidence holds little scientific credibility. From perception to conception, recollection, and communication, every step in the career of a UFO experience is fraught with risks for distortions and alterations, exemplified in the 1968 Zond IV reentry and the 1997 Phoenix Lights. Abduction reports face even worse distortions. Yet most eyewitness accounts stick close to the truth or at least preserve basic facts even when the observer misconstrues their nature. A test sample of high-quality unknowns gathered from trained and experienced “elite” witnesses reveals a consistency that suggests a unitary anomalous phenomenon as the source.

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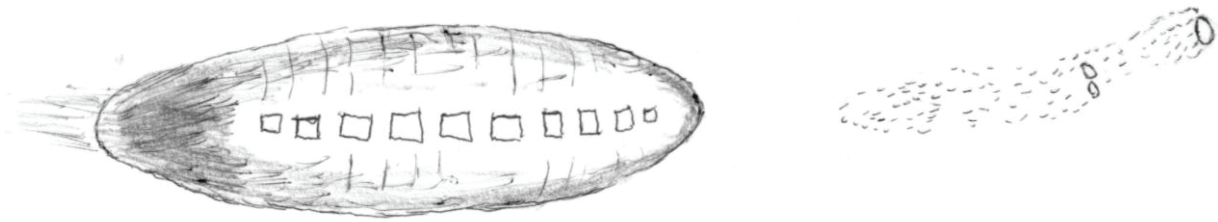
The Witness Problem

The first, foremost, and foundational instrument of UFO observation is the human witness. Cameras and radar may assist, other witnesses may corroborate, but the burden usually falls upon the individual experiencer to describe what happened, and to attest to the world that something unusual happened at all. Without these witness accounts no other trace would remain, no one would know that such a thing as UFOs existed. So, no pressure, right?

Sharp differences divide judgments on how worthy the witness really is. At first glance, reliance on human observers looks like cause for celebration. All of us are these instruments, know how to use them, trust them, take pride in them. In everyday thinking, if we saw it happen, it really happened. To hear straight from the mouth of a witness is to get as close to the actual events as humanly possible without having shared the experience ourselves. In a court of law, hearsay will not do and only eyewitness testimony counts as most likely to be truthful and trustworthy. When witnesses state that they have seen UFOs, even these experiences enjoy some benefit of the doubt because the speakers have standing as first-person sources.

On the other hand, a countercurrent of unfavorable evidence erodes that trust. All humans, ourselves included whether we admit it or not, are neither impartial nor infallible. The witness may strive for truthfulness, but along the way from observable event to communicated report, the final version of the story can, and often will, lose fidelity to the initial occurrence.

To cite a classic example of how much can go wrong, consider a celestial spectacle from the evening of March 3, 1968. The Soviet Union launched its Zond IV moon probe that day, but it fell back into the atmosphere over the midsection of the U.S. and broke into several pieces that incinerated a hundred miles above the earth. Seventy-eight witnesses reported sightings to the Air Force. There was no question about the time and place of the incident, no doubt about what these witnesses saw.¹ How they saw it is where the story gets interesting.



Zond IV—Fanciful and Factual Versions (redrawn from Project Blue Book).²

Most witnesses gave faithful descriptions of an elongated cluster of glittering sparks that swarmed silently across the sky in straight, uniform motion. Some of them even identified the lights as meteors or satellite reentries. Several witnesses used a misleading term like “formation,” implying that the lights moved under organized control, when they probably meant that independent lights traveled the same trajectory but knew no more precise terms to say so. In these observations as in many others, underestimations of altitude and overestimations of size were commonplace. But a few submissions distorted the events almost beyond recognition. In one account, a starlike light barely a thousand feet high grew rapidly larger as it approached. “It was shaped like a fat cigar...the size of one of our largest airplane fuselages” and “constructed of many pieces of flat sheets of metal-like material with a ‘riveted together’ look.” “It appeared to have square-shaped windows along the side...” The windows appeared lighted from inside, and the fuselage emitted a trail of fire. Another witness said a long object like a jet aircraft without wings rushed by at treetop level. It had many windows and appeared on fire in front and behind.³

A shared time, place, and position in the sky argue that the Zond reentry provided the sole visual stimulus, and that the minds of a few witnesses transformed burning fragments into windows on a solid body close enough to see its nonexistent metal plates. There is no escaping the hard truth that eyewitnesses are capable of extreme errors at odds with the real events and other observers. This “ideal” human instrument of observation can alter basic facts until the outcome is largely fanciful, and without independent knowledge of the true nature of an event, no one might ever distinguish the true from the false.

Eyewitness fallibility comes as no surprise to psychologists and social scientists. Much research demonstrates that witnesses to crimes and accidents are often unreliable, that victims’ recall is impaired by excitement and fear. Witnesses can lie and make honest mistakes; they are subject to prejudices, desires, expectations, and demands that reshape experience into personal truth that may differ considerably from historical truth. Because of this flexibility, skeptical scientists dismiss UFO reports backed only by anecdotal testimony as devoid of scientific value and worthy only of the scorn they heap on the subject.

How Witnesses Fail

Such blanket dismissal of careful observations by honest observers may cast scientists as arrogant, but their doubts have a sound basis. The truth behind an experienced event runs a formidable gauntlet of forces that pick at its integrity, rewrite its facts, and force it to fit personal and social preferences. This lineup of assailants is long.

Event and Experience

The event is the thing that really happened, the tree that fell in the forest whether anyone heard it fall or not, the UFO that flew over the neighborhood while witnesses slept in bed. Awareness of an event requires evidence—a downed tree, surveillance footage, or a witness. An observer does not access the truth of the event, only an experience of it. Its nature can be known, like the Zond reentry, or inferred, if the position of Venus corresponds in time and place to a UFO report; but often we have only what the witness tells us to work with, and a witness can relate only the experience, a personal version with an imperfect relationship to the truth.

