A CASE OF RADAR DETECTION OF UFOs IN FRANCE

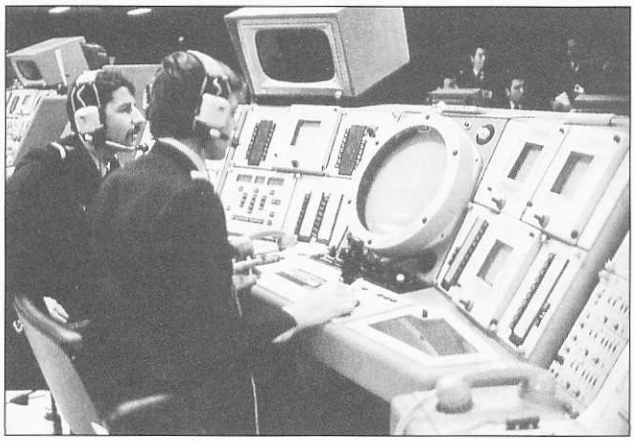
BY CLAUDE POHER

I discuss in this brief article a case where military radar detected several UFOs in France. The event occurred before I created GEPAN, but I personally investigated the case and spoke to the witnesses.

The incident took place on December 14, 1976, at Contrexéville (Air Force Base #292), which is about 60 kilometers south of the town of Nancy, in northeastern France. The radar at the base picked up three unknowns during the early morning, around 2:00 a.m., then 3:00 a.m., and finally 3:30 a.m. (all local time).

The three detections of unknowns were at night, when civilian aircraft traffic is particularly low and military aircraft traffic essentially nonexistent. The air traffic controllers know the flight plans well and are familiar with the trajectories of all kinds of aircraft on their radarscopes.

Seven controllers were witnesses. While I know the names of the main controller (whom I interviewed in person) and the station chief (who confirmed the facts by telephone with me), I have kept their names confidential. Evidently,



SIRPA-COMETA

Fig. 1. Example of French military radar air traffic controllers in action in 1976. The panoramic radarscope is the round one in front of the main controller; it shows in real time aircraft trajectories in the very large zone covered by the radar (about 300 km radius).

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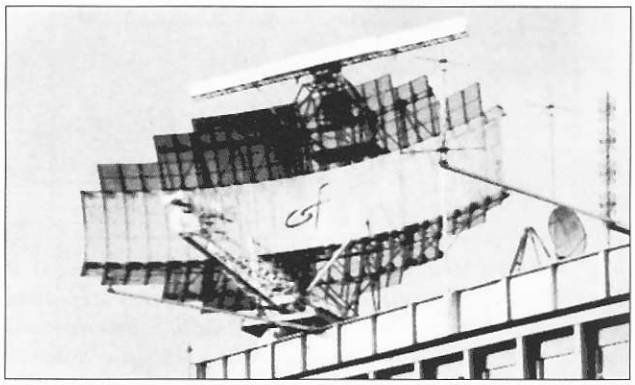

Fig. 2. Example of a panoramic radar antenna. The antenna rotates around a vertical axis, so as to sweep all directions of the horizon in 10 seconds. In the foreground are the radiating horn and the microwave guide at the parabolic antenna focus.

information about the case was classified.

To understand the facts, we must know something about the type of radar used in Contrexéville at that time. This panoramic radar had a parabolic rotating antenna, turning around a vertical axis, with a complete 360° turn in 10 seconds.

Let us simplify as much as possible. The parabolic antenna radiates a narrow but powerful beam of microwaves, narrower in azimuth than in elevation. The waves propagate and return towards the antenna when they encounter a reflecting surface, such as an aircraft metallic skin. The radar emits only during a very brief instant, then the antenna is connected to the receiver. The radar emission and reception are pulsed regularly.

The repetition rate of the emitted pulses, as well as the antenna rotation speed are chosen such that each target is illuminated several times in the microwave beam before it is out of that beam. Then the same target can only be detected again during the next antenna turn, 10 seconds later. For this reason, the radar scope and associated electronics are "remnant," as they keep the trace of the diverse echoes for at least 10 to 20 antenna turns (100 to 200 seconds) in order to get a trajectory of the targets. The oldest dots fade slowly in time, in order to show the orientation of the target movement on the screen.

