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EJUFOAS is the journal of the Totton Researchers of Ufology Theory and History (TRUTH), and is an objective publication, primarily for the European Ufological Community.

Aims and Scope.

The *European Journal of UFO and Abduction Studies* [EJUFOAS] is the journal of TRUTH [Totton Researchers of Ufology Theory and History] based in Southampton, United Kingdom. The purpose of EJUFOAS is to circulate ideas and contemporary issues related to ufology [UFOs and the alien abduction phenomena]. The primary focus is on European Ufological issues and debate but non-European papers may be accepted [limited to one per issue]. It hopes to foster much needed development in the field of ufology by publishing diverse papers on Historical Perspectives, Theoretical Perspectives, Empirical Research and European Issues involved in this field. Any appropriate paper will be blind reviewed by at least three members of the editorial board and it is usual that the review process takes 4-6 weeks. Regular issues will include *Forum Debate Articles* usually solicited by the editor-in-chief covering a controversial topic in ufology with the opportunity for peer commentary in subsequent volumes, and *Special Editions* that will focus on one area of this diverse field. Finally, it is hoped that this publication will be ground-breaking and bring the European Ufological Community closer by allowing publication of reviewed papers that will generate debate and move the World Ufological Community forward through innovative and contemporary discussion.

Data Analysis of Anomalous Luminous Phenomena in Hessdalen

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ABSTRACT. In the beginning of 1984 a group of norwegian researchers, supported by external physical scientists, carried out investigations on a luminous phenomenon which was occurring with strong recurrence in the area of Hessdalen in Norway. Such a phenomenon, which was monitored without interruption for 36 days, also by employing several types of instruments, allowed researchers to obtain a precious set of data. At the present time a new station, which has been installed in 1998 in the Hessdalen area and which is supplied with an automatic videocamera, is currently furnishing data in real time. The present paper is devoted to the presentation and discussion of the data analysis and interpretation which have been attempted in order to try to understand the nature of such a phenomenon. The following main results are presented: a) the luminous phenomenon, which appears mostly during the night time and during the winter season, shows a marked radar signature and occurs approximately in concomitance with some peculiar magnetic disturbances and sometimes with unexplained radio emission, b) magnetometric data, radar data and some components of radiometric data show some slight correlation with daily solar activity. The hypothesis regarding the formation of solar-driven plasmoids which acquire self-governing EM and magnetic fields, is ventured and discussed. The alternative possibility that solar activity is interfering with a still unknown EM behaviour due to the luminous phenomenon is further discussed.

1. INTRODUCTION

In the beginning of the eighties an anomalous luminous phenomenon suddenly appeared in the Hessdalen valley with a particular concentration of sightings in the years 1981, 1983 and 1984. The Hessdalen valley, which is about 15 km long and is inhabitated by about 200 persons, is situated in the center-south of Norway, south-east of Trondheim, and about 30 Km north-west of the town Røros. What happened in Hessdalen in the period 1981-1984, when it was possible to report sightings almost every day, can be ascribed to the general definition of "UFO flap" (refs. 5, 6, 8, 23) but, in this case, with a big concentration of events in a very restricted area of the world.

The phenomenon, which mostly tended to occur at very low altitude, showed a large variety of displays: it was possible to see multicolour (mostly white, but red and blue too) and multiform lights (mostly spheroidal, but of other shapes too), multiple cohexisting lights, pulsating and flashing lights, lights whose motion in the sky was erratic or fastly oscillating, fast-moving or fixed lights, lights which were turned on for over an hour, lights which were projecting beams towards the ground, clusters of lights which were moving by maintaining the same mutual distance. The apparent dimensions of these lights ranged from point-like or strongly illuminated Venus-like objects to very extended Moon-like objects, and their distance was very often calculated to be 1-3 Km, so that, from reference points (such as trees or houses) whose distance was known, it was possible to estimate an intrinsic diameter which was ranging from 1 to 10 meters and an intrinsic luminosity which was surely higher than 1 Kw. The existence of a very large number of witnesses convinced the norwegian Defence Department and some university physics departments that a serious investigation should be soon attempted. Therefore a research group, named "Project Hessdalen" (ref. 50), was quickly built up. Such a team of

investigators was mainly composed of norwegian electronic engineers constituting a "working committee", but it was also accompanied by an external "advisory committee" composed of physical scientists coming from norwegian and foreign universities.

The investigations in the Hessdalen area (refs. 22, 50), which were both visual and supported by instruments, started the 21-st of January 1984 and ended the 26-th of February of the same year. The following instruments were used: a seismograph, a radar, a radio spectrum analyzer, a magnetometer, a laser, a Geiger counter, an IR viewer, and several conventional cameras mounted with tripod some of which were also supplied with a diffraction grating for preliminary spectrographic analysis. Some of these instruments, with the exception of seismograph, gratings, Geiger counter and IR viewer, provided some meaningful data. All the instruments were installed in two stations placed inside the Hessdalen valley. A reasonably constant 24-hour presence of personnel inside the stations was warranted during the last two weeks of the observational operations. The duty of the personnel, in addition to supervising the operating instruments, consisted in preparing all the time accurate reports of the visual sightings and in evaluating the level of strangeness and quality of every sighting: a total of 188 sightings could be reported, of which at least 53 were judged to be totally unidentified. About 70 % of the most reliable reported luminous phenomena was moving along a North-South direction. In some occasions, when the laser beam was pointed towards pulsating lights, such lights seemed to "answer" by doubling their pulsation rate. Radar, radiometric and magnetometric measurements and laser-pointing tests showed a peculiar behaviour which couldn't be explained, at that time, by the known laws of physics, geophysics and atmospheric physics.

After the 36-day field observations carried out by Project Hessdalen in 1984, the only reports of luminous phenomena came from simple witnesses and visual sightings consistently decreased in number but didn't disappear at all (ref. 54).

Project Hessdalen started again its scientific activity in march 1994, when the leader of this group (Erling Strand) organized an international scientific workshop which was held just near Hessdalen (ref. 52). In that occasion physical scientists of several nations were collected in order to present and discuss possible theories on the luminous phenomenon and to decide future strategies for the rigorous measurement of the physical parameters of the phenomenon, while the engineers of Project Hessdalen presented the plans for new instruments. These instruments were developed and tested during the subsequent years at the Østfold College. In August 1998 a new observing station equipped with an automated videocamera, named *Interactive Hessdalen Observatory (HIO)*, was finally installed by Project Hessdalen. This instrumental platform, which will be supplied with additional multi-wavelength sensors in the near future (such as a CCD camera, an optical spectrum analyzer, a multi-channel radio spectrum analyzer, a Lidar, a new radar and a new magnetometer), is constantly furnishing data at the present time.

This paper deals with an analysis of the available data of scientific relevance regarding the Hessdalen phenomenon, which has been attempted in order to try to determine precisely the time-variability of the phenomenon, to search for possible correlations between the various parameters obtained with different instruments and finally to verify if some explanation can be found in terms of natural causes such as solar activity. By now, this study can only take into account the phenomenon as a group of points in time. A physical analysis of every single sighted

object is not yet possible as the photographic, video and spectrographic data which were obtained so far, don't contain sufficient quantitative informations. Photographs are often of very good quality but the only possible analysis which can be applied to them is useful to demonstrate that a given luminous phenomenon is real and to measure some geometric parameters such as distance and intrinsic dimensions (refs. 22, 51, 66), but not to allow the investigation of its intrinsic physical nature. The obtained grating-spectra of the lights are very few and in most cases their signal-to-noise ratio is too low for allowing a meaningful analysis (refs. 50, 58). The study of the intrinsic nature of the lights will be hopefully the subject of future systematic instrumental investigations when some of the new planned sensors will be installed (refs. 3, 55).

2. EVALUATION OF THE OPTICAL PHENOMENON

The optical side of the phenomenon has been studied by using the following procedures:

1) critical evaluation of visual sightings (1984);
2) monitor by means of an automatic videocamera (1998-2000).
3) execution of photographs (1984);
4) execution of low-resolution spectra (1984);

Only from procedures 1) and 2), it has been possible to describe the phenomenon behaviour in a sufficiently systematic way. Procedure 3) can be considered just as an additional useful documentation in support of procedures 1) and 2). Procedure 4) didn't furnish meaningful quantitative results, but it suggested qualitatively that the luminous phenomenon may be the source of a continuum spectrum (ref. 58). Because of the very low spectral resolution furnished by the used diffraction gratings, it is possible that some lines (in absorption and/or in emission) in the spectrum passed unnoticed expecially if they were intrinsically weak. Therefore a definitive answer to the nature of the optical spectrum can be obtained only by using specific devices for light-dispersion which allow a higher resolution: this investigation will be possible when a new optical spectrum analyzer will be available (refs. 3, 55).

a) Evaluation of visual sightings: 21 January - 26 February 1984

The criterion which was used during the 1984 field investigations in order to evaluate the visual observations involved two parameters (refs. 23, 25, 50): the *Strangeness Index F* and the *Quality Index G*. F index indicates the probability of finding a natural explanation or an explanation due to a known artificial light: it ranges from value F1, corresponding to a 100% probability that the object is a known light, to value F10, corresponding to a zero probability. G index gives the details which can be furnished of every sighted object: it ranges from value G1, corresponding to a very low number of details, to value G10, corresponding to a very high number of details. Data have been selected with the following criterion: F1 cases are ascertained to be airplanes, F2 cases are considered doubtful cases, F5 to F10 cases are properly considered as "UFO". Values F3 and F4 have been considered as well, as it was expected that they could assume a stronger physical meaning in the course of correlation analyses.

After comparing together 92 data points having values of F equal or greater than F3, it has been ascertained that the strangeness index F and the quality index G are slightly correlated (correlation coefficient is C = 0.30). This means that a sighting with a high strangeness level

tends to be recorded with a higher wealth of details than a sighting with a lower one. This result strengthens the general level of accuracy with which a sighting was evaluated during the observational campaign in Hessdalen.

Fig. 1 shows the number of unidentified events recorded during the observational campaign carried out in 1984. From these graphs it appears that the highest number of sightings was reported in the second half of February (11-26 February): the real reason of this is that from 21 January to 10 February only few persons were present at the observing stations so that the number of lights might have been underreported. Following a check of the times of sunrise and sunset at the Hessdalen latitude (ref. 46), it is easy to ascertain that the darkness time in January is greater than the one in February: this clearly means that if the same full number of observers was present in the first period too (21 January - 10 February) reported sightings might have been probably more numerous than in the second period (11-26 February).

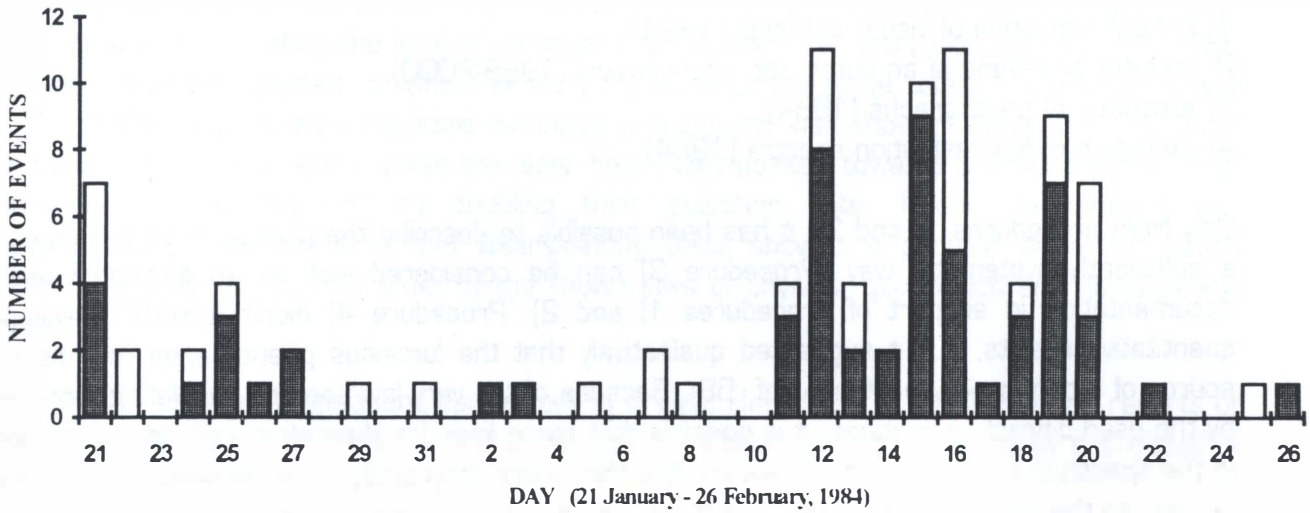

Figure 1. Daily number of luminous events in Hessdalen reported in the period 21 January - 26 February 1984 (lower dark bar: F5-F10 cases, upper clear bar: F3-F4 cases).

During the 1984 observations, sightings of luminous phenomena resulted to be sharply concentrated in the first hours of the evening: this is shown in Fig. 2, where it is possible to notice a primary peak due to the luminous phenomenon in the hour interval 19.00-20.00 UT (Universal Time) and two secondary peaks in the hour intervals 20.00-21.00 UT and 22.00-23.00 UT. By taking into account the times of sunrise and sunset during the winter season in Hessdalen (ref. 46), it is reasonable to assert that the low number of sightings registered in the range 17.00-18.00 UT might be due to the fact that, because of some residual post-sunset daylight, luminous phenomena might be still scarcely visible. In any fact, the almost total absence of sightings during the remaining night hours (from 24.00 up to 04.00 UT) and the generally decreasing trend after 19.30 UT cannot be explained as an effect due to scarce visibility. Therefore, from the 1984 data one is induced to suggest that the apparition of luminous phenomena is characterized by some kind of daily periodicity.

