

the Socorro (New Mexico) case, which is similar to the Trans-en-Provence case, but the critical overview of which would needlessly weigh down this report.

One strong conclusion emerges from this set of facts: some UAP Ds do seem to be completely unknown flying machines with exceptional performances that are guided by a natural or artificial intelligence.

Chapter 8 - UFOs: Hypotheses, Modeling Attempts

8.1 Partial Models

Credible sightings of aerial objects can be reinforced by plausible technical explanations of the phenomena reported. Among the most striking observations in relation to the current state of our knowledge, we cite:

- aerial movements carried out silently with very rapid accelerations and/or very high speeds,
- the shutting off of the engines of nearby land vehicles,
- the locomotive paralysis of witnesses.

Insofar as the sightings that are the most well documented, and the most credible owing to the obvious competence of the witnesses, come from aircraft pilots, it is their sightings of aerial movements, sightings which are, moreover, supported by radar plots, that should be explained first.

8.1.1 Travel

There are, from the standpoint of the concept, various principles of propulsion that do not require propellers or jet engines that could thus be silent. The most advanced uses magnetohydrodynamics, abbreviated MHD, but many others can also be considered. We will review these.

8.1.1.1 MHD Propulsion

The principle of MHD propulsion, which cannot be envisioned in a vacuum, consists of causing an electrical current to flow in the medium surrounding the ship. At the same time, the ship emits a magnetic field. According to Laplace's law, this field exerts a force on the current and thus on the medium in which it is flowing; this is the principle of most electric motors. The medium being thus displaced in relation to the ship, it is in fact the latter that undergoes, by reaction, a force that enables it to be propelled. It remains to create the necessary field and current:

- for the magnetic field, this is easily accomplished by installing windings (like those in electric motors), in which a suitable electrical current travels, in or under the walls of the ship,
- for the electrical current, all depends on the medium.

In sea water it is easy to cause a current to flow using electrodes positioned on the hull. This is why MHD propulsion has been experimented with, so far successfully, in the United States and Japan on both surface and submarine ship models.

In air, which is naturally insulating, it is more difficult to cause an electrical current to flow, but air can be made conducting by using, for example, strong electric fields generated here again by suitable electrodes (air, when rendered conducting, can become more or less