



ORBITER

The New England Aerial Phenomena Report

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Issue #11

COMMENTARY

SPT. 1988

In this issue, I've reprinted a few articles related to the Gulf Breeze events. One of the articles is the recent position statement of CAUS which was published in their Sept. '88 newsletter. Rarely does CAUS deal with matters outside of Government involvement. However, they felt that they had to issue a statement due to the repercussions this case is having on the ufological community as a whole.

Another article entitled "What If The Photos Are Real?" authored by Dr. Willy Smith raises more questions on the Gulf Breeze case. Dr. Smith recently presented a paper at the National UFO Conference on Sept. 17, 1988 titled "The Gulf Breeze Saga". He makes a very valid point during the introduction of his paper. He states:

"Controversy" has become a household word in these days of political decisions, used with fruition by the media to typify unresolved issues surrounded by emotional considerations and having very little substantiation.

By extension, perhaps, the word has been used in connection with the Gulf Breeze, Florida, incidents. From my viewpoint as a scientist, I find this unsettling, because there is no controversy in science: only difference of opinions. Issues are not decided by vitriolic rhetoric, or by heated "ad hominem" arguments, but by a judicious consideration of all known facts. This well-proven method of science leads to conclusions which are satisfactory because they can be independently verified by others.

Has this occurred with the Gulf Breeze sighting?

An open letter from Bob Boyd to Associates in Ufology is also reprinted in this issue. In his letter Bob informs us of his upcoming 50+ page Gulf Breeze report titled Failure at Science. We have now been informed that the report is now complete. This is a well-detailed piece of work complete with illustrations and pertinent data, anomalies of photographs which have been kept out of the MUFON journal, negative evidence which was systematically suppressed, the development of the senseless attack on Bob Boyd, lengthy critique on Bruce Maccabee's 1988 Symposium paper, and more. This is a revealing report that I recommend to anyone who wants to know the other side of the Gulf Breeze events. To obtain a copy of "Failure At Science", write to Robert Boyd, P.O. Box 66404, Mobile, Alabama 36606. The cost is \$10.00 which includes postage and handling.

I would like to expand a bit on some of the repercussions this case is having on the UFO community. As we all know, the electronic media and press have a strong lust for the sensational and bizarre when dealing with the UFO phenomena. Their attention is not aimed at the objective researcher/investigator but instead they lend their ear and print the outlandish claims by UFO buffs and fanatics. Many of these buffs and fanatics around the country are now utilizing the Gulf Breeze case as proof of E.T. visitation and stating that MUFON has the proof. MUFON claims to be scientific but to be scientific is to study and report all the data. Has this been done? No. MUFON has been warned by prominent ufologists and scientists of the problems this case will pose. These warnings were ignored. Why bother carrying scientific consultants if their advise is ignored? Are they just names on paper? We notice now that the biased reporting by MUFON is having its effects on small grass roots organizations and the unstudious. Due to lack of leadership, finances and credible material people are in the dark and unable to lead themselves to the truth. It should be the concern of every objective researcher/investigator that all of the Gulf Breeze material be made available for study, not only what MUFON feels should be made available. In this manner, ufologists can draw their own conclusions.

At a time when public awareness of the UFO phenomenon is at a very high level we note a disturbing situation. Serious controversy has developed in connection with the Gulf Breeze, Florida UFO photo case, a controversy which threatens the integrity of our subject (see recent issues of the MUFON UFO Journal and CUFOS Bulletin for details).

One may debate the merits or demerits of a sighting, this is what investigation and discussion of casework is all about. What has clearly developed here however is an exercise in character assassination with MUFON and Gulf Breeze supporters on one side and CUFOS and Gulf Breeze critics on the other side. Unfortunately the verbal muggings going on and their aftermath will hurt us all. UFO study will continue to be perceived as a fragmented, disorganized political boxing ring where those of differing opinions slug it out to see who can blacken the others' eyes.

Our position is that the burden of proof is on the Gulf Breeze supporters to prove their case, something we feel has not been done yet at this writing (8/23). It is entirely reasonable and necessary to raise critical questions and put a case through a ringer of tough scrutiny before it deserves the label "UFO." The questions posed by the Center for UFO Studies are serious, legitimate, and have not been adequately answered by the MUFON side of the fence. We are most dismayed at the removal of Robert Boyd, MUFON's State Director for Alabama and a former investigator and current critic of Gulf Breeze, from his directorship by MUFON's International Director, Walt Andrus. The reason given, alleged violations of MUFON's Field Manual, will undoubtedly be interpreted instead as retaliation for being vocally against what MUFON has now endorsed as authentic (see MUFON UFO Journal, August 1988). At the same time we've noted statements earlier in the year by Gulf Breeze proponents which were outrageously biased, yet no punishment seems to have been meted out at all.

The consequences of the current debate are clear. If an organization makes a policy decision to support a bizarre incident, or series of incidents, as authentic and then proceeds to attack all criticism, every question must be answered, not ignored; otherwise, the organization's support must be considered "lightweight" and without firm scientific foundation. The organization then becomes vulnerable to credibility questions and its hard-earned influence fades quickly into obscurity.

We would like to see total and amiable cooperation between all organizations researching UFOs. It is obvious though that with four decades of experience behind us this will be nearly impossible. We can only hope that UFOs will be explained ultimately, despite the petty bickerings of those who embrace the subject the most.

We support a recent statement by CUFOS, The CUFOS Position on the Gulf Breeze Case, and look for a quick resolution to this very serious problem.

To: Associates In Ufology
c/o The Orbiter

What has taken place concerning the principal events at Gulf Breeze, Florida will eventually have one of two results: 1) Our field of study will continue in an environment equivalent to the dark ages as it has for the past forty-plus years; or, 2) a core of serious associates will form a coalition so as to overcome the major factors inhibiting the general acceptance of ufology.