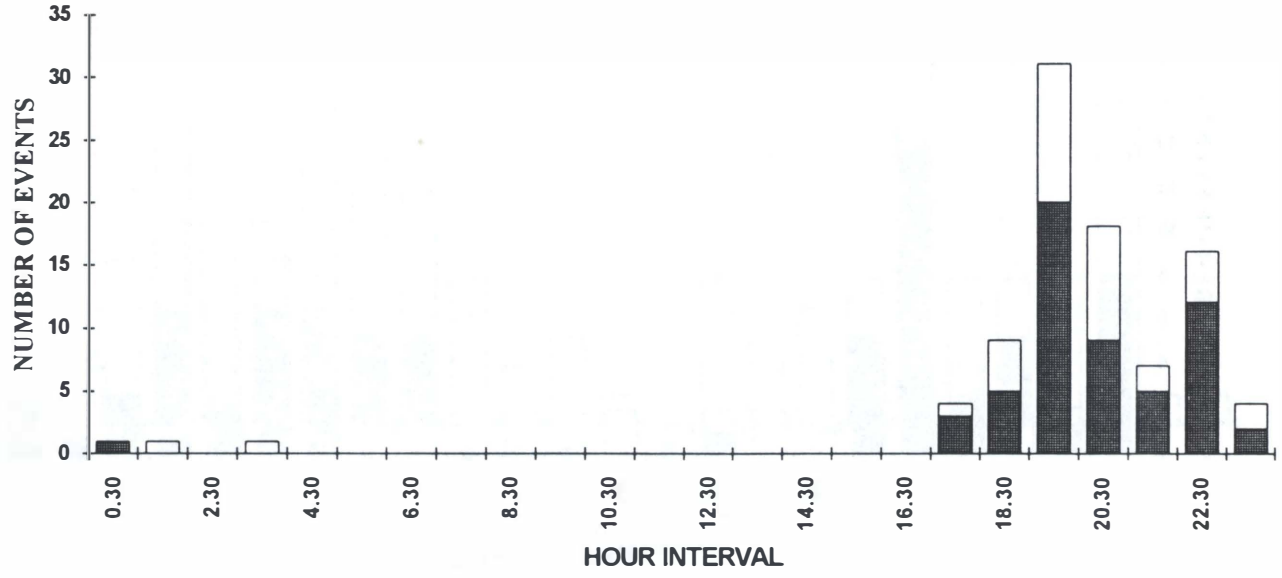

Figure 2. Hourly number of luminous events reported in the period 21 January - 26 February 1984 (lower dark bar: F5-F10 cases, upper clear bar: F3-F4 cases).

b) Evaluation of video frames: August 1998 - April 2000

Compared with the 1984 observational period, the monthly incidence of luminous phenomena in Hessdalen nowadays (1998-2000) has sensibly decreased (see Fig. 4). On the other hand, the possibility of a constant monitor by means of an automated video-camera, has highly increased the capability of recording the apparition of such phenomena all the time. A Panasonic solid-state videocamera supplied with a wide-angle lens, which is connected with a videorecorder and a Silicon Graphics Indy computer, is currently installed in the *Hessdalen Interactive Observatory* (ref. 56). Such a system is able to perform every second a complete survey of an accurately chosen area of the Hessdalen valley and to record any target whose luminosity is greater than a threshold value; the recorded frames are immediately made available to researchers through the Web site of Project Hessdalen. Each of the recorded phenomena is re-analyzed in a subsequent phase, in which case a selection of real "UFO cases" is done by carefully distinguishing such cases from identified objects (such as airplanes or celestial objects). Uncertain cases for which only a preliminary analysis has been done, are considered as well: a consistent number of such cases are possibly destined to be regarded as real UFO cases after a further analysis. The selected data furnished by the video-camera which have been obtained so far are shown in Fig. 3.

By comparing the graph in Fig. 3 (1998-2000 period) with the one in Fig. 2 (1984 period), one can notice that two main effects may be present:

1. A cumulative effect due to the much longer period of systematic observation (21 months vs. 36 days) makes so that the graph in Fig. 3 is overpopulated with data points; in fact in this case some events between 01.00 and 16.00 UT are now also recorded.
2. The higher ability of the *HIO* automatic videocamera to detect weakly luminous phenomena too, makes so that luminous events are recorded much more easily than in the case of eye witness.

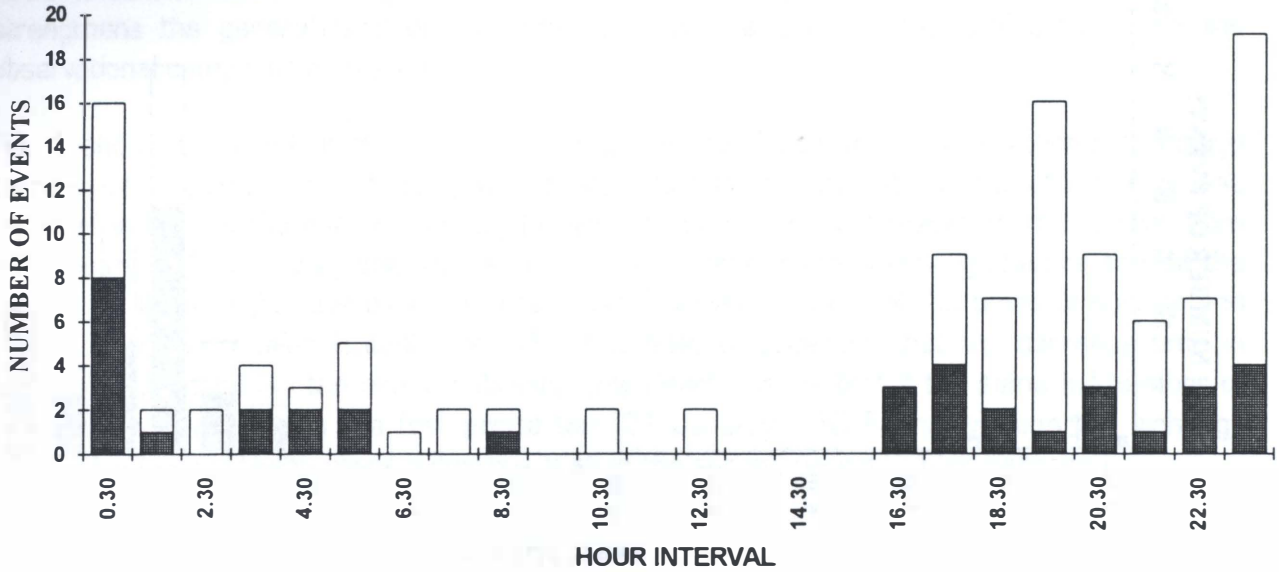

Figure 3. Hourly number of luminous events reported in the period August 1998 - June 2000 (lower dark bar: ascertained UFO cases, upper clear bar: still uncertain cases).

If one compares the data obtained in Hessdalen regarding the distribution of the number of UFO sightings reported during a day (both Fig. 2 and Fig. 3) with previous statistical studies of "UFO flaps" occurred in other areas of the world (refs. 5, 6, 23, 43), it is surely possible to notice some qualitative similarity in the fact that the daily UFO number is approximately concentrated in the hour interval 18.00 - 24.00 UT. Nevertheless, such statistical studies show a more homogeneous and smoother distribution, while in the Hessdalen case discontinuities are more sharply marked. Data reported in other places of the world have been obtained exclusively by interviewing occasional witnesses and not by analysing full-time observations. Therefore it cannot be excluded that the well characterized multi-peaked distribution deduced from the Hessdalen data is much nearer the real UFO behaviour because of the highest employed precision, which is expected to increase after more data will be collected in the next years.

Since August 1998 the monthly incidence of the luminous phenomenon in Hessdalen can be carefully recorded. Also in this case, the resulting database (see Fig. 4) is very reliable because it is constructed just from an automated optical sensor which is able to monitor without interruption the Hessdalen area. Luminous events appear to be mostly concentrated during the winter and autumn seasons, probably because of the much longer night-time which allows a better phenomenon detection. Long-lasting luminous events whose duration ranges typically from 5 to 30 minutes have been mostly recorded during these seasons (ref. 59).

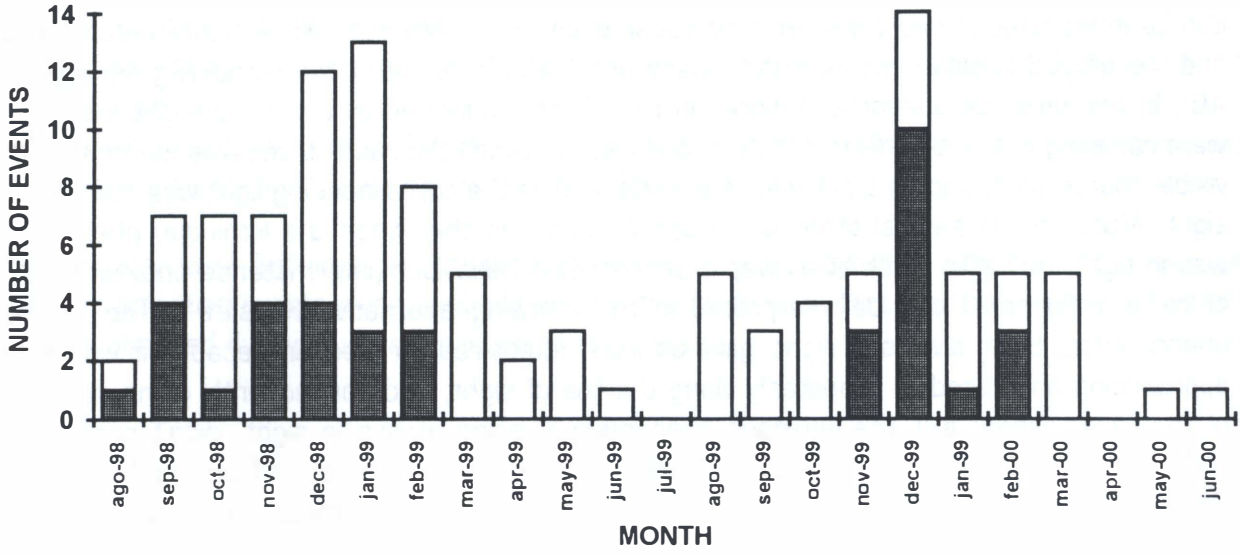

Figure 4. Monthly number of luminous events reported in the period August 1998 - June 2000 (lower dark bar: ascertained UFO cases, upper clear bar: still uncertain cases).

3. MEASUREMENTS WITH ELECTROMAGNETIC INSTRUMENTATION

There are good reasons to assert that the Hessdalen Phenomenon is not only optical but that visual sightings are often accompanied, and possibly related, with EM phenomena characterized by radar, magnetometric and radiometric recordings (ref. 50). This evidence was clearly demonstrated during the 1984 field monitor, and it will be further probed with more sophisticated instrumentation in the next years when funds will be available (refs. 1, 3, 13, 14, 55, 62, 64). The data reported in this section refer only to the 1984 period.

In order to derive an accurate timing of all the specific manifestations of such a multi-wavelength phenomenon, the Julian Date (JD) calendar has been used in some cases (refs. 38, 63 and Tables therein). The JD dating system, which is normally used in the astrophysical research in order to study celestial objects showing light variability, is a very precise and efficient system which allows a very straight confrontation of past and present data and facilitates the execution of correlation analyses. In the case of interest here, JD = 5701 corresponds to 1 January 1984 at 12 a.m.; each integer number added to the given JD corresponds to one more day and each decimal number added to it corresponds to more hours and/or minutes (which in this case are considered as a fraction of the day). In the illustrative case: 5700.0 is midday of 31 December, 5700.5 is midnight of 1 January, 5701.0 is midday of 1 January.

a) Radar recordings

The used radar, an Atlas 2000 (ref. 50), which operated at a wavelength of 3 cm with a maximum range of 33 Km, was adjusted in order to scan typical luminous targets whose distance was estimated to be not more than 5.5 Km. Even if the personnel was not monitoring all the time the radar screen, it was possible to record a consistent number of radar registrations, all of which gave a strong track on the radar screen. A total of 36 radar registrations were obtained in the period 21 January - 17 February 1984. Only 3 of them resulted to have a synchronous optical counterpart in form of a luminous phenomenon: such events occurred on 21 January at 17.50, on 25 January at 17.32 and on 27 January at 22.58; in the third case it was possible to measure a maximum velocity of about 30000 km/h.

The fact that most radar registrations couldn't be identified with luminous phenomena in sight can be interpreted in two ways: a) most radar tracks were reported some hours before sunset and the alleged luminous counterparts were not visible because of the remaining sunlight (ref. 46); b) the luminous phenomena were intrinsically characterized by a very low light intensity or were radiating in the near IR (ref. 17). In one case in which the radar track was identified with a visible counterpart, such a track was intermittent while the corresponding light was constantly in sight. Moreover, in several other occasions it happened that when the luminous phenomenon was in sight, no radar track at all was detected. This behaviour (intermittence and/or absence of radar reflections) can be interpreted in the following alternative ways: a1) The luminous phenomenon, being always in sight, gave an intermittent radar reflection because it was quickly approaching and receding repeatedly along the line of sight, and consequently going in and out of the radar range; a2) The luminous phenomenon, being always in sight, didn't produce any radar reflection because it was stably situated at a distance which couldn't be reached at all by the used radar range; b) the radar cross-section of the luminous targets which were reachable by radar scanning, was intrinsically changing or disappearing for some unknown reasons.

Radar recordings coincident with optical UFOs have not been reported only by Project Hessdalen. Everywhere in the world radar tracks due to UFOs have been extensively and always accidentally reported by operators of airport control towers and by airplane pilots since over 50 years (refs. 8, 9, 21, 23, 39, 60, 69): also in such cases the radar behaviour appeared to be often anomalous. Anyway no specifically-oriented systematic radar monitor of UFOs in "hot areas" of the world, such as the one carried out by Project Hessdalen, has ever been carried out so far.

b) Magnetometric recordings

The employed magnetograph, a Fluxgate PM100 (ref. 50), which was operating with a two-channel mode consisting in magnetic field measurements at north-south and east-west directions, was able to record slow-varying magnetic fluctuations and magnetic fluctuations up to 0.5 Hz, and had a sensitivity S = $\pm$ 1 γ (1 γ = 1 nanoTesla). In the periods 11-14 and 25-26 February the magnetograph was also connected with a fast recorder, a TOA Electronic Polyrecorder, which was used to record high time-resolution phenomena such as magnetic pulsations.

Magnetometric registrations, which were obtained without interruptions only in the two cited periods, showed 3 main characteristics:

1. Pulsating magnetic fields with a pulsation rate of some seconds and with different amplitudes were recorded in both periods. In particular 4 types of readings were reported: very strong (over 10 γ), strong (10 γ), medium (2 γ) and weak (0.5 γ).
2. Slow-varying magnetic fluctuations of geophysical origin were continuously recorded.
3. Magnetic storms were recorded as well.

A subsequent analysis has furnished the following conclusive results:

A. During the period in which the magnetometer was used, luminous phenomena resulted to be always temporally related with magnetic pulsating events. However some fraction of the recorded magnetic events occurred separately - few hours before or after a given luminous phenomenon could be sighted - as if the original optical phenomenon had been replaced with

an optically invisible form, which anyway couldn't be detected at all by the limited range and power of the employed IR viewer.

B. Magnetic pulsations were not correlated with slow-varying magnetic fluctuations of geophysical origin.

C. Magnetic pulsations were disturbed by magnetic storms, which occurred approximately during the same period (see Fig. 6 shown in Section 4).

