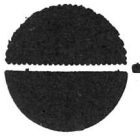


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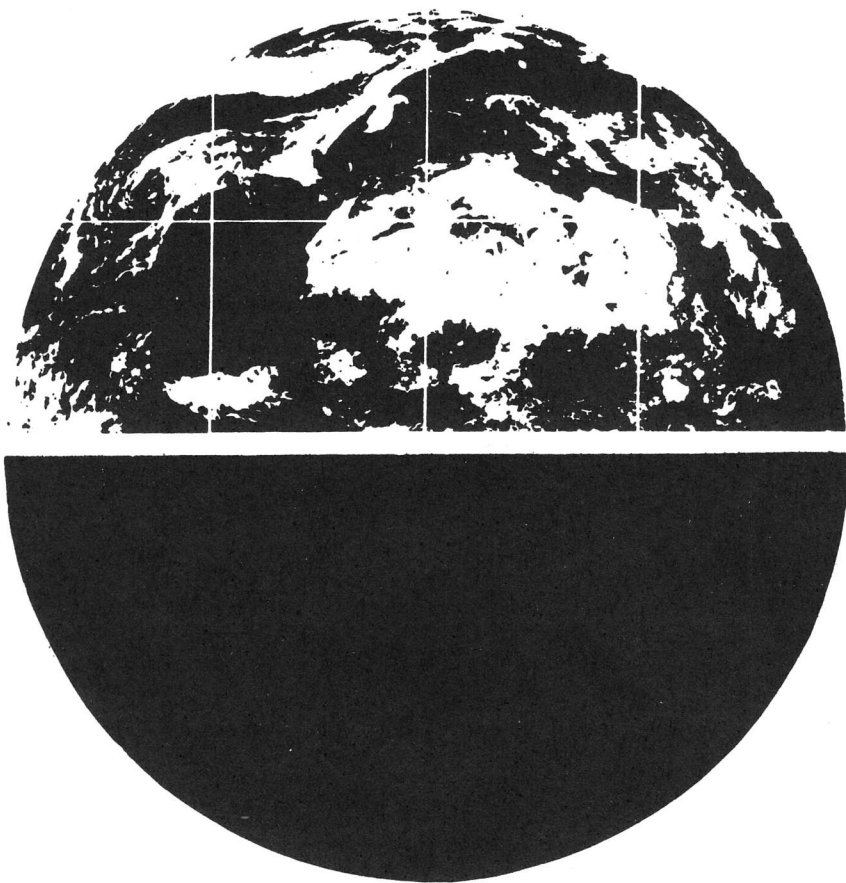


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# The Journal of Transient Aerial Phenomena

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# SOLAR AND EXTRASOLAR LIFE - A NEW HYPOTHESIS

ALI F. ABUTAHA

## Part 3

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This Paper was presented at BUFORA's 3rd International Congress at High Wycombe, Buckinghamshire in August, 1983.

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THE POSSIBLE EXISTENCE OF LIFE ON THE SUN, AND ON SOME OTHER STARS, IS PRESENTED IN THIS ARTICLE. ADMITTEDLY, THE HYPOTHESIS SOUNDS BIZARRE AND NONSENSICAL. SUCH IS THE NATURE OF NEW DISCOVERIES IN THIS ARTICLE. I WILL TRY TO SHOW THAT THE PROPOSED POSSIBILITY GOES FAR BEYOND IDLE SPECULATION AND THAT IT IS A RATIONAL CONSEQUENCE OF THE PRESENT STATE-OF-KNOWLEDGE. THE HYPOTHESIS IS BASED ON CAREFUL AND LENGTHY STUDY OF DIVERSE SUBJECTS AND IT WILL CHALLENGE NOT ONLY OUR KNOWLEDGE ON THE SCIENCES AND THE ARTS; BUT ALSO THE ESTABLISHED COMMON SENSE OF OUR TIME. THE STATE-OF-KNOWLEDGE TODAY IS SUFFICIENTLY ADVANCED FOR US TO BE ABLE TO VERIFY THE FANTASTIC POSSIBILITY, TO COMPREHEND ITS REALITY, AND HOPEFULLY, TO COPE WITH IT; IF IT TURNS OUT TO BE TRUE. IF (AND WHAT ANOTHER BIG IF) THE HYPOTHESIS IS ON THE RIGHT TRACK, THEN THE IMPACT ON HUMANITY WILL BE PROFOUND.

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Just as a state of thermodynamic equilibrium has been reached in the terrestrial biosphere, the convection zone on Earth; the Sun has also reached a steady state. The prevailing conditions in the convection zone of the Sun present the possibility of formation of molecular structures, including liquid water. This possibility is established at the  $4,000^{\circ}\text{K}$  or more temperature by taking into consideration the size of the convection layer and the density of matter within it. The solar gravity (27 terrestrial g's) plays an important role in retaining whatever material that evaporates and rises in the solar atmosphere. The cyclic rise and fall of matter in the Sun, as witnessed by the hydrodynamic flows on the fiery

globe, provide the mechanisms for mixing, mingling, combining, and blending of the solar material into varied shapes and forms.

One major solar condition which must have a significant effect on the structure and behaviour of matter in the convection zone of the Sun is the intense magnetic fields associated with the sunspots. The solar magnetic fields are of the order of 4,000 gauss, or more. These force fields appear to function as transport medium for the charged particles produced by the fusion process, which takes place in the inner Sun. Irrespective of the origin and function of the magnetic

fields in the general behaviour of the Sun, their presence in the solar convection zone is axiomatic. Do these magnetic force fields play a role in the possible formation of simple and complex molecules in the convection layer of the Sun? The answer to this question is found in the effect of the magnetic fields on neutral matter, in addition to the obvious effect on ionized and charged particles.

The effect of a large magnetic field on matter is equivalent to a reduction in temperature, a cooling effect. The magnetic effects considered here are of the paramagnetic, diamagnetic, or nuclear magnetic type. The effect of these force fields on "neutral" substances is that of creating order and organisation akin to that observed in the effects of ferromagnetism. The increase in order and organisation of matter can be viewed as decrease in disorder, or entropy. Entropy of a system is influenced by changes in temperatures, volume or electromagnetic fields. Heating of a substance entails the addition of energy and the creation of disorder. Cooling entails the removal of energy and the creation of order in the system. In this manner, the intense magnetic fields in the convection zone of the Sun increases the likelihood of formation of simple and complex molecules in the hot globe by obviating some of the entropic effects of the high solar temperature.

The possible existence of molecular structures, in general, and liquid water in particular, in the convection zone of the Sun has been described, through superficially, in this section. The Urey and Miller experiment of 1953 produced three or four amino acids from a mixture of water, methane, ammonia, and hydrogen molecules, by subjecting the mix-

ture to a source of energy. It seems reasonable to expect that if a mixture of the proposed solar water, methane, ammonia and hydrogen molecules is placed in a set of beakers, in the lower regions of the convection zone, and subjected to a source of energy commensurate with prevailing conditions in that zone; the same three or four amino acids, which were produced in the Urey/Miller experiment, will form in the solar experiment. The amino acids, and other life-building-blocks, are produced in our laboratories, not only as a result of the genius of experimenters, but also because of the built-in tendencies in the atoms; and the uniqueness of, say, the carbon atom. The atomic structure of the carbon atom, with four space electrons, and its ability to lend or borrow electrons with other atoms are the bases of its unique role in living organisms on Earth. The carbon atom can build diverse and complex molecular structures in strings, rings, branches and other complex configurations. These complex molecules are, in turn, the bases of organic compounds. It is not the ingenuity of the solar experimenters, if these exist, which will lead to the formation of amino acids and other life-building-blocks in the solar beakers, but rather it is the built-in tendencies in the carbon, hydrogen, oxygen, and the other atoms. Or, a propos, the Master Blue Print of the Old One.

The Master Blue Print contains the universal laws of physics and chemistry. The laws of physics and gravity do not apply only on Earth and Earth-like planets.

They are applicable everywhere in the universe. And so are the laws of chemistry.

I, therefore, propose that the laws governing the third main branch of science, biology, are universal and are governed by the general specifications contained in the Master Blue Print. This will be one of the highest forms of generalisation - a taxis kai cosmos. For even if living organisms are found on some of the planets and on some of their satellites, or on Earth-like planets; that would only be a specific, and not general, case.