Unfamiliar Stimulus

Deceptive events surprise the unsuspecting witness when rare sights like a large meteor or satellite reentry spring into view. The witness might recognize a balloon, mirage, murmuration of starlings, or searchlight on clouds in one circumstance but see only a mystery in another. A fire balloon at night, a bright meteor seen head-on, or an advertising airplane at an odd angle can appear quite weird, so can a familiar sight like navigation lights of a jetliner in receptive eyes. Venus has excited misidentification time and again when it shines exceptionally bright, passes in and out of clouds, or fulfills expectations as an airship's headlight or a UFO. When more than one stimulus crosses the field of view, a readiness to relate the unrelated poses an even more confusing problem for the witness. Perceptual orientation, one's physical and mental situation when called to observe, can make all the difference between recognition and puzzlement.

Perceptual Errors

When the eye plays tricks, UFOs may result. *Autokinesis* refers to illusory movements of stationary objects like a star or planet when viewed against a dark sky. A *contrast effect* results when a bright light appears to darken the surrounding background and dims or drowns out the stars as if a dimly seen mass eclipses them. When the eye connects separate objects into a single perceived form, the result is a *contour illusion*. For several separate lights in the night, contour illusion and contrast effects may combine to create the appearance of a dark body with lights attached. A more complex illusion-maker is *pareidolia*, a tendency to see random forms as meaningful objects, like faces in clouds or the Man in the Moon. In these cases, the perception is true as seen, yet a deception.

Conceptual Errors

The ability to relate a perceived stimulus to known phenomena and thereby identify it qualifies as an appealing but error-prone capability of the witness. A perception by itself is external energies impinging on human sensory systems. Close partnership between senses and conceptual abilities brings form and meaning to what William James described as the “blooming, buzzing confusion” of raw perception.⁴ Much of this connection happens without conscious awareness or effort, like recognition of a line or circle, or distinguishing a cat from a dog. In familiar territory, perception and conception work together with efficiency and reliability to associate a sensory encounter with a proper conceptual category, but extraordinary experiences force the conceptual faculties to find a box for unfamiliar and ambiguous perceptions.

Challenged with a literally unidentified sight, a witness may undertake the *escalation of hypotheses* process that J. Allen Hynek applied to UFOs.⁵ The deliberation begins with common conventional solutions, and if they fail, broadens to more exotic options, and as last resort, admits a genuine unknown, a real UFO. Sometimes the witness has a concept already in mind. In 1897, expectations

of a successful flying machine led witnesses to see Venus and fire balloons as lights on some inventor's airship, while the "flying saucer" name suggested a shape for many reports whether or not the objects really matched that description.

An effort to make sense of an observation is a natural desire best served by retrospection after the basic facts are nailed down, but a ready source of error in the observational process itself. Conceptual influences intrude on observation from the start. They may be unconscious at this stage, their source an established belief, familiar cultural idea, or hypothetical surmise, but a possibility that seems right in the moment of experience then hardens into an accepted truth that forecloses further possibilities. A conceptual orientation once fixed in mind becomes a powerful force to mold observations in its image. It can estrange the ordinary or conventionalize the extraordinary, also impose requirements that the witness must follow for the sake of consistency, determining a sort of *confirmation bias* that favors supportive observational data and overlooks whatever does not fit—or revises it so that it does. Wrong concepts impose what is supposed to happen onto the observation of what did happen to corrupt the very facts of an experience.

Memory

The moment an event passes, God alone knows what really happened. All the witness has is a memory. Remembered events do not store away like photographs or replay like a mental videotape but, according to researchers, return to awareness in an active reconstructive process that mixes facts, concepts, and interpretations to create a version of the experience as the witness knows it, not as the event really was. Some facts are forgotten, pseudo-facts added, and all memories structured according to conceptual demands, in processes that leave truth the worse for wear.⁶⁻⁷ A fresh memory may lie closest to the truth, but it is never finished. Modifications continue as second thoughts, new information, and social pressures interact with the materials of memory to create a version new in some respects. Sometimes the creation is literally new, a *false memory* of events that never happened or so distorted that they no longer resemble the parent event. Memory variations may be great or small, but not even "flashbulb memories" left from the day of John Kennedy's assassination or the *Challenger* disaster are immune to change when recalled.⁸⁻⁹ The variants may circle around a core of truth but always at some distance removed.

Reflection, Interpretation, Understanding

Efforts to understand and interpret an anomalous experience begin on the wing, amid the excitement and uncertainty of the experience itself. On-the-spot decisions about what is happening and why help shape how the witness remembers the experience, but the witness has a chance to review the facts later, to question initial impressions with a cooler head. Yet the remembered facts are no longer historical but personal, entangled with concepts, beliefs, and motives of the witness. The interpretation and understanding of a memory determine its future—realize you saw Venus and maybe the experience is not worth mentioning, or worse, should not be because you may look foolish; but if you saw a UFO, you might have a good story. Not truth alone but other uses and interests steer the memory's fate.

Communication

Sooner or later most witnesses of unusual events want to tell their story. They must first have a story to tell, and it calls for more than a recitation of facts. The aspiring narrator must verbalize personal memories in an account that is at least comprehensible and at best entertaining. An

inherently strange experience multiplies the difficulties. Words should picture events, but inadequacies of vocabulary may convey an inaccurate image. The story must order events in a meaningful sequence, even if the narrator must improvise or interpret to compensate for inexplicable parts and his own confusion. Some details get lost or misrepresented in the process, others added for clarity, still more for support of the narrator's opinions and understanding, to suit his or her personality, or even to project a desired self-image.

