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### A MONTHLY REVIEW OF THE UFO PHENOMENON REPORTS, INVESTIGATIONS & ANALYSES

There is no hope of advance in science without a paradox "- Niels Bohi

THE NEW ZEALAND UFO FILMS The Complete IUR Report Part I

THREE UFOS SELECTED FROM 55 U.S. CASES: May 15-June 14

UFO BACKLOG: 18 UFOs from Sept. to Oct. 14

HYNEK COMMENTS ON BRAZILIAN UFOLOGY

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by Dr. J. Allen Hynek

We are tired of being behind schedule ... and you are too, probably. And so, by a simple wave of the magic wand, we shall become current. This issue, as you will note, is July, 1979. What has happened to Jan-Jun, the missing six morths? The material for those months exists, and continues to be worked on. It will be included in this and following issues. But this issue is current for the current cases, with of course the obvious lag caused by processing. Therefore, in this issue you have the "UFO-IFO Map" for Sept, 1978, and we also have backlog material stemming from "the gap". Obviously we can't put all of it in at once, but before long it will all have been included, and so nothing will have been lost, and we shall be current.

been included, and so nothing will have been lost, and we shall be current.

Of course, subscribers will have their subscriptions extended by six months, and so nothing will be lost there, except some revenue for us. But the renewal rates have been exceedingly gratifying, and it looks as though IUR is here to stay. The more subscriptions, however, the more research we can do, and the more pages we can include so we beseech each subscriber to think of someone (it should be of interest and value. How about your local school, so that the school kids can have responsible information instead of the sensational junk they get in the tabloid press and the like. Or how about friends birthdays—and well. Christmas is still time off yet, but you can think about it!

No need to worry about the Jan-Jun gap. No real time has been lost. It reminds me of the time Parliament, in 1752 passed a law that two weeks would be skipped from the calendar. This was in order to bring the old Julian calendar into line with

J. Alle Hyrick



This is a representative sampling of UFO sightings obtained from around the world. While we cannot exert the same degree of controlover these cases as domestic ones, it is at least of value to see that the same characteristics are reported for the phenomenon abroad as in the U.S.

# THE NEW ZEALAND UFO FILMS PART I: Description of the Event

Within ten weeks of the disappearance of Australian pilot Fred Valentich, New Zealand attracted its share of worldwide attention with a New Year's Eve radar-visual-movie film UFO case. It inspired the Royal New Zealand Air Force to prepare to scramble one or two Skyhawk fighter-bombers 24 hours later if the Wellington airport radar picked up more positive sightings of UFOs. The RNZAF also ordered one of its patrol aircraft to cruise all night along the coast and remain in contact with a Wellington airport.

Members of the Australian news team that shot the film brought the

original film to the U.S. on January 8, which was studied by UFO researcher and optical physicist, Dr. Bruce Maccabee. On January 28, Maccabee travelled to New Zealand for 10 days, where he interviewed 7 of the 8 witnesses involved. He also spoke with the RNZAF officer who directed the official NZ government investigation. The officer supported an "unusual atmospheric conditions" conclusion and ruled out a secret military maneuver hypothesis. Maccabee visited the scientists of the Dept. of Scientific Industrial Research (DSIR) who conducted the actual investigation, only to discover

that they had only spoken with the pilot, co-pilot, and an ATC controller and hadn't even looked at the film! Maccabee showed them a copy and they acted interested, but they informed him of an experiment conducted several nights after the filming with an Air Force Orion aircraft. Several "solid" targets were seen on radar and the Orion was guided to the various locations, but each time it got there, it only encountered turbulence. Nothing was ever seen by the crew. Maccabee then returned to the U.S. and discussed his findings with a variety of interested researchers, including Dr. Richard Haines, Dr.

Peter Sturrock, Dr. James Harder, Neil Davis, Brad Sparks, Stanton Friedman, Dr. J. Allen Hynek, Allan Hendry, Dr. Gilbert Levin and others. Then a press conference was conducted in New York City on March 26 by the Australian TV station; it included Dr. Maccabee, Dr. Hynek and Jack Acuff of NICAP. Unfortunately, the news media were preoccupied that day by the signing of the Middle East peace treaty, though even the New York Times ran a short article on the case.

Most of the following reconstruction of events, then, is based on information obtained during Bruce Maccabee's exhaustive investigation. Supplementary material was contributed by Paul Norman in Australia, Rocky Wood in New Zealand, Peter Tomikawa, Richard Haines and John Prytz of the Australian Coordination Section of the Center for UFO Studies. But first, we must look at a forgotten aspect of this entire event.

the original radar-visual sighting that preceded *this* sighting by ten days, and caused the TV film crew to be in the right place at the right time.

### THE DECEMBER 21st SIGHTING



Indeed, the film crew would never have followed that route armed with sensitive color film if they hadn't gone out to cover the UFO experience of another pair of Argosy planes that also flew along the coast in the early morning hours of December 21. As with the New Year's Eve flight, these Argosy freighters belonged to Safe-Air, Ltd.; Argosy 1 took off from Blenheim at 12:35 AM and headed south on a dog-leg route. toward Christchurch that would follow the eastern coast of the South Island. On board were Captain John Randle, 45, a pilot for 28 years, and First Officer Keith Heine, 32. In Wellington, Senior Radar Controller John Cordy, 45, and Precision Talkdown Controller, Andy Herd, were awaiting the arrival of an Air New Zealand DC-8. As the plane flew toward the coast at 220 knots, the two-man crew saw an intenselybright white light, "too powerful to be a vehicle's headlamps", Capt. Randle said. He could see land features lit up underneath it as it slowly passed. Randle and Heine were only mildly curious, so they didn't radio in



Australian reporter Quentin Fogarty, Dr. J. Allen Hynek and Dr. Bruce Maccabee appeared on NBC's TODAY show the day of the press conference.

the sighting.

Meanwhile, radar men Cordy and Herd in Wellington were alerted by Flight Services Officer Bill Frame at the Blenheim control. On his first night on the job, he was reporting three lights that were "much brighter" than landing lights off Cape Campbell; one of them appeared to emit a "shaft of light". Cordy acknowledged seeing mysterious blips on the scope earlier, but they ignored them. On radar, they saw five targets moving up and down the coast south of them in a 16-km (10-mile) quadrant over the sea. Herd phoned the Kelburn Meteorological Office to see if any weather balloons were launched, only to be told that the only one had burst a few minutes earlier. The RNZAF had nothing in the air to account for the strong blips, either. One signal in particular at 3 AM moved like an aircraft at 120 knots off Cape Campbell, then stopped and hovered for half an hour 80 km SE of Wellington. Wellington called the Christchurch radar facility about the strong echoes and they picked them up, too.