Those major factors are well known: 1) Belief-based "UFO Buffs" presenting themselves as investigators, 2) News Media involvement for purposes of sensationalism, and 3) Belief-based "De-buffers" (de-bunkers) that are fearful and/or egotistical of their ignorance.

Those suppressing factors must be opposed in an aggressive manner if a change is to be expected. The best means of handling the buffs is to expose them for what they are and then avoiding them. The media must be strongly criticized whenever it is found to be promoting sensationalism or misinformation and collaboration with buffs. Debuffers are counterparts to buffs and should be handled in a similar fashion - identified as such and avoided.

The above is a simplistic outline of what needs to be done. Each of us must do what we can but a more concerted effort of our "silent majority" is paramount for the task at hand. There is a large number of "latent" people out there that are reluctant to become involved in our field primarily because of incidents such as GB. We must find a way to tap that reserve of rational people and encourage their involvement. This will take action, finances and dedication.

GB might very well turn out to be a landmark (regardless of its authenticity) for the Dawning of Ufology - an enlightened new group of serious participants that will bring forth an acceptance of these studies by society and the academic community.

For those of you that might be interested; a three-part 50+ page work on GB is forthcoming. It is titled "Failure At Science" and will consist of my first-hand historic account of GB, a critique of Dr. Maccabee's "GB History" published in the 1988 MUFON Symposium Proceedings and a technical examination of the GB photographs. The work will be "Velo" bound measuring 8 1/2 X 11" and availability and price will be announced in the near future.

Because of my previous commitments and the above-mentioned work, I have been unable to correspond with associates promptly as I have in the past. By this fall I hope to be able to catch-up with unanswered letters and inquiries. Please forgive this unfortunate situation and thank you for your patience.

Robert D. Boyd
August, 1988

The Gulf Breeze incidents have split the ufological world into two camps which have not hesitated to circulate virulent internal communications, at times slanderous, in which they defend their particular viewpoints: either the photos are what they claim to be, or they are hoaxes. These two choices are the only possibilities. What has not been properly done is to follow each of the assumptions to its logical conclusion, thus arriving at tentative and more valid results which might clarify the situation.

If the photos are hoaxes, indeed the case will pass into history as a unique example of bickering among people who should have known better, thus shoring up the critical position of the academic community, always dubious if not outright skeptical about the UFO phenomenon.

On the other hand, if the photos are real, the most significant event of the century demands more decisive actions than what we have seen so far. Prominent ufologists, such as Walt Andrus, Bruce Maccabee and Budd Hopkins have been loudly clamoring that the photos are genuine and spending considerable effort and time on producing reams of paper aimed at convincing by hook or by crook those who like myself have expressed doubts. Yet, as discussed below, they have not done what one would expect from them under the circumstances.

Budd Hopkins, in particular, has made a strong emotional appeal based on what could happen to the witness if the skeptics falsely label him a "hoaxer". He has described a scenario of a broken family, lives destroyed beyond repair, as well as a grim and vaguely threatening panorama of impossible legal complications.

I do not subscribe to this view, because it doesn't take much to conclude that if the photos are proven genuine, the witness will collect only benefits. The one person who presently should have no doubts is the witness; and he will not be riled or affected in any way by the negative opinions of others, when he knows that he is holding all the aces. He only has to wait, and time will prove him right.

However, a hoax will cause the photographer like many others before him, to fade into oblivion, forsaking his dreams of fame and riches as the respected author of a best-seller. His ego will perhaps be a little bent, but he will survive without major damage, and all he will have to put up with will be the knowing smiles of neighbors and friends.

Let us pursue the hypothesis that the photos are genuine to its logical conclusions.

(1) The objects.

First of all, the photos indicate the presence of a superior intelligence, with an absolute control of the space-time continuum. That intelligence has peculiar machines which operate in a densely populated area in such a fashion that only the principal witness and his wife have been able to see and photograph them. Four distinct models, if not more, are depicted in the photos. The initial craft presents obvious asymmetries and irregularities, while the objects shown in later photographs show a well-defined cylindrical symmetry but definitely fewer structural details. One can speculate that this is just an indication of an improving technology, or more simply, that the first machine was damaged in transit and had to be disposed of after a replacement craft arrived from their place of origin.

Thus: *machines of unknown origin have been documented.*

(2) Control of the witness.

The witness has claimed that he is aware of the approach of the craft by a hum perceived inside his head. This may well be the case, but since we know about it secondhand, through the witness himself, we don't have to accept the effect as real. We must maintain the perspective that the facts and what we are told are two different things, and keep in mind that the witness has not been totally candid, as will be discussed later.

At any rate, the uncanny ability of the witness to anticipate the approach of the objects and to prepare his camera is unquestionable, as he has been able to use this talent more than once. The fact that emerges is that the controlling intelligence has the power to contact the witness, this particular witness, whenever it sees fit, and is encouraging the taking of photographs. Curiously enough, when others have been present (except the witness's wife), photographs have not been obtained.

Thus: *the operators of the machines have absolute control of the immediate environment surrounding the witness, and dictate his behavior.*

(3) The apparent inappropriateness of the witness.

Since the intelligence has clearly selected this particular witness as the focus of its attentions, the inescapable question is: why?

The witness does not occupy a prominent position in our society because of his education, profession, intelligence or wealth. He doesn't live in an important part of the world, and doesn't have the proper connections or background to take

his narrative to those in the government who could have an interest.

He is a typical middle-class man with a wife, two children and a dog, and a reasonable income as a builder in a community of 2500. He is known in his town because the place is small, but certainly he is not prominent or outstanding in any perceptible way. He has no formal education, but he seems proficient enough at his trade.

Then why has he been selected among millions to be the instrument to document the presence of the intelligence? I have no answer to this question, which I feel is most relevant to the assumption of genuine photos. Why him? What purpose could the intelligence have to select Ed from all people? Moreover: what has the intelligence accomplished in more than 6 months of interaction with the witness, except to divide the ufological community?