A story's debut on the public stage transforms private experience into communal property. To reach this point it has conformed to narrative and social requirements and compromised its authenticity for the sake of intelligibility and appeal. Beyond this threshold a personal experience starts a new life as secondhand information. Once told, the story becomes a subject for the hearers to receive, digest, and retell in individual ways, according to their own ideas, beyond the control of the witness and without the eyewitness experience as an ultimate point of reference. The words will hold different shades of meaning, the described events different understandings, and the assigned interpretations different degrees of credibility for every recipient.

The changes that befall a narrative when it passes from person to person have attracted the interest of psychologists, sociologists, and folklorists. Experiments on story transmission identify selection processes of *leveling*, whereby less important details diminish; *sharpening*, wherein narrators select important, striking, or interesting details to emphasize; and *assimilation*, choices and changes that shape the story to the hearer's beliefs, expectations, interests, and agendas. Social pressures bear on the narrator to respect norms and the audience to enforce them. The outcome is a shorter, tighter story that stresses the dramatic, emotionally gripping aspects and rationalizes unfamiliar or confusing content. Gain in satisfaction and appeal come at the expense of lost faithfulness to the source. Each recipient responds to a story with approval, enthusiasm, criticism, or doubt, and unless the reaction is disinterest, then passes it on to other receptive individuals. These like-minded persons form a transmission conduit that preserves and propagates their favored version, augmented with discussions, disputes, and adaptations to personal and group needs. The truth of the story comes to depend less on the experience of the witness and more on the shared preferences of the various factions that foster their chosen versions of the story.¹⁰⁻¹¹

The Scribes

Some of the audience not only listen but record the story in written or audiovisual form. This record preserves the story at a moment in its history and persists as a reference for readers to consult and—ideally—get their facts straight. While a fixed text curbs some freedom to improvise, it also disseminates a version compromised before it was ever written down. Novices seeking to educate themselves may trust any UFO book or website to present the official history of a case, but these sources vary greatly in their reliability, and their writers seldom act as disinterested historians. Journalists may have no further agenda than to report newsworthy events, though they may sensationalize UFO stories for the sake of entertainment. The best UFO researchers and skeptical investigators may dig into the story, even interview the source, in honest efforts to recover the facts, though they too may listen with biased intent. Much UFO literature has less to do with finding truth than with promotion of special interests, the authors blinded to any evidence but the supporting kind or even determined to slant the story so that it serves personal and audience beliefs. Reader beware—just because you read it in a book, it is not gospel truth.

Today's multiple channels of mass communication—published, televised, Internet, and social media—raise the bully pulpit for influencers to promote chosen images, expectations, and understandings. These channels give big voices to popular authors and media figures. These people acquire name recognition, a following, an aura of authority and expertise; their versions and opinions carry disproportionate weight among an audience of millions. Modern media open a cyber-forum for participants to share experiences and fantasies, to discuss beliefs and dispute ideas; they also close participants in an echo chamber for persuasion or pressure to conform to the group's beliefs and shut out alternative views. Who even needs Wi-Fi to connect with the influence of UFOs? Their memes have soaked into popular culture with near-universal awareness, many from movies and TV series where some stories are entirely fictional and some based on fact but partly fictionalized, like the cases in History Channel's *Project Blue Book*. UFO experiences have shaped modern culture. In return, a cultural script has lodged in our heads to prepare us, should we ever experience a UFO, with preconfigured ways to see, think, and talk about it.

The Phoenix Lights: An Example of Error Possibilities Realized

The perils that befall a UFO report make for dull reading in the abstract, but they come to life when the consequences are seen in action, and no more vivid example unfolds than the Phoenix Lights of March 13, 1997. Billed as the biggest mass sighting of all time, as many as ten thousand witnesses, including the governor of Arizona, watched an enormous UFO cross the heavily populated central corridor of the state that evening. Or was it two UFOs, or five, or more? A chorus of many witnesses led to a cacophony with much to teach about the foibles of eyewitness testimony.¹²

A warm clear night drew Arizonans out of doors, many to look at the Hale-Bopp comet then prominent in the sky. Just past 8 p.m. a triangular group of five lights passed Prescott then swung south toward Phoenix, some 120-130 km. away. As the lights departed Prescott, Phoenix resident Tim Ley and family spotted five starlike lights floating low in the northwest, enlarging and spreading into a "V" configuration as they approached. Ley suspected military helicopters, but the lights maintained too perfect a pattern for separate aircraft. In minutes, with the lights less than 2 km. distant, he saw that a dark V-shaped body carried the white lights, one at the tip and two on each arm. One light appeared to split in two for a moment. Sharp edges of the object showed against the stars as it passed directly overhead, silent though only 30 m. high as it traveled at a leisurely 50 km./hr. And it was enormous—each arm 210 m. long, so wide he turned his head from side to side to take in the whole. It passed over the city and disappeared to view in the haze and lights after more than 15 minutes of observation.

Confirmations came from many independent witnesses. The governor described a massive, silent delta-shaped craft with lights embedded in its leading edge. Witnesses across Phoenix and its suburbs spoke in awe of a black boomerang 1.6 km. wide and outfitted with five lights. There were also differences: increases and decreases in the number of lights, a few diamond or rectangle shapes. One account described a 1.6-km.-wide disk that reflected ground lights off its underbelly, another told that a black triangle 3.2 km. wide with dozens of lights and silhouettes of human figures in the windows swept low overhead. The most persistent alternatives denied any connecting structure as witnesses insisted that the lights were independent, confirmed for some when they saw a light break formation, drop behind, then catch up again.

