

Condon Report - Case 49

Tremonton, Utah

2 July 1952 (Wednesday)

Investigator: Hartmann

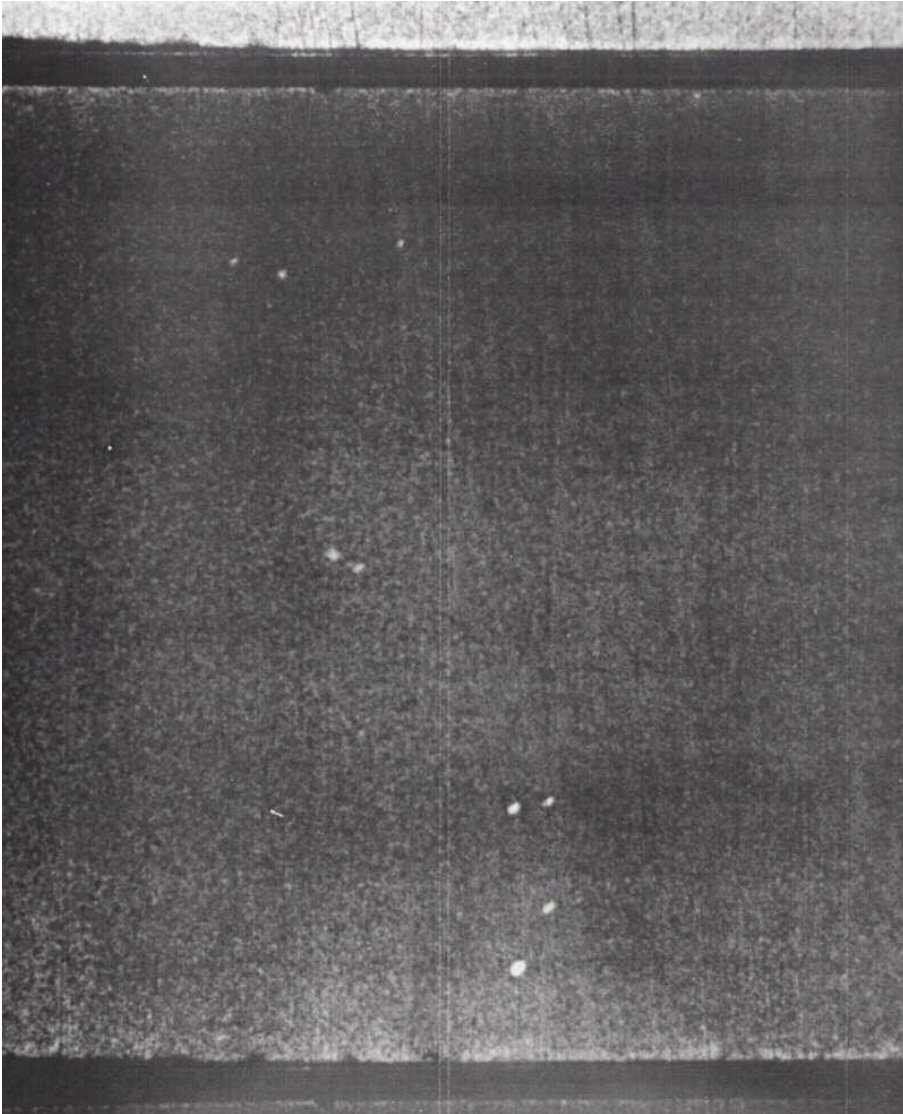


Plate 31

Typical frame from the Tremonton, Utah, movie. Black bars mark the top and bottom of the original frame.

Abstract:

Witness I accompanied by his wife (Witness II) and their two children saw and made motion pictures of a "rough formation" of apparent point sources "milling around the sky." The visual observations and film are not satisfactorily explained in terms of aircraft, radar chaff, or insects, or balloons though the films alone are consistent with birds. Observations of birds near Tremonton indicate that the objects are birds, and the case cannot be said to establish the existence of extraordinary aircraft.