It is evident that the selection is not based on Ed's shining personality and/or reliable character. In fact, Ed has many shortcomings. He has deceived the investigators by using different names, and by hiding the identity of the place where he received his limited education. He has made much of the fact that "they" talked to him in Spanish, of all languages, except that Ed's Spanish is at best rudimentary. And, moreover, entities from the stars have no reason to use bad Spanish in a telepathic communication which properly does not need a specific language. Two choices present themselves: the witness is lying, thus destroying his credibility; or, the entities controlling the craft(s) are really sloppy, as shown also by their irregular machines. Neither option is satisfactory.

Thus: the selection of the witness is based on unknown criteria, not compatible with our logic. No purpose is discernible in the actions of the intelligence.

(4) The Strieber connection.

As has been pointed out by Robert Boyd and others, the entities described by Ed have similarities to those described in Communion by Whitley Strieber, billed by the author and accepted by many as a true story. Those similarities are too numerous to be ascribed to coincidence.

On the assumption that the photos are genuine, we have here another true story in which apparently the same entities have interacted intimately with a second human being. It follows that a confrontation of Strieber and Ed, perhaps combined with hypnotic sessions, is of the utmost importance.

As far as I know, this has not been done; and those in a position to arrange such a meeting, like Budd Hopkins, are

grossly derelict in their duty, not only to the ufological community in particular, but most importantly, to humankind, as this could be a golden opportunity to resolve the UFO question definitely. That nothing has been done can only be interpreted as a lack of confidence in their own assumptions.

Thus: ufologist supporting the genuineness of the photos have not taken actions consistent with that belief.

(5) The national security angle.

This is beyond the shadow of a doubt the most important consequence of assuming the photos are genuine. They portray machines of unknown origin, deploying weapons of terrifying potential, like the blue beam shown in one of the photos, and with devastating effects described in detail by the witness.

Ufologists who like Dr. Bruce Maccabee have proclaimed the photos to be genuine, claiming that the contention is supported by computer analysis (so far, unpublished), cannot ignore the serious implications for national security of the presence in our air space of machines controlled by a superior intelligence. Whatever their origin, the crafts have advanced weaponry and seem to be able to control individuals, if not large groups.

It follows unavoidably that if Dr. Maccabee and Don Ware, a retired Air Force lieutenant colonel, are really and absolutely convinced that the photos are genuine, their duty as citizens of the USA is to bring this into the open at once, and inform the appropriate branches of the US Government. If this is not done, and as far as I know such is the case, those failing to transmit the information are guilty of a fundamental sin of omission, which can spell disaster for the nation and for each one of us.

Thus: why do ufologists predicating the photos are real not go to the authorities?

I am aware that this paper only raises questions, but it also places the complex Gulf Breeze events in a new light. I hope it will prompt some creative thoughts in other concerned persons.

Dr. Willy Smith
UNICAT Project
August 2, 1986

UFOs: Fact and Frivolity



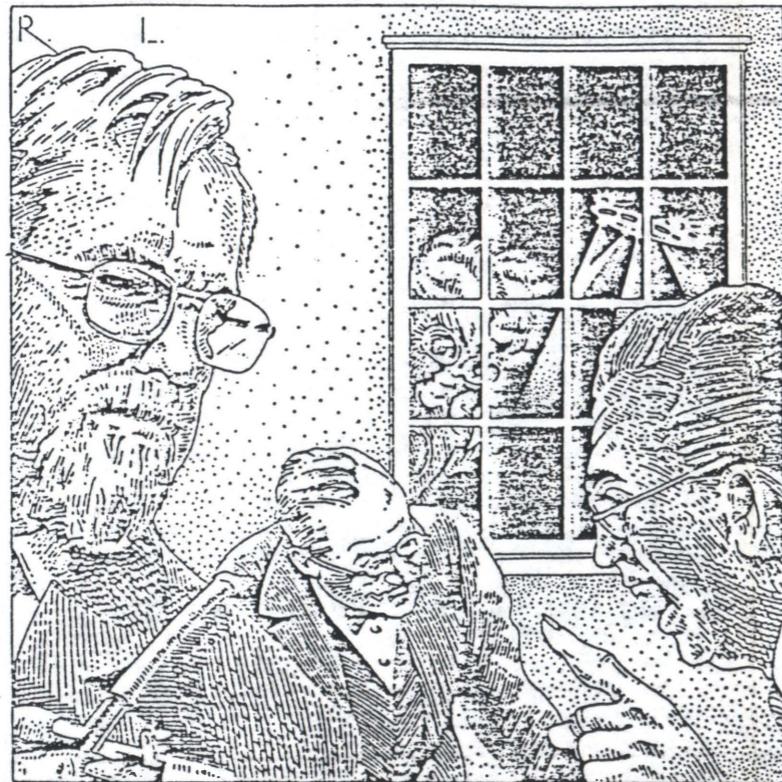
Robert C. Cowen, science editor of the *Christian Science Monitor*, is former president of the National Association of Science Writers and a regular contributor to the *Review*. He holds S.B. and S.M. degrees in meteorology from M.I.T.

J. Allen Hynek, the astronomer who has come to symbolize the scientific investigation of UFOs (unidentified flying objects), was striving to find common ground with his colleagues. "Our purpose," he said, "is to determine as best we can whether the UFO phenomenon is trivial or cloaks something of importance... Scientific questions are resolved by hard work." With this, there was no disagreement from his five fellow panelists at an unprecedented symposium organized by the Smithsonian Institution in September. However, some of them may have wished he would put more emphasis on the "hard work" and less on speculations of alternative realities and dubious encounters of the third kind. Yet the mere fact that this conservative institution would hold such a symposium and could find six credible experts to conduct it shows how far a little hard work disciplined by the principles of scientific investigation can carry this fascinating, confusing, and often goofy subject.