The proposed development and evolution of life on the Sun could have proceeded in parallel with terrestrial life. The relative abundance of matter, energy and time in the Sun, compared to Earth; would have produced life - and possibly intelligence - much sooner on the Sun.

If liquid water can exist on the fiery globe, if the basic elements for the development of life are abundant in the solar material, and if the growth and evolution of living organisms can occur in the Sun; what can we say about the remainder of the universe, and the possibility of life's description and evolution on other globes?

## 8. COSMIC LIFE LINE

Multiplicity of inhabited worlds in the universe is not a new concept. The modern scientific view holds that terrestrial-like life on Earth-like planets orbiting within temperate zone around Sun-like stars is possible. Such possibility is hitherto restricted to carbon-based life and water-nourished life forms. This restriction is necessitated by the state-of-knowledge today.

Statistical estimates of the number of possible abodes for life in our galaxy, and other galaxies, have been calculated by modern-day scientists. One such estimate is

given by the (Frank) Drake equation (43). The equation takes into account the average rate of star formation in the galaxy, the fraction of good stars, and the fraction of suitable planets which could support life starts. Other parameters include the fraction of life forms that evolve intelligence, the intelligence that enter a communicative stage, and so on. The number of possible "intelligent, technologically advanced and communicative species"(44) in our galaxy, using the Drake and other equations, is very large. These estimates and the recent advances in science and technology have led to the searches for extraterrestrial intelligences (ETIs) in the universe.

The search for extra-terrestrial intelligence has been just that; namely a search for planets, or signals from planets, possessing the right combination of conditions and circumstances which can support terrestrial-life life. The conditions and circumstances necessary for life formation are multiple, including, the size of the planet, its temperatures, pressures, energy supply, abundance of elements, and many other specific requirements. The mere detection of a planet the size of the Earth, in our galaxy, is impossible today.

My proposal "solar and extrasolar life" hypothesis sheds a new light on the possible abodes of life in the universe, and other galaxies. As I will show next, the possible abodes of life may be more diverse and numerous than thought before. These will range from Earth-size and smaller planets and planetoids to Sun-size and larger stars and giant stars. Such possibility maintains the essential features of life as we know them for Earth, i.e. carbon-

based and water-nourished. Indeed until such time that we encounter silicon, iron, or other atomic element (these are not many) based life forms, nourished by a naturally formed free liquid other than water (and these are few); or until such time when the human intellect can conceive of those other life forms on valid and logical scientific grounds, we must retain carbon and water as essential constituents of life. And water must be present in the liquid state.

The relation between pressure, density, and temperature of any substance can be described, thermodynamically, by an "equation of state". Every substance has its unique equation of state which describes one of the above parameters in terms of the other two. Note that density is usually replaced by the specific volume of the substance (volume per unit mass) in the equation of state of the substance, to make the equation independent of mass. The functional relationship in an equation of state is of the form:

$$F(p, \nu, t) = 0$$

The exact functional form of the equation for a real substance is extremely complex (45). The functional relationship of pressure and volume, and volume and temperature have been derived for ideal gases and simple real substances in Boyle's law and the law of Charles and Gay-Lussac, respectively. If the volume of a gas is kept constant, then the pressure increases linearly with increasing temperature. The volume of a gas increases linearly with increasing temperature, if the pressure is kept constant. The two dimensional relationships of the three variables, for an ideal gas, are shown in FIGURE 2.

When the three variables are plotted on a three-dimensional, and orthogonal, set of axes, the equation of state of a substance

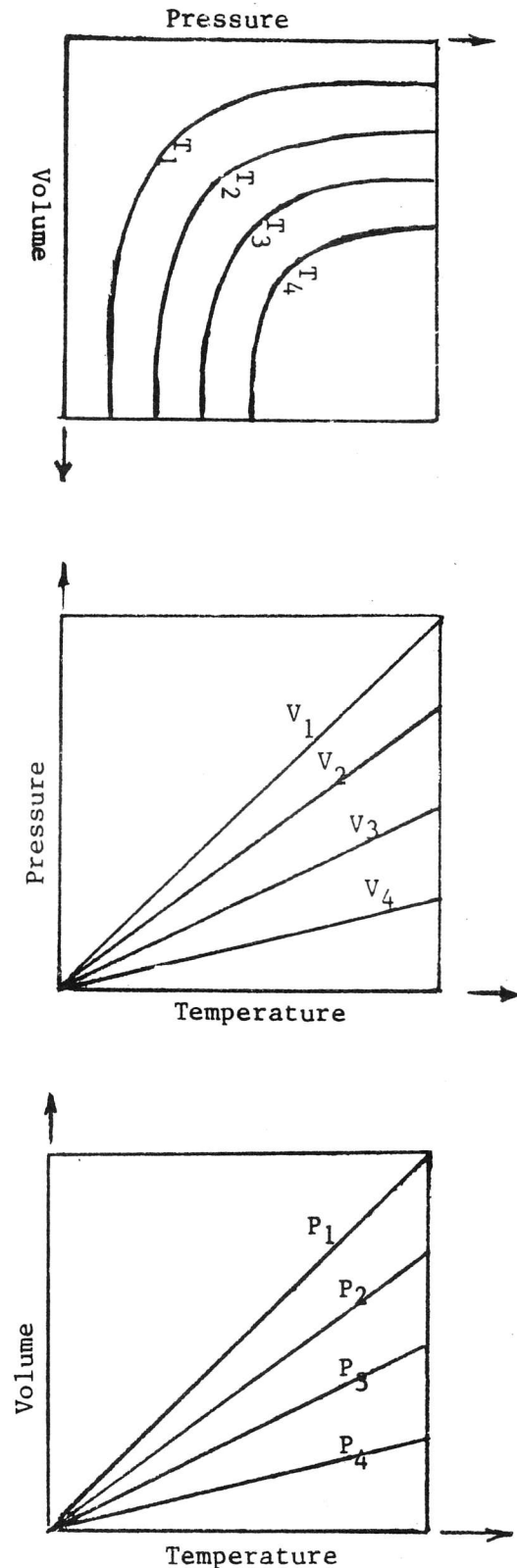


FIGURE 2  
Temperature-Pressure-Volume Relationships.

defines a surface called the p-v-t surface of the substance. A simplified p-v-t surface for an ideal substance is shown in FIGURE 3.

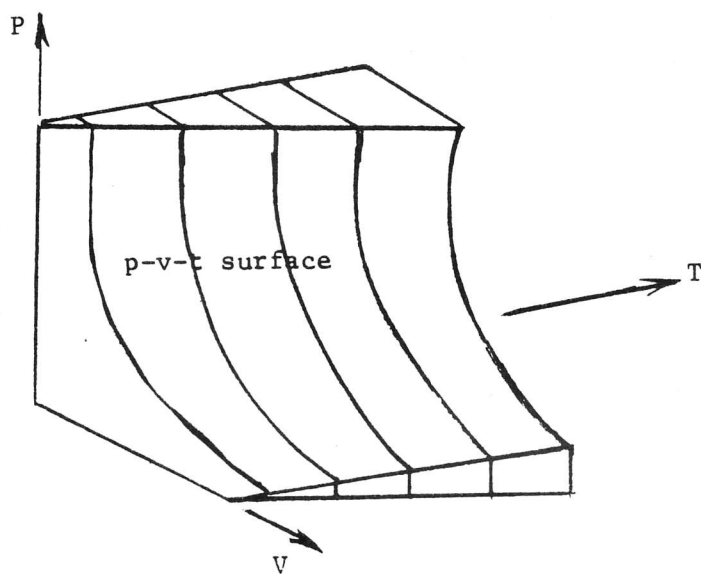


FIGURE 3

p-v-t Surface For An Ideal Gas

Each point on the p-v-t surface represents a thermodynamic state of equilibrium for the substance. "Every possible equilibrium state of an ideal gas is represented by a point on its p-v-t surface and, similarly, every point on the surface represents a possible equilibrium state" (46)

In the case of real substances, the p-v-t surface shows transitions in phase: solid, liquid, and gas. At high temperatures and low temperatures, a substance exists in the liquid state or the solid state. Liquids, including water, are known as incompressible fluids. The change in volume of a liquid under increasing pressure is not as perceptible as the change in volume of a gas. Under continued increase in pressure, water and other substances undergo slight decrease in volume and changes in phase. Water, for example becomes ice at 0° C (273°K) and 1 atmospheric pressure. If the pressure is increased, other

forms of ice occur at higher temperature. Several forms of ice have already been observed at extremely high pressures. Ice VII, for example, occurs at about 100°C, the very boiling temperature of water at sea level.