The five other lights continued to move about within their quadrant, and one more appeared inland. At 3:30 AM, Argosy 2 took off from Blenheim, adopting the same flight path of the previous plane. On board were Capt. Vern Powell, 55, with 18,000 hours of flight time, and copilot lan Pirie, 31; they were told they might be asked to investigate some unidentified radar returns. When they were 2000 meters high and climbing to 3200 meters, Cordy asked the plane if they could see anything 20 km to their right (star-board). "We couldn't see a thing," Powell said, "then within a matter of

seconds, we were asked to check for a sighting 40 km to port." Pirie spotted a bright white light with an intermittent reddish tinge above them and to their left, changing hue back and forth noticeably.

The Argosy came level with the light when they reached 3200 meters (10,000 feet) and their onboard weather radar revealed it was several kilometers away. At Wellington, the radar controllers noted that the unidentified target had hovered motionlessly until the plane caught up with it; then it started pacing the plane at a distance of 37 km to the east. Visually, Powell said that the light remained in the same position relative to them. It would disappear into clouds occasionally and reappear. "I've been flying since 1944, and I know a star or a planet when I see one. This wasn't anything I've seen before." Wellington considered having him move in for a closer look but they were authorized to request a flight diversion only on search and rescue operations "because someone has to pay the costs involved" and Powell wasn't anxious to delay his company's cargo. Cordy, a controller with 26 years of experience, said the blips were at least as big and as solid as the Argosy. The Argosy 2, having watched the light for 10-12 minutes, changed course 60° to starboard, and the light lagged behind and disappeared. Wellington lost it from their screens soon after.

As Argosy 2 approached Christchurch, near Motunau Island, the plane's weather radar picked up a fast-moving signal off Banks Peninsula shooting across its flight path. "We got a visual sighting as it passed", Powell said. "It was a bright, flashing white light, almost like a strobe." It shot past their bow, traversing 24 km in five seconds—or 10,000 m.p.h.! Then it veered sharply to the right and disappeared. Christchurch couldn't see this on radar as they have a blind spot there, 40 km seaward from the city. A Dr. J. G. Tees of Amberley claims to have seen the light as well.



Captain Vern Powell in the Argosy cockpit

Now Capt. Randle's Argosy 1 left Christchurch flying northbound for Auckland. As they approached the Clarence River area, they spotted the five objects still offshore at about 50 km range. He saw them as white/ amber lights, four times the strength of landing lights, reflecting off the water. They passed 16 km south of them, an estimated 150 meters above the sea. The Argosy completed an orbit above the objects before it returned to its course north. Finally, the Argosy 1 saw three targets on radar that suggested ships; the crew saw them visually by their lights



Air Traffic Controllers John Cordy and Andy Herd, involved in the Dec. 21 event.

afterwards, but were puzzled by the presence of "ships" that would be big enough (1000 tons) to show up on their weather radar yet be in such unsafe coastal waters.

Melbourne's TV station Channel O ("OH") decided to run a news story on Capt. Powell's experience, so it commissioned a reporter and a film crew to obtain some relevant footage for visual purposes. Australian reporter Quentin Fogarty pursued this project by boarding a four-engine, turbo prop Argosy freighter which was making its standard Saturday night-Sunday morning newspaper delivery run from Blenheim to Well-Ington to Christchurch and back. Also on board were the pilot, Captain Bill Startup, the co-pilot, Robert Guard, cameraman David Crockett. and his wife Ngaire ("NAY-ree"), who operated the tape recorder . . . five witnesses in all.

The weather, as noted by the film crew, was excellent for flying, with no noticeable departure from a standard temperature lapse rate from ground level to 14,000 feet. There were low clouds over Wellington. with visibility about 60 km over the sea. Winds at cruising altitude (14,000') were from the west at 10-15 knots maximum. Atmospheric conditions were sufficiently steady to allow operation with automatic pilot and automatic height control (which is pressure-sensitive). Wellington radar showed no noticeable inversion effects.

See the technical detail sections for more information on the Wellington radar facility, the movie camera and film used and the weather conditions.

### TECHNICAL DATA

### WELLINGTON TOWER RADAR

TYPE: Marconi 264, 50 cm (587 MHz), 500 kilowatts.

MTI (Moving Target Indicator) CAPABILITY: Targets with radial velocities in excess of 15 knots are detected in the MTI mode with phase shift and digital scan summing electronics. Observations on known targets with and without the MTI processing indicate that the MTI improves the sensitivity of the system. Strong targets in the MTI mode may be weak or even non-existent in the normal mode.

PULSE REPETITION RATE: automatically varied among six frequencies averaging 500/sec.

PULSE DURATION: 2.7 microseconds.
ROTATION RATE: 12 sec/revolution.
AZIMUTHAL BEAMWIDTH: 2.1° ± 0.2°
ANTENNA GAIN: 30 dB over a dipole
POLARIZATION: horizontal
ABSOLUTE DISTANCE ACCURACY: 1% of

RELATIVE DISTANCE ACCURACY: (set by blip size on the display) about 1 mile on the maximum range.

MAXIMUM RANGE: 150 nautical miles at 10,000 ft.

ANTENNA HEIGHT: about 1700 ft. above sea level

UPWARD TILT OF THE CENTER OF THE TRANSMITTED LOBE: about 4° (no height

resolution—surface targets are detected for 30-50 miles). DISPLAY: 12" diameter PPI with 10-mile range rings on the 150-mile range.

### CHRISTCHURCH TOWER RADAR

TYPE: Marconi 264, 50 cm, 50 kw
MT/ CAPABILITY: Similar to Wellington, but
not as sophisticated

MAXIMUM RANGE: 100 nautical miles at 10,000 ft.

ANTENNA HEIGHT: about 120 ft. above sea level

UPWARD TILT OF THE TRANSMITTED LOBE:
Cone of invisibility extending outward from
the antenna which rises at a rate of 100
ft/mile. Targets cannot be seen beneath it
under ordinary atmospheric conditions.