Stringent Criteria of the First Kind

In one respect, the subject hasn't been carried very far at all. Some 33 years after Kenneth Arnold gave the world a space buzzword — "flying saucers" — when he reported seeing aerial discs, most sightings turn out to be something prosaic, leaving a residue of real unknowns in contention. This has done nothing to exorcise popular myths of extraterrestrial visitations, abductions on board alien spacecraft, or bodies of "little green men" secretly held in government vaults. Yet in the perspective of investigators trying to get an effective grip on a slippery subject, some important insights have been gained.

Besides Dr. Hynek, founder and scientific director of the Center for UFO Studies (CUFOS), there was Allan Hen-



dry, CUFOS chief investigator; Bruce S. Maccabbee, navy physicist and chairman of the Fund for UFO Research; James E. Oberg, NASA engineer and author of *Omni's* monthly UFO column; Robert Shaeffer, a UFO study veteran; and Philip J. Klass, a senior editor at *Aviation Week and Space Technology* who has taken on UFOs as a hobby. The latter three are also on the UFO subcommittees of the Committee for Scientific Investigation of Claims of the Paranormal.

Each emphasized that one major point emerging from three decades of UFO study is the consistent ratio of IFOs (identified flying objects) to true unknowns. Year after year, some 90 to 92 percent of UFOs reported worldwide can be explained in terms of natural or human effects when properly investigated. As Mr. Klass noted, this percentage is much higher than that of detectives solving local murders.

The second point is that the UFO sightings are a genuine grass-roots phenomenon — they are not a fad promoted

primarily by cults of "true believers." In many different countries (including China, where the subject was taboo under Chairman Mao), people report the same sort of things year after year. Many of these observers have scientific or technical training; most are rational and honest. Although some sightings are hoaxes, there is a continuing worldwide tendency for ordinary people to see puzzling UFOs, nine out of ten of which turn out to have prosaic explanations. This presents a challenge to perceptual psychology, whatever the residue of unexplained UFO cases may or may not imply.

A third and major point, driven home by repeated hard experience, is the need for exceptionally stringent criteria as to what is acceptable evidence. Dr. Hendry, who has personally investigated over 200 sightings, found many cases where people misidentified ordinary objects such as advertising planes, describing them as dome-shaped spacecraft, for example. There is a prevalent myth of what UFOs should look like, and many people simply

report what they think they should have seen. Dr. Hendry proposes that to qualify for study, UFO sightings should occur in full daylight and have several independent witnesses. The sighted object should have an apparent angular size at least as large as the full moon so details are clearer. These requirements might eliminate many tantalizing cases, he said, but also would cut down on observer error. "If one searches hard enough," he noted, "such cases can be found."

The trend toward using hypnosis in investigations — now showing up in police work as well — would also be ruled out. Hypnosis has been used to help people free memory blocks and then, supposedly, to recall forgotten experiences. Dr. Hynek and others pointed out that this technique involves mental suggestion; subjects easily pick up clues from the hypnotist. Some of the cases of abduction by flying saucer have arisen through hypnosis, and even people who know they never had such an experience can be induced to tell as good a tale as any of the purported abductees. Asked if they believed abductee stories, the panelists all said they were not credible — they are just part of the "noise" that makes scientific UFO research difficult.

Stringent criteria would rule out the lurid close-encounter cases UFO buffs love, as well as most unexplained sightings, but they would also help put UFO study on a no-nonsense basis. In fact, there was so much agreement among the panelists on the need for a hard-nosed approach that one might wonder what they could argue about. It turns out to be the 10-percent residue of unexplained reports.

True Believers vs. the Null Hypothesis

Hard-core skeptics such as Mr. Klass and Dr. Shaeffer are ready to dismiss the unexplained cases, saying they would also have prosaic causes if better information were available or they could be investigated more thoroughly. Scientific procedure demands that an investigator opt for the simplest hypothesis to fit the data, Dr. Shaeffer said, adding that, in this case, the simplest hypothesis is the "null hypothesis." This statistical term means that the 90 percent of cases that are explained and the 10 percent unexplained are all from the same population — a set of events with prosaic causes.

But other panelists aren't ready to buy that. They are "skeptical of extreme skepticism," as Dr. Maccabbee put it — they find enough challenge in the unknowns to

warrant more study. Even Dr. Oberg, who said he doesn't believe UFOs have an extraordinary cause, called for an open-minded approach.

This is sensible, although the hype and nonsense of the UFO scene make it easy for the skeptical to relax with the "null hypothesis" and forget the whole business. Dr. Hynek, for all his earnestness in keeping his investigations on solid ground, has not been entirely helpful. In books, articles, and lectures, he has been prone to speculate about UFOs as manifestations of alternative realities, and to discuss possible meetings with alien beings in ways that give the impression that he leans toward being a "true believer." This has tended to undercut his long crusade to persuade the scientific community that the UFO phenomenon is worthy of study.

Aware that other panelists have criticized him on this point, Dr. Hynek explained that it is the UFO phenomenon that he considers worthy of study — the fact that people are seeing unexplained

things. He is not pushing any particular theory to explain it. "Many usual things are seen under unusual circumstances," he said. "If seen by enough people, someone will interpret them as UFOs. But not all UFO reports necessarily result from natural or human causes."

There is nothing to quarrel with in that statement. And when it comes right down to it, there isn't that much disagreement between Dr. Hynek at one end of the spectrum and Mr. Klass at the other. And even Mr. Klass and Dr. Shaeffer, for all their love of the "null hypothesis," could agree with the other panelists that the research should go on. What they did plead for was to be allowed to get on with it in peace, with less distraction from the news media playing up every spurious sighting or sensational encounter story. They have a point — I wish them well. But after 30 years of covering the UFO story and struggling to keep just one newspaper "honest," I hope they don't expect too much self-discipline from the press. □

In this article there is an interesting observation by Dr. Hynek and other panel members on the use of hypnosis. Keep in mind that this article was written back in Nov/Dec 1980. You can also notice the problem of contamination leaking into a case with the use of hypnosis. In this recent upswing of abduction reports what does this tell us of the rampant use of hypnosis? Especially by artists, authors, housewives, ect.