Each radar echo paints a luminous "dot" on the screen

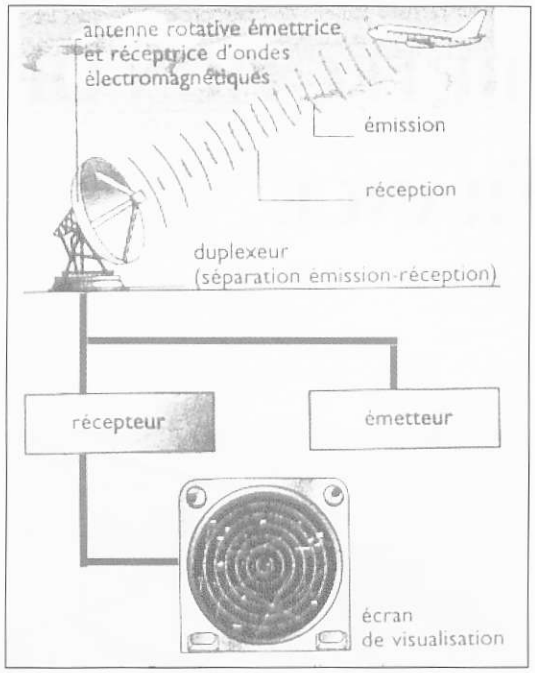

Fig. 3. Ultra simplified radar principle. The antenna is connected alternatively to the transmitter and to the receiver during its rotation. The radial sweep of the radarscope is synchronous with the emitting pulses and the antenna rotation. The radar echoes appear on the scope as dots that are moving like the reflecting targets in the sky.

(an elongated large dot). The screen sweep is radial and begins at the screen center when the transmitter radiates the microwaves. The direction of the screen sweep being the antenna orientation, each returned echo paints a dot at a distance from the screen center that is proportional to the distance of the radar target. Thus the screen has concentric circles giving the direct target distance to the operator.

Aircraft trajectories appear on the radarscopes as lines made of separated dots, one dot per antenna turn or one dot every 10 seconds. The target speed can be calculated both manually and electronically. For example, a commercial jet aircraft in high-altitude flight has a speed of about 900 km/hr, so it changes its position by 2.5 km (1.3 nautical miles) in 10 seconds of an antenna turn. Its trajectory appears, on the Contrexéville radarscope, as a line made of dots separated by 1.3 nm.

Detection #1 around 2:00 a.m. The first detection involved observation of a rapid, linear trajectory, at 180° azimuth, over the town of Lyon, which is about 300 km south-southwest of the radar position. On the scopes, the successive dots are 10 to 15 nautical miles (nm) distant, which is quite anomalous. To be detected at such a distance, the radar target must be at a high altitude, because of the curvature of the earth. Calculations indicate an altitude over 7,000 meters. But the radar did not show the target altitude because the target had no radar transponder, and because the briefness of the detection did not allow the "elevation lock" of the radar on the target.

Now that we have reviewed the radar's operation, we can understand very well the astonishment of the air traffic controllers, observing suddenly this anomalous trajectory with dots separated by 10 to 15 nm instead of 1–1.5 nm! Effectively the distance between the dots is 10 times greater than was common. No aircraft, in 1976, was able to paint a trajectory with dots separated by so much distance on the Contrexéville radar, and the operators were very conscious of the fact

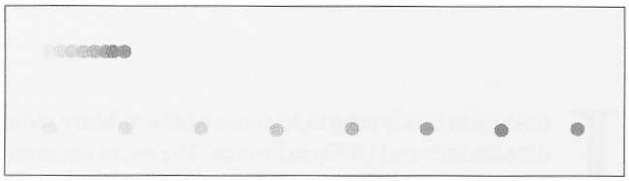

Fig. 4. Simulation, full scale, of two distinct trajectories on a radarscope of 60-cm diameter for a 300-km range. The detection of the two targets starts simultaneously on the left side of their painted trajectory, and moves to the right (heading = 90°). On the top: a commercial jet with a speed of 900 km/h. Below, the December 14, 1976, UFO with dots separated by 10–15 nm. The two trajectories are simulated for the same duration of 80 seconds. The dots contrast fades away with time, showing the direction of movement to the operator, just like on a real radarscope, except that this is a negative, i.e., the dots are dark.

Detection #2 around 3:00 a.m. The next event, about an hour later, involved the observation of several simultaneous trajectories, rapid and linear, over 190 km, following a heading of 120° to 160° from the Pointe de Givet (40 km north of Charleville-Mézières) towards Nancy where they disappeared suddenly. Again, the dots are 10–15 nm distant from each other on the scope, implying the same speed. The quality of return is better than during detection #1 because Nancy is only 60 km away from the Contrexéville radar.

The UFO trajectories were so fast that the radar operators had difficulty in accurately determining the targets' headings and distances. At such a speed, the distance of 190 km is covered in 70 to 100 seconds maximum, corresponding to 7 to 10 fading dots on the radar screen.

Detection #3 at 3:30 a.m. The last event involved the observation of several simultaneous trajectories again, which were also rapid and linear, between Reims and Nancy, on a heading of 100°, with 6 to 7 dots per trajectory. This time the operators are able to get a brief lock in elevation by the radar, giving the targets altitude as 35,000 feet (10,500 meters). The dots are again 10–15 nm distant, so the targets are moving at the same speed as in the other detections.