The p-v-t surface of water is a complex three-dimensional surface. It shows that two phases of water can occur simultaneously under a given set of conditions of pressure, temperature, and specific volume. It also shows that liquid and, even, solid water can exist beyond 100°C. The reader is referred to texts on thermodynamics, or other references, to examine the p-v-t surface of water, and other substances.

We had no reason, thus far, to extend the p-v-t surface of water, and other substances, into the region of solar temperatures, pressures, and densities. If the p-v-t surface of water, for example, is extended into the solar temperature region, it will be found that at a given combination of pressure and density, water can exist on the Sun in that essential state for life's development the liquid state. Though changes will occur in the molecular and atomic structures of water at solar temperatures, the general configuration of the hydrogen and oxygen atoms will be similar though not identical, to the arrangement in terrestrial water.

The main objection to the reasoning presented here is that of the critical point issue. The critical point of water and other substances is treated in introductory thermodynamics, chemistry, and other textbooks. It is said that water cannot exist in the liquid state beyond the critical point (CP) of water. The

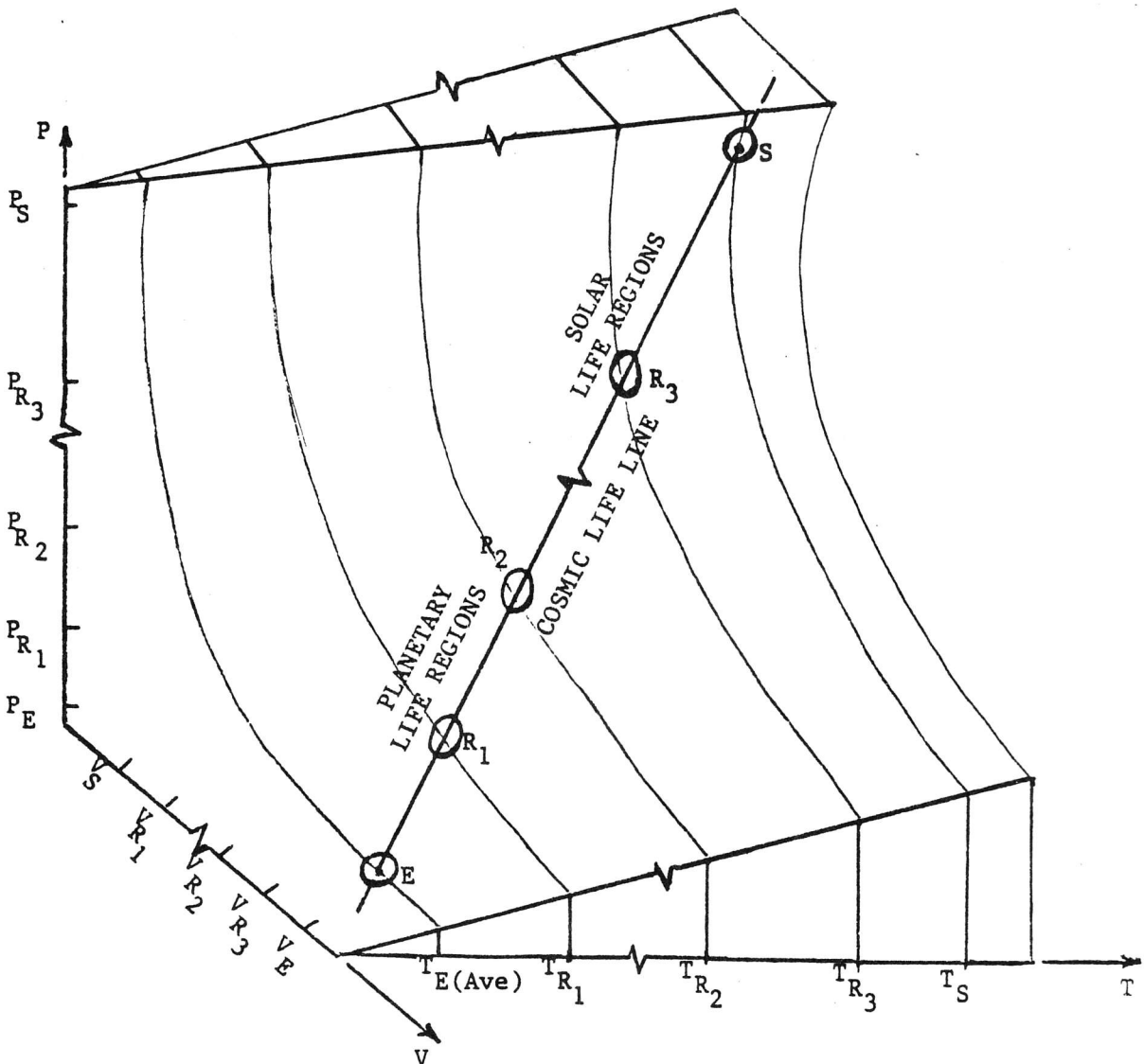


FIGURE 4 Cosmic-Life-Line\* on p-v-t Surface of Water\*\*

\* Actual Cosmic-Life-Line, if exists, is not a straight line.  
 \*\* The p-v-t surface used here does not show transitions in phase, critical points, or other complex characteristics of a typical water p-v-t surface.

CP of water is usually given at about 374°C and 219 atmospheric pressure. I had given this matter careful study and consideration in the early stages of development of the proposed hypothesis. The CP is a useful value in the engineering of steam engines, turbine generators, and, recently, nuclear reactors. First, it must be noted that the CP is an extra-

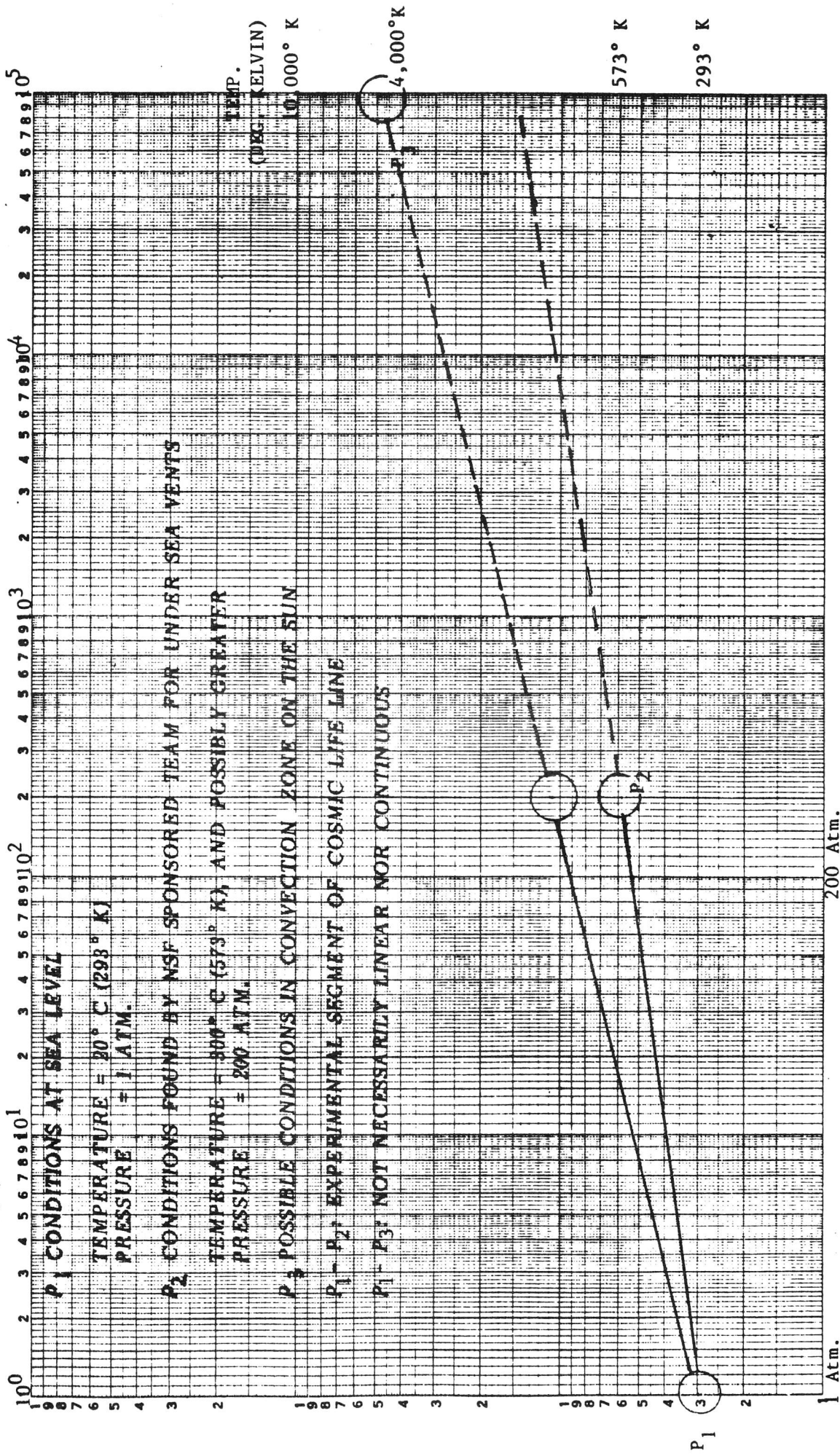
polated, and not a measured value; and, thus, it cannot be used to refute the possible existence of liquid water at solar temperatures. The CP of water is usually measured by first heating the water sample, and then measuring the corresponding pressures. There is a big difference between the process of heating