Background:

Time: About 11:10 MST ("MST" appears in early AF documents, ref 4).

Location: Seven miles north of Tremonton, northern Utah (41°50'N; 112°10'W)

Camera Data: 16mm Bell and Howell Automaster; magazine load; 3 in. f.l. telephoto lens on turret mount; f/8 and f/16; Kodachrome Daylight film; hand held; 16 f.p.s.

Direction of sighting: First seen in east, moved out of sight to west.

Weather conditions: Cloudless deep blue sky. Sun at altitude 64.5°, azimuth 131° (Naval Observatory - ref 4).

Weather data from Corinne, Utah, about 18 miles south of the site, were obtained by Baker (1): Max. temp: 84°. Min. temp. 47°. No precipitation. A high pressure cell from the Pacific Northwest was spreading over northern Utah during the day. "The pressure at Tremonton would have a rising trend, the visibility good, and the winds relatively light."

Witness I, with his wife and two children (ages 12, 14) were en route from Washington D.C. to Portland, Ore., driving north on State Highway 30 seven miles north of Tremonton (1,4a; refs. 2 and 3 incorrectly state the witness was in transit to Oakland, Calif.) The witness's wife called his attention to a group of "bright shining objects in the air off towards the eastward horizon" (1).

Sighting, General Information:

Approximately five weeks after the events, Witness I sent the following account to Project Blue Book (11 August; NT4-28/8310/177283; ref. 4a):

Driving from Washington, D.C. to Portland, Ore., on the morning of 2 July my wife noticed a group of objects in the sky that she could not identify. She asked me to stop the car and look. There was a group of about ten or twelve objects - that bore no relation to anything I had seen before - milling about in a rough formation and proceeding in a westerly direction. I opened the luggage compartment of the car and got my camera out of a suitcase. Loading it hurriedly, I exposed approximately thirty feet of film. There was no reference point in the sky and it was impossible for me to make any estimate of speed, size, altitude or distance. Toward the end one of the objects reversed course and proceeded away from the main group. I held the camera still and allowed this single one to cross the field of view, picking it up again and repeating for three or four such passes. By this time all of the objects had disappeared. I expended the balance of the film late that afternoon on a mountain somewhere in Idaho (See Plate 31).

This letter serves as the principal descriptive document in the Air Force file (4). According to a chronology by Col. W.A. Adams, Chief, Topical Division, Deputy Director for Estimates, Directorate of Intelligence, in a letter dated 8 Sept., 1952 (4), the next contact with Witness I was an intelligence officer's interview on 10 Sept., 1952.

In this second deposition, as recorded by the Air Force Intelligence officer, the witness establishes the following facts: "No sound heard during observation. No exhaust trails or contrails observed. No aircraft,

birds, balloons, or other identifiable objects seen in air immediately before, during, or immediately after observation. Single object which detached itself from group did head in direction opposite original course and disappeared from view while still travelling in this direction.

The witness used a "camera [without tripod] pointed at estimated 70° elevation and [panned] arc from approximately due east to due west, then from due west to approximately 60° from north in photographing detached object...

"Sun was approximately overhead..Objects were at approximately 70° above terrain on a course several miles from the observer... Bright sunlight, clear, approximately 80°, slight breeze from east northeast approximately 3 to 5 m.p.h.

[In the witness's] opinion:...Light from objects caused by reflection. Objects appeared approximately as long as they were wide and thin [sic]. [All of them] appeared to have same type of motion except for one object which reversed its course. Disappeared from view by moving out of range of eyesight...Observer facing north [during bulk of observation]."

The key witness had been in the Navy 19 years with service as a warrant officer and had over 1,000 hours on aerial photography missions (4b) . Baker states the witness had 2,200 hours logged as chief photographer. The witness graduated from naval photographic school in 1935 (4b). He "does considerable ground photography" and "it is believed [he] could be classified as an expert photographer" (4b). Intrigued by his experience, the witness later accepted an "appointment as special Adviser to NICAP," acting in a private capacity (4, quoted from NICAP's "The UFO Investigator").