## AIRPLANE WEATHER RADAR—used on northbound trip only

TYPE: M.E.L. Equipment Co., E190 Series, 3 cm (9375 MHz), 15 kw
MIT CAPABILITY: none
OPERATING MODE: "map mode", a fanshaped beam extending from 3° to about 15° below the aircraft's "horizon"
AZIMUTHAL SWEEP RANGE: ± about 50° from straight ahead
SWEEP RATE: about 3 sec. per cycle

PULSE REPETITION HATE: 400/sec.
PULSE DURATION: 2.2 microseconds
BEAMWIDTH: 3.5°
RANGE: 150, 50, 20 miles (used on 20-mile
range)
DISPLAY: sector display with 5-mile range
rings and 15° azimuth markings

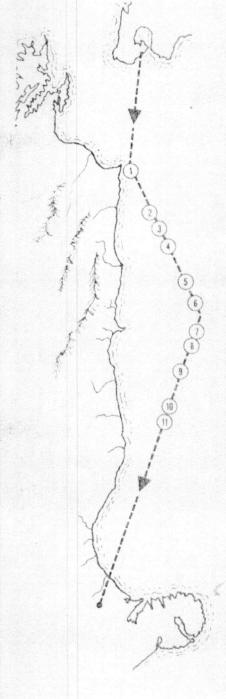
### MOVIE CAMERA

TYPE: Bolex H16, EBM Electric 16-mm reflex movie camera. Operated at 24 frames/sec. on the southbound flight and 10 frames/sec on the northbound trip. Rotating shutter disc in front of film plane with a 160° opening.

LENSES: Vario-Switar zoom iens, 18-100 mm at 1/1.9, used on the flight south. A Sun Macro-Zoom, 80-240 mm iens was also used at 1/4 on the return leg. The latter was found to be out of adjustment; at full zoom, objects at "infinity" were actually in focus at the "15 feet" setting. This meant that distant objects (like the lights) were out of focus when the lens ring was set at infinity. This serves to explain why one section of film shows a large dim image which contracts to a brighter, much smaller form, which then returns to a dim large defocused form. This form is accompanied by an apparent symmetry inversion of the defocused image.

FILM: Fujicolor type 8425, 16-mm, ASA 400 color reversal film. Standard development was used

# THE SOUTHBOUND TRIP



PLANE LOCATION	TIME (AM-dst)	PLANE SAW:	WELLINGTON RADAR SAW:
#1	12: 10 through 12: 12	Lights toward Kaikoura appear- ing/disappearing (Seen by pilot, co-pilot) at plane's 1 o'clock position.	Targets at plane's 1 o'clock pos- tion at 13 miles, appearing/dis- appearing.
#2	12:15		Farget at plane's 3 o'clock near coastline.
#3	12:16 12:16:30		Target in front of plane, 10 miles (one sweep only). Strong target at plane's 11 o'cloc at 3 miles.
#4	12: 17: 30 12: 19		Target at plane's left, 2 miles Strong target now at 10:00, 12 miles.
#5	12:22	(Plane performed a 2 min. left- hand orbit to survey area) Fogarty recorded his first commentary on the lights which he was then ob- serving not to the left, but in the direction of Kaikoura (other than city lights).	Target left of plans, one mile. Remained stationary while plans orbited.
		The lights were located about 5* below the plane's horizon. Interestingly, the lights were likely seen against a background of mountains here, not sky.	
#6	12:27	Plane confirmed the "flashing light" in the direction posed by Wellington radar.	Target in front of plane, 3 miles.
	12:28		After the turn-off here toward Christchurch, the only targets were 12-15 miles behind the plane.
H7	12:29		Target one mile behind the plane.
	12: 29: 30		Target now 4 miles behind the plane, holding stationary for 6-7 sweeps.
#8	12:30		A further target was now seen at the plane's 3:00 position at 4
	12: 30: 45		miles. The target may now have moved closer to the plane, as the last target had disappeared and there was now a single, doubly-strong target on the scope. At this 90-mile distance from Wellington, blips are 3 miles "wide" and 1-mile "thick", so the target could have been as much as 3 miles away from the plane.
	12:31:30	Copilot saw a flashing light travelling along at the right of the plane.	The plane's blip, after being un- usually large for 3 swaeps, settled down to normal.
#9	12:32:30	"Got a target at 3:00 just behind us," the one above. Fogarty re- corded seeing it, too.	"Yes, and going around now at 4:00 at 4 miles."
#10	12: 35		Previous target now (apparently) dropped back behind plane 15 miles; joined by 2 others.
#11	12: 36: 30	(Plane performed a 2-minute left- hand orbit, but nothing was seen)	Three blips behind the plane had merged into one large one.

The Wellington Air Traffic Controller was Geoffrey Causer, who utilized an MTI-processed radar picture (see Technical Data). A radar technician named Bryan Chalmers was also present for part of the time, watching a "raw", non-MTI-radar display. The event was monitored from the Christchurch end by a



Geoffrey Causer

single controller. For a half-hour prior to the Argosy's reporting anything visual, Wellington radar had been watching "weird" targets on radar east of the Clarence River and Kaikoura coast.

Any discussion of distances between radar blips refers to edge-toedge distance. As will be noted, the blips can represent an exaggerated physical size with increasing distance from the antenna. These distances are also based on the assumption that the UFOs and the plane are at the same altitude. Thus, the radar distances for (visually) unseen targets may be greater than indicated. All events are based on the timed tape transcript of Wellington's radio conversation with the Argosy (the Christchurch tape was erased, regrettably), Bruce Maccabbee's discussions with the controllers and witnesses, and Fogarty's recorded comments. Distances are in nautical miles (6076 ft. or 1.85 km.).

