Return to Trans-en-Provence

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Abstract—The site of the 1981 Trans-en-Provence UFO case was visited again during 1988. Soil samples taken at the time of the initial investigation were analyzed in an American laboratory in an effort to validate the Centre National d'Etudes Spatiales (CNES) study of the case. The results of the interviews with the witness and his wife, and the examination of samples taken at the surface and below the surface of the physical trace support the findings of the CNES team and the truthfulness of the witness' testimony. In particular, it was found that the surface sample only differed from the depth sample by the presence of biological (plant and insect) material on the surface. Calcium and silicon were the dominant elements in all fields examined, with aluminum and iron also present. No indication was found of cement powder, oil, or chemical contaminants that could have indicated the presence of tractors or other industrial vehicles at the site.

Background

On Thursday, January 8, 1981 a remarkable phenomenon was observed on the outskirts of the French village of Trans-en-Provence by a single witness, Mr. Renato Nicolai, who reported the hard landing of a flying object and the ring-like traces it left on the ground. The Gendarmerie, and later several French Government scientists and laboratories, have extensively analyzed both the verbal report and the physical traces (CNES, 1983; Velasco, 1990). In particular, Dr. Michel Bounias has reported on the effects the phenomenon produced on plants growing at the site (Bounias, 1989).

During the time that has elapsed since the official study and Dr. Bounias' analysis a number of individual investigators in France have also conducted their own studies of the Trans-en-Provence case, including inquiries among the neighbors of the witnesses. These investigations have revealed that one of the neighbors recalled observing a tractor used for drilling on the Nicolai property (M. Figuet, personal communication, January 3, 1984); it was speculated that the wheels of a tractor maneuvering on the site could well have produced the traces in question. Furthermore, it was pointed out that such drilling work involves the use of substances like cement in powder form as well as baryte, bantonite, and a lubricating product called "foramousse" which could have affected the plants. Such speculation, combined with our interest in a follow-up to the earlier analysis work, prompted us to reopen the case.

Site Visit

On November 19, 1988 the author and his wife (a psychologist by training) visited the site of the Trans-en-Provence phenomenon in the company of Dr. Bounias. Weather conditions were dry and clear as we arrived at the home of Mr. and Mrs. Nicolai, who collaborated fully with our requests and patiently answered our questions over the next two hours (Figure 1).

Mr. Nicolai told us that the well, which is clearly seen as one reaches the property from the west, had been built in 1966 at the same time as the main house. Water was found at a depth of 44 feet. The well is located in the front yard, on the opposite side of the house from the site of the event. The witness also showed us the small shack he had been building at the time of the sighting. It was designed to house a new pump, immediately above the front yard. From that position one does have a long view down to the flat area behind the house on the east side.

We noted several other structures nearby: a small, one-story stone house near the pump shack, the ruins of a one-room stone cabin higher on the hill, and a round cavity lined with stones at the far eastern side of the property. It was used at one time as a garbage dump. Only the small house and the pump shelter show evidence of masonry work over the last ten years.

At the time of our visit, most of the site was overgrown with wild grass and weeds. There were some bare spots along the path but any trace of the event had long been obliterated.

We questioned Mr. and Mrs. Nicolai at length about the sequence and the nature of the work to which the area had been subjected since they had

Fig. 1. The Trans-en-Provence site today. Left to right: Dr. Jacques F. Vallee, Dr. Michel Bounias, and the witness, Mr. Renato Nicolai.

performed by CNES However, there remained one avenue of verification, namely a comparison of the soil on the surface of the ring itself with the soil at the same spot but just below the surface. Mr. Velasco kindly supplied the author with samples (labeled Q1 and Q2) that had been gathered at the same time as the main samples but had not been used in the CNES analysis. We were able to perform a series of tests on these samples.