The coincidence of luminous and magnetic pulsating events, together with the occurrence of magnetic pulsating events alone, undoubtedly are the most important and intriguing result which could be obtained during such a measurement campaign.

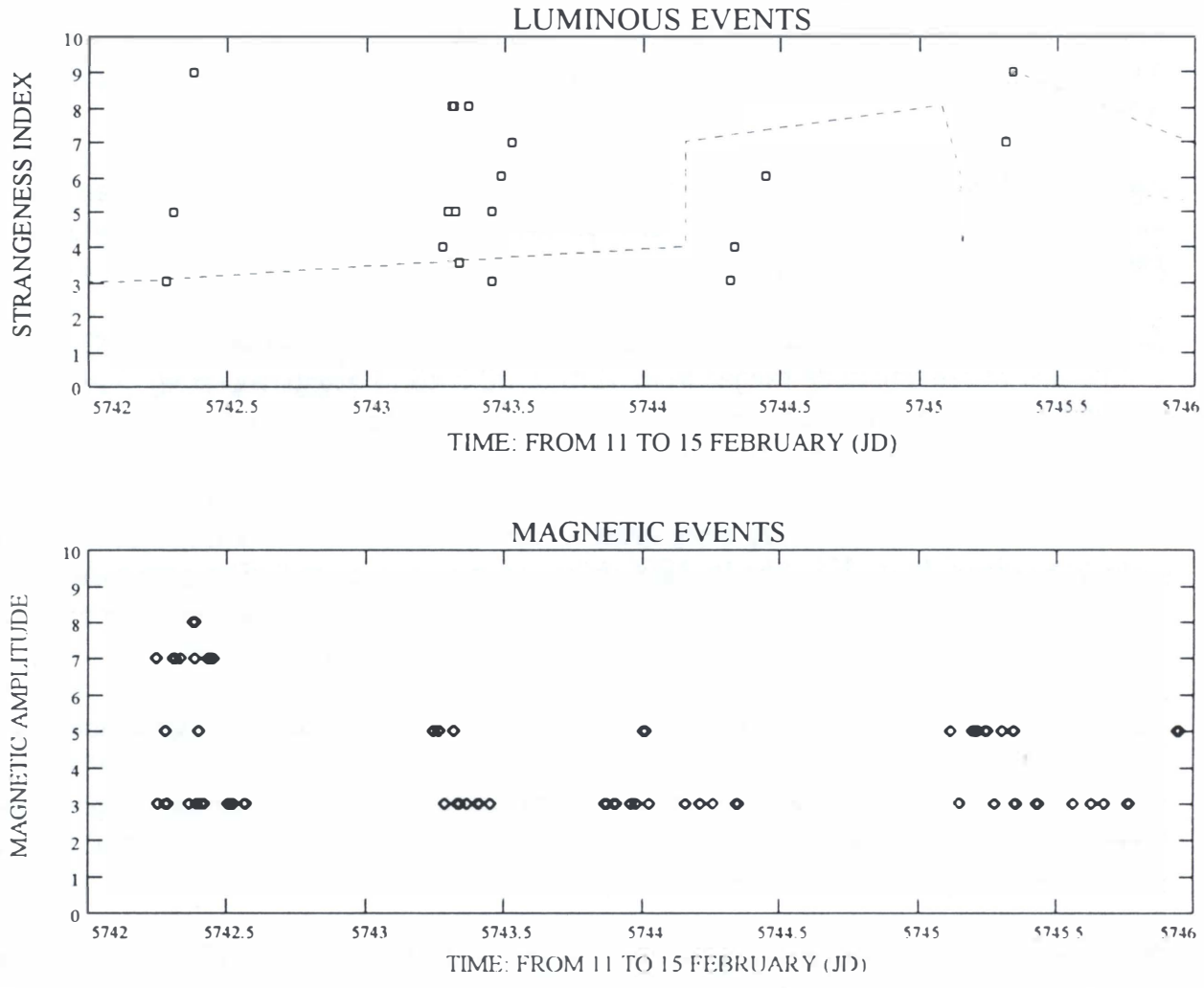

Figure 5. Detailed graph showing the time-variation of the amplitude of magnetic pulsations (126 data points) occurred in the period 11-15 February 1984 (below), compared with the time-variation of the strangeness index of the luminous phenomenon (above). The events occurred in the period 25-26 February showed a strictly similar behaviour. *Values of magnetic amplitude have been transformed into the following artificial values: 8 for reading > 10 γ, 7 for reading = 10 γ, 5 for reading = 2 γ, 3 for reading = 0.5 γ.*

Recordings of magnetic phenomena presumably coincident with UFOs in general, have never been attempted by previous researchers in a so systematic way as by Project Hessdalen. More recently (1996 and 1997) Project Hessdalen carried out analogous measurements also in other places of Earth, such as "Min-min" desert in Australia and Popocatepetl volcano in Mexico

(ref. 53, 57), where recurrent luminous phenomena similar to the Hessdalen ones are often reported: in these two specific cases a systematic magnetometric monitor lasting some days, showed magnetic pulsating events with amplitudes which were a factor 10-100 higher than the ones measured in the Hessdalen valley in 1984. Also in the Min-min and Popocatepetl cases, magnetic and luminous events were apparently related in a similar manner as in the Hessdalen case. The fact that a great excursion of magnetic readings was reported by the researchers of Project Hessdalen may be due to differences of the distance at which the luminous phenomenon itself was situated, whose intrinsic magnetic intensity at zero distance is reasonably suspected to be much higher than the readings furnished by distant instruments.

c) Radio recordings

The apparatus which was used to detect radio-frequency signals (ref. 50) was composed of a Hewlett-Packard spectrum analyzer operating in the range 150 Khz-1250 Mhz, a Singer radio interference / EM field detector operating in the range 150 Khz-32 Mhz and a wide-band antenna.

Even if the spectrum analyzer was not running all the time and even if the screen was not constantly monitored, two types of recordings were reported in the period 29 January - 19 February 1984:

1. A signal characterized by a single component, whose frequency ranged from 130 to 1115 Mhz and whose amplitude ranged from 12.5 to 22.5 dB (4 events reported). Such a signal was characterized by a *spike*-like morphology whose amplitude was oscillating up and down: this kind of signal was called "Type 1".
2. A signal characterized by several simultaneous components represented by *spikes* having almost equal amplitude, which, being splitted by an 80 Hz interval, were displayed all over the frequency-band from 100 Khz to 1250 Mhz (12 events reported). The amplitude of such spikes was oscillating up and down, being about 5 dB over the noise in the down phase and 25-30 dB over the noise in the up phase. This kind of signal was called "Type 2".

Type 2 signals occurred few hours before or after the luminous phenomenon, while some of the Type 1 signals (at least two) occurred about to coincide with it. As in the case of radar data, the absence of an optical phenomenon in sight when some of the radio spike-like signals were recorded might be due to the fact that the phenomenon radiation might have shifted from the optical to the IR wavelength window.

Recordings of radio disturbances which are suspected to be related to UFOs have not been obtained only by Project Hessdalen. During a very long observational and partially instrumental field monitor carried out in the period 1973-1980 at Piedmont (USA) where a massive UFO flap was ongoing (ref. 45), physicist Harley Rutledge and his collaborators by using a spectrum analyzer was able to record similar *spike*-like radio events which were presumably associated with luminous phenomena. Anyway, even if a very good evaluation of distance and size of many luminous phenomena was done in that case, the number and the quality of the reported radiometric data at Piedmont were respectively lower and worse than the ones obtained in 1984 at Hessdalen. Astrophysicists George Smoot and Giovanni De Amici of the Lawrence Berkeley Laboratory (USA), using a small dish for radioastronomic research, recorded accidentally and repeatedly strong unexplained radio spikes during a mission in Antarctica (ref. 49) which was devoted to the measurement of the 2.7 °K background cosmic radiation;

differently from the Hessdalen and Piedmont cases, in this specific case no luminous phenomenon was reported. One italian astrophysicist reported the accidental sighting of a huge ball of light during one of his research missions in Antarctica, but unfortunately no radio device was working at that time (ref. 40).

d) Seismic recordings

The employed seismograph, a MEQ-800, (ref. 50), was of portable type and had a sensitivity of 1.5 on the Richter scale. Such an instrument was constantly in function during the whole period in which observations were done in Hessdalen in 1984. 16 seismic registrations of several intensities were reported. Three out of 16 of the recorded events occurred about at the same time in which a luminous phenomenon was reported, while three of them occurred few hours before or after luminous phenomena. It was possible to ascertain that all such recordings were caused by seismic activity which was occurring many kilometers far from the Hessdalen area, therefore any relation between seismic recordings and luminous phenomena was excluded.

e) Instrument malfunction

During the period in which instruments were used (ref. 50), some black-outs or malfunctions happened just when luminous phenomena were passing very near the measurement stations. There are good reasons to suggest that such a phenomenon was able to induce a powerful EM interference, which was surely related to its capability to produce magnetic and radio emissions. Similar black-outs presumably caused by UFO incidents, have been amply documented in the technical UFO literature (refs. 23, 44).

4. DOES SOLAR ACTIVITY TRIGGER HESSDALEN PHENOMENA ?

Before venturing hypotheses which are aimed at explaining a given phenomenon by using blindly the obtained measurements, it is necessary to do basic checks which are sinthesized in the following three questions:

1. Is the EM radiation recorded by the various instruments (radar, magnetometer, radio spectrum analyzer) exclusively due to a precisely localized luminous phenomenon of unknown origin ?
2. Is the luminous phenomenon itself triggered by some prosaic natural mechanism ?
3. Is the recorded EM radiation due to a temporal overlap of EM emissions coming both from a prosaic natural mechanism and from a peculiar phenomenon localized in our atmosphere ?

These questions are not driven by personal choices regarding a preferential theory on the observed phenomenon, but constitute the prerequisites which are necessary in order to apply the scientific method. Before telling what is the phenomenon, it is important to separe the signal by the noise in order to establish a trustworthy "zero point" from which one can try to interpret objectively what is observed. Unfortunately the radiation which is produced by natural causes is not "silent" and is itself a prominent source of EM noise. Is that one only an overlapping noise or is it the cause of the luminous phenomenon? Certainly the Sun is the strongest source of natural radiation.

Some physicists suggest that solar activity can play a significant role in triggering luminous phenomena in our atmosphere (ref. 52). This mechanism is supposed to originate from high-energy particles which are produced by the Sun with amplified effects during active phases (refs.

28, 29, 48). According to this theory, an increase of solar high-energy particles could, in principle, trigger atmospheric ionization and consequently initiate the possible formation of luminous plasmoids. An attempt to explain how a coherent ball-like plasmoid can be formed in our atmosphere and maintained for a long life-time (up to 2 hours in the Hessdalen case) has been done in the ambit of some theories (refs. 47, 52, 70).

By taking into account the work hypothesis regarding plasmoids of solar origin, the simplest step to do consists in checking if any possible correlation exists between solar activity (in this case described by the *sunspot number*) and any useful parameter which is related with the multi-wavelength "Hessdalen phenomenon".

a) Daily solar activity, monthly solar activity and luminous phenomenon

The following three main parameters describing the luminous phenomenon reported in Hessdalen have been related with daily solar activity (ref. 2): the daily UFO number, the UFO strangeness index and the duration of UFO sightings. Correlation analyses executed by interpolating solar data at the instants of UFO data, demonstrated that noone of these parameters is correlated with daily solar activity in the period 21 January - 26 February 1984. A similar negative result has been obtained by searching for correlations between the daily and monthly UFO number and the daily and monthly solar activity (ref. 61) in the period August 1998 - April 2000. From these sole results, one would conclude that luminous phenomena in Hessdalen have nothing to do with solar activity.

b) Daily solar activity and magnetic phenomenon

Fig. 6 shows the trend of daily solar activity compared with the temporal trend of the magnetic phenomenon measured in Hessdalen. From the same figure one can notice that magnetic storms and magnetic pulsations are almost coincident. Fig. 7, where a correlation analysis between daily solar activity and amplitude of magnetic pulsations is presented, shows that a slight but significant correlation is present (correlation coefficient C = 0.42). What is interesting is that magnetic storms together with magnetic pulsating events occur just 1-2 days after a contingent maximum of solar activity. By knowing from solar physics that a solar sunspot maximum coincides approximately with strong optical and radio bursts and that typical geomagnetic storms occur with a phase shift of many hours after a solar burst (refs. 28, 29, 48), it is easy to deduce that the observed phase-shift of magnetic events (see Fig. 6) is just what is expected to occur as a consequence of solar activity.

Nevertheless, an attempt to correlate daily solar activity with the duration of magnetic pulsating events reported in Hessdalen, produced a negative result: in this case no correlation exists at all. Moreover, the specific "pulsating mode" of magnetic events, is not typically reported during geomagnetic storms.