Speed of the Targets

During the three radar detections, the distance between the successive painted dots was 10 to 15 nautical miles. Air traffic controllers of Contrexéville were very certain of this:

(continued on page 27)

LETTERS

DISTANCE DILEMMA

To the editor:

In Herbert S. Taylor's "Satellite Objects and Cloud Cigars," *IUR* 29, no. 1 (Spring 2004), one observation that pops out from the list of cases described is that none of them have good estimates of distance to the object. Apparent sizes are given, but because most of the sightings have a sky background (with no reference to a ground object), it is impossible to estimate distance and size. Some witnesses were guessing sizes, but these were just guesses. Based on the brief descriptions given, most of these sightings are far away from the witness (not close encounters), thus the descriptions of the objects are not detailed. Does Taylor have examples where witnesses describe the satellite objects in more detail (not as simply lights or disks)? Is there a direct descriptive link between these satellite objects and the typical "saucer" description? Or are they mainly balls of light or dark discoid shapes?

Taylor states that durations between 30–45 minutes are a frequent occurrence. Yet I find it odd that there are no photographs in any of these cases. He did mention that in the Offutt case Major Duich claimed that a full colonel took color photographs but that he denied this later. I would expect that at least one photograph would be available if the duration of these incidents is indeed that long.

I was most intrigued by the vertical positioning of the cloud cigar. Perhaps Taylor can answer some questions related to the motion of the cloud cigar.

1. What is the frequency of cases where the cigar first appears in the vertical position vs. the horizontal position?
2. Which is more common: to start in the vertical position and then move to the horizontal position, vice-versa, or to stay put in one direction?
3. When the object moves from vertical to horizontal, what is the typical motion? The bottom comes up, or the top comes down, or does it move on its axis?
4. When objects exit cloud cigars, do they always exit from the bottom (when in vertical position) or from the top? What is the typical sequence?
5. Are the cloud cigars that move from vertical to horizontal (and vice-versa) described differently from those that simply stay horizontal?

I believe that these cases have been neglected because of the lack of useful information content—no distance or size estimates, no physical traces, no radar capture, no photographs, no close-up details, no triangulation from multiple witnesses. The cases do contain lots of data on the motion and behavior of the cloud cigars and satellite objects. This complex behavior and motion does suggest intelligence. I would encourage Taylor to further investigate this behavior and the patterns behind it, since he might be able to separate the objects into subcategories according to appearance, motion, or behavior.

Tony Rullán
Martinez, California

Herbert Taylor responds:

This insightful letter presents a number of questions that deserve substantive answers. Responding in a meaningful manner is important to arrive at a better understanding of the complexities in this spectacular body of reports (both those with and without the presence of a vaporous cloud). However, because my study is still a work in progress, I have only just now begun to conduct the analysis of the data in hand that should allow me to provide Rullán and all interested parties with the answers to the questions raised. This analysis will be an important component of my ongoing satellite-object study, and I remain confident that it will be completed in a relatively short period of time.

WATER AND UFOs

UFOs are usually seen in the air, either flying or hovering. Sometimes UFOs are observed to land on the ground. But you may not know that UFOs have also been seen on, in, and under various bodies of water. This type of sighting can be very dramatic, and hard to mistake as anything but anomalous.

Here is a typical report from June 1, 1966, on Lake Ontario off Clarkson, Ontario: "At 10:30 p.m., a former RCAF pilot and a friend were cruising on the lake when they saw lights on the water ahead. As they approached within a mile, the lights rose with an audible 'swish' and a pulsating humming sound. The two men now could see that it was a disc with dome on top, and it cast an oval reflection on the lake surface. Around the dome was a row of bright yellow lights, and blue-green lights were visible around the lower perimeter (body lights). After hovering briefly, the UFO took off at high speed and quickly disappeared."—"New Reports by Space Experts Add to UFO Proof," *U.F.O. Investigator* 3, no. 9 (Aug.-Sept. 1966), pp. 3, 5.

If the witnesses made an honest report, it is hard to imagine a mundane or terrestrial explanation for their sighting. A disk-shaped object floating on the lake that can fly into the air and then away at high speed isn't a boat, and the Navy didn't have a flying submarine then, nor does it now.

If you are intrigued by such reports, we encourage you to visit the Water UFO website (www.waterufo.net) of Carl Feindt. Carl is a CUFOS Associate who is passionate about UFO sightings associated with water, and he has constructed an impressive collection of such reports. All the data are freely available, so if you enjoy reading fascinating UFO reports, and don't mind getting a bit wet, you'll enjoy the site.