Investigation:

In 1955 R.M.L. Baker's analysis of the case, (1) gives substantially the same account, with the additional information: "When he got out, he observed the objects (twelve to fourteen of them) to be directly overhead and milling about. He described them as 'gun metal colored objects shaped like two saucers, one inverted on top of the other.' He estimated that they subtended 'about the same angle as B29's at 10,000 ft.' (about half a degree i.e. about the angular diameter of the moon)."

This data is a substantial addition to that recorded above. I have been unable to find any record of these statements in the Blue Book file supplied to the Colorado project (an inch-thick stack of nearly unsorted documents). The essence of Witness B's early depositions describes entities or "objects," apparently reflecting, bright, circular or spherical, at considerable distance. The indication of both his testimony and the film that he photographed captured (unresolved) objects nearly overhead, including one that retraced its motion above him, giving no suggestion that the objects could ever have been as large as half a degree even at close approach, or that Witness I ever clearly saw metallic construction saucer-shaped profiles. The witness's original letter of 11 August offers the film "for whatever value it may have in connection with your investigation of the so-called 'Flying Saucers' ", a phrasing which does not suggest he was convinced of the existence of extraordinary metallic craft at that time. Baker (private communication, 31 May 1968) indicates that the description in question was given in interviews about 1955. His memory may have become "set" by this time, or affected by events such as the witness's service as a NICAP advisor in the interim.

The film contains about 1200 frames (1), i.e. about 75 sec. After roughly 20 or 25 sec., the Witness decided he was somewhat overexposing the film, and changed the stop from f/8 to f/16, trying to increase contrast (4a). The objects were milling around, often in groups of two or three travelling together among the others. The films indicate that the objects fluctuated markedly in brightness.

The witness had the film processed and submitted it to his Navy superiors (1). The letter from the witness to Hill Air Force Base, Ogden, Utah, 11 Aug. 1952, transmits the film to the Air Force (4c). The Air Force ATIC Blue Book team was advised, and the variability of the objects suggested airplanes, but this idea was ruled out because the witnesses heard no engine noise, and a large distance would have indicated impossible speed (10

mi. indicated 1300 mph - ref 1). Balloons were rejected due to the large number of objects, the random milling, and the departure of one object in opposite direction from the others.

A favorite hypothesis was birds, but there was no strong evidence in its favor, and it was believed the objects were too far away (hence too fast).

Ruppelt (2) reports that after several weeks, "the Air Force photo lab at Wright Field gave up. All they had to say was, 'We don't know what they are but they aren't airplanes or balloons, and we don't think they are birds.'" Baker (1) quotes Mr. Al Chop (who was with ATIC) confirming Ruppelt's account: the ATIC group was convinced they were not airplanes, but could not rule out that the camera might have been slightly out of focus and that the objects were soaring birds.

The films were then forwarded at the request of the Navy to a group of Navy photo analysts at Anacostia, who had some ideas about how to study the films. The Navy group concluded that the UFOs were intelligently controlled vehicles and that they weren't airplanes or birds. They arrived at this conclusion by making a frame-by-frame study of the motion of the lights and the changes in the lights' intensity. The analysts stopped short of identifying the objects as interplanetary space craft (2) although this implication was evidently present.

These conclusions were presented to the Robertson panel, which was meeting at this time (early 1953). Ruppelt reports (2) that there was some criticism of the Navy analysts' use of the densitometer, and that one of the panel members raised the possibility that while the key witness "thought he had held the camera steady...he could have 'panned with the action' unconsciously, which would throw all of the computations way off. I agreed with this, but I couldn't agree that they were sea gulls." The panel members' favored explanation of what was seen was white gulls which are known to inhabit the Great Salt Lake area. Ruppelt (2) concludes that he personally watched sea gulls later in San Francisco, circling in a clear sky. "There was a strong resemblance to the UFO's in the Tremonton movie. But I'm not sure that this is the answer."