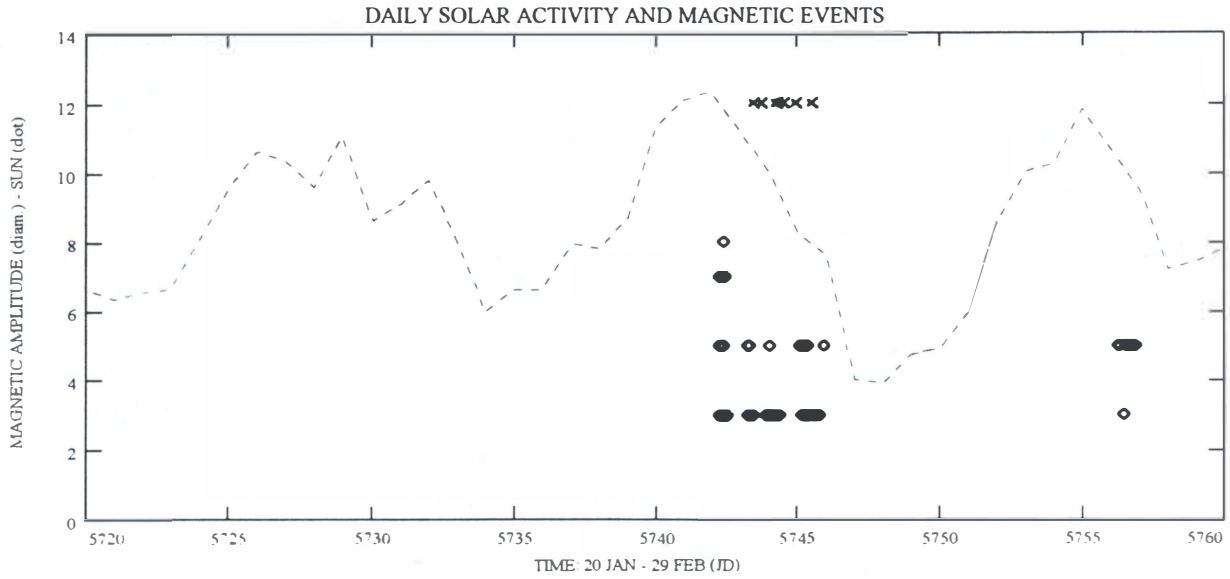

Figure 6. Time-variability of daily solar activity (dotted line), in comparison with time-variability of the amplitude of magnetic pulsations (diamonds - 126 data points) which were reported in the period 11-26 February 1984. Crosses represent magnetic storms. *In this graph the sunspot number has been artificially divided by a factor 10, while values of magnetic amplitude have been transformed into the following artificial values: 8 for reading > 10 γ, 7 for reading = 10 γ, 5 for reading = 2 γ, 3 for reading = 0.5 γ, 12 for magnetic storms.*

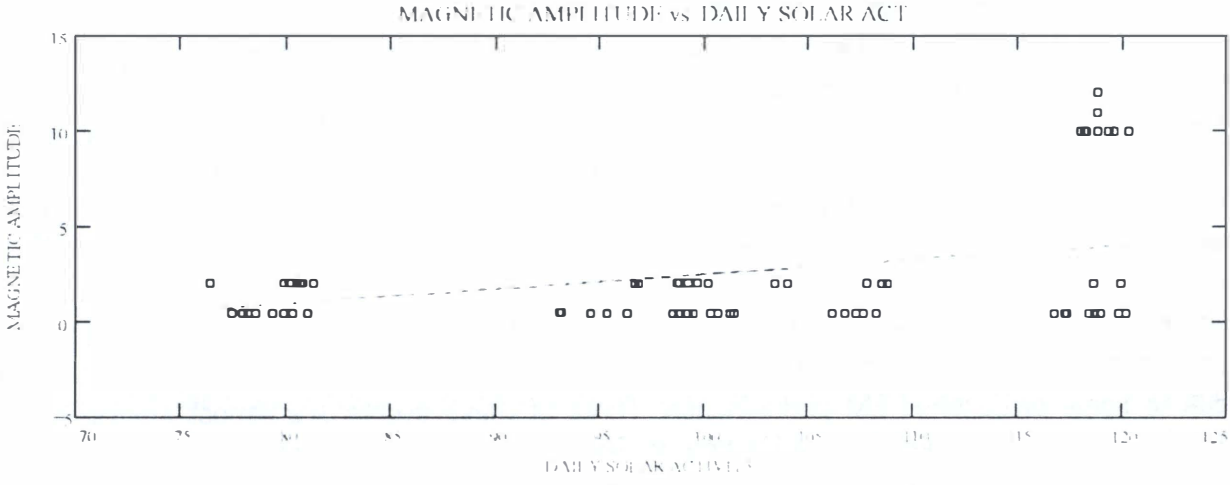

Figure 7. Amplitude of magnetic pulsations vs. daily solar activity. Solar data have been interpolated at the instants of magnetic events.

c) Daily solar activity and radar phenomenon

Fig. 8, in which correlation analysis between daily solar activity and the number of radar tracks per minute is presented, shows that a slight correlation is present (correlation coefficient C = 0.47). Some radar reflections may be due to optical and/or IR-emitting plasmoids, whose radar signature is predicted to be strong (refs. 9, 17, 50), which are triggered by solar activity.

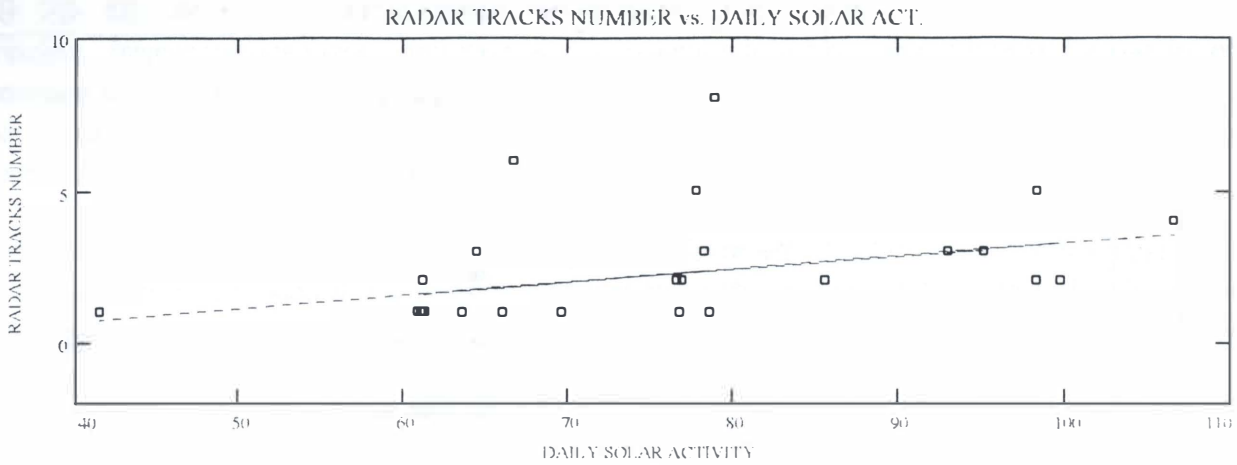

Figure 8. Number of radar tracks per minute (36 data points) vs. daily solar activity. Solar data have been interpolated at the instants of radar data.

d) Daily solar activity and radio phenomenon

Statistically significant correlation studies between daily solar activity and radiometric parameters (amplitude and duration of spike-like radio events) are not possible due to the few available data. Anyway it has been ascertained that 8 of the detected radio events (6 of the Type 2 ones and 2 of the Type 1 ones) occurred just to coincide with a high value of solar activity (ref. 63 and tables therein). Furthermore, two apparently peculiar radio features which were reported in Hessdalen may be due to solar activity as well: the radio *spike*-like morphology and the oscillating trend of radio spikes. A spike-like morphology is often reported during solar radio bursts (refs. 28, 29). The fast up and down amplitude oscillations of radio spikes, may be due to *radio pulsations*, which are often recorded during solar radio bursts and which are simultaneously present mostly in the 100-300 Mhz range but sometimes also above 700 MHz and below 28 MHz, with a pulsation rate of few seconds (ref. 48).

On the contrary, the evidence of further 8 radio disturbances (radio spikes of both types) which are temporally much distant from a sunspot maximum, suggests that some radio events may be due to some unidentified EM phenomenon. Three of these events are almost coincident with luminous phenomena in sight (see Section 3). These data suggest that some of the radio events could be directly produced by the sighted light-balls in Hessdalen, which are suspected to produce a self-contained electromagnetic field.

5. DISCUSSION

By using the data which are available up to now, it is not possible yet to furnish an one-sided and definitive interpretation of the multi-wavelength phenomena occurring in Hessdalen.

Some of the measurements show that solar activity at maximum may be the origin of many of the recorded EM data. This can be deduced from the following observational evidences:

a) The amplitude of magnetic pulsating events is slightly correlated with daily solar activity and it occurs approximately to coincide with magnetic storms.

b) The evidence of "oscillating radio spikes" is a morphologically recurrent aspect of solar radio bursts.
c) The number of the registered radar tracks is slightly correlated with daily solar activity and plasmoids of any nature (including the solar one) are able to give typically strong radar reflections indeed.

Nevertheless, some aspects of the problem which were analyzed in sufficient detail, present the following intriguing anomalous characteristics:

1. The timing of the luminous phenomenon (not considering its observational parameters such as daily number, strangeness index and duration) approximately coincides with the timing of magnetic disturbances (not considering their amplitude).
2. Magnetic disturbances are characterized by a peculiar pulsating mode which cannot be due to solar activity.
3. The timing of some radio events, mostly Type I ones, approximately coincides with the timing of the luminous phenomenon.

Two hypothetic alternative scenarios are proposed in order to explain all the reported data:

I. The luminous phenomenon is a by-product of the ionizing effect due to solar high-energy particles colliding with the Earth atmosphere, and is able to acquire an optical, radio and magnetic self-governing behaviour during and/or immediately after a maximum of solar activity. In such a case the EM field produced by such kind of plasmoids causes an apparent modulation of the normal radiation emitted by the sun, so that the EM radiation recorded by the instruments is just the result of an overlap of the standard solar EM emission during its active phases with some "extra EM field" produced by optical or IR-emitting sun-driven plasmoids that occasionally pass near the observer.
II. Something which is not triggered by solar activity at all is casually overlapping with radiation originating from the active sun. In such a case the observed luminous phenomenon as well as some EM performances might be due to an unknown cause. If this one is the real explanation, so during future observational field measurements of Hessdalen phenomena, the alleged "solar interference" must be accurately evaluated by arranging specifically-oriented solar observations, and then removed from the rest of the data, being it a source of polluting noise. In such a case the source of *noise* (solar activity) could be eliminated: consequently one could be able to concentrate only on the study of the EM radiation which is due only to the multi-wavelength phenomenon (the main *signal*) occurring in Hessdalen.

Thus, if solar activity is not responsible for the Hessdalen lights but is only a source of interfering and overlapping noise, which one is the direct cause? Theories based on atmospheric electricity and related ionospheric phenomena (refs. 7, 9) and their applicability to the Hessdalen case require a deeper study, as they are not yet able to explain why luminous phenomena in Hessdalen occur at very low altitude. Theories based on *earthlights* or *tectonic strain* invoking the induction of piezo-electricity effects because of stress from the rocks (refs. 12, 31, 32, 42), could furnish a suitable explanation of the fact that most Hessdalen light phenomena are sighted quite near the ground: anyway the lack of recorded seismic activity in the Hessdalen surroundings is not favourable in this sense, even if it has not been demonstrated yet that stresses from rocks must be necessarily produced by earthquakes. Theories based on the possibility that the *zero point energy (ZPE)* can manifest itself as a

quantum fluctuation of the vacuum state are well mathematically developed nowadays (refs. 19, 20): in the specific case discussed in this paper the problem consists in knowing the presumably spontaneous natural mechanism which is able to extract energy from the *ZPE* storage and release it in very specific areas of the world by producing spatially coherent and temporally transient structures such as light spheroids. Certainly, no theory or laboratory experiment is able to explain in a satisfactory way the typically very long duration of the Hessdalen luminous phenomenon, which is up to a factor 100 higher than the life-time of the *ball lightning* phenomenon (ref. 52); regarding this, two basic physical problems which still now are far from being understood (refs. 47, 52, 62) can be synthetized in the following question: why is a plasma object, which is characterized by a strong spatial coherence, which is presumably constituted of high-pressure incandescent atmospheric gas, and which has a luminosity of more than 1 Kw, characterized by such a long relaxation-time and which is the exact nature of the external energizer? The apparent capability of the luminous phenomenon to react to laser stimulation by doubling its pulsation rate, is one more unsolved problem: is it a still unknown form of photon-photon interaction?

Is the Hessdalen phenomenon, together with many similar phenomena in the world, a technological and/or energetic manifestation of *extraterrestrial intelligence*? Contrary to the superficial and unscientific arguments of some of the skeptics (ref. 36), such an hypothesis cannot be arbitrarily rejected: in fact it is currently studied by official science too (refs. 4, 10, 11, 15, 16, 18, 24, 26, 27, 30, 33, 34, 37, 41, 60, 65, 68) in the ambit of some specific sectors (such as SETA) of the SETI project, in the context of theoretical studies regarding new propulsion systems, and also by trying to analyze quantitatively UFO reports: but so far, solid and quantitative scientific proofs in this sense have not been produced yet (ref. 9, 39, 67). Surely, before venturing this hypothesis, it is of basic importance to exclude in a first phase any kind of natural cause and/or eliminate any source of bias in the data.

6. CONCLUSION

With this overall puzzling picture of the Hessdalen phenomenon in mind, it is necessary to encourage future improved and high-tech measurements. Intrinsic physical parameters of the luminous phenomenon can be precisely obtained by using radar-assisted astronomy-like photometers and spectrographs (refs. 60, 64): only such technical procedures for data acquisition could furnish a definitive answer in scientific terms to this enigma. Some new built-in sensors have been studied and partly tested by the engineers of Project Hessdalen (refs. 3, 56). Furthermore, wide-range scientific proposals which have been prepared for proving or disproving theories of any type (both canonical and non-canonical) have been developed and published (refs. 62, 65).

We are facing a source of energy of tremendous power which, if definitively understood, could be reproduced in a laboratory and subsequently bridled for our technological necessities such as, for instance, a new ecologically cleaner and more efficient form of propulsion. By now, a still enigmatic phenomenon is out there, sufficiently recurring to allow a systematic investigation, waiting and challenging all scientists who still like to be involved in adventures of the thought.

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THE MANISES UFO FILE

by

Juan Antonio Fernández Peris

FOREWORD

This article is a summary of a 200-page research report authored by agricultural engineer Mr. Juan Antonio Fernández Peris, from Valencia, Spain (1,2). The event here exposed occurred on November 11, 1979. Just a few hours later, the author was already engaged in interviewing involved witnesses. During all these years, Mr. Fernández Peris has been performing an in-depth study of all the circumstances surrounding the experience, with ups and downs based on availability of information. Most clues appeared when in 1994 the case file was declassified by the Spanish Air Force (3). It allowed the author to formulate a falsifiable (i.e. scientific) theory to explain the various stages of this complex event, the best-known UFO case in the Spanish UFO history.

In 1998, author was granted with the *Ricardo Caruncho Prize* established annually by the Spanish *Anomaly Foundation* (**www.anomalia.org**) to reward the best UFO investigation of the year.

The entire research report will be published in book form by the *Anomaly Foundation* early in the year 2000 under the title *El Expediente Manises* (The Manises File). For further details, write to Apartado 5041, 39080 Santander, Spain, or contact our web site.

V.J. Ballester Olmos, Director of Research, *Anomaly Foundation*

INTRODUCTION

On November 11, 1979 an incident occurred that had a profound impact on me: a passenger plane made an emergency landing at Manises airport in Valencia. This event was not due to any technical failure, but was caused by the pilot's fear of a collision in the air with some strange red lights. The fact that the landing took place at my home city's airport, the public alarm it caused and the sighting's own strangeness prompted me to start an investigation that has lasted on and off for 20 years.

Given the seriousness and the prestige of the "Ricardo Caruncho" award, provided by the Anomaly Foundation for the study of the UFO phenomenon, I decided that it was an appropriate way to provide public knowledge of my investigations about this case.

The conclusion of these investigations come to show that the facts should not be attributed to presumed extraterrestrial forces, or to any other unknown origin. In reality they were due to a concatenation of very special circumstances, probably never to be repeated, that induced the witnesses (most of them being professionals in the aeronautical business) to confuse certain bright commonplace stimuli with UFOs.