Notice here also that it is the ten percent residue of unknowns that the panel finds worthy of study. Even Oberg calls for an open mind. However we see here that Klass and Shaeffer have already explained away the ten percent with their Null-Hypothesis.



Scientists estimate that as many as 200,000,000 meteors enter the earth's atmosphere every day. These and other meteorites are estimated to add more than 1,000 tons daily to the Earth's weight.

Why We Should Keep an Open Mind About UFOs

WHEN one is asked to keep an open mind about something, one should be very sure just what it is he is being asked to keep his mind open about. If there is wide confusion about the "something," nothing is served—neither the student, science, nor the "something"—by fatuously keeping one's mind open. And there has been wide confusion about the subject of UFOs (Unidentified Flying Objects). Are we talking about "little green men," spaceships from distant solar systems, mass hysteria, psychologically deranged persons, a popular superstition, or are we talking about a puzzling phenomenon, reported by stable and responsible people from many countries and for which there is as yet no definite explanation?

We must be careful to differentiate between theories and facts. The facts are that reports of strange sightings in the sky and near the ground have indeed been made, and are continuing to be made, by persons whose testimony in any other circumstance would be accepted in a court of law. That is an incontrovertible fact—UFO reports exist. They come from military personnel, people in elective office, pilots, air traffic controllers, school teachers, seergymen, police, and citizens in other responsible occupations.

How many reports? Here a surprise awaits us. A recent Gallup Poll indicated that 15 million Americans have seen UFOs, and the Center for UFO Studies keeps track of dozens of reports each month. The Gallup Poll must be looked at very critically, however. What it says is that 15 million Americans were puzzled about something they, by themselves, could not explain—not that *couldn't be explained*. Undoubtedly, many of the 15 million were puzzled by quite common, ordinary things: balloons, planets, mirages, aircraft, and the like—but *not all*. Long experience has shown that 80 percent of all UFO reports, as originally made, do indeed have common-sense explanations. A great many people are just not aware of what sorts of natural things can be seen in the skies.

What of the remaining 20 percent? These are indeed UFOs if we remember that the *U* in UFO simply means Unidentified. If the sighting reported *remains* unidentified even after considerable study, then we have a legitimate UFO. But what is it? So far we have dealt with facts: Truly puzzling UFO reports exist. But as soon as we ask "What is it?" we are in the realm of theory.

On one hand we have a phenomenon; on the other hand we need a

theory to explain the phenomenon. This is not new in science. For countless years there has been a phenomenon—the sun and stars were shining. But no scientists, no matter how great, of a century or more ago could have answered "Why do the sun and stars shine?" There was no viable theory.

As long as we keep the facts and the theories separate in the UFO matter, we can keep our balance and our minds open. If we mix the two indiscriminately and substitute theory for facts—such as UFOs are all nonsense, or UFOs are little green men from outer space, or UFOs are all mirages or misperceptions of aircraft or satellites, or UFOs represent time travel, or they are all paranormal, psychic phenomena—then we are bound to be in trouble. We can be sure that UFO reports exist—no need to keep our minds open about that since it is a simple matter of record. But we do need to keep our minds open about what causes UFO reports. There are some arguments that can be made for extraterrestrial visitors, but there are powerful arguments against this theory, too.

Here our responsibility as teachers comes to the fore. Many young people are ready to accept uncritically the concept of visitors

from outer space and to equate them with UFOs. It would be wise to have them distinguish between events that are unidentified to one person or persons but quite identifiable to the technically qualified, and events which are truly puzzling even to the experts.

There has been so much trashy speculation (e.g., books about ancient astronauts and pseudo-science fiction, television shows about invaders from space, and the like) about life in outer space and UFOs that it is understandably difficult for a young person to make his way between what has, or has not, substance. He can well use our calm guidance.

We can be of little service to our students, however, if we ourselves present a closed mind on this (or really, any other) subject. We set a poor example if we dogmatically say of UFOs, "It's all nonsense" or equally, if we are ourselves "true believers" or willing to swallow any story that comes along.

Thus, we should keep an open mind on the subject of UFOs primarily as a good example to our students—it's good pedagogy. But also, of course, because the answer is *not* known. True, the Air Force (for reasons of its own) has washed its hands of the UFO problem on the grounds that UFOs do not represent a national security matter, and the Condon Report, from the University of Colorado (sponsored by the Air Force) came to the conclusion (only in Dr. Condon's summary, however) that little could be gained by the further study of the UFO subject. (Nevertheless, the Condon report, if thoroughly studied, represents in itself a powerful argument for the reality of the UFO phenomenon.)

BUT UFO reports continue to flow in from a great many countries. The United States has no monopoly whatever on UFOs! Active study of UFOs is going on in various parts of the world. France perhaps leads in serious work, with the United States a close second.

Several civilian organizations exist here, dedicated to the gathering of UFO data. The Center for UFO Studies, recently established as an association of scientists involved in the serious study of the UFO problem, operates a toll-free phone service to official agencies for transmitting UFO sighting reports. Persons reporting sightings of what may be UFOs to their local police, for instance, will be contacted by a representative of the Center, and data will be analyzed and processed.

We should also keep an open mind about UFOs because we should profit from the lessons of the past. How often has it happened that what has been considered sheer nonsense in one age is calmly accepted in another? Meteorites were once regarded as pure superstition because, as the French Academy of Science pointed out, "it was impossible for stones to fall from the sky"! The theory of continental drift was once heresy. And speaking of heresy, it was George Bernard Shaw who pointed out that all great ideas begin as heresies! (Of course, the converse is not true.)

Our students have many questions about UFOs and life in outer space, and they tend to connect the two. They may be right, but as yet there is no proof. Just another reason for keeping an open mind. Astronomers are almost unanimous about the very strong possibilities of life elsewhere in the universe. This represents an about-face in just the last few decades and is directly connected with the theory of the formation of the solar system. It was once thought that the solar system was probably unique in the universe, since theory held that the planets had been formed from material pulled out from the sun by a passing star. Since the calculated possibility of such an event was very small, it was justifiable to think that

man might well be unique in the universe. But that theory has long since been shown to be untenable. Present theories, although not exact, all hold that planet formation may well be a natural accompaniment of star formation itself.