R.M.L. Baker, Jr. made an independent analysis in 1955 under the auspices of Douglas Aircraft Co. He ruled out airplanes and balloons for reasons similar to those of the Air Force. In addition he argues against anti-radar chaff (bits of aluminum foil) or bits of airborne debris because of the persistence of non-twinkling "constellations," the small number of objects, and the differential motions. Soaring insects, such as "ballooning spiders" are unsatisfying as an explanation, as the objects were observed a short time from a moving car, indicating a considerable distance, and there were no observed web streamers.

Baker points out that since the tendency of the observer would be to pan *with* the object, not against its motion, the derived velocities are *lower* limits (unless the key witness panned with the group, not the single object). Thus the suggestion of panning could compound the difficulty with the bird hypothesis. Baker concluded that "no definite conclusion could be obtained" as the evidence remains rather contradictory and no single hypothesis of a natural phenomenon yet suggested seems to completely account for the UFO involved.

Menzel and Boyd (3) dismiss the objects as birds. Their conclusion, however, is phrased in a way inconsistent with the facts: "The pictures are of such poor quality and show so little that even the most enthusiastic home-movie fan today would hesitate to show them to his friends. Only a stimulated imagination could suggest that the moving objects are anything but very badly photographed birds." This gives the totally wrong impression that the objects are difficult to identify merely because of poor photography. The objects may be birds though unresolved because of distances, but the images are small and relatively sharp, and lack of a clear identification cannot be ascribed to poor photography. (The films we have analyzed are those shown to the Robertson panel, which evidently did not consider the solution as being so obvious as is implied by Menzel and Boyd.)

The Tremonton case came at a time when members of several official groups were privately concerned with the serious possibility that "flying saucers" might exist in fact (cf.2). The Navy report (4), released by the U.S. Naval Photographic Interpretation Center (the earliest known copy is stamped "Dec. 5, 1952"), was prepared

by a group inclined to accept unknown aircraft. For example, the report contains under "Discussion" the following statements:

In the analysis conducted, no attempt is made to explain the phenomena nor are the comments tempered by knowledge of present day science...Comments are as seen, as analyzed, and as computed; and as such, are partly at variance with the natural phenomena theories.

It is inferred in the Navy report that the objects are intrinsic light sources, not reflected light sources. This "opinion... is based on the time they can be viewed continuously on the film, approximately 90 sec., and on the angle through which they can be photographed, approximately 60°. It is felt that if these images were reflected light, blinking would occur.." This inference ignores the fact that the objects *were* "blinking," i.e. erratically changing brightness, a fact pointed out in a list of questions which the report was designed to answer.

The velocity was treated in the Navy report by analyzing the final part of the film, assuming the camera was stationary and the objects moving perpendicular to the optical axis. "...the only unknown in the determination of the velocity is the distance from the observer to the object. This was arbitrarily set at five miles." Though it is clearly stated that this is an assumption, this treatment apparently led to misunderstandings, as we will show.

The findings of the Navy report were summarized in a list of comments including the following statements.

1. It appears to be a light source rather than reflected light.
2. No bird known to be sufficiently actinic...
9. Velocity was computed to be 3780 mph for a shift of 1mm per frame if the object is five miles from the observer.

The sentences immediately following the last quote show that the actual measurements show an average displacement not of 1mm per frame, but of "0.1729mm" per frame. It is then stated that "on this basis the mean velocity is 653.5 mph." Again, it is still *assumed* that the distance is 5 miles.

This result, properly interpreted, is quite compatible with that of Baker (1), who gives 670 mph for 5 miles distance. At ten miles, the speed would be some 1,310 mph; however, Ruppelt (2) in 1956 states) "Had the lone UFO been 10 miles away it would have been traveling several thousand miles an hour." This incorrect judgment is attributed by Ruppelt to the Air Force analysts, but may represent an incorrect reading of the Navy report.