The sightings lasted until about 8:45. Local news of the events broke almost immediately so that many people were on the lookout at 10 o'clock when a second UFO event occurred. A curving line of nine bright lights burst into view in the southwest and hung low in the sky before the lights blinked out one by one. While only one video recorded the 8 o'clock UFO, several witnesses videotaped the 10 o'clock event, which later played on national TV with spectacular views that became synonymous with the Phoenix Lights. The experience etched a deep impression in the memory of witnesses. Many dug in their heels against efforts to conventionalize the event, some thought it was alien, some regarded it as a life-changing, even spiritual experience.

Ufologists first accepted all reports that night as part of a unitary Phoenix invasion and interpreted different descriptions as evidence that seven types of UFOs had converged on the city. Later reflection narrowed the field to two events, the big triangular craft at 8 and the arc of lights at 10. Both ufologists and sceptics found that the 10 o'clock lights issued from the direction of a military proving ground and, after initial denials, the Air Force admitted that National Guard aircraft had jettisoned unused flares at that place and time. Some skeptics concluded that flares explained all the events, leading to general indignation among witnesses and a conspiracy theory that Air Force planes dropped the flares in a calculated attempt to discredit the UFO sightings.

Holdouts continued to believe the 10 o'clock lights were UFOs, but attention shifted to the earlier sightings as the true Phoenix Lights mystery. The Air Force dismissed the event as a formation of aircraft, but most UFO proponents closed ranks around the thrilling narrative of a giant V-shaped spaceship over a major city. But local reporter Tony Ortega supported the Air Force explanation, citing an amateur astronomer whose telescope revealed the lights attached to aircraft, and several witnesses with military and aviation backgrounds who confirmed this identification. Simple calculations of flying time from Prescott to Phoenix gave a speed of 480-640 km./hr. for the lights, in other words, typical cruising speed for jets. A conventional solution for the 8 o'clock sightings is overwhelmingly persuasive: Five military aircraft flew in a V-formation at 6,100 meters with their landing lights shining between Prescott and Phoenix, perhaps a little beyond. We know what the Lights were even if the witnesses did not. We know what they saw, what they could and could not see. The author gathered 128 published accounts to investigate the differences between witnesses and their reports and bases the following results on this sample.¹³

Most witnesses agree on several basic facts—they saw five lights according to 68% of witnesses who provided a number, in a triangular pattern (87%), and headed southward (79%). Those few accounts with extreme idiosyncratic descriptions—a truck driver watched lights for two hours as he drove toward Phoenix, another witness saw lights move in right angles and circles—are mostly single-witness and probably describe objects unrelated to the mainstream Lights.

Only one significant issue divides the witnesses: One group reported a solid structure bearing lights (37%), the other reported only the lights (54%). Those who reported a structure assert they saw it with their own eyes; those who did not gave reasons that they had a good look but saw no connecting framework, saw stars between the lights, or saw independent movements among the lights. No matter how the witnesses interpreted their observations, their descriptions converge toward the same general picture, a mainstream account likely to reflect observational facts. These same descriptions also fit an overflight of aircraft with considerable fidelity. The fact that no

witness reported both the solid craft and the formation of lights in view at the same time or in close succession adds telling evidence in favor of a single source.

Estimates of height, speed, and size missed the mark, as usual. Though a consensus held that the UFO was large, how large ranged from the size of a football field (91 meters) to kilometers. Every guess at altitude set it low, rarely as high as 1.6 km., and the speed as blimp-like. In fact, the aircraft were several kilometers high and their apparent slowness was due to distance. Few witnesses checked a clock at the time of sighting, but fifty-seven out of 102 cases with some indication of time (56%) fall within a few minutes of the expected time of passage for landing lights on their course across the state.

The V-shaped craft owed its nonexistence to a combination of contrast effect and contour illusion. Landing lights on the jets outshone starlight and dimmed or blotted out the stars, an appearance interpreted as an opaque or translucent object that crossed in front of them. The contrasting fields of darkness beyond the lights created an illusion of connection that converted open spaces between the jets into the appearance of a massive framework. Those who reported a vast and solid craft gave honest accounts of what they saw, but the observations were illusory.

As they watched, witnesses formed concepts that shaped their understanding and their observations. Tim Ley rejected his first thought of military aircraft when he failed to see the independent movement he expected. The illusion of a solid object and the concept of a V-shaped craft may have led him to overlook the implications when a light appeared to divide. With his understanding already in place, the incident meant nothing more than an odd detail. Other witnesses understood the event as a jet dropping out of formation and proved to their satisfaction that the lights had no physical connection. The witnesses in nine cases saw a lagging light and read it as an independent UFO breaking formation, while three others thought that the light exited or detached from a triangular craft then returned, as a scout to the mother ship, in examples of an observation rationalized to fit a concept.

No sooner did the news media take notice than they began to shape individual stories into a coherent and influential narrative. It often entangled the 8 and 10 o'clock events to leave the false impression of a single event, with the videos as persuasive support. The media narrative also played up the most sensational attributes of the Phoenix Lights, often with emphasis on Tim Ley's eloquent account and iconic illustration to popularize the image of a giant V-shaped craft as "what really happened" that night. This version left no doubt that the Lights represented an alien visitation without having to say so outright; this same version appealed to UFO proponents who joined the pro-UFO witnesses as stout defenders. Eyewitnesses to the "spaceship" needed no further persuasion than their own experience, just as witnesses convinced that the lights acted independently had to reject the craft, even if they regarded the lights themselves as UFOs. In between stood witnesses who saw lights but lacked commitment to their nature. The memories of these people remained pliant, vulnerable to the proponents' pressures, the media's authority, and the allure of popular images to push ambiguities aside until possibility crystallized into certainty.