In order to place the case in its proper perspective and dimension, and to understand all the relevant factors that created this confusion, I had to analyse every condition that occurred precisely on that exact date. On one side, the international political scene, with its military derivations, as well as the sociological and media environment (most inclined towards the UFO phenomenon) that was being lived in Spain, even the unusual meteorological conditions in existence in the area, not forgetting the singular psychological situation that the chief pilot of the aircraft was going through at the time.

THE FACTS

On November 11, 1979, at 22:47 hours, a Supercaravelle plane of the Spanish TAE company (now defunct) took off from "Son San Juan" airport in Palma (Majorca) on a charter flight TAE JK-297 from Salzburg (Austria) to Palma to Tenerife (Canary Islands) with 109 passengers aboard. At the controls of the plane were commander Francisco Javier Lerdo de Tejada, his co-pilot José Ramón Zuazu Nagore and flight mechanic Francisco Javier Rodríguez.

At 23:05 hours the flight mechanic warned the rest of the crew that two powerful red lights were visible in front and to the left of the plane at a great distance. At this time the Supercaravelle was flying at a height of 23,000 feet above the Mediterranean sea, southwest of Ibiza island.

In view of this, they demanded information from Air Transit Control in Barcelona and were told that there existed no other scheduled flight in the area, other than their own. This did nothing but increase the nervousness of flight AE JK-297 crew, especially the chief pilot.

In appearance, the strange lights, which were like two powerful red light sources with no apparent solid body to be sustained in, progressively drew closer to the plane. This approach, plus the lack of information from the Flight Control at Barcelona, arose a near panic in the pilot of the Supercaravelle, (he) who fearing a collision decided to abort the flight and make an emergency landing at Manises airport in Valencia.

After the arrival of flight TAE JK-297 at Manises at 23:45 hours, airport personnel observed various lights in the sky that shone brighter than any others. It did not take long for them to assume these were the ones that, shortly before, had interfered with the flight of the Supercaravelle, and (ones which) had most probably followed it to Valencia.

Informed of the facts by the Airport Transit Officer, the military personnel on duty at the adjoining Manises Air Force Base also participated in the sighting of those bright dots in the night sky.

Due to the amount of concordant testimonies, the Chief of Service of the Air Combat Command (MACOM) of the Spanish Air Defense, ordered at 00:40 hours of November 12th a Mirage F-1 aircraft be scrambled from Los Llanos Air Force Base in Albacete, aimed to search and identify the lights that were observed from Manises airport.

The pilot of the Mirage F-1, Captain Fernando Cámara, located throughout his mission various far away lights. No matter how long he flew in their direction he could not reduce its distance to them. During almost 1.5 hours, the aircraft took different flight directions (first over the Mediterranean sea, then over the Spanish inland territory) in pursuit of several distant lights in the firmament.

During this period of time, he eventually suffered serious radio communication interference with the Flight Control Center as well as sporadic blocking in the aircraft's warning system. Because of this, and with very low fuel reserve he returned to his base at 02:07 hours.

RESULTS OF THE INVESTIGATION

On March 1979, all issues pertaining to UFOs were classified by the Spanish military air authorities. This prevented anyone to gain access to the official records known to exist about this incident. Because of this, and only relying on the testimonies of the civil witnesses, I could not advance significantly in the analysis of this event.

It was not until the declassification of the case file, in September 1994, that I finally was able to know all the elements and event data (thanks to the detailed official military inquiry) needed to complete my study, and therefore to arrive at a total and surprising explanation of the multiple incidents that occurred on that night of November 11-12, 1979.

No doubt, the several episodes that constitute the case have a true nature; nevertheless, it has to be noted that -even when they are related, as the result of a certain "contagious" state-, in reality the luminous sources that originated the several chapters of this complex case were various and independent.

(A) Red lights observed by TAE JK-297 flight

The crew of TAE Supercaravelle most probably misperceived the flash blazes from the combustion towers at the Escombreras refinery, near Cartagena (located East of Spain by the Mediterranean sea). These lights surprised and confused the witnesses aboard the plane and were considered anomalous. These lights started the event.

This explanation arises by analyzing the path of flight TAE JK-297 and the angle of vision subtended from the airplane's cockpit in relationship to the lights. This visual line along which the witnesses saw, and believed to be, strange lights, shows a very good match with the location of the major petroleum refinery at Escombreras. Logically, what the crew observed from the plane had to have originated from the refinery.

Faced with this evidence I delved into a study of the zone, consulting all types of bibliography, maps, panoramic photographs, etc. including aerial photography of the refinery itself and its close environment. In this way I could obtain precise information of the magnitude and characteristics of such combustion towers. Lastly, I was left to collate the facts and to carry out several trigonometry calculations. The results were totally coherent with the explained hypothesis. On the one hand, I confirmed that the angular separation between the two red lights observed by the witnesses coincided with the actual distance that existed between those two active groups of large chimneys on the ground. At the same time the diameter of the flames resulted perfectly compatible with the power and size given by the crew of the plane in relation to the red UFO lights.

(B) Multiple lights sighted from Manises

Many of the people involved already had thought, even during the night of the occurrence, that the lights being sighted were most probably stars. This was confirmed during the following nights, when once again the same starry lights were observed.

For example, the Captain on guard at Manises AFB telephoned at 01:45 hours of November 12th to the Chief of Service in the Air Force Headquarters to state that the majority of bright objects being sighted "followed the movement of the stars and that now he suspects it was a planet". In summary, from the Manises airport various stars were mistaken for unknown bright objects, being star Sirius with the highest brilliance the one which raised the greatest expectation.

(C) Lights followed by the Mirage F-1

The lights viewed from the military jet aircraft were absolutely unrelated to the lights seen from the commercial plane two hours before. He was urged from Defense Control Center to try and pursue the lights that there were being observed from Manises airport.

Captain Camara did not see anything but distant, undefined lights which he could never reach, their true nature being most probably stellar, like those sighted from Manises airport, with the sole exception of the first light the pilot saw, this time identified as the lights from another refinery located in North Algeria.

CONCLUSIONS

It sounds like a joke that such qualified witnesses (pilots -both civil and military-, flight control staff, airport personnel, etc.) might be subject to such confusions. To this I can only point out that the circumstances were very special that night, amounting to an unimaginable stack of chances difficult to be repeated:

- The pilot of flight TAE JK-297, commander Francisco Javier Lerdo de Tejada, had very serious personal conflicts that made him, psychologically speaking, very vulnerable. In fact his anxiety/panic at the controls of the plane was what forced him to make an emergency landing, not the intrinsic strangeness/danger of the lights.

- It is true that commander Lerdo de Tejada was left on his own, for he got no support from Barcelona's Flight Information and Control Center.

- Likewise, the existing meteorological conditions were crucial not to properly identify the lights as flame flashes from the Escombreras refinery. There existed in the area a strong temperature inversion that created a superior mirage, distorting the vision of those flames at the eyes of the crew.

- As far as the airport personnel and the staff on guard at the Air Force Base are concerned, the great disturbance created by the emergency landing of the Supercaravelle created a state of excitement that made the confusion understandable. Even more so, if you take into account the extraordinary existing visibility - very rare for this part of the Mediterranean- which provoked unusual star scintillation.

- Regarding the pilot of the scrambled aircraft, Captain Cámara, he flew disoriented for almost 1.5 hours, in pursuit of some ambiguous luminous stimuli, precisely during a night of exceptional visibility.

- Besides, the pilot suffered some awkward, unsuspected acts of electronic warfare (strong

distortions in his radio communication and certain blocking of its electronic defense systems) that bewildered him. This electronic warfare was provoked by the LHP-2 Iwo-Jima helicopter-carrier (US Navy, 6th Fleet) which was located in the nearby Columbretes islands, in a situation of maximum alert because of the US embassy hostage crisis in Iran.

- All of this must be considered as framed within a sociological state in Spain, specially inclined to UFO belief. At that time UFO news saturated the mass media and any light whatsoever seen in the sky was automatically considered as a probable extraterrestrial spaceship.

This unusual combination of rare circumstances produced the most remarkable UFO (IFO) case in Spain of all times.

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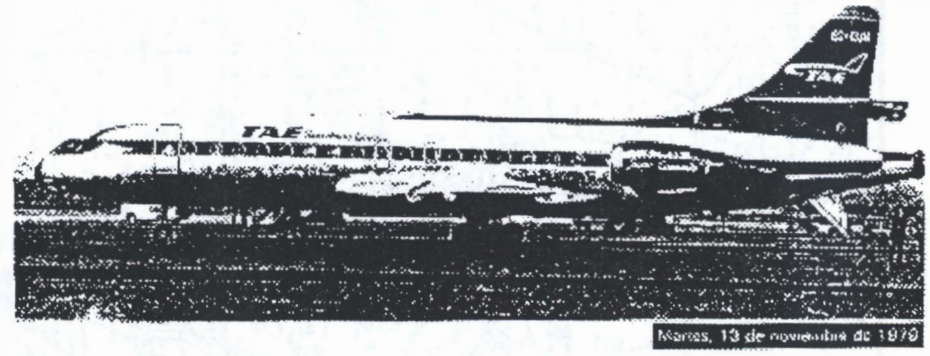
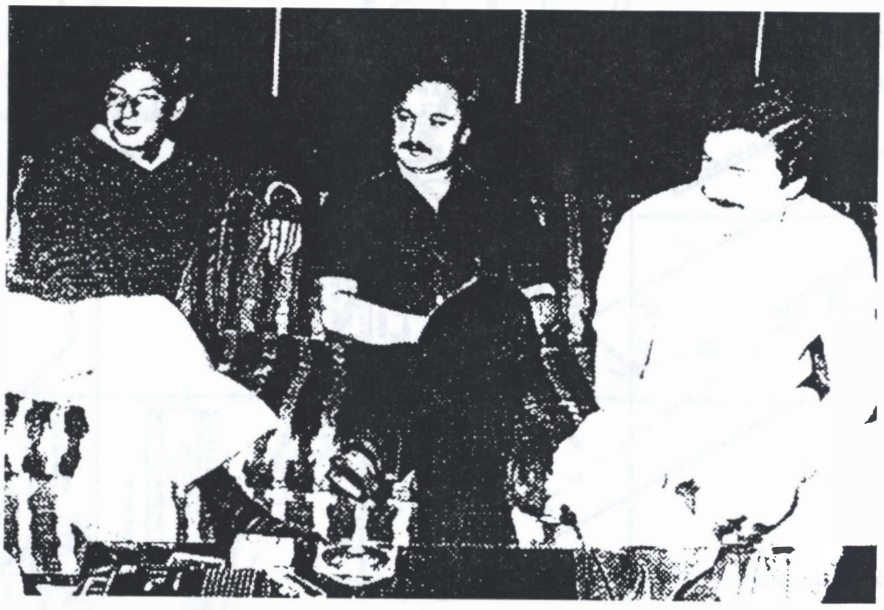
TAE Supercaravelle airplane flight JK-297 after landing at Manises airport (Valencia, Spain), November 1 1 , 1979. (Photo by Penalba, *Las Provincias*, November 13, 1979).

Un avión aterrizó en Manises al avistar dos ovnis

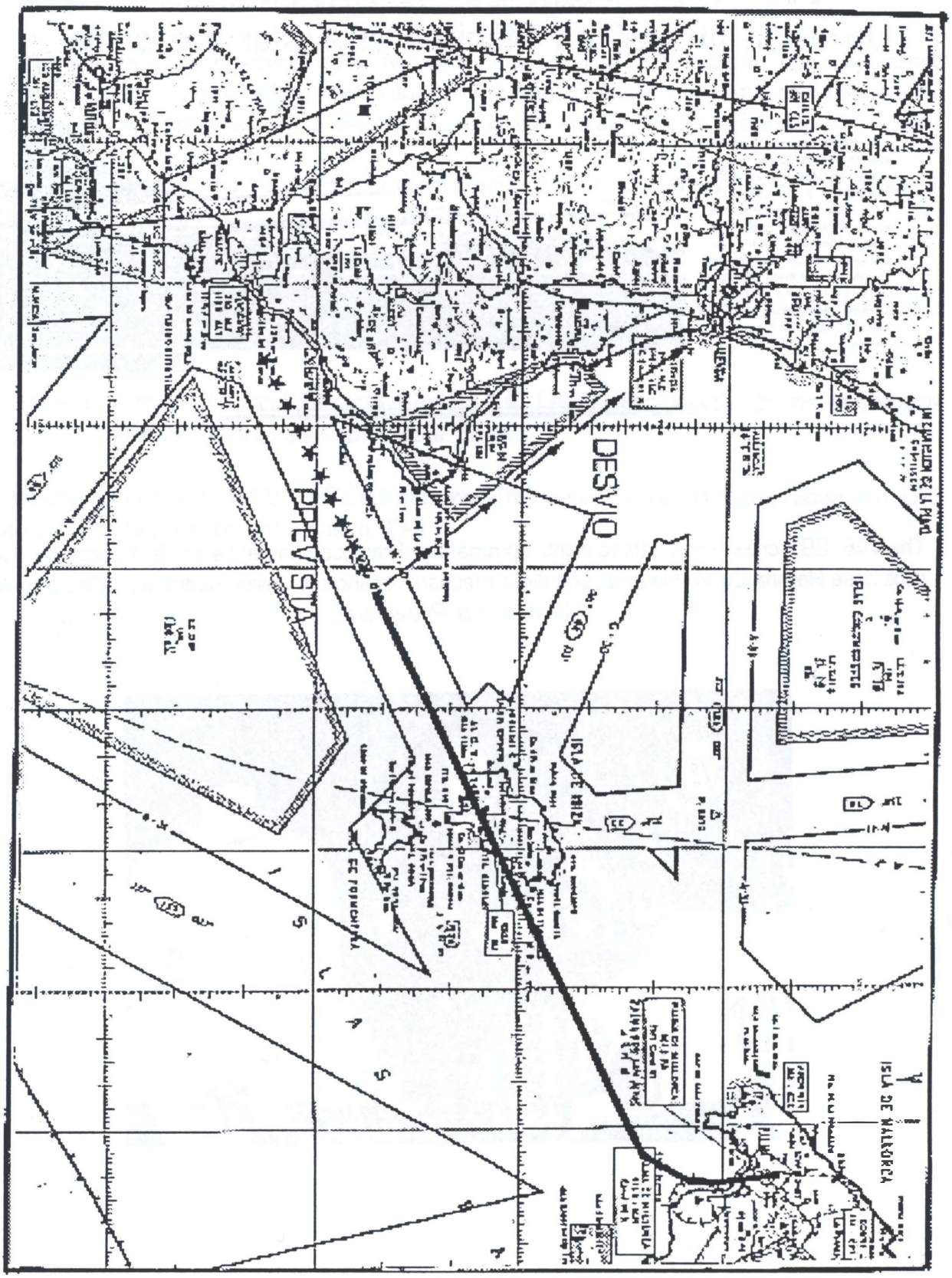
A última hora de la noche aterrizó el domingo en el aeropuerto de Manises un avión «Caravelle» de la compañía T.A.E., con 119 pasajeros, que se dirigía de Ibiza a Las Palmas, al ser avistados por los tripulantes unos objetos volantes no identificados. El avión —del que ofrecemos una foto de Penalba— permaneció en tierra hasta primera hora de la tarde de ayer