In February 1953, the month after the Robertson panel meetings, there was correspondence within Project Blue Book on the wording of a press release on Tremonton. Ruppelt (4) suggested that it be stated that "the images were caused by surfaces having good light reflective qualities, such as sea gulls..." He noted that though many experts "firmly believed the objects to be sea gulls or balloons," the Air Force could not prove that they were. Apparently, no complete release of its Tremonton analysis was made.

As much as the intrinsic ambiguity of the images, it was apparently (1) the existence of a report intimating intelligent control (however inappropriately), (2) ill-advised statements that very high speeds might be involved (3). The allegation that it could be and had been proved that spacecraft were involved, and (4) lack of serious response to his challenge made the Tremonton film a "classic" among flying saucer devotees.

An example of the distortion of the case in the popular press is an account in comic-book form, a copy of which is included in the Blue Book file that (while accurate in most other respects) shows the key witness photographing a series of large, disk-shaped objects of, one would judge, several degrees apparent size. Such subtle distortion makes the gull explanation seem absurd, and abets popular misconceptions.

Analysis:

Angular size, distance, and velocity. The angular size of the objects has been determined by Baker's microscopic measurements: (1) The angular diameters of images range from 0.0016 to 0.0004 radians (5.5 to 1.5 min. of arc). Assuming a "bird-size" reflecting circle of 8 in. diameter, these results would give distances of 415 - 1,670 ft., respectively. Their larger sizes are undoubtedly due to "flaring" and consequent overexposure of the images, substantiated by Chop's report (1) that they were very dense, "burned right down the celluloid backing," and the Air Force analysts' report (4) that when the objects dimmed sufficiently, they faded out entirely with no dark dot or silhouette being visible.

Therefore, the minimum distance compatible with the bird hypothesis is estimated to be about 2,000 ft. At this distance, the hypothetical bright reflecting 8 in. breast would subtend about 1.2 min. of arc, and a 2 ft. wingspan, 3.6 min., or about 0.1 the angular diameter of the moon. The human eye's resolving power is 1 to 3 min. of arc (1). As the camera was pointed about 70° elevation during the filming, it is doubtful that the objects ever exceeded these apparent sizes or that a better visual observation was obtained. The dimensions given are compatible with several gulls known in the region, such as the California and Herring gulls (1, 5). Many of these gulls have breasts much more highly reflecting than their wings. Consequently the fact that the wings were not resolved either visually or photographically is not surprising, since they were at the margin of resolvability. This problem would be all the more likely if the "gulls" were smaller or further away.

As noted above, the Navy's and Baker's angular velocity measurements give similar values. Baker's measurements of the single object, where it is reported and assumed that the camera was stationary, gave values of 0.01 to 0.07 radians per sec. Variations were attributed to camera jiggling. Values averaged over two sequences were 0.031 and 0.039 radians/sec. These correspond to linear transverse velocities (at 2,000 ft. distance) of 14-95 mph, with the averaged values being 42 and 53 mph. Since the objects were at a high elevation angle, the transverse velocity probably approximates the total velocity. Taking into account an additional positive or negative uncertainty due to possible residual panning motion, the indicated range of velocities is compatible with the bird hypothesis.

Baker also measured relative angular velocities of the objects in the cluster with respect to each other, finding values ranging from zero to 0.0065 radians per second. At 2,000 ft. distance, this corresponds to 0 to 13 fps or about 0 to 9 mph.

"Flaring" and light variations. As indicated by the Robertson panel (2), the Navy conclusion that no bird could reflect enough light to cause such images was unsubstantiated. While there was no periodic variation reminiscent of wing flapping, the "flaring" of the objects and their intermingling and erratic motions suggest soaring birds. One gains the impression that sometimes the two to four objects in one of the sub-constellations flare almost simultaneously, suggestive of grouped birds wheeling in flight. (This is difficult to establish visually, as the film was scratched and the image jerky. In this regard I performed no quantitative test.)