A comparison of reports that went on record soon after the sightings and those delayed for years offers some evidence that publicity did tip the scales. Witnesses reporting a solid object increased from seventeen in 1997 to twenty-seven in later years (32% to 38%); reports of separate lights

grew only from thirty-three to thirty-six over the same period, for a percentage decline from 63% to 51%. Reports of the Lights in a V or triangle increased slightly from 75% to 79%. The trends are minor, but their direction suggests that the well-circulated image of a boomerang craft encouraged more witnesses to report this type of sighting, or to conform their reports to these expectations. Another trend shows that more latecomer reports bear questionable relationships to the mainstream Phoenix Lights. Ten cases in 1997 differed radically in time, location, or description, twenty-four followed 1997 (19% to 24%). Perhaps publicity convinced witnesses of odd sights that what they saw belonged with the Lights, or perhaps some people just sought vicarious participation in this exciting and famous event.

The Phoenix Lights story drew interest from well beyond the eyewitness population. One community of belief committed to the reality of a UFO visitation, the other to a conventional solution. Each side defended its ground and gathered supporters, welcomed confirmations and cold-shouldered the rest. The proponents have enjoyed an edge in excitement and to this day treat the lights as an event of momentous significance. Some people claim alien spacecraft continue to haunt the city. Rumors that fighter jets pursued the Lights, that a private plane passed above a mile-long craft that blotted out lights on the ground, contribute to an aura of wonder that surrounds the story. Writers and ufologists sometimes elevate this case to best-evidence status despite the negative evidence. A new story has supplanted the messy one told by the witnesses, a communal version with inconvenient facts omitted, the most dramatic aspects emphasized, and the meaning defined as alien visitation. This collective creation blends individual stories and elements preferred by the intended audience into a generic version widely known and oft repeated, but unfaithful both to the experiences of any one witness and to the implications of the total testimony. True to wishes but false to evidence, this version proves only the human will to believe.

High Strangeness

All UFO observations discussed so far have been of the ordinary sort—strange but still within bounds of the everyday. The subject relates to the object in the same way as any witness with all faculties intact observes a passing car, airplane, or bird. But examples of “high strangeness” have also accumulated in the UFO literature, cases where UFOs vanish, beams of light bend like solid material, and entities pass through solid walls like ghosts, defying both the laws of physics and common sense. The UFO abduction experience tops the chart for not only subjecting witnesses to mind-bending experiences, but for tampering with their minds as well. When we enter the realm of high strangeness, we are not in Kansas anymore.

The phenomena of abduction reports encompass many aspects of high strangeness. A sleeper awakes unable to move, shadowy humanoids float her out of the house and into a spaceship. A pervasive silence like a vacuum descends on a motorist, his car stops, all traffic ceases, and surrounded by this Oz Effect, he levitates into a UFO. In a fluorescent room the beings subject the helpless captive to a bizarre medical examination and instill thoughts by staring into his or her eyes, often images of mass destruction or an idyllic paradise. Returned to the everyday world, the captive realizes a period of missing time and fears certain sights and situations but remembers the forgotten encounter only through flashbacks, nightmares, or hypnosis. UFO abductions compare in some respects to kidnap by fairies, journeys to the underworld, and shamanic initiations. They mingle the real and the surreal as they leave marks, cuts, and muddy feet yet escape independent observation or fail to wake a spouse asleep in the same bed.

The kneejerk first response dismisses abductees as crazy, liars, dreamers, deluded, anything but normal and reliable witnesses. Yet psychological tests demonstrate that they are not psychotic, though they may exhibit characteristics of having suffered a traumatic experience. They are often high functioning, accomplished, intelligent, educated people and one is a Nobel Prize-winning scientist. Abductees represent a cross-section of society out of the ordinary only insofar as they report an extraordinary experience.¹⁴

For the skeptics who regard these stories as fantasies, the real author is not the abductee but the investigator, whose efforts to recover repressed memories by hypnosis instead create imagined ones. Research into memory processes, much of it carried out in connection with the 1980s epidemic of unfounded sexual and ritual abuse claims, discovered abundant evidence that hypnotist and subject can confabulate elaborate stories of events that never happened. Suggestions to remember what the investigator wants to find combined with the now-familiar content of UFO abductions plant the idea, repetitive reinforcement solidifies false memories until they feel as real as genuine memories. If the subject is susceptible to suggestion and already interested in UFOs, so much the better; and if the subject has a fantasy-prone personality, the resulting story can emerge as a masterpiece of creative imagination.¹⁵

Another path to becoming a mistaken abductee is sleep paralysis. The experience of waking unable to move and hallucinating a terrifying intruder, recognized in many cultures but nameless in America, is rare enough to leave most victims grasping for an explanation and finding UFO abduction as a suggestive possibility.¹⁶ Then there is Lewy Body Dementia, most common but not limited to older adults, wherein vivid hallucinations may take the form of small or childlike entities with large black eyes and so lifelike that conversations ensue. Nightmares, hallucinations, fugue states, and other possibilities of subjective origin arm skeptics with ample ammunition to attack the literal reality of abductee accounts.¹⁷

A defense for objectively real UFO abductions is a hard case to argue. Implausible on the surface, without firm evidence in hand, with less radical psychological solutions available, the story leans heavily on the testimony of abductees just when their credibility as witnesses seems most questionable. Not that their honesty or sincerity is at stake, but the reality of their accounts certainly is. The possibility of a physical event has circumstantial support like Barney Hill's scuffed shoes and broken binocular strap, multiple-witness cases, and a coherence in the narrative that predates widespread public awareness; but this evidence is flimsy compared to the likelihood that suggestion, confabulation, false memories, and cultural influences not only shape the stories abductees tell, but even put the words they speak into their mouths.