### DISCUSSION: SOUTHBOUND TRIP

The Argosy departed from Wellington, New Zealand at 11:46 PM on the night of December 30, 1978. About ten minutes after midnight on Dec. 31, Fogarty and crew were back in the loading bay working on a "standup" for the news story, (see position #1 on the southbound map). It was also their intention to film normal city and airport lights out of the plane's window. All of this shooting was handheld as a tripod proved to be too cumbersome aboard the plane. The plane was climbing through 10,000' at 170 knots air

speed toward its cruising altitude (14,000') and speed (215 knots, or 3.6 miles/see.). Fogarty recorded his first statement about this point: "We are now approaching the Clarence River where the highest concentration of UFOs was sighted on the morning of Dec. 21. We're at an altitude of 14,000 feet and we're on exactly the same route taken by Captain Powell when he encountered those mysterious objects. It's a beautiful clear night outside and naturally we'll be looking out for anything unusual." A couple of minutes later, the film crew was being informed of the lights outside their own plane. At around 12: 22 AM, Fogarty recorded his first "on-the-spot" commentary: "It's kind of hard to describe my feelings right at the moment, but, uh, we've seen probably 6 or 7 or even more bright lights over Kaikoura. A number of these have been picked up by Wellington radar." Five minutes later, he noted that the lights were so bright, they seemed to be lighting up the sky over Kaikoura. Crockett obtained about 12 seconds of footage showing some sort of oval, bluewhite lights which were quite bright. He also filmed 5 seconds worth of several lights seen at once in a horizontal row that randomly flashed on and off. His footage of the town lights of Kaikoura is interesting by comparison . . . the UFO images are much brighter. All of these shots were of lights seen from the 12:00 to 3:00 (front to right) quadrant, with regard to the plane's direction of travel.

About 12:28 AM, the plane had switched over to the Christchurch tower's radio frequency. No sooner had they done this (map location #7). than Wellington radar saw a target right behind them, so the plane switched back to the Wellington frequency. Note the rather firm radarvisual confirmation that happened at map position #8, a few minutes after this began. Both of the operators at Wellington watched the radar end of this close fly-by, and agreed that the single blip was like two aircraft flying side-by-side at the same speed. There was no bending of the broad blip as might be expected if one portion (such as the UFO) were stationary while the other portion (the plane) moved by it. The plane would have moved about two miles during this time (three sweeps-36 seconds), a distance which would have exceeded the minimum difference in distance between two targets that could be measured on the scope. Shortly after this occurrence, Chalmers went to another radar scope with the MTI processing turned off; he saw the normal amount of land and sea clutter within 20 to 30 miles of Wellington, but no indications of anomalous propagation. Furthermore, the "weird" targets seen on the MTI scope were not seen on the normal display, suggesting they were actually weak reflectors of the 50 cm wavelength radar. As the plane witnesses watched the counterpart flashing light, Capt. Startup turned off the steady green wingtip light to insure that there was no kind of unusual reflection.

When the plane came in for a landing at Christchurch at 1:01 AM, the pilot and copilot remember being informed by the local radar operator that a target was pacing them in toward their right. Looking outside, the co-pilot saw a flashing light that looked like a car at first until he saw it cross a river at aircraft speed. They were too busy landing the Argosy to watch it carefully, though. The plane's onboard radar was not brought into play on the southbound

flight.

After the plane had landed, and the newspapers were being unloaded, the crew discussed their experiences with the Christchurch controller; he described an anomalous target that was not particularly impressive to him. Crockett and Fogarty decided to fly back with the plane to Blenheim to get more footage. Ngaire Crockett didn't go back with them, so a Christchurch reporter, Dennis Grant, took her place. Interestingly, Grant was the only person on the flight known to Fogarty personally.

### DISCUSSION: NORTHBOUND TRIP

The plane left Christchurch at 2:16 AM for its northbound return to Blenhelm. Weather conditions were still excellent with no noticeable departure from standard lapse rate conditions; winds at cruising altitude (13,000 feet) were from the SW at 10-15 knots. There was low cloud cover over Christchurch from 1200 to 3000 feet, scattered low clouds over the ocean and a possible cloud bank 40 miles east of the South Island. Once the Argosy climbed above the clouds, visibility was unlimited. In Blenheim, the weather conditions at 2:45 AM were as follows: winds were NW at 10-15 knots. Visibility was 60 km, with 1/8 cloud cover at 4000 feet. Temperature was 15°C. The crew was able to operate the plane on automatic height control at cruising altitude.

The Argosy climbed through the clouds at 1000 feet/min., initially flying 054° true (NE) at 155 knots. They were just breaking through the clouds at 2800 feet when they

# THE NORTHBOUND TRIP

		PLANE LOCATION	TIME (AM)	PLANE SAW:	RADAR SAW:
Gr.	100	#1	2:18:40	Light at 10-30° to the right of the plane same level.	
		#2	2: 21: 30	Grant, Startup and Guard all con- firmed that azimuth of radar and visual targets were the same. Fogarty recorded that light may have faded in out due to clouds. Crockett filmed a light which did fade in and out. Light was seen 5-30° below aircraft's level.	Airplane's own radar was switched from 50- to 20-mile range. Target seen 30° to right on scope, just under 20 miles. Blip 3-5X size of large fishing boat.
			2:25		Target went off radar map mode since angle of target exceeded 50°. Came as close as 10 miles.
	11)	#3	2: 29	Plane turned to right toward light (now at their 3:00 position). As they headed SE straight for it, the light swung around to their right again (!) on its own.	(Seen too low for plane's narrow radar beam here).
To the state of th	9	#4	2: 31	Crockett used 240-mm lens, as plane turned back toward original course. See text. Fogarty last saw it out the right window, almost straight down. Startup saw it again to the left after the turn.	
1	1 2	#5	2:41		Wellington saw radar target at plane's 10:00 at 20 miles.
	T P	#6	2: 45		Target at plane's 9: 30 at 16 miles.
I.		#7	2: 46: 30		Target at plane's 9:00.
		#8	2: 47 2: 48: 30	,	Two targets at plane's 11:00 at 15 miles.  Target at 9:00 at 8 miles. (Startup later asserted he saw these in the same positions on the plane's own radar, but he hadn't paid close attention).
	To the state of th	#9	2: 51 2: 51; 30 2: 52	Second light to the left of the last one, according to Fogarty's tape, which flashed "extremely brightly". Both lights faded and reappeared. One was likened to an orange aircraft beacon. The light(s) noted by Fogarty to roll in an elliptical path, long axis vertical. This motion was captured on film, with a flash rate of 1.1 sec., from bright white to dim red/orange. Fogarty also referred to a cluster of lights including one which "keeps flashing". The plane requested that the Blenheim beacon (50 miles away) be turned off. The lights seen from the plane disappeared at about the same time.  Another light was seen seconds later, but not necessarily in accord with new radar targets (at right).	Strong target at 12:00 at 20 miles. (2 miles off coast, 10 miles south of Cape Campbell).  Target at plane's 9:00 at 8 miles and 10:00 at 10 miles. Target south of Cape Campbell disappeared about the same time as the beacon was turned off.
	IN S	#10	2:53 2:54	One or more of these may have been seen.	Four targets seen at 9:00, 9:30, 10:00, and 10:30, all about 1 miles off the coast.  Target at 12:00 at 2 miles.