Thus there may well be billions of solar systems scattered throughout the universe! It becomes cosmically provincial then to hold that man is the highest intelligence in the universe. It is more likely that we are not alone in space. But the distances between possible solar systems is vast and the idea of traversing such distances to visit the earth (and so often, too) certainly boggles our minds. But, one may say, perhaps civilizations more advanced than ours know something that we don't and that in some way totally incomprehensible to us, they can bridge these physical distances. Or, maybe our knowledge today is not complete enough to solve the UFO problem which will continue to be as puzzling to us as a radio set would have been to Benjamin Franklin.

Just two more reasons to keep an open mind about UFOs! Good luck! □

Suggested Readings

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DECEMBER 1974 The Science Teacher Keep the facts separate from the theory in the UFO matter. A good point here for serious students of the subject. I would also like to add here that not only young people are ready to accept uncritically the concept of visitors from outer space and to equate them with UFOs but also much of the uninformed general public.

Phantasmagoria
OR
Unusual Observations in the Atmosphere*

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(Received December 22, 1952)

For many eras in man's history, the sky has been occupied by various gods, or constellations, or birds, mythical or real. A new concept has arisen in the last few years, largely a product of aviation and ballooning, and civil air defense spotters. In general the reports have more psychological than physical significance. However, certain optical phenomena are now gaining far wider interest than among research men in optics. Some "authentic reports" by "reliable, competent observers" are recounted and considered. While complete interpretation of all "reports" is impossible due to lack of sufficient experimental data, NO evidence exists for any phenomena not explicable by standard physical concepts.

IT is most unfortunate that man's early activities are not properly recorded for posterity. Thus it is not known when man first became aware of unusual phenomena in the atmosphere. The fear of solar and lunar eclipses was almost universally prevalent until very modern times. Gods in general inhabited the atmosphere—but not in visible form. Unusual birds appear in various myths and may have had some basis for reality in pterodactyls and other large avia. Rainbows have played a prominent part in various stories. As well as we understand lightning today, it is not generally realized that this knowledge has been accepted by the people for only slightly over a hundred years. Benjamin Franklin was greatly exasperated by the loss of life and property which continued even after widespread publication of his experiments. In particular, many churches were being destroyed by fire caused by lightning hitting the steeple. In addition, the bell ringers were being killed by lightning traveling down the wet bell cord. A papal edict had previously been issued that church bells were to be tolled during thunderstorms. This edict was the result of a theory that thunder (and thus storms) could be warded off by countering the noise with the peal of the church bells. The edict was, of course, rescinded, but only about 150 years ago.

* At the time this paper was prepared, the nation was in the throes of a flying saucer scare, apparently of greater magnitude than any previous one. Since the impact was so great, it was believed most worth while to take any action which might alleviate the hysteria. In this spirit, the invitation to present this paper was accepted.

The origin of the general concept now known as flying saucers is difficult to ascertain. It seems that the name was attached to a newspaper report of mysterious objects seen in 1947 and has continued in prevalent use. However, many unusual phenomena were noted in the atmosphere prior to this time. Perhaps the best known is the Star of Bethlehem. In very early American history, a great explorer, David Thompson, who preceded Lewis and Clarke, records in his narrative dated November, 1792, an occurrence on Landing Lake in the Northwest Territory. He observed something which appeared globular and which, he said, from its size must have had some weight. It had no tail and no luminous sparks came from it until dashed to pieces. He assumed that it was a meteor, since he wrote, "The next morning we went to see what marks the meteor had made on the ice but could not discover that a single particle was marked or removed."

Lieutenant Bassett, U. S. Navy, published a book in 1885 entitled *Legends and Superstitions of the Sea and of Sailors*. Even at this early date he stated: "There is an obvious tendency in the human mind to exaggerate wonders. This has been especially true with regard to those wonders found in the great ocean, where a limitless horizon sets no bounds to thought, and where the smallest object, often by atmospheric causes, will easily be magnified." Remember this was written 67 years ago!

He goes on to recount: "The occasional reflections of mountains, cities, or ships in mirage or fog-bank, the land-look of such banks themselves, coupled with

This article on atmospheric phenomena shows clearly how a scientist views the UFO topic from his professional view point. The one problem in this article is his claim that the U.S. is acquiring a monopoly on flying saucers. We know quite well that the phenomena is global and pays no attention to national boundaries.

the superstition of the medieval mariner, doubtless gave rise to the many stories of mysterious lands at various places and times. The Chinese call the mirage the "Sea Market."

The quotation continues: "A particularly apt illustration of the effects of natural causes is given in a modern book of travels. One evening travelers in a ship approaching close to Port Danger, on the South African coast, beheld a well-known English man-of-war, a short distance away. The travelers saw faces on board, and a boat was lowered and manned from the English ship, in sight of everybody. All recognized 'Barracouta,' and they expected to find her at anchor when they arrived, a short time after. It was a week, however, before she arrived, and then it was learned that she was at least 300 miles from Port Danger at the time referred to. The image seen was doubtless due to reflection or refraction in some cloud or fog-bank. Arctic voyagers often speak of the very remarkable effects of refraction, and many of the nautical tales of phantom-ships are, beyond doubt, caused by the sight of images in cloud or fog-bank." This excerpt is quoted at great length since, if the incident had occurred today, it would undoubtedly have been headline material. Also, it shows that the physical explanation was obvious even sixty-seven years ago.

I cannot resist the comment that a great deal of the furor of flying saucers is due to the hucksters of science. Pseudo science, uninhibited by the discipline of organized thinking or experimental facts, has received great impetus in the last several years from increased public interest in science itself. This is a lucrative business. It is practiced not only among those who have had some (and, in rare instances, for amusement, among those who have had extensive) scientific training. Those who make a living by such means are the first and loudest to object to a rational scientific explanation of these phenomena. Reputable journalists, too, must feed the maw of our great public press. The dearth of news following the political conventions provided an excellent opportunity for the July epidemic of front page stories.