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PRESSURE = 1 ATM.

P<sub>2</sub> CONDITIONS FOUND BY NSF SPONSORED TEAM FOR UNDER SEA VENTS  
TEMPERATURE = 200° C (573° K) AND POSSIBLY GREATER  
PRESSURE = 200 ATM.

P<sub>3</sub> POSSIBLE CONDITIONS IN CONVECTION ZONE ON THE SUN

P<sub>1</sub> - P<sub>2</sub>: EXPERIMENTAL SEGMENT OF COSMIC LIFE LINE

P<sub>1</sub> - P<sub>3</sub>: NOT NECESSARILY LINEAR NOR CONTINUOUS

Figure 5 - Cosmic Life Line

a water sample and then measuring the pressure; and that of pressurising the water sample first and then measuring the temperature. This is particularly so if the temperatures involved approach the boiling temperature of water. Think about it! There are many other objections that come to mind at first glance. Many of these are either due to limitations in our knowledge or the bias of our common sense. These objections are the subject of other articles.

Let us, then, identify on a simplified p-v-t surface of water, the region E, FIGURE 4, representing the combination of pressure, temperature, and density which led to the formation, development, and evolution of life on Earth. Let the region S, in the Figure, represent the hypothetical combination of solar pressure, temperature, and density which can be conducive to the formation of liquid water, and possibly life, on the Sun in accordance with the known fixed laws of physics, chemistry, and biology as derived for terrestrial life. A line can then be drawn on the p-v-t surface connecting, and extending beyond, regions E and S, as shown in the Figure. Any region around the shown line, such as R<sub>1</sub>, R<sub>2</sub>, or R<sub>3</sub>; represents a combination of pressures, temperatures, and densities in which the behaviour of a substance is similar, but not identical. In each of these regions hydrogen and oxygen atoms combine in accordance with the known laws of chemistry to form liquid water. Sufficient amount of these atoms can result in the formation of water oceans. Sufficient and chance amounts of the other elements, particularly carbon and nitrogen, and the presence of a chance amount of energy can lead to the formation and development of the life building blocks and, eventually, living organisms.

I call the line connecting the regions E and S on the p-v-t

surface of water, a Cosmic Life Line. A heavenly body which falls near the cosmic life line, on the p-v-t surface of water, is a potential candidate for the development and evolution of life in accordance with the laws of biology, chemistry, and physics known to us here on Earth. The heavenly body can be the size of Mercury, Earth, Jupiter, or the Sun. The recent discovery of living organisms in under sea hydrothermal vents, at 300°C, and possibly greater temperatures, supports the Cosmic Life Line concept, (FIGURE 5). It is important to note that the rate of metabolism of the vents' creatures was found to be similar to the rate of metabolism of creatures living at sea level. (47)

There are, to be sure, complexities and difficulties in establishing the proposed Cosmic Life Line. The non-linearities are many, and the exact solutions, analytical or experimental, to the water p-v-t surface, into the solar conditions, are prohibitive today. But, so did the orbits of the planets appear to the days of such great thinkers as Copernicus. Yet, when the Sun was placed in its rightful and correct station, it was not long before the simple and beautiful laws which govern the motion of the planets around the Sun were found. The Copernican system was a concept. The proposed solar life, solar biosphere and the Cosmic Life Line are but concepts which may set direction for future work to better understand ourselves and the universe.

#### 8 ON THE MODERN SCIENTIFIC METHOD

The impressive achievements of science and technology in the post-Renaissance era have been made possible by strict application of the modern scienti-

fic method. The epitome of the method has become "bona fide experiments of bona fide samples." Hypotheses and theories in the sciences and their branches must be testable in a controlled laboratory environment; with the exception of mathematics which manages to do with the rigours of analytical techniques and the formal working of the mind. Genuine knowledge is neither attained by observed facts (perceptions) alone, nor by hypotheses and theories (conceptual) alone. Conceptions must be proven by acceptable methods of experiment and experience of the senses, human and instrumental, must have their equivalent created in the human mind. As eloquently stated by Immanuel Kant, somewhere, "Concepts without percepts are empty, percepts without concepts are blind."

The founders of the modern scientific method were involved in the search for universal truths in the real nature of things and processes. They debated the role of hypotheses and tests, the merits and demerits of the two, and the input data required for the analysis in either direction; conceptions leading to perceptions, or perceptions leading to conceptions. Some doubted the reliability of the senses altogether, and desired to dismiss all sensory observations in the search for the true reality of things and processes; as in the case of Rene Descartes' search for "certainty". Observed phenomena, when properly and logically thought over, can produce high forms of knowledge about the universe and ourselves.

The treasure of human knowledge has been enriched

by both observed facts and derived conceptions. The disappearance of salt crystals in water led Democritus and his contemporaries two millennia ago, to ponder the atomic structure of matter.

The apparent retrograde motions of the outer planets in our solar system led Copernicus to the heliocentric system. The examples of perceptions leading to human conceptions abound in the history of science and technology. Equally impressive achievements occurred in reverse, as in the case of neutron stars and black holes. In these and many other instances, pure mental deductions of hypotheses and theories were made from knowledge already known at the time of their invention. In these cases, experimental verification had to await the invention, or improvements, of observational tools.

What about the proposed solar and extrasolar life hypothesis? The ultimate test would seem to lie in laboratory experiments of bona fide "solar life" samples. The attainment of such samples is impossible, for a long time to come. Is the hypothesis, then, doomed to classification as fanciful and imaginary invention of a mind? Not at all. We do not possess samples from neutron stars, nor can we, theoretically, obtain a sample from a black hole. The existence and the processes which led to the formation of these bodies are accepted scientifically. Teledetection would seem to be our only resort to substantiate the possible existence of life on the Sun.

If solar life exists in simple molecular form, then detection with our state-of-the-art technology is doomed to failure. If the proposed solar life is such that it has developed to "intelligent, technologically advanced and communicative level," then, the possibility of detecting such existence is enhanced, though the difficulties are many. The more advanced is a spec-

ies, the larger is the volume of information transfer among its members and communities. The growth in volume of data transfer requires innovations of new techniques and utilisation of higher electromagnetic spectrum bands for transfer of information. The electromagnetic spectrum is vast and we have only been able to utilise certain "windows", or bands, of the spectrum for our communications needs.

The Sun, if only due to its temperature, radiates energy in many bands of the electromagnetic spectrum. Solar radio emission is another complex subject which has been studied during this century. The thermal background of the Sun (some 6,000°K) is responsible for the basic thermal component of solar radio waves intercepted here on Earth. Another form of radiation is the so-called slowly varying component (48). These two forms of radiation have been correlated to thermal and other solar activities.