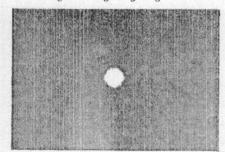
	2: 55	(Unseen).	Plane "merged" with target though "UFO's" height was undeterminable.	
	2: 55: 30	Bright light behind Woodburne (Blenheim airfield).	(Unseen).	
#11	2: 56	Lights at 2:00-3:00 of plane	Unseen, but target at 9:30 at 5 miles. Then "just one point" of target at plane's 3:00 at 15 miles.	
#12	2: 57	Two lights seen just prior to plane's orbitting descent. Gone when 2-minute orbit was completed. Plane attributed these to fishing boat lights. Venus now rising, pointed out by co-pilot to the rest.	Targets at 12:00 at 2 miles and 10 miles as orbit began.	
#13	2: 59	Light over Picton		

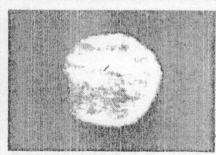
spotted the light (at map position #1) while 7 miles out of Christchurch. The witnesses offered different Impressions about it: Startup thought it was the full moon at first without features (the real moon had set in the west hours before). Guard described it as a "squashed orange" Grant wrote down at the time that it resembled a white ping-pong ball illuminated by a spotlight. A reflection of the lights off of clouds or the ocean was also noted. Dennis Grant repeatedly compared the position of the light with the target on the plane's mapping radar. Since the target was about 18 miles from the plane, 30° to its right, and since the plane was 15 miles from Christchurch, the target was about 32-35 miles from the Christchurch radar. That system has a lower limit of effectiveness that rises 100 feet for each mile. Thus, an object at 3000 feet 30 miles away would not be

When the plane was 32 miles out of Christchurch at 11,500 feet, the light was 70-90° to the plane's right and off its radar. The cameraman obtained several minutes of film out the far-right-hand cockpit window at this time. The images range from yellowish/white elliptical shapes with reddish fringes to overexposed, triangular and circular forms; typical angular sizes were on the order of 1-2 milliradians. One useful zoom shot shows a cockpit meter (below the window sill) just below the image of the bright light outside. The Argosy reached its cruising altitude of 13,000 feet and 215 knots air speed at map position #3, 35-38 miles out of Christchurch; at this point, the pilot turned right and flew southeast toward it-yet the light also swung around from directly in front of them to their right again. The light was more noticeably depressed in angle below the plane now as well, which serves to explain why it didn't briefly reappear on the plane's radar.

It was here that Crockett filmed the light through the faulty 240 mm zoom

lens, resulting in his description of the large image to Fogarty. "It now appears to be an oval-shaped object with rings of light going around."







The faulty Sun zoom lens "blew up" the light source into an exaggerated, dimmer extra-focal image.

Before the plane turned to the right, the light was described by him as having a "brightly-lit bottom and a sort of transparent top". During the time that the lens was in focus, he did obtain images that are consistent with the bell-shaped, bright-bottomed forms seen through the 100 mm lens.

This southeasterly course lasted 1 or 2 minutes. As the plane executed a left turn to get back on course, the

pilot was surprised to see the light appear suddenly on the plane's left. Then it appeared to move downward, behind and beneath the plane. This was the light's closest approach to the Argosy, but it went unfilmed. The sighting line was too far below the plane's horizon, and the camera would have bumped overhead switches.

The plane landed at Blenheim airport at about 3:10 AM.

### **NEXT ISSUE: PART II**

- What does the film reveal after analysis?
- How effective are the prosaic explanations?
- What about the second film shot on the ground?

# THE BRAZILIAN UFO SCENE

by J. Allen Hynek

"For God's sake-do something about these OVNIs (UFOs) . . . so I can go back to catching my armadillos!" So spoke a Brazilian farmer in the state of Minais Gerais to Alberto do Carmo. Armadillos are best caught at night, and these yellow balls of light had become so common, and so frightening to the natives that they were, and are, very afraid to venture into the forest at night; they still ventured into the forest (or 'bush') but they developed a routine of hiding under bushes when the lights came by, so they wouldn't be grabbed by the UFO. These balls of light, sometimes called a part of the "Mother of Gold" phenomenon [a spirit that is associated with mineral deposits and presumably is interested in protecting them], are said to attack the unwary.

So, at least, this part of the UFO phenomenon in Brazil has become a part of the folklore, or has attached itself to it. Apparently, the "mother of Gold" phenomenon is quite com-



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### A MONTHLY REVIEW OF THE UFO PHENOMENON REPORTS, INVESTIGATIONS & ANALYSES

There is no hope of advance in science without a paradox. - Niels Bohr

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by Dr. J. Allen

From time to time there is place for whimsy in an editorial, and this is an example.

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Suppose you were given the job of selling an idea—not a product, but an idea, an idea quite foreign to popular thinking, and one which runs against common sense, against scientific and military opinion, and against the learned opinions of the intelligentsia. You must sell this idea not to just a selected group but to the majority of the population of the United States.

Quite a job, you'll agree, You might start by engaging a highly expensive Madison Avenue advertising firm, and obtain prime time TV and radio time in stations all over the country. This would be accompanied by a barrage of newspaper advertising perhaps full page ads in major newspapers, and you might hire fluent speakers to tour the country, much as in a political campaign.

To attain the actual acceptance of

paign.
To attain the actual acceptance of this idea by more than 100 million people, the majority of our population, would be, you'll agree, a major accomplishment, and a very ex-

accomplishment, and a very expensive one!

Yet this has been accomplished without the spending of one cent. and against a barrage of ridicule, of active opposition from science, the military, and the press! Of course, it took some thirty years to do it.

The Gallup Poll earlier this year indicated that 57% of the American population feels that UFOs are "for real". Yet thirty years ago, when the "campaign" started, the whole idea was foreign to our thinking, and would have been regarded as preposterous. Quite a successful advertising campaign!

But who put it on! Extraterrestrial intelligences? Our own "collective unconscious" as the psy-

A Clar Hypich



# THE NEW ZEALAND FILM ANALYSIS Part II

### WHAT CAN WE LEARN FROM THOSE FILMS?

At first glance, the footage resulting from a hand-held camera in a moving plane of lights both focused and defocused seems to yield little useful information. Certainly the average news viewer watching the TV broadcast of these films last January must have felt unimpressed with their lack of drama or detail. Yet in the hands of an optical physicist like Dr. Maccabee, a surprising amount of data can be obtained which further supports the anomalous nature of the sources.