In trying to analyze the various reports of atmospheric phenomena, one is generally confronted in press reports with two classes of observers: "outstanding scientists" and "competent observers." No aviator wishes to be called an "incompetent observer." Some have been flying for more than 20 years and are most vehement in defense of their ability to observe. Aviation psychologists, however, are well aware of the difficulties pilots encounter in their activities. Many aviators with thousands of hours experience have confided to me some of their difficulties. In flight formation, they have wandered off course following a star instead of the plane in front. Ground lights appear in unusual configurations. The engineer's awareness of these difficulties is evidenced by the plethora of instruments on the pilot's panel. Self-hypnosis is not unique to

aviation; highway engineers are greatly concerned about it in the construction of super-highways.

Concerning "outstanding scientists" I am reluctant to comment. If correctly quoted, their statements have certainly been more "outstanding" than "scientific." I recall one "outstanding scientist," widely quoted in the press, who retained a plainly marked piece of Navy scientific cosmic-ray equipment for several days, then turned it over to the Federal Bureau of Investigation as a "mysterious object," after appropriate interviews with press representatives. Fortunately, the Navy's liaison with the FBI permitted immediate return of the apparatus to its owner.

Several reports have received more widespread interest than others and should be discussed. The "Mantell" case, the Air Force officer who flew to his death in pursuit of a "saucer," has been widely and variously reported. He could have been chasing Venus; he could have chased a cosmic-ray balloon at 100 000-foot elevation (thus visible perhaps for 200 miles). Since Mantell and the others were not familiar with large objects at such altitudes, it is understandable that they would think the object was traveling away from them since they could not close the range. Suffice it to say he was not killed by a mysterious object.

A more scientific report is the "Chiles-Whitted" incident. These Eastern Airline pilots were flying a DC-3 over Georgia at approximately 3:00 A.M. in July, 1948. They saw "a wingless aircraft," approximately 100 feet long, with lighted windows. They veered course and it followed, then it disappeared in the clouds above. With these meager experimental data, the following explanation is possible. It is seldom pointed out that this was a clear, bright, moonlit night. Reflection of moonlight from the aluminum of the plane, and brighter reflection from the plastic windows, provided ample illumination to give a source for reflection from adjacent incipient clouds. It has not been widely known that haze particles too small to appear as solid clouds can act as reflecting layers. To the dark-adapted eyes of the pilots, the reflection appeared brilliant. Being a side reflection, the aircraft appeared wingless. Since the reflecting surface was not plane, the apparent speed and size of the image could be anything. The bright orange object was the reflection of the red hot exhaust pipes of the engines.

Another widely publicized report was from Fargo, North Dakota. Here an experienced pilot in an Air Force fighter plane chased a mysterious lighted object for some time. The object performed variously, always eluding the pilot, but always rising. The report is entirely compatible with the statement that he was chasing a standard meteorological balloon regularly released from airports. In fact, it has been reported that another pilot has chased a weather balloon in daylight when it was fully visible and he duplicated entirely the phenomena reported.

The public press is continually asking for the answer to

flying saucers. The only singular answer possible is that they are the result of physical optical phenomena. But certainly more than one principle is applicable. Analysis of the myriad reports of "saucers" shows that they fall into several categories. One immediately discards the phantasies such as children burned by flying saucers in their own backyards. Many reports come under the category of range and identification errors. Typical of the identification errors was the gossamer debris of a supposed saucer found in southern California. It turned out, on analysis, to be spider web of unusual variety having considerable length and volume. The web had been wind blown a hundred miles or so from its origin in northern California.

People are reluctant to admit range errors. No seagoing sailor will admit he cannot guess range and speed of distant ships. He is usually right because he knows the size of the target ship and hence can guess by the stadimeter principle of triangulation. In other instances, he is lost. Typical of range errors are two examples cited in a recent article in *Life Magazine* (March, 1952). In one instance the reporter gives a dimension visually measured as 136 feet at a range of 20 miles; in another, the object was measured as 160 feet long and 65 feet wide, also at 20 miles. Since an object 100 feet long subtends roughly an angle of 4 minutes of arc at 20 miles, and since physiologists say the human eye can barely resolve $\frac{1}{2}$ minute of arc, these estimates appear to be more precisely stated than warranted. In fact, if such estimates were possible, the Navy could save the taxpayers a great deal of money by eliminating range finders from their ships. Thousands of dollars are expended for even a fifteen-foot range finder such as goes on destroyers.

Another physiological principle often neglected is that bright objects appear larger than dark objects. Many reports at dusk or night of large objects could very well be small. It is often published that even physicists at Los Alamos have observed these unusual phenomena—implying large unknown objects. The Los Alamos fellows have told me that what they have seen are star-type lights, to be sure, sometimes of fractional magnitude and sometimes with large apparent velocities. But all can be explained as meteors, although they are reluctant to do so. One of the arguments advanced against the meteor theory is that the light lasts a long time and that meteors disappear rapidly. It is often forgotten that oxygen and nitrogen have metastable states and that meteor trails may be visible from the afterglow of the ionized air generated by the meteor, for considerable periods of time after the meteorite has disappeared.

Another phenomenon neglected by the layman in interpreting unusual sights is the mirage. It is too often assumed that these occur only over deserts and in the vicinity of oases. Thermal gradients occur in the atmosphere in widespread fashion. Meteorologists tell me there is a fairly abrupt change in character of the

atmosphere at that point in the thermal gradient where the temperature is 0°C, generally around 8000 feet elevation in the summer. This provides, then, a very good reflecting surface, so that, under proper conditions, one may see ground lights invisible by direct views. The other aspect of this is that the gradient may be in a vertical plane instead of a horizontal one—although this is admittedly much rarer. The presence of strong thermals is known to all aviators who fly over deserts. The "experienced observers" who saw a saucer chasing a Skyhook balloon in New Mexico were likely seeing reflections of the balloon on the vertical thermal gradient plane.