There are other curious solar radio emissions known as noise storms, outbursts, and isolated outbursts (49). Some of these signals have durations of seconds, minutes, hours, or days. Some signals are polarised randomly, while others are circularly polarised. Whether any of these radiations contain "intelligent signals" is totally unknown, for in their detection no one was looking for "intelligent content". Tele-detection of "intelligent signals from the Sun must await our conscious efforts toward that goal. I strongly urge the SETI groups around the world to listen and try to decode, demodulate, decipher, and process strange

signals from the direction of the Sun. Some may consider this plea to be imbecilic, but it should not be more so than the ongoing search in the infinite direction and the many frequency bands.

Until the search called for above is initiated, or until the fantastic possibility, if possible, becomes evident; are there any any human or instrumental perceptions which can lend credibility and support to my proposed conception of solar life?

## 10. PERCEPTIONS

One essential element in space travel is the life support system (LSS) which is necessary to contain and maintain the appropriate environment for the spacefarers. The life support system for our astronauts have consisted of either the spacecraft or the spacesuit. In either case, the appropriate combination of temperature of temperature, pressure, and other parameters and provisions, that are essential to the preservation and maintenance of terrestrial life, have been provided for safe journeys. A life support system is essential to any travel that involves hostile environment to life. Can we design and construct a life support system that can carry terrestrial life and instruments into the Sun?

Considering the present state-of-the-art in science and technology, the answer is a definite no. Theoretically, however, it is possible to conceive of a life support system, a container, which is composed of a force field. Such force fields can be electromagnetic or it can be composed of anti-matter shield. These fields can be made to resist the extreme conditions of the Sun, such as, temperature and pressure, and act as insulators of the contained environment from the external harsh conditions. The force field concept is essential as there are no terrestrial materials or alloys which can withstand

the solar conditions.

The same reasoning can be applied to the solar beings, if they were to embark on space exploration. The life support system for solar astronauts would require the containment of tremendous pressures and temperatures. Magnetic forces may also be essential to maintain a low level of entropy that allows these voyagers to continue to exist. The appearance of solar objects, to the human observer, would necessarily entail "self-luminosity and glow" in accordance with earlier proposed description.

Suppose that life has developed and evolved on the Sun in accordance with the cursory outline of my proposed hypothesis, as presented in this article. If such life evolved intelligence and technology, then it is natural to expect that they would have embarked on exploration of their local surroundings. Once such curiosity (or need) is satisfied, exploration of the cosmos would begin. In the Solo sapiens' exploration of the universe, it is only logical that Terra be a station for exploration. Where such a scenario is to have happened then there is a chance that perception and observation of such visitors would have been made by human witnesses. This possibility is found in both historic and modern times.

Historic records of solar and fiery space visitors to Earth are ubiquitous. These include the Sun-god Ra of the Egyptians, the Sun-gods Shamas(h) and Marduk of the Babylonians, the sun-gods Helios and Apollo of the Greeks, the fire-god "Wigwam of the Great Spirit" of the North American Indians, the Sun-goddess Surya and the Sun-god of the burning chariot of the ancient Hindus, the Sun-god Mithras of the old Persians, the Sun-goddess Amaterasu of the Japanese, the Sun-god Ashur of the Assyrians, and of course, many other deities and super beings who were somehow

related to the fiery globe, the Sun. Some of these solar anthropomorphisms flew in chariots of fire, and some appeared to be self-luminous and fiery. The use of the ancient perceptions in a modern scientific context is unacceptable as the accuracy and validity of these accounts have not attained general acceptance of the scientific community. Even if the ancient records did represent descriptions of actual and physical occurrences, the time element alone would have rendered them obsolete

Are there, then, modern observations, human or instrumental, which can be used to lend credence to the proposed solar life? Are there recent perceptions to my conception?

My search to answer these, and similar, questions led to a controversial subject, particularly, among the scientific community. The subject is that of the unidentified flying objects (UFOs) phenomena. I was neither a participant nor an observer to the emotional proceedings surrounding this subject in the last four decades. I had neither witnessed, nor reported, these objects, I had hoped to enter the UFO subject, obtain the necessary information, and exit hurriedly to continue work on the proposed solar life hypothesis. The basic input which I needed was a simple definition of that residue of the UFO phenomena which pertained to some strange objects of "unnatural" nature, and equally strange beings which were reported by human witnesses in recent time. A simple, and agreed-upon definition was not readily available, and independent study was required.

A careful study of the UFO phenomena and records of the past four decades, shows the subject to be both con-

fusing. In view of our knowledge and experience with the laws of physics and space travel, it would seem that the most perplexing aspect of the UFO phenomena lies in its persistence and periodic recurrence. Scientific speculations about the possible origin of ETs have centred around Earth-like civilisations. These require Earth-like planets which, if exist, are separated from us by immense vastness of space. Reconciliation of the possible physical and intelligently controlled reality of the UFO objects and the certainty of the limitations of relativistic mechanics and space travel was not readily attainable. One paradox led to another, "It is a paradox that science, in its intense search for intelligent life in the universe, has chosen to ignore the obvious; unidentified flying objects" (50).

I will only deal very briefly with the subject of UFOs in this article.

The reliability of the witnesses of the UFO phenomena and their accounts were carefully investigated and studied by UFO researchers, scientific and non-scientific individuals and groups. Analysis of the credibility of the witnesses took more prominence, in some cases, than the accounts themselves. The occupational lists of witnesses are indeed impressive. Here, one finds captains and crews of spacecrafts, airplanes, and ships; control tower personnel, astronomers and university professors, policemen and law officers, military personnel, state governors, and the list goes on. Young and old, male and female, they have all observed strange objects and have not comprehended the objects' nature.

Both the opponents and proponents of the existence of intelligently controlled phenomenon within the reported UFOs agree that many reports, if not most

reports, can be attributed to misidentifications of natural objects and events, or earthly artifacts. Misperceptions of natural objects include the Moon, planets, particularly, Venus; comets, meteors and even the Sun. Other objects and effects include St. Elmo's fire, Will-o'-the-Wisps, Vertigo and autokinetics effects, muscae volitantes floating in the fluids of the witnesses' eyes, plasma balls, birds, clouds and stars. Airplanes, rockets and satellites, particularly, upon re-entry into the atmosphere; ballons, searchlights, flares, power lines' corona discharges, blimps and headlights of cars, trucks and trains are among the earthly objects that have been mistaken for unidentified flying objects. In addition to the misidentification of natural and human technological products, there are also the psychological stimuli, which at their zenith are portrayed by mass hysteria. Hoaxes, and the UFO buffs add other dimensions to the confused record of sightings. Nonetheless, when most of the suspicious sightings are deleted, there remains a residue in the UFO records which bespeak some mysterious occurrences, as noted by Dr. J. Allen Hynek, "Those of us who have spent time on the UFO problem are convinced that the probability is very high that there is "radium in the pitchblende" in the quantities of reports" (51).

The residue of UFO reports contains descriptions of "real" and "tangible" objects and beings whose "unnatural" nature was not comprehended by the witnesses. Of these cases, Dr. Hynek says, "The experience had the "reality" of a tangible physical event, on a par with, for example, the perception of an automobile accident or an

elephant performing in a circus, except for one thing; whereas reporters have an adequate vocabulary to describe automobiles and elephants, they are at an embarrassing loss for words to describe their UFO experience" (52).

Careful review and evaluation of the highly empirical data speaks strongly in favour of the phenomenal existence of the UFOs. The main source of empirical data has, thus far, been the human witnesses perceptions.

The human senses can be deceptive transducers some of the time. We have all been victimised by false sense perception (or is it by the conclusions derived by our reason from the sensory readings) one time or another. Many of us sat in our stopped cars perplexed at the apparent motion of our vehicles, while the brake pedal was fully pressed down; only to find that it was the vehicle next to us that was moving and, at that, in the wrong direction to our perceived motion. But this deception does not occur at every intersection, nor does it happen each time we stop next to a moving vehicle.

Our senses can be deceptive, and we must be careful (and not abstinent) when we use their input to derive higher forms of knowledge. Here, we must not forget the relationship of sensation and perception, where the former gives rise to the latter. Witnesses have reported: seeing objects and beings, hearing sounds, smelling odours, and feeling warmth and heat in the vicinity of the UFO objects. They also reported that engines, radios, and headlights of vehicles to malfunction near the strange objects. The reported input is not obtained from one sense of one witness in one case only. Thousands of reports are on record in the US and thousands more world-wide.