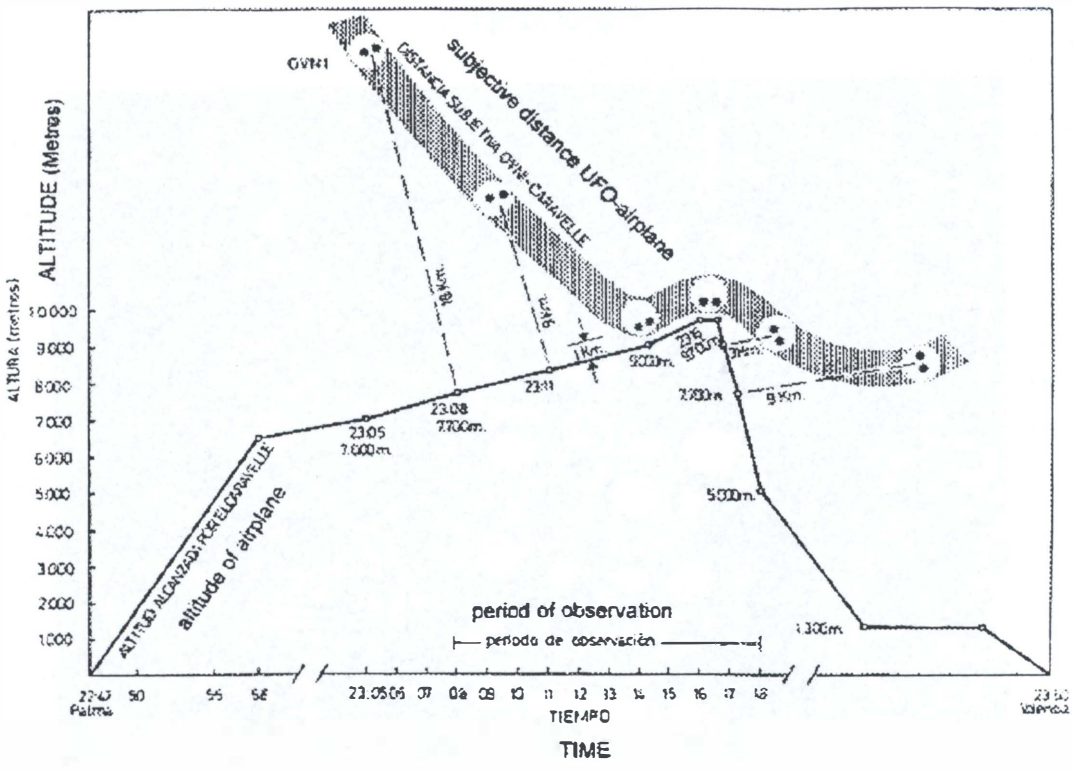
The TAE -297 crew. From left to right: commander Francisco Javier Lerdo de Tejada, second pilot José Ramón Zuazu Nagore, and flight mechanic Francisco Javier Rodríguez. (Photo by A. Marrero, *La Provincia*).



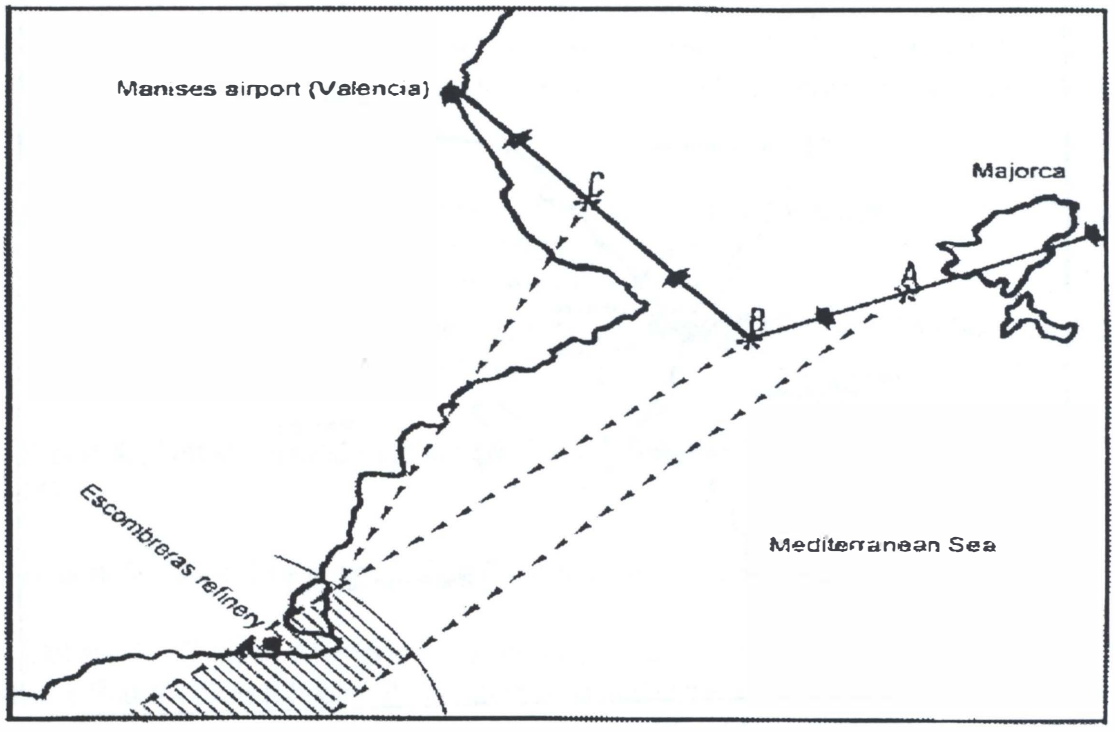
The TAE flight. Continuity line shows the path followed by the airplane since takeoff, dotted line (stars) shows the expected course and the broken line (arrows) is the deviated trajectory to land in Manises airport.



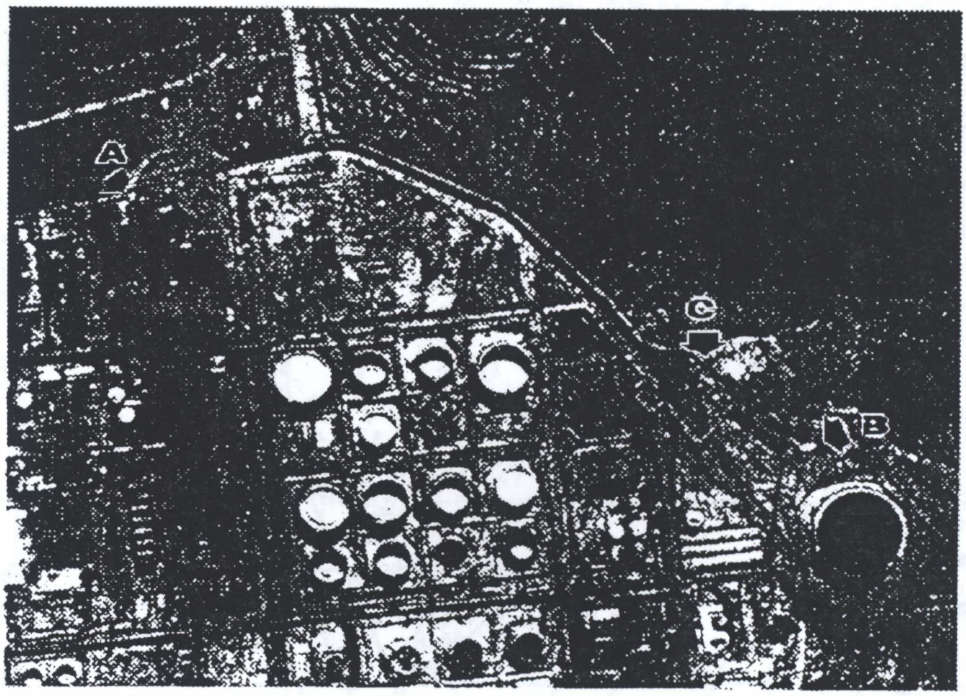
Plot of TAE Supercaravelle altitude versus apparent distance to lights in the time lapse between takeoff and landing. (Scheme by V.J. Ballester Olmos).



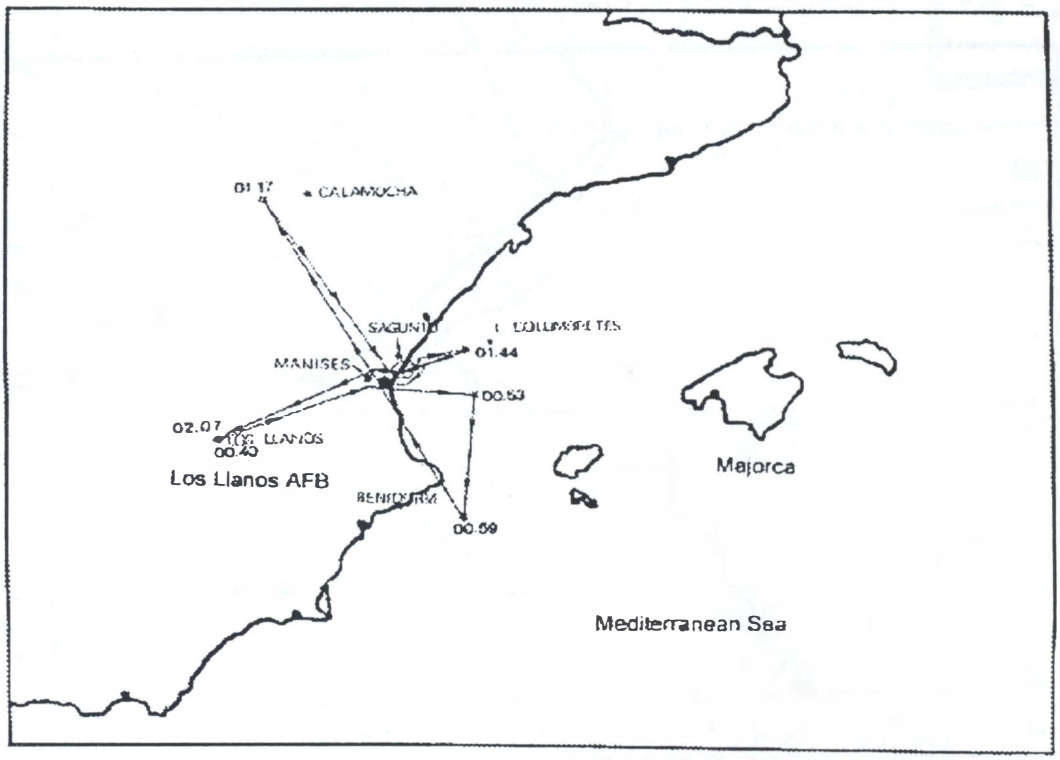
Flight course of TAE airplane and sight times A, B and C during its trajectory. Prolonged visuals point to the area where the Escombreras refinery is.



Blow-up of section of the Escombreras refinery facility showing combustion towers A, B and C. Chimney A and the chimney set B-C (resolved as one from the distance) were the two light sources to provoke the misperception from the TAE airplane. (From Spanish Air Force air photography).



Reconstruction of the various flight courses followed by the Spanish Air Force interceptor.



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An Educational Programme for Ufology in the United Kingdom: The Development of an Advanced Level Qualification in Ufology.

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Abstract: Ufology, as a discipline, has been around for many years but there has been no regulated qualification for people to term themselves 'ufologists' upon completing. This paper explores the development of such a qualification in the United Kingdom. The Advanced Level course in Ufology, offered by Totton College, is split into six units: Historical Perspectives on UFOs, Theoretical Perspectives on UFOs, Research Methods in Ufology, Alien Abduction, The Media and Ufology and Primary Research in Ufology. The course takes a minimum of two years and allows the student to gain six certificates and have a thorough knowledge of the subject area. Currently, 162 students have studied for one or more unit from a wide geography. The course receives no formal funding so each unit has to be cost covering via student payment. This jeopardises the future of the course but we hope to continue to offer the course. It would be beneficial for other European nations to take up this idea and offer formal educational qualifications in Ufology.

Introduction

For many years, ufology as a discipline has attempted to increase credibility without any real form of 'qualification' or guidelines as to how to research the phenomena objectively. Certain groups have 'in-house' courses and examinations (e.g. Manchester Anomalous Phenomena Investigation Team, British UFO Research Association) that allow members to study elements of the field and become qualified to research cases. However, no course has been offered that can be used as a recognised educational qualification. That is, no ufology course can be used as a means of showing knowledge, critical awareness and transferable skills in the educational framework of the United Kingdom.

This paper will highlight the key elements involved in the creation and eventual running of an educational qualification in ufology based in the United Kingdom.

Background to the educational system of the United Kingdom

Currently, school attendance is compulsory up to the age of 16 in the United Kingdom. Within the last two years of this, students choose 'options' (usually as many as 10 subjects) to study for their GCSEs (General Certificate of Secondary Education). If successful, a portion of the students can enter PCET (Post Compulsory Education and Training) where many study for A-Levels (Advanced Level Qualification) as a means of getting to University to read a specific subject. Nowhere in this progression have students been able to study Ufology as a subject that has a qualification attached

to it. Elements may turn up in Psychology, Earth Sciences and Physics, but no certificates in Ufology are attained. However, in 1996 a programme was created that allowed this to happen.

Development of the programme in Ufology

In the academic year of 1995-6, Totton College offered two three-week courses and a ten-week course via the author. These courses introduced students to some of the basic elements of ufology (e.g. case studies, theoretical inputs, research methods, and critical awareness). Due to unprecedented success, the author proposed a three-unit Year 1 course in Ufology that the college accepted as a viable proposition. The course proposal was taken to a validation board for the Hampshire Open College Network [HOCN] (now the South Central Open College Network, SCOCN) towards the end of the academic year 1996 and a further three units underwent the same procedure at the end of the academic year 1997.