### BRIGHTNESS

Maccabee desired to determine the brightness of the light sources captured on film; yet his microdensitometer scans of the small, focused images showed them to be highly overexposed, with the film having a transmission that approaches that of the clear film leader. Such overexposed images render the task of estimating the illuminance on the film plane difficult. Quite ironically, the solution to this problem laid in the use of the otherwiseannoying streaked images caused by the cameraman's hand-held motions. By spreading the image's light over a larger area of the film frame (in the same exposure time), the image is less overexposed, allowing a more accurate measurement.

The single film frame seen below was shot during the sighting of the radar-confirmed light seen at the beginning of the Argosy's trip northbound. The image density of the light source was measured at different points in the loop-shaped streak relative to the film density of the dark background Using classical formufae for image illuminance, film density vs exposure curves published by Fuji and (conservatively) the smallest distance noted by the plane's radar to the light source, Maccabee calculates a lower limit of 260,000 candelas. This is ten times the light intensity radiated by a 10,000-watt incandescent bulb, the largest commercially-available. If this type of bulb had its output focussed into a 70° beam, however, it would achieve the 300,000 candelas calculated. The full moon, low on the horizon, would also be comparable.

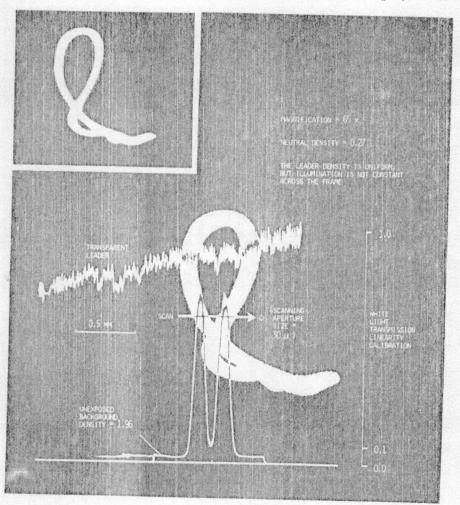
SIZE

Using the focal length of the lens, the width of the streaked image and the shortest radar-determined distance to the source, Maccabee determined the lower limit for the size of the source. Assuming a stationary object with streaks due only to camera motion, the angular width of the horizontal streaks is about .00065 radians, and .001 for the vertical streaks. This would be consistent with a non-circular object which, at 18 km, would be 12 meters by 18 meters in actual size.

Finally, recall this particular source was seen for over 12 minutes, and the prospect of "freak weather phenomena" (e.g., reflections, ball lightning) becomes rather improbable.

### WHAT ELSE DOES THE FILM FOOTAGE REVEAL?

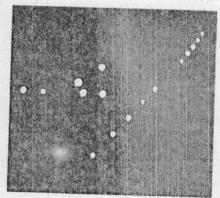
THE TRIP SOUTH: Amongst the 263 feet of film shot on the trip to Christchurch are shots of the plane on the ground at Blenheim, the takeoff, cockpit interior shots, anomalous lights of the Kaikoura coast, the town lights of Kaikoura itself, and the landing at Christchurch. There are about 230 frames showing a bluish-white light that is basically elliptical, but which may have a triangular protrusion. Even the known light sources (e.g., the city and runway lights) are useful here, because they help to calibrate the film, the camera and the plane's windows for light sensitivity, color and distortion. For example, a flashing red light on top of the Argosy, filmed



Microdens tometer scans of one frame from the New Zealand film

by Crockett before the plane left Blenheim, so saturated the redsensitive layer of the film when he zoomed in on it that it took on a bright yellow center on the film. This was important for the analysis of a flashing red light at the end of the film.

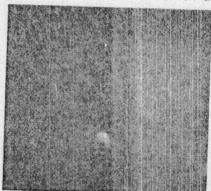
Another example: the runway lights retain their round shape while shot through the plane window.



Experiments with the camera also show that a round light remains round even when the focus is changed. Yet in the southbound trip, a large, defocused light has a triangular corner to it. Maccabee feels, then, that the "corner" is characteristic of the light's shape, and not the lens or window behaviors.

THE TRIP NORTH: Crockett shot 148 feet of film on the return leg of the flight, but at a much slower speed—10 frames/sec. This resulted in a longer exposure time per frame, as evidenced by the interior cockpit shots. Seen in this footage is the takeoff from Christchurch, anomalous lights near Christchurch and Cape Campbell, and the landing at Blenheim.

The first light filmed here was the one that resulted in the loop-shaped image analyzed earlier. One useful look at this light occurred when Crockett filmed the object at full zoom (100 mm) and pulled back to wide-angle (16 mm) showing both the light and a dimly-glowing meter on the console below the window sill at



the same time. In one shot of the "Christchurch" light, the camera is apparently held steady while the light moves off to the plane's right, as described.

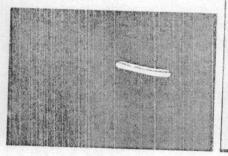
On film, the image started out as a thin ellipse surrounded by a reddish fuzz with the left end of the shape tilted up at a 45° angle. Forty seconds of film later, the images have changed into fat ellipses devoid of the red fuzz, even into triangular shapes. Maccabee's transmissometer measurements of these small images show that the images are so bright that the film's color dyes have been saturated and the exact colors can't be determined.

Then Crockett switched lenses to the faulty 240-mm lens and shot the sequence of this light usually broadcast on American TV, wherein the large (2 mm on the film) dim extrafocal image "shrinks" down to a small (0.2-0.3 mm) and bright light, followed by enlargement to about 1 mm again. This last image is a symmetry inversion of the first large image, apparently, further supporting the conclusion that Crockett simply passed through the real focus point of the lens for infinity at "15 feet" and kept on going out of focus again without knowing that his Sun zoom lens was faulty.

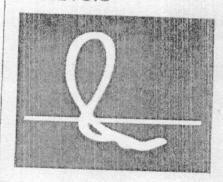
On some of the focused images of this light, however, the light assumes a bell-shaped form which is visibly brighter on the bottom than on the top; this matches an earlier description Crockett provided when



using the 100 mm lens. Even when the image is streaked by hand-held motion, the bottom part of the streak is brighter.