When abductions exploded on the ufological scene in the 1980s, they dazzled proponents with a promise to validate everything they believed about UFOs. Indisputable evidence seemed within grasp, after years of accumulating thousands of ambiguous sightings that always fell short in some way. By the late 1990s, failure to deliver had tarnished the shine and cleared the sight of those willing to look. What they saw was that a claim as fantastic as alien abduction stood no chance of scientific acceptance when ufologists could not even satisfy official science that UFOs existed.

On the principle that it is better to start at the bottom than the top, abductions and all high-strangeness cases qualify as overreach. Is the strangeness inherent in the events? Does it represent magical technology or encounters with parapsychical phenomena? If so, can witnesses perceive, much less understand, what is going on as free observers, or are human senses inadequate, human interpretations completely off base, the human mind itself impaired by outside control? Or is it all just a well-promoted assemblage of extreme misperceptions and misconceptions? A final judgment requires learning more about high-strangeness cases, more about the experiencers, and more about how to separate objective from subjective experience; but for now, the most reliable witnesses and the most substantive UFO cases reside at the low end of the strangeness spectrum, where all the anomalousness belongs to the UFO and most of it seems physical in nature. Here lies the most accessible evidence for UFOs, and here belongs the foundation for study of the rest.

The Good News About Witnesses

While cases of extreme error stand out like rare and gaudy birds in a flock of starlings, sure to arrest attention and stick in memory, they fall far outside the norm. Reports of the Zond reentry contained a few wild deviations and some lesser errors in estimated quantities and word usage; but accurate reports of a group of lights, silence, movement, and identity as reentry fragments or meteors were far more common. Most reports remained faithful to observable facts even when witnesses misinterpreted them. The Phoenix Lights divided witnesses between a V-shaped craft with five lights and five separate lights in V formation, but everyone saw lights and most saw five in a V pattern. Even reports of deviant configurations may accurately describe the formation flattened in appearance by a low angle of view. Even when distorted and misidentified, the factual sights repeated in almost every mainstream account, even down to the light that jogged out of line, however the witnesses understood it.

The Zond and Phoenix cases uphold rather than demolish everyday trust in eyewitness testimony. Despite the suddenness and excitement of a UFO encounter, against preconceptions, agendas, and pressures, most witnesses in two mass sightings demonstrate reliability in reports of observable features and a dependable lack of reliability when reckoning size, altitude, and speed. Here is a finding worth repeating: Witnesses of UFOs make good observers, with reservations. They see something, they register the visible facts in their awareness, and they convey those facts in their reports. Witnesses are never perfect, but if error sometimes corrupts the facts of a UFO observation, it rarely destroys them, and true interpretations often win out over false.

To Trust or Not to Trust

If UFO witnesses can be accurate observers, their anecdotal evidence is not the junk hard science condemns, but the question shifts to when they are accurate. Scientists can rely on their instruments to provide a sound basis for research. Ufologists too want trustworthy answers but face two unknowns—the UFOs they wish to explore and the uncertainties of the data with which they work. Since anecdotal testimony usually provides the only UFO evidence, throwing it away is not an option; but ufology's data serve little purpose without some way to distinguish who relays facts from who obscures them. No one can read minds or turn back time to share the experience. We can anticipate errors in estimates of size and when common illusions play their tricks, or we can take warning when two witnesses look at the same UFO and describe it in opposing ways; but in most cases a decision on who to trust ends up as a personal choice, a flip of a coin, or an application of Occam's Razor.

Another approach combines two “bests”—best reports and best witnesses—to work around the trustworthiness dilemma and secure an improved UFO sample for research. Hundreds of thousands of reports have entered the records since 1947 and some of them must describe real UFOs, if any real UFOs exist. Genuine UFOs are rare and reports informative enough to be useful are rarer still; but winnowed from the reams of mistaken identities and concentrated into a doubly refined sample, these UFOs offer researchers the most promising materials to recognize, collate, and study for traits of a unique phenomenon.

A two-pronged approach to collect a UFO-enriched sample starts with cases already rated as likely unknowns. Military and government agencies, reputable UFO organizations, investigators, and writers have gathered promising cases that defy conventional identification. These reports need to be rich in information, full of descriptive details. Each report must have reliable provenance—known sources, identifiable witnesses, accounts in the witnesses’ own words. Essential to establish the quality of a case is an investigation by trustworthy and qualified parties who can gather facts, interview witnesses, and judge both the reporters and the events reported. Each case should face a trial by critics who search for conventional solutions, checking for Venus in the right position, meteors, reentries, and the like; and only if the case passes these tests should it count as worthy.

Witness quality adds a second standard for desirable reports. Most UFO cases are single-witness and rank lowest for reliability. Two or more witnesses are better and best of all are multiple independent witnesses whose reports can be cross-checked for concurrencies and idiosyncrasies. The reliability of witnesses is important—do they have a reputation for honesty and good standing in the community, does the investigator consider them honest, serious, competent, mentally stable, conscientious to communicate a strange experience as best they can, and not engaged in a hoax?

Two other characteristics boost witness value: One is training, experience, education, or profession when it equips them to be better than average observers and interpreters of observations. The other is a job or circumstance that places them in a favorable position to observe. People who fit one or both categories include military—pilots, air traffic control, guards, and sentries; civilian aviation personnel—airline pilots, ground control, airport workers, and private pilots; scientists and engineers—astronomers, meteorologists, and aviation engineers; law enforcement officers—police, sheriffs, border patrol; lookouts and observers—forest fire lookouts, ships’ watches, weather observers, the Ground Observer Corps. These groups comprise an elite among witnesses, responsible, vigilant, often familiar with the sky and aerial phenomena, prepared to make calm and informed observations of an unfamiliar sight. Their qualifications raise the trust issue from the individual to a more practical collective level.