Conclusions:

In favor of the hypothesis that the Tremonton objects were birds, probably gulls, we have the following arguments: (1) White gulls are known to be present in the area. (2) Bird-sized objects at a distance of 2,000 ft. would be on the limits of visual resolution, moving at about 45 to 55 mph east to west, with relative motions up to 9 mph; (3) Such motions are independently supported by the testimony that the objects overtook and were first sighted from a moving car traveling toward the NW. The objects were kept in sight until the car was stopped, and nearly a minute and a half of film exposed. (4) Baker points out that the departure of a single object from the group is typical of a bird seeking a new thermal updraft. (5) Variations in motion and brightness suggest wheeling birds. (6) The bulk of informed opinion among those who studied the film, both in and out of the Air Force, is that birds were the most probable explanation.

Arguments against gulls include the following: (1) The distances and velocities cited are on the margin of acceptability. If the gulls were slightly closer, they should have been clearly identified since their angular size would exceed 3 min. of arc; if they were slightly further away, their velocity would become unacceptably high. This argument is considerably weakened by noting that somewhat smaller birds could be unresolvable

but slow. (2) Arguments have been raised that the weather conditions would not be conducive to thermal updrafts that would allow long, soaring flights of birds. This is not a strong argument, however, since there is insufficient data concerning weather conditions. (3) No clear, periodic flapping is observed on the film. This is not critical, since there *are* erratic brightness fluctuations, and since the objects were evidently below the limits of resolution. (4) The strongest negative argument was stated later by the witness that the objects were seen to subtend an angle of about 0.5° and were then seen as gun-metal colored and shaped like two saucers held together rim to rim, but the photographs and circumstances indicate that this observation could not have been meaningful.

Although I cannot offer an expert ornithological opinion, it appears to me that the Tremonton objects constitute a flock of white birds. The data are not conclusive, but I have found nothing in the detailed Blue Book file incompatible with this opinion. The objects are thus provisionally identified as birds, pending any demonstration by other investigators that they could not be birds. There is no conclusive or probative evidence that the case involves extraordinary aircraft. On 23 August 1968 after completion of the above report, I had occasion to drive through Utah and made a point of watching for birds. The countryside near Tremonton is grassy farmland with trees, streams, and meadows. It was within 30 mi. of Tremonton that I noticed the greatest concentration of bird activity. A number of large gulls were seen, some with white bodies and dusky-tipped wings (rendering the wings indistinct in flight) and some pure white. About 10 mi. south of Tremonton and again about 20 mi. north of Panguitch (in southern Utah) I saw flocks of white or light birds at once distinctly reminiscent of the key witness's films. The birds milled about, the whole group drifting at about 20 or 30 mph (I noticed no surface wind) and subtending 10° to 20° . The individual birds (in the second case) were not quite resolvable, yet appeared to have some structure. Sometimes pairs would move together and sometimes individuals or pairs would turn and fade out as others became prominent. As suggested by the key witness they appeared to require a telephoto lens for photography. They were not prominent, but distinctly curious once noted - a group of white objects milling about in the sky. (The only proof that my second group of objects, which I observed from a considerable distance, were indeed birds, was that I saw them take off.) These observations give *strong evidence that the Tremonton films do show birds*, as hypothesized above, and I now regard the objects as so identified.

Sources of Information

Baker, Robert M.L., Jr. *Analysis of Photographic Material*, Douglas Aircraft Co., 1955.

Menzel, D.H. and Boyd, L.G. *The World of Flying Saucers*, Garden City, N.Y.: Doubleday, 1963.

Peterson, R.T. *A Field Guide to Western Birds*, Boston: Houghton-Mifflin.

Project Blue Book files

- a. Correspondence: Key witness to U.S.A.F., 11 August 1952.
- b. Interview between A.F. Intelligence Officer and key witness, 10 September 1952.

Ruppelt, E.J. *The Report on Unidentified Flying Objects*, Garden City, New York: Doubleday; Ace Books.