### TECHNICAL DETAILS ON THE FRAME ANALYSIS



The intensity (I) of the source can be determined with this equation:

$$I = \frac{E_1 A_1 R^2}{T A_L} (3.9R/V)$$

where I is in lumens/steradian (i.e., candelas-cd.),  $E_i$  is the film plane illuminance in Im/m.  $A_i$  is the image area, R is the distance to the source. T is the lens transmission (assumed to be 80%), and  $A_L = mD^2/4$  is the area of the lens aperture. For t/1.9, D=10 cm/1.9 = 5.26 cm. The visibility,  $V_i$  estimated from the ground level data, was about 70 km. Neutral densities of the film (density = -log 10

Neutral densities of the film (density = -logy; of the film transmission) as measured by Maccabee range from 0.4 to 0.2, while the clear leader is about 0.12. The densities for the three colors (red, green, blue) in the portions of the film which have not been exposed (e.g., the black background) lie in the range of 2.1-2.3. Fuji's published characteristics for this high-speed color film indicate that the normal density range is from about 0.10 to 2.3-2.7 for the three colors, and that the "speed point density" for the film (the value for a "good" exposure) is 0.90. Actually, the value may be more like 0.80, since the upper density range of the film stock used was a bit lower than normal.

According to the ANSI standards, ASA 400 film reaches its speed point density when exposed by a flux of about 0.025 fm sec/m². For the camera's 0.044 second exposure (at 10 frames/second), this becomes 0.57 fm/m². The measured loop image densities differ from the speed point density by 0.4-0.6 units, indicating the image illuminance was 100.4=2.5 to 100.6=4 times the speed point illuminance. Using a conservative three times the speed point illuminance, E<sub>j</sub> = 1.7 fm/m². The total image area for which the density is 0.4 or less (3X the speed point or greater) = 0.003 cm². Assuming the smallest measured radar distance to the light source, the equation yields a value of 260,000 cd. If the distance was 35 km, the value would greatly increase to 2.5 X 10.6 cd.

One alternative explanation for the 4.1 mm length of the streak and its brightness is that the camera shutter momentarily stopped rotating. This effect does occur at the end of some scenes throughout the film footage. In this frame, however, there was no increase in the exposure of the dark background, which would have resulted in a visible or measurable reddening of the frame overall (as in the others). Moreover, the neighboring frames reveal that this was not the end of a scene, and the looped shape was consonant with the hand-held motion in the previous and succeeding frames.

### WHAT ARE THE ALTERNATIVE EXPLANATIONS?

While the general features of the case (including brightness and motion) already suggest reasons that rule out natural or man-made sources for the lights, here are some specific reasons that help rule out some proposed prosaic explanations.

### The Visual Sightings:

1)JUPITER (and Saturn)—Jupiter was proposed to the press by Mt. Stromlo scientists and Sydney amateur astronomer, Robert Lanigan-O'Keeffe, among others, especially after an early examination of a video tape of the bright "Christchurch" light seemed to show it was surrounded by four moons. Both planets were located high in the northeast, however, which is totally inappropriate. The "moons" do not show up on the original film stock examined by Maccabee.

2) VENUS-the "preliminary conclusion" of UFO skeptic Philip Klass on the basis of the films alone, and many others including British UFO journalist Norman Oliver and the head of New Zealand's Mt. John Observatory. It's a "better" choice, since the direction and elevation favor the "northbound" UFOs better (though not the "southbound" they were in the west), but there's still one damning fact: Venus didn't rise until 3 AM, local daylight savings time, even at the plane's altitude. Remember, the co-pilot pointed it out to the rest of the crew at the very end of the flight.

- 3) AIRCRAFT—ranging from the "unscheduled aircraft" of British amateur astronomer Patrick Moore, to the "top secret U.S. military remote control drone vehicle" proposed by a former R.A.F. research specialist to "helicopters operating illegally at night". Both the Wellington and Christchurch facilities and the RNZAF affirmed that there were no civilian or military aircraft around the Argosy.
- 4) METEORS—proposed, incredibly, by British radio astronomer Sir Bernard Lovell (in the Brisbane COURIER-MAIL, January 3). When did meteors begin holding still for cameras for 12 minutes? Yet even Professor Ronald Brown of Melbourne's Monash University supported this in the Australian press. Adrian Berry, science correspondent of the DAILY TELEGRAPH speculated that the Argosy crew simply failed to appreciate the speed of the "meteorites"...so did the radar and the Bolex.

- 5) CITY LIGHTS AND BEACONS— Certainly not to the east over the sea, the scene of the most anomalous action.
- 6) JAPANESE FLEET LIGHTS—used for squid fishing that night. The brightness could work here, as would the angle below the plane's horizon (for the northbound flight only). The fleet was located, however, at an estimated 260 km southeast of Christchurch; a scanning satellite picked it up at 1:00 AM. In fact, the pilot and co-pilot pointed out the distant squid fleet to the passengers! Similarly scuttled, then, is New Zealand ornithologist J. Harrow's suggestion that mutton birds reflected the light from these ships.
- 7) BALL LIGHTNING (also "Plasma," "Natural Phenomena", "Meteorological Phenomena")—so said Duncan Lunan (British astronautical writer) and Norwegian aerospace expert Erik Tandberg. It's usually associated with thunderstorms, though; 3 hours of individual events, lasting as long as 12 minutes each, coupled with the intense brightness of the lights, renders this hypothesis unseemly.
- 8) BALLOONS WITH LIGHTS—light intensity too strong, speeds too fast; none officially acknowledged by the weather offices.
- 9) HOAX—Britain's Astronomer Royal, Sir Martin Ryle, deemed it all a hoax... by an Australian TV news department, with five people who didn't know each other, plus the cooperation of radar controllers at two air towers?

The Radar Sightings:

Explanations for the radar targets were accompanied, of necessity, by a disclaimer for the concurrent visual sightings (similar to the above):

1) EQUIPMENT MALFUNCTION—
The Wellington MTI-processed radar display should reveal only moving targets; some of the anomalous targets were indeed seen to move on radar, as fast as 60 knots or more. Yet other targets did not leave trails on the scope, implying that they were stationary. According to Maccabee, a stationary target could defeat the MTI filtering if its surface was vibrating, or if it moved back and forth. A change in the phase or frequency of the returned signal could also be accomplished by a plasma.