Even the best observers make mistakes, like airline pilots fooled by a meteor, or police led on a chase by a bright star. Some cases now inexplicable may yield to new information or investigation. Ufologists cannot hope for a perfect sample, only a better one with an enhanced ratio of unknowns to IFOs and a better chance to identify patterns and consistencies of a possible UFO phenomenon. The cases reported by elite observers and surviving all challenges to their unknown status present the most promising sample for researchers in this imperfect world.

Putting Theory into Practice

The author undertook a small study to see if high-quality observers of unknown flying objects provide evidence for consistent UFO characteristics.¹⁸ The sample consists of 697 unknowns and 102 IFOs reported by seven observer groups: military personnel (air, ground, and air + ground), civilian aviation personnel (air and ground), scientists and engineers, and lookouts. Sources for reports include Project Blue Book unknowns, NICAP yearly chronologies, NARCAP, the Condon project, and a study of UFO experiences among forest fire lookouts.¹⁹⁻²² The reports are worldwide though primarily U.S., and dates range from 1943 to 2015. These cases reflect selection bias in favor of rich information, known investigation, daylight or twilight hours (52%), multiple witnesses (70%), and duration of one to ten minutes (31%).

Important Content Features

The study tracked thirty-three elements of appearance and behavior that recur in reports by the seven witness groups. The percentages are averages for all groups:

Description

The flying saucer or disk shape is the most common (37%), followed by round (sphere or disk seen at a high angle) (20%), light (20%), cigar or cylinder (14%), and triangle (7%). The most common colors are metallic or silvery (26%) and white (24%). Structural features like windows, domes, and fins are scarce (16%).

Size and speed

These estimates may improve among military and airline pilots thanks to their training and experience, while balloon trackers and weather observers sometimes have the aid of theodolites. Only half of the sample reports provide figures for size and speed. The given sizes favor ten-100 feet (21%), more than 100 feet (16%) and less than ten feet (8%). Speeds are fast (supersonic or more, 24%), moderate (200-750 mph, 15%), and slow (less than 200 mph, 6%).

Maneuvers

Two-thirds of the cases mention UFO maneuvers, and in 20% characterize the actions as exceptional, using terms like “dogfighting,” “like nothing I’ve ever seen,” or “flew circles” around a jet. The UFOs climb or descend (32%), change direction (38%), sometimes at right angles or in circles and U-turns with a radius too tight for an aircraft. Zigzags, falling-leaf movements, spins, rolls, and flutters occur at lower percentages.

Three maneuvers are especially noteworthy: 1) Fast stop-and-go (25%). The UFO flies at high speed, stops suddenly, hovers, then whizzes off again. 2) High variability in speed (23%). The UFO suddenly accelerates or decelerates up, down, or side to side, at speeds impossible for aircraft or human pilots to survive. 3) Fast departure. After engagement with an aircraft or an object on the ground, the UFO accelerates from a dead stop or pacing speed to tremendous velocity and out of sight in seconds, headed straight up, away at an angle, or off toward the horizon. Examples of this maneuver are certain or probable in 44% of cases, no or probably not in 24%, and not observed or not reported in 25%. In the remaining 7%, the UFO blinks out or vanishes, though whether the lights go out, the object physically disappears, or it speeds out of sight in a literal blink of an eye remains uncertain.

Purposeful actions (?)

Some activities lend themselves to subjective interpretation as deliberate. Military and civilian pilots most often report these events, which nearly halves the sample to 331 cases; and of these, 26% interpreted fast, head-on, or close approaches as threatening behavior, 24% said that a UFO paced, trailed, or pursued their aircraft, and 21% believed that a UFO turned away or fled as they attempted to approach it. Smaller percentages from both air and ground witnesses attributed curiosity, purpose, or “showoff” displays to UFOs.

Comparisons Among the Witness Groups

Taking the total averages for each of the thirty-three content features as benchmarks, the groups of elite witnesses agree with no more than 10-20% variation in 135 out of 231 (7x33) possibilities. The smallest group (Military Air-Ground) deviates the most, and speed estimates also go astray, but the general picture is one of consistency. Some features are familiar and expected, like the disk shape, but others are not, yet they still recur.

UFOs vs. IFOs

A sample of 102 cases from the same lists as the UFO sample provides comparison of UFOs with conventional objects mistaken for UFOs. These identified flying objects originate with the same high-quality observers as the UFOs and contain similarly rich information. Some of them are famous, but fame does not make facts, and these cases have what the author considers plausible conventional explanations. Compared to the 697 UFO reports, the IFOs post lower averages for most features but higher averages for “undesirables” like long or short duration of sightings and absence of maneuvers. A clear pattern of difference separates the two samples.

Best cases

100 reports selected from the 697 sample represent the “best cases,” those that the author considers the most promising examples of a genuine UFO phenomenon. When compared with the 697, almost all “positive” features increase, like disks, maneuvers, and fast departures. The selection criteria for the “best” sample favor multiple witnesses, independent witnesses, and a moderate duration, but descriptive indicators of an unconventional phenomenon grow as well.

Fast-departure sample

100 reports that include the fast-departure maneuver surpass the 697 sample averages for every positive feature, and closely parallel the best-case sample, though with slightly fewer disks and fast speeds, slightly more medium size and slow-fast maneuvers, and, of course, fast departures. If fast departure corresponds to a true earmark, it suggests the other prominent features within the sample are true, while the near match between this sample and the best-case sample lends mutual support for these features. Here, then, elite witnesses introduce some strong candidates for ways real UFOs look and act.