Sample Analysis

During 1988 samples Q1 and Q2 were subjected to a number of analyses at a large, well-equipped California laboratory with the capability to process both biological specimens and physical substances. Unfortunately there is no civilian organization similar to the Unidentified Aerial Phenomena Study Group within CNES (GEPAN) in the United States, and the analysis of physical evidence alleged to be related to UFO phenomena still carries considerable stigma in scientific circles. Accordingly, the analysis was performed as a personal favor to us and not as part of the normal work of the corporation in question, and we have agreed to keep its name confidential in any publication of the results. The samples are available, subject to the agreement of CNES, to any bona fide research organization that might show an interest in reproducing our analyses.

The technical staff who conducted the analysis were given the vials containing the Q1 and Q2 samples but were told nothing about their origin and nature, except for the fact that they were not hazardous in terms of radioactivity or toxicity and could be manipulated in normal fashion in the laboratory. Excerpts from the technical report are given below.

Gross Examination and Optical Microscopy

Sample Q1

This sample has the appearance of damp sand with tiny particles of varying size. It is predominantly beige in color with some brown, white, grey, or black particles. There are tiny dark brown fibers with branches that may be plant or animal in origin, the term "fiber" being used for lack of a better descriptor. There is evidence of a few insect parts (black round bodies with wings or black-brown bodies with a leg). There is an occasional black fiber without branches and very few white fibers. There are few black particles which are soft, possibly insect bodies and very few tiny black particles that are hard (Figure 2).

Sample Q2

This sample has the appearance of damp sand with tiny particles of varying size. It is predominantly beige in color with some white, grey, or black particles. No fibers were seen in the whole sample with the dissecting microscope (Figure 3).

Fig. 2.The Q1 (surface) sample at magnification 2,000.

These observations are consistent with the fact that Q1 was taken from the surface, which is likely to include vegetal and insect material, while Q2 was taken below the surface in unexposed soil.

Random pinch size aliquots were taken of both samples for scanning electron microscopy (SEM); a second aliquot from Q1, designated below as Q1b, was taken concentrating on black particles for SEM/X-ray analysis.

Scanning Electron Microscopy

Aliquots of Q1 and Q2 were glued on aluminum specimen stubs with a layer of conductive colloidal graphite. The mounted specimens were then coated with a thin layer of carbon film in a high vacuum evaporator. They were scanned under the SEM at an energy level of 20 keV.

Sample Q1a consists of homogenous aggregates of particles that vary in size. In addition there are tube-like structures intertwined in the clusters. These tubes appear to be hollow and differ greatly in size and length. There are some larger particles over 10 micrometers in size in the aggregate.

Sample Q1b comes from the area concentrating on the black particles viewed in optical microscopy. It appears to contain mostly aggregates of the same particles seen in Q1a, but without the tube-like structures.