The proposals were paper documents that had to be discussed by a panel of educational experts. Aims, objectives, target student populations, resourcing, potential funding bodies, background of teaching staff and assessment details had to be submitted. Also, potential 'credit value' and level of qualification had to be calculated. One credit equates to 30 hours of learning (whether classroom or independent), whilst Level One learning equates with low grade GCSE, Level Two equates with high grade GCSE and Level Three equates with A-Level. Level One uses descriptors like 'name, identify,' Level Two uses descriptors like 'describe, comment.' Level Three uses descriptors like 'critically assess, compare & contrast.'

The six units that were proposed for accreditation with HOCN were:

1. Historical Perspectives on UFOs.
2. Theoretical Perspectives on UFOs.
3. Research Methods in Ufology.
4. Alien Abduction.
5. The Media and Ufology.
6. Primary Research in Ufology.

All units were successfully accredited and therefore a substantial qualification was created partly in 1996, but fully in 1997 when the final three units gained accreditation. The table below highlights each unit; it's credit value, the number of assignments, type of assignments and current number of times the unit has run.

Name of Unit	Credit value	No. of assignments	Type of assignments	No. of times run
Historical	1	3	3 x written essays	Twice
Theoretical	1	3	1 x practical, 1 x written essay, 1 x oral presentation	Twice
Research Methods	2	5	3 x written assignments (including data analysis), 2 x practical based assignments (including a skywatch)	Once
Alien Abduction	1	3	3 x written essays	Once
Media	2	4	4 x written assignments (descriptive and analytic)	Once
Primary Research	3	4	1 x research plan, 1 x 5000+ word assignment, 1 x publication tryout, 1 x oral presentation	Once

The assignments are designed in a way to work towards the strengths of each student, but also allows the student to strengthen any weaknesses they would like to. Below is a table containing an example assignment title from each unit.

Name of Unit	Example assignment
Historical	Using case studies of your choice, discuss the validity of pre-biblical and biblical UFO cases. Are they worth anything to UFO research?
Theoretical	(a) As a small group you must complete the task of hoaxing a UFO sighting. This may be done using photographic and/or video means. (b) Write a brief report about the sighting, highlighting what you claimed to have seen, if anything unusual had happened etc. (c) Write another brief report that highlights how you actually hoaxed the sighting. Give as much detail as possible and finally conclude how convinced you are that your hoax is a good one.
Research Methods	(a) You must choose a specific nation or region, or a specific time period. (b) Find a minimum of 25 sightings using your specified nation or time period. Use a maximum of 50 sightings. (c) Classify the sightings data you find using the Hynek and Vallee schemes and present accordingly (e.g. tabular, graphical) (d) Comment on any particular trends (e.g. is there a large proportion of Close Encounters of the First Kind?). If there are no definite trends then say so.

Alien Abduction	(a) Describe what could be called a 'typical alien abduction.' Comment on whether you believe there is such thing as a typical account. (b) Using at least five named examples, identify some common themes and differences in accounts of purported alien abduction.
Media	Using two magazine publications, compare and contrast them on their approaches to ufology. Within the analysis, you must include the following: • Names of the two publications. • The approach of the two publications (e.g. tabloid, objective). • Using an example copy of each, analyse the content of the issue for issues raised. • Analyse the layout – is it easy to read and follow the magazine? • Highlight the ways in which the two magazines are similar and note how they approach ufology. • Describe your first impressions of both magazines. • Finally, highlight how each publication could influence the perception of ufology if it was the first publication you had read on the subject.
Primary Research	*See Appendix A.*

Course Content

Each unit has been designed to cover a wide range of issues linked to the title of the unit. The following describes the basic course content for each unit.

Historical Perspectives on UFOs – The student is introduced to the historical progression of UFOs. This ranges from the link of ancient civilisation to ufology, the 'lean years' of history linked to ufology to the modern day accounts of UFOs from the advent of the modern ufology after 1947.

Theoretical Perspectives on UFOs – The student is introduced to 12 potential theoretical explanations UFO activity. These include the Conspiracy Theory approach, Hoaxes, The Extraterrestrial Approach, Earth Lights & Tectonic Strain, Electromagnetism, Temporal Lobe Epilepsy, Psychopathology, Fantasy Proneness, Hypnosis, Eye Witness Testimony and Astronomical Mirage Theory.

Research Methods in Ufology – The student is introduced to elements of skywatching, data collecting and subsequent analysis & presentation, interviewing skills, questionnaire design, classification of sightings, letter writing for information and internet usage.

Alien Abduction – The student is introduced to the progression of the alien abduction from the contactee era up to modern day accounts of reported abduction. The student is also introduced to 15 potential explanations to alien abduction. These include The Extraterrestrial Approach,

Electrohypersensitivty, the role of Hypnosis, Deficit-Boundary, Dissociation, Fantasy Proneness, Psychopathology, Birth Memories, Sleep Paralysis, Correlates of Childhood and/or Ritual Abuse,

The Media and Ufology – The student is introduced to Film Analysis, Book Analysis, Magazine Analysis, the role of the Internet and Newspaper Reporting. All analysis consists of content analysis, potential public perception and undertones/bias in publications.

Primary Research in Ufology – The student is expected to produce a 5000+ word report on one area of interest within the realm of ufology. These could span from the self-generation of hypnotic alien abductions to film production being a catalyst or end product of UFO sightings, to a review of the ancient astronaut hypothesis to image analysis and the UFO hoax.

Student Background

Within the 'open access' policy adhered to by many colleges in the United Kingdom, anyone can participate in the course. Also, a student can choose whether to enter for credits. A student is only entered when they have completed a Student Registration form and are willing to complete the assignments necessary to gain each certificate. Therefore, a student can attend the each 10-week course for pleasure or to gain a qualification. On average, about 70-80% of attending students attempts the assignments. Below are figures for attending students who **studied at the college**.

Name of Unit	Student Numbers	Name of Unit	Student Numbers
Historical	30	Alien Abduction	14
Theoretical	31	Media	17
Research Methods	12	Primary Research	4

The course is also offered as a correspondence course for students who cannot attend at the college. This has been successful with many students gaining certificates for producing the same work as those attending college. Students receive regular handout packs, extra reading and assignment details. Students can register on a mailing list (ufo@totton.ac.uk) where they can speak to other students about assignments or issues relating to the course. Also, we are in the initial stages of creating a 'real-time virtual classroom' for correspondence and Totton based students to discuss varying issues in ufology. Below is a list of student numbers for the correspondence courses:

Name of Unit	Student Numbers	Name of Unit	Student Numbers
Historical	38	Alien Abduction	4
Theoretical	12	Media	0
Research Methods	0	Primary Research	0

The Research Methods, Media and Primary Research units have not yet been available to correspondence students.

Therefore, the total number of students who have participated in any one unit is 162.

Geography of students

The course has attracted a wide range of students. The majority are based in the Southampton area, but via the correspondence course most areas of England are represented alongside students from Scotland, Wales, the Republic of Ireland, Northern Ireland, Sweden, Belgium and Australia.

Funding

The Government does not fund this course. The Local Education Authority give very little per student (and only to those studying at the college) so the course has to cover its costs via student payment. This of course can stop students enrolling for a unit as they could study for a 'recognised' A-Level for only twice the cost of a ufology unit. This makes it difficult to recruit students who are willing to pay for all six units over two years. The Government allows the accreditation of courses but then refuses to fund them as they show '..no direct progression.' That is, there are no higher level courses to progress on to next for the students (e.g. degree in Ufology). However, the course is laden with 'transferable skills' such as analytical and critical skills, essay writing, oral presentations, debating skills plus a multi-disciplinary approach to the content on teaching. Students encounter physics, geology, psychology, astronomy, sociology and mathematics during the course. Unfortunately, this still does not allow funding to be attached to the course.

Conclusion and the Future

The college will continue to offer the course but with increasing costs it is going to be difficult to keep recruiting. The correspondence course is still increasing in numbers and looks like the only viable option at present. This has its drawbacks including the social element of learning and practical class activities.

The course has been successful with good media attention, but lacks financial support from the relevant authorities that allowed it to be accredited. It would be good to 'branch-out' and see if other National European Education Authorities will allow such an important course to exist. I will be happy to help anyone wishing to develop a course in his or her own country.

Analysis of submissions to the European Journal of UFO and Abduction Studies: geographical spread, content, outcome and review times.

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Introduction

The European Journal of UFO and Abduction Studies was created in March 1999 and a call for papers and editorial board members was sent out to all known European UFO organisations or individuals. An editorial board was created and papers for review began reaching the Editor-in-Chief. As part of the continual growth of the academic journal, it appears fitting that a brief analysis of the papers that have been reviewed, where they have come from, what they are about and how quickly we review them and give feedback to the appropriate authors.

Analysis

The following areas will be analysed below:

- Number of submissions and type of submissions
- Geographical area of submissions
- Outcome of all papers received
- Content of papers received
- Median time lag for review procedure

Number of submissions

This data is for papers that were submitted pre-June 2000

26 papers
5 FORUM debate articles
3 debate replies
2 news items
1 book review

Geographical distribution of submissions

These data include joint authored papers so will not equal the above number of submissions (e.g. for multi-national papers, the paper will be represented in different countries)

Nationality	Number of submissions
United Kingdom	24
Italy	6
Spain	4
Austria	3
Norway	2
France	1
Romania	1
Germany	1

As can be seen, there has been a dominance of papers submitted by UK authors.

Outcome of submissions

Type of outcome	Number of occurrences
Accepted	9
Accepted (revision)	1
Revisions and re-submit	7
Rejection	8
Currently under review	6

One paper was withdrawn by the author

This represents an acceptance rate of 36% and the flat rejection rate is 32%

Content of submissions

Papers were classified under the headings below:

Topic area	Number of occurrences
Electromagnetism	2
Trends data analysis	1
Declassification	1
Extraterrestrial approach	3
MILABS – Military Mind Control	6
Research methods	3
Case study	3
Earthlights	2
Physics	6
Ancient Astronaut	4
Ball Lightning	1
Education	1
Psychological angles	1
Miscellaneous matters	2

Time lag in reviews

The median time lag for the papers that require reviewing is 6 weeks (range 1-22 weeks).

It is envisaged that this process will occur every 12 months so that individuals and group know the content that is being sent to the EJUFOAS Headquarters.

Alien Abductions, Sleep Paralysis and the Temporal Lobe

by
Susan Blackmore

Abstract: Twelve 'alien abductees' were given the Personal Philosophy Inventory (including a measure of temporal lobe lability) and a questionnaire about sleep experiences. They were compared with twelve matched controls and a student control group (n=51). No differences in temporal lobe lability were found between the groups but the abductees more often reported sleep paralysis than the controls.

Introduction

According to a recent Roper poll nearly 4 million Americans have been abducted by aliens (Hopkins, Jacobs and Westrum, 1992). In fact this figure is misleading and almost certainly a gross over-estimate (Blackmore, 1998; Stires, 1993). Nevertheless, personal accounts of abduction by aliens have increased since the publication of Hopkins' books *Missing Time* (1981) and *Intruders* (1987), and Strieber's *Communion* (1987).

Over the years a typical abduction account has emerged (see e.g. Mack, 1994; Newman & Baumeister, 1996; Schnabel, 1994; Thompson, 1993). Most experiences begin in bed at night (Spanos, Cross, Dickson and DuBreuil, 1993; Wright, 1994); more rarely from a car or outdoors. The abductee experiences an intense blue or white light, a buzzing or humming sound, anxiety and the sense of an unexplained presence. He or she is then transported or "floated" into a craft and may be restrained or paralysed and subjected to examinations, medical procedures, or the implantation of a small object in the nose or elsewhere. The aliens are typically grey, about four feet high, with a large head and black almond shaped eyes, though other aliens are occasionally reported (Wright, 1994). The aliens' purpose in abducting people varies from benign warnings of impending ecological catastrophe to a vast alien breeding program.

Occasionally people claim to be abducted in public, though there are few examples of independent corroboration. Physical evidence is extremely rare. A few 'implants' have reportedly been removed from abductees' bodies but they usually mysteriously disappear (Jacobs, 1993), or turn out to be "of normal biological material" (Mack, 1994) or even dental amalgam (Blackmore, 1997).

The abductions may not be physically real but they still require explanation. There is no evidence that people who see UFOs are generally suffering from serious psychopathology (Bloecher, Clamar & Hopkins, 1985; Parnell, 1988). Parnell and Sprinkle (1990) found that MMPI scores were in the average range for 140 people who claimed communication with aliens, and Spanos, Cross, Dickson and DuBreuil (1993) tested 49 UFO experiencers and found they actually showed less psychopathology than a student or a community control group and higher intelligence than the students. Bartholomew, Basterfield and Howard (1991) found characteristics of fantasy proneness in 132 out of 152 contactees but when standard tests were used, no differences were found in either fantasy proneness or hypnotizability by Ring and Rosing (1990), Rodeghier, Goodpastor & Blatterbauer (1991) or Spanos *et al* (1993). Zimmer (1984) found that UFO reporters were as likely as the normal population to be high academic achievers and showed no more alienation, distress or maladjustment. However, most of the UFO experiencers in these studies had simply

seen lights in the sky; some had seen alien creatures but few reported full-blown abduction experiences. In the only study specifically of abductees, Powers (1994) assessed dissociative symptoms in twenty people claiming abduction. Compared with 'sightees' the abductees reported far more symptoms of dissociation and of post-traumatic stress. Clearly abductees must be separated from people who have only seen UFOs in future studies.

Newman and Baumeister (1996) have provided a cognitive-motivational explanation of how spurious memories of abductions are created and maintained. The motivation is likened to sexual masochism, and hypnosis serves to elaborate and maintain the false memories. The role of false memories in abduction cases has been widely discussed (Clark & Loftus, 1996) and there is no doubt that complex abduction fantasies can be created under hypnosis. However, about thirty per cent of abduction accounts are obtained without hypnosis (McLeod, Corbisier & Mack, 1996). Another possibility is that abductions are based on some real and frightening experience which is then elaborated (with or without hypnosis) into the culturally acceptable alien abduction story. Two possible experiences have been suggested; visions induced by excessive activation of the temporal lobes, and sleep paralysis.

Persinger (Persinger and Makarec, 1987; Persinger and Valliant, 1985) has shown that mystical experiences, psychic experiences and paranormal beliefs are associated with unstable temporal lobes, or high "temporal lobe lability". He has also been able to induce out-of-body and other experiences by applying rapidly fluctuating weak magnetic fields across the temporal lobes of subjects in the laboratory (Persinger, 1995). These include unpleasant vibrations, lights, floating, flying, out-of-body sensations, sexual arousal, and a sense of presence (Blackmore, 1994). Spanos *et al* found no difference between two groups of UFO reporters and control groups using the temporal lobe lability subscale of the PPI (Personal Philosophy Inventory, Persinger and Makarek, 1987). However, their 'UFO non-intense' group had only seen lights in the sky. The 'UFO intense' group had seen craft close up or experienced contact with an alien but only two claimed to have been taken up in a spaceship. Therefore this study did not adequately test for temporal lobe lability in abductees.