It is obvious, of course, that these boundary layers, so to speak, are fluid just as a surface of water. Minor changes in pressure or other disturbances can cause wave motion, which in turn gives an apparent motion to the image. This motion can have any velocity and hence cause the reports of speeds of thousands of miles per hour.

Rayleigh's law of scattering is familiar to all. This, however, applies to particles small compared to the wavelength of light. When particles are essentially equal in diameter to wavelengths in the visible region, it is possible to have considerable reflection and transmission, similar to the half-silvered mirror. Thus pilots or ground observers can see reflections of lights as well as transmission, and get the impression that some object intervenes. These partial "cloud" formations are sometimes short-lived, and may move with pressure gradients rather than as material—hence unusual motions may be observed. It is also obvious that if you penetrate this cloud the image will disappear. It is as futile to chase these images as to get to the bottom of the rainbow wherein lies the mythical pot of gold.

It is often surprising how slowly information travels. Many times during the war radar operators reported targets that pilots could not find—nor lookouts see. In one instance, for example, many thousands of rounds of ammunition were expended against a radar target consisting of thin air. The phenomenon has been rediscovered dozens of times—yet the general public and often "competent radar operators" are misled by these false targets. Because radar is supposed to show "real" targets, many news writers and pseudo scientists assume that a radar blip is proof of the presence of a solid object in the air. Much of the *Life Magazine* article last March (1952) contained glib assumptions that things seen were solid. I wonder what the same observers think of rainbows and sunbeams.

There was much excitement last July by reports from airport control operators that flying saucers were seen over Washington, D. C. Air Defense jet planes dispatched to intercept these targets failed to catch them. The excitement was heightened by visual sighting of targets contemporaneously with radar sighting. Finally, the peak of excitement occurred with the simultaneous visual sighting and radar detection of an apparent

object. Even the astute editor of the *Washington Post* drew the obvious conclusion that real objects were in the sky. It will take some time to educate the laymen to understand that the atmospheric condition which leads to radar reflection may also be appropriate for visual reflection of ground lights.

This education is now beginning. It was reported in the *New York Times*, September 3, 1952, that two pilots "flew through a target showing on the (radar) scope and there was nothing there—not even a cloud."

The austere and generally critical *New Yorker Magazine* has recently published an article signed by David Lang on "Something in the Sky." This is the longest article on a single subject that I have noted in their publication in some time. It is in general a critical article, but forcefully implies that there is still a "secret." It ends with the statement that: "Too many people are waiting for the answer." The only singular answer is that these are displays of natural phenomena not generally understood. Why don't we believe that the aurora borealis is a series of fantastic searchlights projected by an unknown enemy? The excitement over green fireballs displays an equal ignorance of meteors. To be sure, copper and nickel meteors are rare, but not unknown. The expenditure of a sizeable sum of money by the Air Force for special spectrographic cameras will resolve whether the meteors are nickel or copper, but little else. Theodolite measurements will, of course, continue to be important when properly used.

The notorious picture by a Coast Guardsman showing an "echelon" of flying disks was widely published by the press. Only the thorough *New York Times* pointed out that the picture was taken through a window screen—an elementary experiment in diffraction.

One is reminded of the excitement in the early 1900's generated by the N-ray. This was propounded by a Parisian "scientist" (by present press standards a world-renowned, outstanding scientist). These rays would penetrate all matter, yet could be diffracted by a special prism. This hoax, you will recall, was exposed by R. W. Wood, to the dismay of some people, but the delight of those who believed in the rationale of physical optics.

One recalls the incident of the two employees of the Empire State Building who were on the observation tower one evening. They were extremely frightened by an image of a large head and torso in the sky. Rational thinking prevailed and they soon observed that it was their own shadow cast on a cloud formation.

In the upper right hand paragraph the author of this article seems to imply the same hypothesis used by the U.S.A.F. that UFO reports are the product of atomic jitters.

The United States, in acquiring its leadership in world affairs, has also acquired a virtual monopoly on flying saucers. In addition, the concentration of reports centers around areas involving Atomic Energy Commission activities. This implies intelligence on the part of the people controlling the saucers. It also contributes to the mass hysteria prevalent at this time. We are conditioned to be frightened of atomic weapons and the great secrecy surrounding them. Thus, just as ghosts are seldom seen outside cemeteries or haunted houses, so flying saucers are seen at points of greatest fear psychosis.

Gullibility of people works two ways. After the publication of an interview I gave a couple of years ago, I received a letter from southern France expressing great appreciation for the explanation of sights seen there. It contained a beautiful colored drawing of these objects—including landscape; they were balloons with drop lines and baskets of the type seen often in French illustrations. They could not have been skyhook balloons or similar objects.

I have no delusions that all "explanations" which may be given will stop the flood of saucer stories. They are but facets of the mythology of this stage of history. People believe what they want to believe—not necessarily what is true. The general public has not been able to keep pace with the advance of science. Since so many apparent miracles, such as radio and television and use of nuclear energy, have come to pass, the laymen will believe most any story. The success of various comic strips also bears witness to this.

It can, however, be categorically stated that I know of NO evidence which leads one to doubt the physical laws of motion and inertia or to believe in inter-planetary travel at this time. All reliably reported incidents can be fully explained when sufficient scientific data are provided. Most of the incidents are the result of one or more of the following: (1) reflection (visible or radar), (2) refraction, (3) meteors and meteor trails, and (4) diffraction. Pressure, temperature, and moisture gradients are widely prevalent in the atmosphere and provide interfaces for the action of these optical principles. Meteorologists readily admit how much they need to learn. The extensive effort now being expended on compiling data may be worth while after all, by providing information leading to a better knowledge of the atmosphere. It may indeed be important in our present defense effort for other reasons.