Sample Q2 consists of homogenous aggregates with particles of assorted

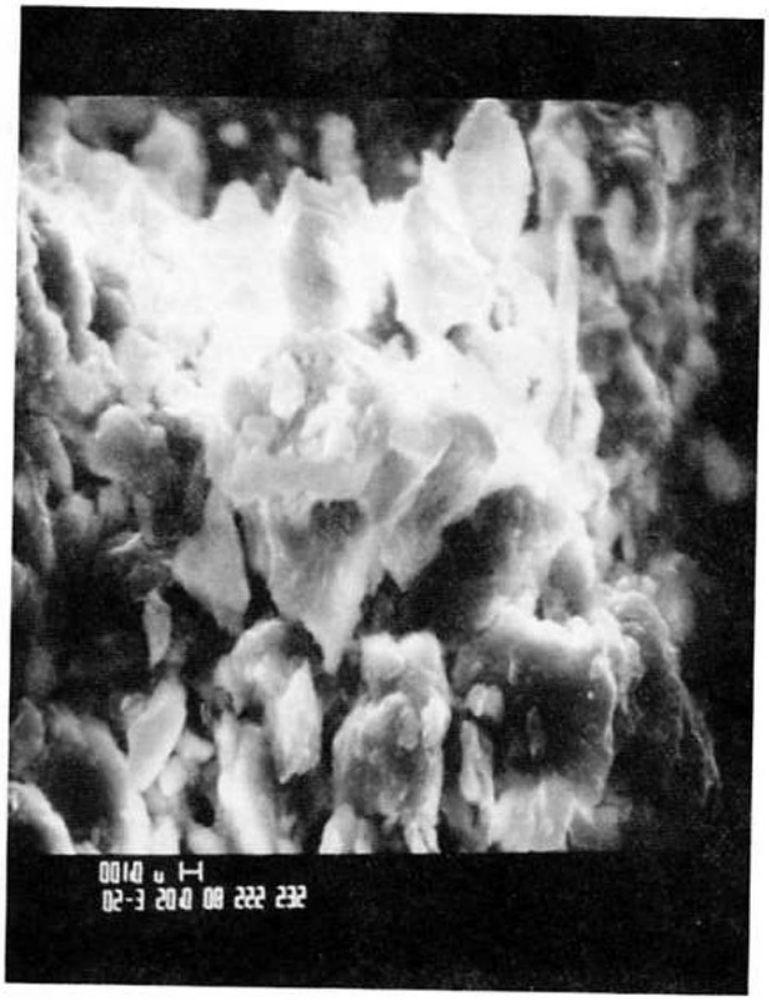

Fig. 3.The Q2 (depth) sample at magnification 2,000.

size and shape, mostly ovoid or spherical. The particles range anywhere from 1.0 micrometer to 6.0 micrometers in size. In some fields there appear to be a few long tube-like structures protruding from the aggregates.

Again, these findings are consistent with the different depths of the material and the presence of biological material on the surface.

Energy Dispersive X-Ray Analysis

The samples identified as Q1 and Q2 were examined for elemental composition by energy dispersive x-ray analysis on the scanning electron microscope. More effort was directed toward the Q1 sample because of its greater interest to the scientists, due to its diversity. (Again, the scientists did not know the origin and nature of the samples and were only guided by their own deductions.)

The samples were analyzed using 20 keV electrons over several fields at both low and high magnification. Two other samples were examined to provide background information on common constituents of "dirt," which was the gross appearance of these samples.

Both samples contain aluminum, silicon, calcium, and iron. Sample Q1 also contains potassium in low concentration. The presence of sodium may

have been masked by the high detector noise at low keV. One field from the examination of Q1 showed some evidence for the presence of copper.

When changing fields within these samples, the relative abundance of the elements changed somewhat, but all elements detected in the sample were present in each field examined, except for the possible copper.

Calcium or silicon was the predominant element in all fields examined. The calcium/iron ratio changed by a factor of four or less. X-ray mapping was performed for calcium and again for iron in an attempt to see if there was a localized source of these elements, but none was identified. Spot analysis of the fibers was identical to the broad scan of the same area; however, *bremsstrahlung* is important at these small dimensions. One large rough-surfaced oval particle from Q1 was examined at high magnification and found to have a very low x-ray yield indicative of organic material. The Q1b sample with more concentrated black particles did not differ from the Q1a sample.

To help understand the results from samples Q1 and Q2, a sample of "house dirt" from a vacuum cleaner bag, and a sample of Mount St. Helens ash from Montana were examined. The ash (very homogenous) showed an identical x-ray spectrum, dominated by silicon, in each field examined. The "house dirt," however, was very heterogenous. It contained aluminum, silicon, calcium, iron, potassium, sodium, copper, and sulfur. The interesting result was the dramatic difference in elemental composition between fields. Elements would appear and disappear as fields of view changed. These changes did not appear to correlate with the SEM images of the field.

No elements were detected in Q1 and Q2 that were not normal constituents of dust and dirt, and the ratio of elements does not appear to be unique.

Conclusion

The results of our analysis of the soil samples from Trans-en-Provence are consistent with the statements by the witness and his wife regarding the history of the soil. In particular, careful microscopic and physical analysis failed to detect any of the substances, such as cement or other construction and drilling materials, that have been proposed to "explain" the traces. Our results tend to support the earlier findings of the French laboratories consulted by the CNES as well as the truthfulness of the witness' testimony.

References

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