The main alternative theory is that abductions are associated with sleep paralysis. Sleep paralysis is a common experience in which a person wakes up but cannot move. It occurs occasionally in about 40% of the population (Fukuda, Miyasita, Inugami, & Ishihara, 1987; Spanos, McNulty, DuBreuil, Pires & Burgess, 1995; Blackmore, 1998) and more frequently in narcoleptics (Thorpy, 1990). It is often associated with a sense of presence, vibrations, lights, and sensations of being prodded or pulled, as well as emotions ranging from curiosity to intense fear or terror. Many cultures have sleep paralysis myths, such as witch or hag riding in England (Davis, 1996-7), the Old Hag of Newfoundland (Hufford, 1982), or Kanashibari in Japan (Fukuda, 1993). Alien abduction may be our modern sleep paralysis myth.

Spanos et al (1993) pointed out the similarities between abductions and sleep paralysis. The majority of their UFO experiences occurred at night and almost 60% of their "intense" UFO reports were sleep related. Of these experiences nearly a quarter involved symptoms similar to sleep paralysis. If sleep paralysis underlies abduction reports we would expect abductees to be especially prone to the experience. Further studies of sleep paralysis in abductees are clearly required.

The present study investigated temporal lobe lability and sleep disturbances in a sample of British abductees. Although people who have seen UFOs are easy to find, abductees are rare. Our sample is therefore small but, unlike most previous studies, consists entirely of people who claim full-blown abductions.

Method

Participants

The abductees (5 men and 7 women aged 20-69) were recruited through the *This Morning* television programme in which the senior author took part, and through BUFORA (the British UFO Research Association). They were sent a covering letter, a consent form and a questionnaire about their UFO experiences. Some had had multiple experiences of meeting aliens or being abducted, and one had also observed UFOs once or twice a year since he was twelve. Ten of them were convinced their experiences were physically real. Seven complained of medical problems, scars or headaches after the experiences. Half (2 men and 4 women) reported being abducted from their beds and half (3 men and 3 women) experienced abductions in other situations. Two independent judges categorised them into "day-time" and "night-time" abductees from their descriptions (inter-rater reliability; r = 1.00).

There were two control groups. The first was matched for age group, gender and occupational group. The second was a student control group of 51 undergraduates from the University of the West of England, Bristol (17 men and 34 women aged 16-46).

Questionnaires

Three questionnaires were used. Abductees were given a questionnaire about their abduction experiences, asking for full descriptions and for details about when and where the abductions occurred, what the aliens were like, and any after-effects of the experience. All participants were given the Personal Philosophy Inventory (Persinger & Makarec, 1987). This consists of 140 statements to be answered as true or false. 52 of these comprise the 'temporal lobe lability subscale'. Scores on this subscale were recorded. A final questionnaire asked about sleep experiences including sleep patterns and dream recall, false awakenings, lucid dreams and sleep paralysis.

Results

Mean scores on the temporal lobe lability scale were abductees 19.3; matched control 18.3; student control 20.2. A one-way ANOVA shows there are no significant differences between the groups. The PPI contains an item directly about alien beliefs "Alien intelligence is probably responsible for UFOs". As Spanos had found, there were significantly more believers among the abductees than the matched controls (Fisher's exact test, p = .047) and the student controls (p = .001).

Differences were found in the sleep pattern questionnaire. There were three questions about sleep paralysis (waking paralysed, pressure on the chest and a sense of presence). The abductees reported all three experiences significantly more often than the matched controls (Fisher's exact test gives p values of 0.006, 0.04, and 0.01) and two of the experiences significantly more often

than the student controls (p = 0.007, 0.11, and 0.002).

When reports of sleep paralysis are compared separately for the day-time and night-time abductees, there are no significant differences for the day-time group but the night-time group report sleep paralysis more often than the matched controls (p = .00005) and more often than the student controls (p = .00003). The abductees also reported more sleep disturbances, nightmares and out-of-body experiences than the student control group.

Discussion

This was a very small study, reflecting the fact that abduction reports are not common and probably far less so in Britain than in the USA. Also many abductees are unwilling to be involved in scientific research. Among the 24 approached, only 12 agreed to take part and some were scornful of the value of research (Cox, 1995). However, if abduction experiences require a different explanation from merely seeing UFOs then it is important to find people who claim full-blown abduction experiences for future research.

In spite of the small sample, the results strongly support the suggestion that alien abductions are related to sleep paralysis and not to temporal lobe lability. Temporal lobe lability scores were, if anything, lower in the abductees than controls, so a larger sample would have been unlikely to reveal a positive relationship. On the other hand sleep paralysis was significantly more often reported in abductees than either of the control groups, confirming Spanos *et al's* findings, and the idea that abductions may be a modern form of sleep paralysis myth. Of course an alternative is that real aliens are causing the increased sleep paralysis, and abductees' belief in aliens is well founded. The better we understand the psychological origins of the experience the less likely that alternative becomes. We hope that this study, small as it is, may help contribute to our understanding of these unusual experiences.

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Dear Editor,

It was with a certain weariness that I read the so-called review of my book "Electric UFOs - Fireballs, Electromagnetics and Abnormal States" (pub. Blandford Press) by Luis R. Gonzalez Manso in your last issue. When I read reviews of my books, I can tell when the reviewer has really read it or not, and Manso has not. He may have flipped through it and scanned random passages, but absorbed the evidence I present - no! He is quite obviously negatively prejudiced against it before he even opened the cover. If he had read it properly, he would not have made so many simple errors of fact, which, when they are there in black and white, is surely inexcusable.

For starters, he states:
"he...enlists strange experiments based 'on the secret works of Nikola Tesla' to demonstrate the electromagnetic levitation of non-ferrous materials (always outside the camera)..."

I assume that he is referring to the Hutchison effect which was discovered by John Hutchison in British Columbia, Canada in 1981, and whilst Hutchison includes Tesla coils amongst his apparatus, he also includes many other electrical devices such as Van de Graaf generators. There is certainly no reference to any sort of "secret works" by Tesla at all, so I don't know where Manso gets that from! As for his implication that the levitations and disruptive effects that make up the Hutchison effect has never been caught on camera, he seems quite unaware that since 1981 when the Hutchison effect story as it may be called, became public, many videos of objects lifting off, spinning, hovering etc have been shown on the national television news in Canada, USA and Japan. Also, TV film crews have filmed levitations themselves during their visits to Hutchison's laboratory, and recently Sky TV screened shots of the levitations to British audiences also. In addition to this, Hutchison has sent me dozens of lengthy video recordings that I have shown at my lectures, the most recent being at Southampton a couple of months ago.

So, if Manso (or anyone else) would like a copy of a two hour tape of unedited material of the Hutchison device in action, showing metal distortions and all manner of domestic objects lifting off, (including liquids), all he need do is write to me care of EJUFOAS who I will ask to forward all such requests. Oh, and before Manso cries "hoaxed footage", he should be aware that not only have numerous TV companies vetted it, the Los Alamos National Laboratory in the US visited Hutchison's laboratory with four cameras, and the Max Planck Institute in Berlin has analysed his metal samples. But all this is in my book...

As far as me championing the EM pollution approach "almost alone" as Manso puts it, he is clearly unaware of the number of scientists and academics who have either contributed to it, or actually endorse it. Whilst it was me who originally developed the approach as a unified theory, Manso surely must be aware of Professor Michael Persinger at Laurentian University also in Canada, whose work contributes to it by investigating the effects of geophysical fields on the temporal lobes. Persinger wrote to congratulate me and subscribed to my newssheet on electromagnetics and anomalies called "The Steady Signal", and requested copies of my books.

Also, Dr Jacques Vallee, after reading my first book, "Allergies and Aliens", wrote to me from San Francisco and said:

"...I was stunned and delighted at the elegance of your approach and somewhat peeved that I had not thought of it myself!" (copy of this letter sent to the Editor)

Furthermore, Professor Kenneth Ring in the psychology department of the University of Connecticut, USA, wrote to support, enthuse and concur with my findings re the CE4 experience, and asked for additional copies of my books to send to his colleagues, including Professor Mack. It was Professor Ring who also found the incidence of electromagnetic hypersensitivity amongst the "abductees" he investigated, quite independently from me.

Then there are two professional American researchers into the paranormal, who have come to exactly the same conclusions as I have regarding the nature of "hauntings", veteran researcher Dr William Roll and Dr Dean Radin (author of "The Conscious Universe") both of whom appear in the same TV documentary as me, (Ultrascience; copies available on video on request to me via EJUFOAS) showing how magnetic fields can induce "haunting" phenomena in several people at a location. And incidently, this Ultrascience programme also shows Hutchison and footage of the Hutchison effect., which Manso implies does not exist!

There are many others who have written to me to support my approach, including several grateful "abductees" and experiencers who in the past, have been encouraged to identify their sometimes disturbing experiences as the activities of elusive aliens bent on inflicting painful surgery. Those guilty of such irresponsible "guidance" have been enthusiastic ETH individuals, which Manso seems to identify with, judging from his rejected "turning down the ETH" tone. And he calls my approach "very peculiar"!

Before I leave Manso's confused and erroneous "review", I would like to set the record straight regarding the point he tries to make regarding the field surveys I carry out. The World Health Organisation's definition of an EM hot spot is as follows:

"An EM hot spot is a location where the local values of electric and/or magnetic fields are significantly elevated above background levels."
(Environmental Health Criteria 137. 1993.)

Manso states, "When the investigator visits the house of the witness with his electromagnetic detector, (he) never fails to find what he is looking for." Implying for some reason, that investigators would find fields from common household appliances and identify them as anomalous. Even someone who has little or no training in the use of an EM field detector is able to tell the difference between anomalously high readings and background levels emitted by such electrical appliances as TVs, clock-radios, cookers, videos, electrical circuitry etc, that are present in just about all modern houses. However, it is when the meter is resting on a table in the middle of a room, well away from these obvious sources of EM fields, and suddenly registers the presence of a strong magnetic field, which then drops just as quickly, it becomes evident that the location is subject to atmospheric power surges.

Ideally however, a full dosimetric survey should be carried out over an extended period (ideally 48 hours) using set positional grid references which are superimposed over a plan of the location. Readings are then taken at the same points over time and set out as a spreadsheet and/or graph

with the measurement times indicated, as we are dealing with *time varying* EM fields. Using Manso's logic, there would be no house that was not a hot spot, which is absurd. I have surveyed hundreds of locations, including places of work at the request of employers who want to see if fields intruding into the building from the environment are a contributory factor to computer malfunction or "sick building syndrome". However, Manso does not seem to realise that obvious which intrude from the external environment, such as microwave beam or a radio transmitter.

To conclude, I must comment on Manso's very odd supposition that I "suspect a terrible 'cover-up' by the scientific establishment". He has missed the point completely, and this issue is absurdly overstated for ridiculing effect in his "review". As I reference many active individuals who could certainly be identified with "the scientific establishment" in "Electric UFOs", who are involved in publishing both books and regular reports *actually on EM pollution* for such respectable institutions as the World Health Organisation, or the smaller societies concerned with environmental issues such as Powerwatch in Cambridgeshire, UK, the polarised "us and them" picture that Manso suggests I describe in my book, is again, in error.

The real problem embodied in Manso's desperate attempt to counter my findings, is that like so many believers in the ETH, he is beginning to feel the ground shift beneath his ideological feet in the wake of the EM pollution movement. Too late Mr Manso - the revolution has begun!

Albert Budden.

Comments re. Manso's "review" of "Electric UFOs" continued:

Manso has also completely missed the point regarding the '25 Questions', which are a set of diagnostic enquiries to determine the incidence of a range of EM hot spot parameters. He asks about any CE4 examples that do not comply with the parameters implicated within the '25 Questions', but the whole point of presenting them in the first place is because the characteristics they embody *have* been found to occur so consistently across populations of CE4 experiencers. If they did not and there were plenty of instances where they did not show positive, they would not have been presented as relevant diagnostic enquiries in the first place. What the real problem is here, is that Manso just does not *like* what I have discovered in the course of investigations, rather than there being anything inherently wrong with my approach. In fact, it constantly surprises me how robust the incidence of the characteristics outlined are across populations of experiencers. One only has to look and you will find. I suspect the problem is that Manso just does not want to look! The sneering and mocking tone of his 'review' stands out very oddly in a scientifically-orientated periodical, and I suspect that he presents his objections like this thinking that it gives them more weight in some way, but instead reveals his own emotional state faced with the EM pollution approach, which radically challenges his own it appears.
Albert Budden.

SUBMISSION GUIDELINES FOR POTENTIAL CONTRIBUTORS.

The European Journal of UFO and Abduction Studies is the journal of TRUTH (The Totton Researchers of Ufology Theory and History). The journal has been initially set up to bring the European UFO community closer and is primarily, but not exclusively aimed at these organisations. The journal is objective in nature, allowing an outlet for the broad spectrum of issues related to UFO and Abduction phenomena. This includes all academic based subjects (e.g. astronomy, biology, psychology etc.) as well as spiritual aspects, scepticism and new theoretical issues. Therefore, the European Journal of UFO and Abduction Studies wants to publish ufological papers and ideas from a wide range of individuals, organisations and stand points.

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For articles that describe research using human participants, ethical guidelines must have been adhered to or the article will be returned without review. Research, therefore, should adhere to the ethical guidelines of the British Psychological Society or the American Psychological Association (or other recognised National Guidelines in your home nation - please supply us with details). Work with individuals who you feel are 'abductees' must also meet the guidelines described in "Ethics Code for Abduction Experience Investigation and Treatment," Journal of UFO Studies, Vol 5 (1994).

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Hickman, J.C., McConkey III, E.D. and Barrett, M.A. (1995/6) 'Fewer Sightings in the National Press: A Content Analysis of UFO News Coverage in the New York Times, 1947-1995,' **Journal of UFO Studies**, Vol 6 (new series), p.213-226.

For citing books.

Nagaitis, C. and Mantle, P. (1994) **Without Consent: A Comprehensive Survey of Missing-Time and Abduction Phenomena in the UK.** Ringpull Press Limited, Cheshire, UK.

For citing chapters from books.

Wagstaff, G.F. (1986) 'Hypnosis as Compliance and Belief: A Socio-Cognitive View,' in P.L.N. Naish (ed.) **What is Hypnosis? Current Theories and Research** Open University Press, Milton Keynes, UK, p.59-84.