What are the most "common characteristics" of the reported

objects and beings? What is the "unnatural" nature of the objects and beings which were reported by the witnesses of the UFO phenomenon in the last four decades?

The most common description of the objects, and sometimes, the beings, is that these are self-luminous, glowing, brilliant, flaming, boiling-out, balls of fire, shining, and similar descriptions; specifically speaking of fire-like and radiating objects. The most obvious effects reported include: burning, scorching, blighting, heat waves, electromagnetic effects, and similar. "Solar beings and objects" would, due to their nature, glow and be self-luminous; in accordance with my proposed hypothesis. The space-farer solar beings, only some eight-light-minutes away from Earth, can visit and revisit our planet within a generation time and within the limitations of relativistic mechanics. Possibly, a paradox resolved.

The other technological characteristics and features of the reported objects, such as, speed, electromagnetic effects, apparent anti-gravity and inertial behaviour, and others; can be made sensible in view of the proposed hypothesis. These matters are the subject of other articles. For now, it suffices to say that the observations made by some of the UFO witnesses appear to represent the perception to my conception.

TO BE CONCLUDED IN THE NEXT ISSUE

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(Continued on page 187)

## APPOINTMENTS

In my article in the BUFORA BULLETIN (No.14 August 1984 pp24-27) discussing the future of research, I defined four research sections that would study different groups of theories for the origin of UFO phenomena. I have found leaders for two of these groups but group leaders are still required for the following:

- (1) UFOs Are The Result Of Advanced Technology. This group will consider the possibility that UFOs represent either terrestrial or extraterrestrial constructions.
- (2) UFOs Are Psychological Or Physiological Phenomena. This will consider if UFOs are a result of psychological or physiological processes. These groups will conduct research into the following areas:
  - (a) Using case reports and other available material, to produce supporting evidence for the group of theories
  - (b) To define the characteristics of phenomena consistent with the group of theories
  - (c) Define any hazards associated with this group of phenomena.
  - (d) Review incoming reports and evaluate them in relation to the group of theories. Also to suggest any further work required on an individual case.

The leaders of these sections will become members of the research committee. Currently this meets twice a year, although this may increase in the future. The duties of the group leaders will include:

- (1) In consultation with the Director of Research to produce a programme or research and prepare budgets to support this programme.
- (2) Work with other members of the section on the research programme
- (3) Submit progress reports on the activities of the section to the Director of Research and the research committee.
- (4) Together with other members of the section to suggest (1) future research projects and (2) improvements to our methods of investigation.

If you are willing and able to undertake this active role in research, please write to me, Stephen Gamble at the address given on the inside of the contents page with a brief outline of your experience and qualifications and stating which section you wish to join.



## POHER'S FALSE CORRELATIONS

STEUART CAMPBELL

A PROFESSIONAL SCIENTIST PUBLISHED A STUDY WHICH APPEARED TO SHOW THAT UFOS NOT ONLY EXIST BUT WERE DETECTED AT A FRENCH GOVERNMENT RESEARCH STATION. BUT HE USED INADEQUATE DATA AND MANIPULATED IT TO SHOW CORRELATIONS THAT DO NOT EXIST

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### INTRODUCTION

In July 1974 FSR published an article in which Dr. Claude Poher of the French Centre National d'Etudes Spatiales claimed that he had found a time correlation between geomagnetic disturbances and eye witness accounts of UFOs(1) It claimed to be, "a summary of a recent study", but there was no other reference to this study, nor am I aware that it has been published. The article appears to have generated no correspondence, at least FSR published none. Recently Hynek has quoted Poher's results as if he accepted them (2), although his colleague Hendry had previously drawn attention to some of the serious defects(3). A year later Poher repeated his conclusions, when he referred to his former article as "the complete study" (4). He has also published his study in French(5). The correlation was claimed to be between UFO reports and fluctuations of the geomagnetic field as measured at a geophysical research station at Chambon-la-Forêt, about 30km north-east of Orleans. Poher claimed that the station had been recording the three components of the earth's magnetic field since 1886.

### THE UFO REPORTS

Because the research station is located in a forest about 50km across, there were no UFO reports from within a radius of

30km. However, with the help of a "private specialized organization" Poher located "several" UFO reports from places less than 100km from the station. He did not name the source of the reports nor tell us how many reports were received. Consequently we have no idea of the quality of these data.

In a search for a specific correlation in 1954, Poher relied on 635 French UFO reports from Saunders' UFOCAT. These reports, which came from all over France, originated from various sources, not all of them reliable. In fact Hendry has shown that, while UFOCAT is an excellent bibliography of raw UFO reports, because the reports are mostly uninvestigated it cannot generally be used as a statistical tool. (6) We do not know which reports were used for the 1954 study, nor do we know their quality. Reports from near the station were not given greater significance than reports from far away.

### THE RECORDINGS

I am informed that the Chambon research station started at Parc St-Maur near Paris in 1883, moved to Val Joyeux in 1901, and only moved to Chambon-la-Forêt in 1936. Thus, while it probably does have records dating from 1886, these records do not relate

to the area around Chambon before 1936.

The station records the three components of the geomagnetic field - the vertical component (Z), the horizontal component (H), and the magnetic declination (D), i.e. the angle of the horizontal component with the local meridian. These components were recorded with an accuracy of about 1 nT (1 nanotesla = 1 gamma), about 1/45000 of the earth's magnetic field in France at the time (about 45uT), and at a frequency of only a few hertz (i.e. it could detect variations that occurred several times a second, but not variations that occurred hundreds or thousands of times a second). Poher was searching for "abnormal fluctuations" in the field, but he did not quantify this nor tell us what the normal fluctuation was. His Figure 1 (not reproduced here) shows that there was a normal fluctuation in all three components, but without a vertical scale we cannot tell the extent of these fluctuations. Poher also counted the number of disturbances of the field, but he did not explain how he determined what was and what was not "a disturbance". His Figure 1 shows continual variation of the field.

#### THE "CORRELATIONS"

Poher admitted that there were no "direct" correlations between recorded fluctuations of the field and the reports which came from within 100km of the station. Undaunted, he proceeded to examine the 1954 data for correlations, resulting in his Figure 3 (reproduced here) The number of UFO reports per week is compared with the number of disturbances of the magnetic declination per month! (It was not explained how there could be a disturbance of D). Due to the absence of a scale on Axis A, we cannot tell how many reports are involved.

Poher claimed that the figure shows "a good correlation" for the month of October (which is possible, but I would have liked to see the same time period used for both variables), but he did not also observe that the figures show no correlation at another peak in the number of disturbances in February and March. The UFO data could be interpreted as an indication that the report rate was fairly steady throughout the year except for an autumn peak generated by a few sensational cases which led to publicity for a great many otherwise obscure reports. In fact it can be seen that the 1954 French UFO "wave" occurred in October of that year.

Poher then concentrated on the month of October, 1954, comparing the number of UFO reports per day with variation of the magnetic field, resulting in his Figure 4 reproduced here). However, despite the enigmatic phrase "distribution", it seems that the magnetic data variable is in the form not of number of disturbances per day, but of the strength of the fluctuation (per day?). It shows a fluctuation, on average, of about 2.4nT/day, to which must be added an error of  $\pm 1$  nT. Thus the possible error amounts to 42 per cent of the average reading, making meaningful interpretation impossible! Unaccountably the magnetic variation is now that of the vertical component!