Bryan Chalmers determined that the anomalous targets were appearing only on the MTI display; turn it off and the targets disappeared. Since MTI processing makes the radar receiver more sensitive, this would be normal if the anomalous targets were actual weak reflectors of the 50 cm radar. Even planes can be weak targets like these if their orientations pose a small cross-section to the radar antenna.

2) "DIELECTRIC DISCONTINUITIES" CAUSED BY CLEAR AIR TURBULENCE—According to the flight crew, the air was quite calm, and the plane could be operated on automatic height control. This device corresponds decreasing air pressure with increasing altitude. When the air is turbulent, the pressure fluctuates and the device is ineffective. Besides, regions of clear air turbulence pose cross-sections that are very small for long radar wavelengths like 50 cm (one millionth the Argosy's "size" or less).

3) ATMOSPHERIC BENDING OF THE RADAR BEAM SO THAT IT REALLY "SAW" SURFACE FEATURES LIKE SHIPS-It's true that the Wellington controller had no height-finding capability. When the atmosphere is sufficiently refractive to bend the radar beam downwards, however, an unusual amount of land and sea clutter (even waves) appears on the non-MTI display. Chalmers checked this and found there were no conditions indicative of "anomalous propagation" on this display. This was consistent with balloon readings of the atmosphere taken at 11 PM, December 30. Only for a small region around 3400 meters was there a region with sufficient curvature to bend rays down toward the earth at a rate equal to the earth's curvature. The effect of this was small, however; a ray that travels 10 km through a medium that bends it downward from a starting angle of 5° upward would be only 30 meters lower in altitude with a bending rate of 2 minutes/km.

Consider the incident where the plane was apparently paced by a blip on radar for as long as 36 seconds. For a radar "angel" to accomplish this, it would have to have had the same azimuth as the plane (though not the same altitude), the same radar path length and the same change in path length for three radar sweeps. A plane could do this, but there were none. Neither a boat nor a wave could move at the plane's speed, and certainly no "natural" radar reflector could pace the plane for so long. But what if the rays first travelled upward from the antenna and were reflected downward to a stationary target (like a ship) while the reflecting region moved upward? That would increase the range of the target artificially. To increase the length of the curved path by the two

miles traveled by the plane in those 36 seconds, the bending region would have to rise eight nautical miles at the same time . . that is, the volume of air in question would have had to travel four times faster than the plane, which is faster than Mach 1!

4) THE RADAR HIT THE ARGOSY, BOUNCED OFF A STATIONARY TARGET, (LIKE A SHIP) AND POSED A SECOND (MULTIPATH) IMAGE TO THE RADAR ANTENNA.—The plane was flying at an altitude of over 2 nautical miles, so the extra distance travelled by the twice-reflected ray would show up on the scope.

5) A BENDING LAYER MAKES A FEW RAYS HIT THE OCEAN SURFACE AT A PATH DISTANCE EQUAL TO 84 NM. THEN THE CURVATURE LESSENS, AND THE RAYS STRAIGHTEN OUT TO FORM AN 86 NM PATH.—Granted, it wouldn't take much of a change in the curvature now to accomplish this, but the average curvature would have to exceed the curvature of the earth, since the radar horizon (without bending) is at 47 NM.

The big problem with all of these "bending" exercises is that they usually result in several false targets, not just one, and all over the scope. Moreover, these random targets would appear on the non-MTI scope as well... these didn't and no sign of anomalous propagation appeared. Besides, if the other stationary targets were anomalous propagation only, the MTI would have filtered them out.

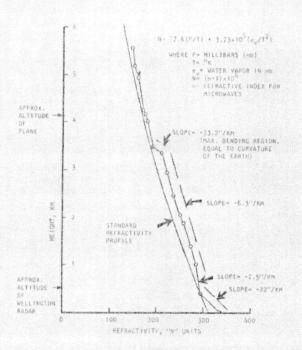
### EPILOGUE: THE JANUARY 3RD GROUND FILM

"If Channel O can go out and film a UFO on the first try," Australia's TV One must have reasoned, "why can't we?". Thus, cameraman Frank Kazukaitis, sound recorder Lloyd McFadden and reporter Terry Olsen found themselves sitting by a riverbed with a 16-mm movie camera, a normal lens and a 600-mm telephoto lens



Terry Oisen on "Good Morning, America" show

### TECHNICAL DATA



Refractivity profile for Christchurch, New Zealand from the 11 PM, Dec. 30 balloon launch.

(equivalent to a 24X telescope in this format)-and waiting-and watching. At 3: 15 AM, the sound operator, who was "on watch" while the cameraman snoozed, watched a "red glow" emerge from the sea. As it rose and became a chalky yellow color, casting its light over the sea's horizon, the crew captured it on film. ABC-TV's David Hartman hosted a satellite video linkup with witness Terry Olsen and physicist Michael Collins in New Zealand and Dr. J. Allen Hynek in Chicago to explore the details of the sighting. Some anomalous-sounding effects were described, but the information provided (both on- and off-screen) was sufficient to reveal that this second film was quite definitely of Venus:

• The light, though huge-looking on the TV screen, was described as appearing three times the apparent size of a star to the naked eye.

It rose up from the eastern horizon (a fact learned off-camera by Hynek) at 3: 15 AM . . . just right for Venus.
It was seen for three-and-a-half

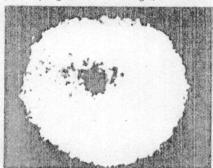
hours until it faded out in the bright-

ening dawn sky.

 Its rising motion was not apparent to the naked eye, but was seen through the telephoto lens. Hynek asked which direction it moved through the fixed lens; the answer was up and to the left. This is the way Venus would rise in the Southern Hemisphere, just opposite of the Northern (up and to the right).

 Terry Olsen, when asked if he could seen Venus in the clear, starry sky at the same time as the "UFO", replied "I wouldn't know Venus if I saw it."

 The huge image on film? Besides the "cropping" employed by television stations and newspapers when portraying the film image, it should



also be noted that the cameraman had never used the extreme telephoto lens before (according to Olsen) and it's difficult to tell whether or not the image is really focused.

The that "second UFO" film received as much airplay as it did was regrettable, as it gave UFO skeptics an easy chance to demean the New Zealand films on the strength of this latter identification. That the skeptics have avoided the *first* film, however, is an indication of its worthiness as a photographic record of a truly mysterious event.