A graph sets these comparisons side by side, with eleven features expressed as percentages for the IFO, 697, Best Cases, and Fast Departure samples. The features left to right are: 1) One to ten-minute duration, 2) Disk, 3) Metallic, 4) White, 5) Medium size, 6) Fast, 7) Maneuvers (any), 8) Up-down maneuvers, 9) Hover, 10) Slow-fast maneuvers, 11) Fast departure.

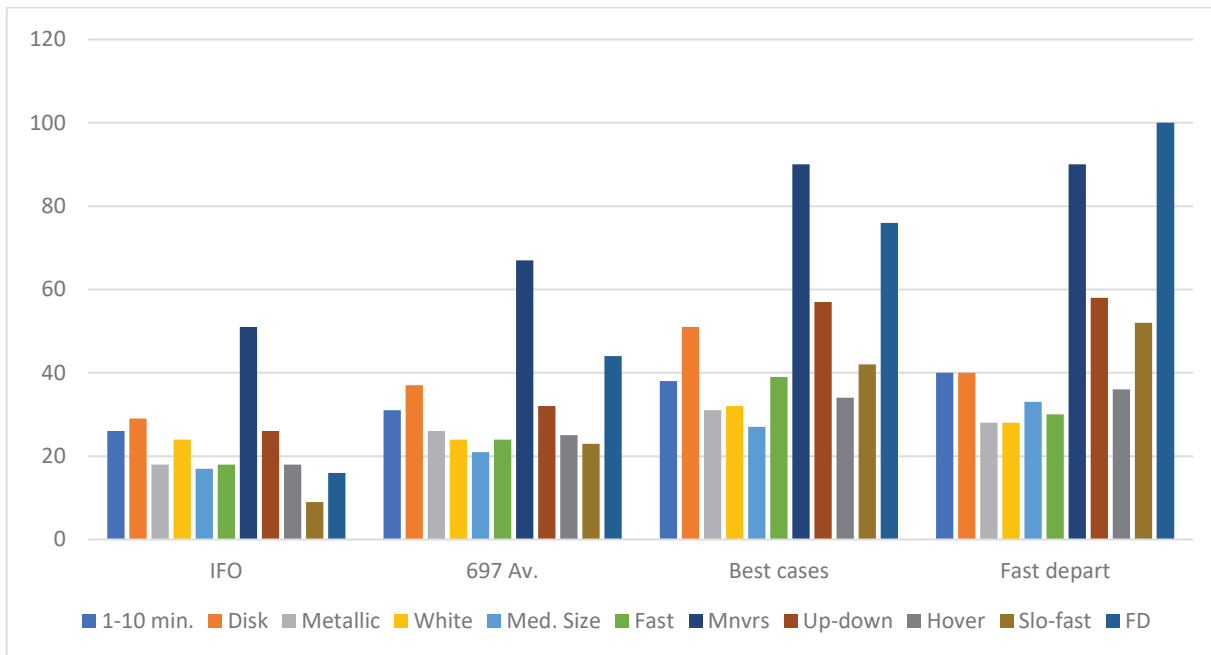


Table 1: Comparison of Select UFO Features in Four Samples
 Source: Bullard, “UFOs in Practiced Eyes” (forthcoming).

The graph reveals across-the-board differences between IFOs and UFOs, and enrichment in certain earmark features for the select samples in comparison with the 697 unknowns. This study suggests that witness quality matters, that witness qualifications make a difference and deserve treatment as a significant variable. Crude as it is, the study also hints that something more than human error underlies a small remainder of UFO reports. Remove the clearly conventional, forget the lights in the night that leave little to judge, and consider only the carefully observed and described reports of qualified witnesses, and a pattern begins to emerge among these unknowns. The witnesses include test pilot and future Mercury astronaut Deke Slayton, astronomer Clyde Tombaugh, and legendary aviation engineer Kelly Johnson, along with half a dozen of his fellow Lockheed test pilots and engineers. The stories themselves are anecdotal but strong, detailed, and confounding. If any eyewitness evidence deserves consideration, these reports do.

Does a distinctive UFO phenomenon exist? Maybe the unknowns amount to a heap of oddball leftovers, unrecognized natural events and unresolved human errors dumped by scientists as trash but embraced by ufologists as treasure. If the reports represent an accumulation of junk, they should reflect the randomness of their origins, but this little study shows something more. Rather than scatter far and wide, the reported features converge and gain in frequency as sample and witness quality improve. Maybe sample bias and psychosocial influences herd the data toward familiar stereotypes but features like fast departure and fast-slow movements are complex, robust, and outside the popular spotlight, yet their frequency also grows in tandem with sample quality. An alternative possibility allows that elite observers diverse in expertise, training, and situation, who report similar experiences in detailed and independent-minded accounts, may simply describe consistent external events.

Yogi Berra, baseball's master of malapropism, allegedly said, "If I hadn't believed it, I wouldn't have seen it." Whatever its origin, the quote repeats a sage reminder that the UFO witness is a flawed instrument, variable in quality and capable of going far astray, yet often accurate and even at worst, likely to preserve observational facts. The better the witnesses, the better vetted the reports, the more consistent the attributes of the UFOs become. Perhaps even the most striking elements will dissolve into some form of illusion, but they are noteworthy enough to deserve further and more painstaking inquiry in case the witnesses have tapped into distinctive traits of a unique and unknown phenomenon. Perhaps with UFOs, seeing will turn out to prove believing after all.

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