Poher claimed that the graphs show a "fairly good correlation of reciprocal variation" during the first half of the month. But the graphs show both direct correlation (October 4) and inverse correlation (October 21); there is no overall correlation. What is clear is

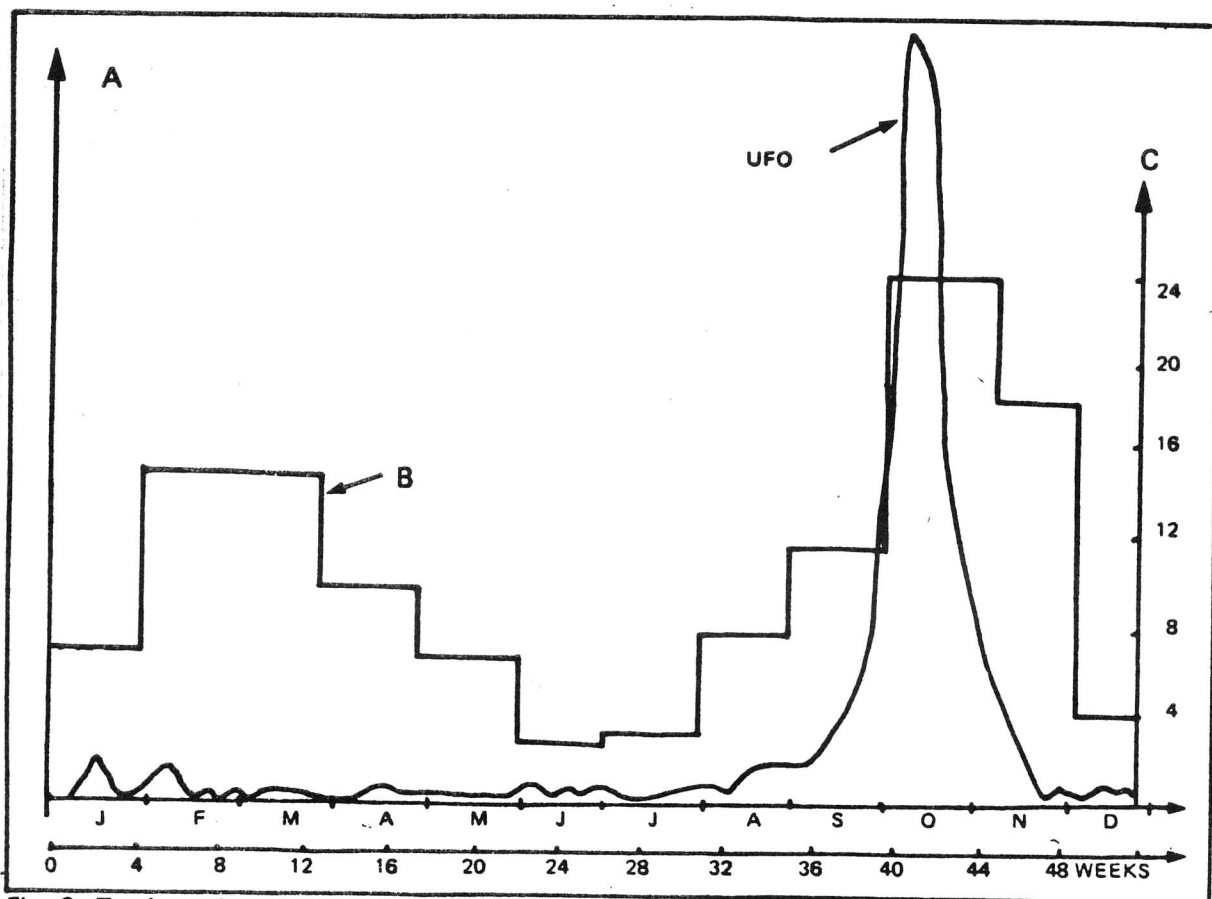


Fig. 3. To show the correlation between UFO observations in the earth's magnetic field during the year 1954 (635 French cases - Saunder's statistics). Key: A axis = Number of observations per week; B = Disturbances of the declination of the earth's magnetic field; C = number of disturbances of the magnetic declination per month

that while the number of UFO reports per day steadily declined during the month, the intensity of the field fluctuations remained fairly constant. By concentrating on the period up to October 18, Poher found a correlation coefficient of UFO observations with declination disturbances of 0.034 (this is an almost non-existent correlation which contradicts his claim that there was accorrelation with this variable), and with disturbances of the vertical component of 0.58. The latter is not insignificant, but it would not have been so high if data for the whole of October had been used; by selecting pieces of data one can obtain almost perfect correlations!

Interpreting his Figure 4, Poher claimed that with 40 vis-

ual observations (October 4?), the peak to peak disturbance of the field attained about 30nT. But Figure 4 shows that the variation in the field on that days was only about 5.2nT!

From this conclusion Poher somehow constructed a log/log graph of the size of the field disturbance (but without any units shown on axis K) versus the distance of a UFO from the station at Chambon, despite the fact that he had previously told us that the UFO reports from around the station did not correlate with any disturbance of the field. Among the 635 cases he appears to have found some that were "in neighbourhood of Chambon-la-Forêt", most within the 100km radius that had previously yielded no correlation! More-

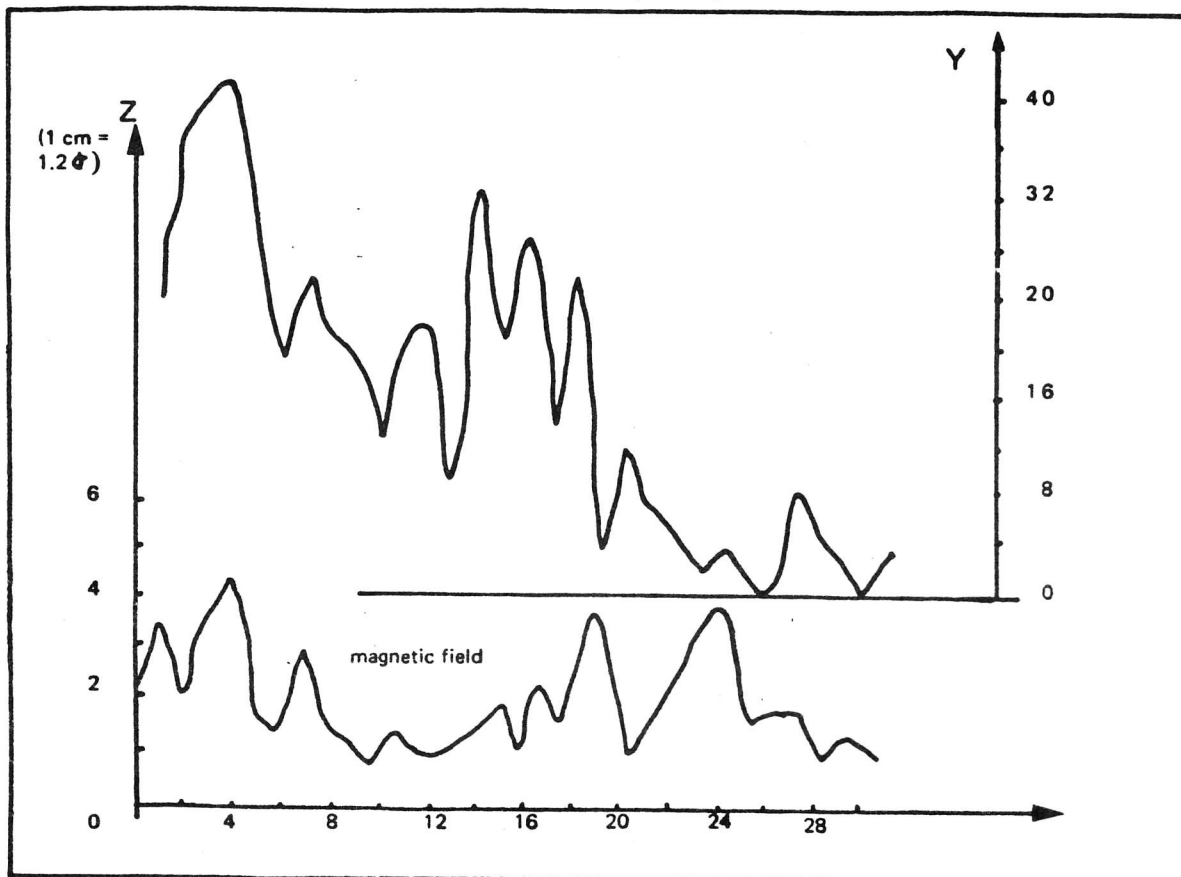


Fig. 4. Graphs to compare distribution of UFO observations with that of disturbances in the vertical component of the earth's magnetic field, Chambon-la-Foret, October, 1954.

Key: Z = Fluctuations in vertical component, peak to peak, in cms (1 cm = 1.2G)  
 Y = Number of UFOs per day

over, the trend line which Poher drew on Figure 5 does not appear to be justified by the scatter of data, and surely the fact that it is exactly parallel to the line of calculated upper limit of influence is contrived! In fact the scatter of points does not justify the construction of any graph.

From this trend line Poher concluded that a UFO at 10km should produce a disturbance greater than 400 nT, but he noted that in 20 years no such disturbance had been recorded at Chambon. From Figure 5 Poher further concluded that the magnetic field in the immediate neighbourhood of a UFO should be 150 kAt/m (0.18 T, equivalent to the magnetic field of a typical bar magnet!) But his own graph shows that the field disturbance caused by a nearby

UFO should be about 30uT, about the same strength as that of the earth's field! Whatever UFOs are it seems likely that the strength of their magnetic field at source is in the region of 10 to 100T. One model for ball lightning gives a magnetic field strength of 70 T<sup>7</sup>, but the magnetic effect from a small source will fall off with the cube of the distance and will not be detected beyond a few hundred metres.

#### CONCLUSIONS

Although Poher's article appeared to be technically competent, demonstrating a scientifically valid result, close examination shows that there is no justification for its conclusions. The UFO

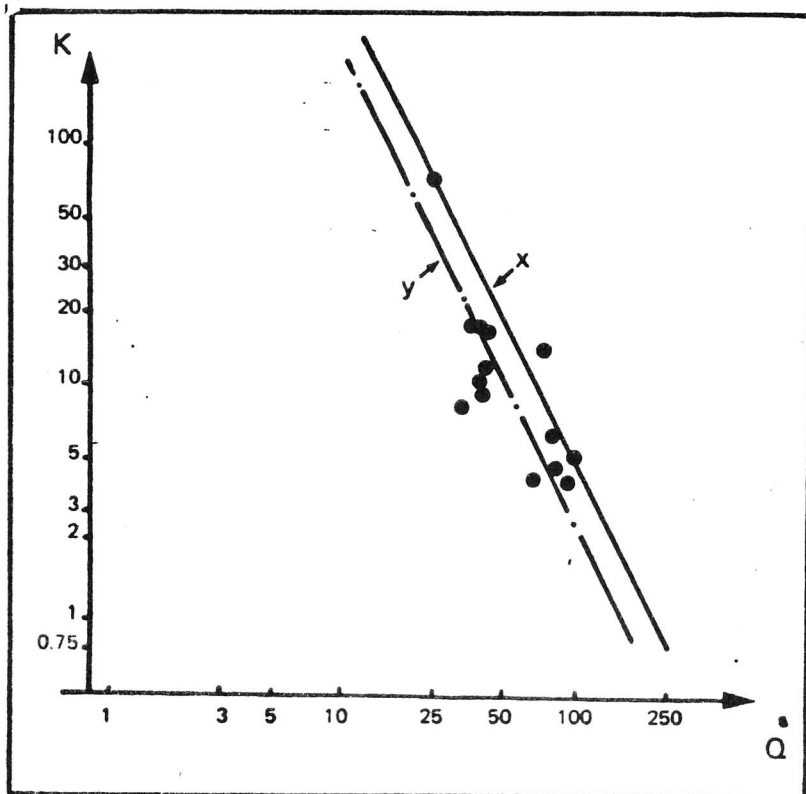


Fig. 5

Graph to show upper limit of disturbances caused by a UFO (from statistical study of October, 1954).

Key:

- K = Peak to Peak disturbances of the vertical component of the earth's magnetic field.
- Q = Distance in Km. of UFO from Chambon-la-Forêt.
- X = Calculated upper limit of disturbances caused by a UFO.
- Y = Observed upper limit of disturbances caused by a UFO.
- UFO observation in neighbourhood of Chambon-la-Forêt.

data are unreliable and of unknown relevance, and they were used indiscriminately. Uncritical use was made of the magnetic field data, with alteration between interest in the magnitude and the number of fluctuations, and between the various components. There was lack of discrimination between normal and abnormal variations, and inadequate definition of terms. There was also careless presentation of the results, which often contra-

dicted one another. Correlations were forced from the data, which was distorted where necessary, Poher offered no solid evidence that the variation in the strength of the magnetic field at Chambon was at all related to any UFO events, and it must be concluded that there is no correlation. It appears that Poher's "correlations" were contrived to accord with a preconceived hypothesis.

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# TOWARDS A PSI/UFO INTERFACE

MANFRED CASSIRER

Part 3

THE PRESENT THESIS PRESENTS AN ATTEMPT TO INTEGRATE TWO SETS OF DATA: THOSE OF PARAPSYCHOLOGY (PSYCHICAL RESEARCH) AND OF UFOLOGY, ON A MORE PRECISE AND COMPREHENSIVE SCALE THAN HAS HITHERTO BEEN ESSAYED. THE AUTHOR IS A FORMER CHAIRMAN OF THE PSYCHICAL PHENOMENA COMMITTEE OF THE SOCIETY FOR PSYCHICAL RESEARCH, AS WELL AS A MEMBER OF THE (PROFESSIONAL) PARAPSYCHOLOGICAL ASSOCIATION. HE HAS UNDERTAKEN THIS TASK WITH THE HELP OF A GRANT FROM THE RESEARCH ENDOWMENT FUND OF THE SPR., WHICH HAS RECENTLY (1979) ADMITTED UFOLOGICAL STUDIES AS FALLING WITHIN THE PERVIEW OF ITS OBJECTS AND STUDIES. AFTER A BRIEF DISCUSSION OF THE MAIN THEORIES WHICH HAVE BEEN ADVANCED IN VARIOUS QUARTERS, SOME TWO DOZEN OR MORE SPECIFIC ASPECTS HAVE BEEN INTER-RELATED WITH A VIEW TO THROWING A LIGHT ON THE UFO ENIGMA, IT IS NOT PROPOSED, HOWEVER, TO OFFER A "SOLUTION" OF ITS WHOLE SPECTRUM BY THE WHOLESALE APPLICATION OF INTER-FACIAL COMPARISON. RATHER WE SHOULD AIM AT ENCOURAGING A PROCESS OF VIGOROUS CROSS-FERTILISATION AND EXCHANGE OF IDEAS BETWEEN TWO DISPARATE AND LARGELY INDIFFERENT GROUPS. POINTS OF CONTACT ARE ALMOST INEXHAUSTIBLE. THESE ARE NOW ONLY SCRAPED AT THE SURFACE OF WHAT MAY BE REGARDED AS VIRGIN SOIL IN THE PRESENT PIONEER WORK. NOT ONLY IS THERE AN OVERLAP IN METHODOLOGY AND TAXONOMY, BUT THE VERY PHENOMENA (ANOMALIES IN THE WIDEST SENSE OF THE WORD) BEAR STRIKING RESEMBLANCES - WITH OCCASIONAL EQUALLY STRIKING DIFFERENCES!

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## 17. ASCs

Altered States of Consciousness (ASCs), which involve the sensation of a clear qualitative shift in one's pattern of mental functioning (TART 1972.1) have received much attention from parapsychologists of late. They are of at least equal relevance to the study of UFOs, especially in their more bizarre parameters. ASCs embrace a variety of subjects ranging from trances, "trance-like states" concomitant with Close Encounters (ZURCHER 1979.265) to "recall" under hypnosis (ch.13), Possession, OBEs, and mystic and religious experiences (HARDY 1981). Automatism, particularly in the form of automatic writing, occur peripherally as a purported means of communications with "extra-

terrestrials". Bordering on the verge of the lunatic fringe, the so-called Raudive Voices have been pressed into service by contactees (BUCKLE 1967; ELLIS 1978.26f). Under our general heading healing is also included (ROGO 1980.145), though encounters with "flying saucers" more often result in deleterious radiation-like effects. Hypnosis-induced experiences share features with subjective impressions familiar to psychical research such as floating sensations (OBEs) and moving through a tunnel in near-death cases (MOODY 1975; OSIS 1977). The latter is said to be "one of the most common in both hallucination and imaginary/"real" abduction narratives"

(LAWSON 1980A.16).

#### 18. THE ETHOLOGY OF THE UNKNOWN

Traditionally, animals react strongly, if not violently, to the paranormal. This is borne out by analytical study of their ethology vis-a-vis of apparitions and auditory phenomena: pets and others over-react in a surprising fashion with frequent instances of expressed or implied terror. "Flying Saucers" observed at close quarters are a cause of trepidation to animals; this of course can also apply where the object is really an IFO, i.e. an unusual but normal contrivance. Intermittent fields are very high frequency sounds have been adduced by way of explanation (PUGH 1979. 173; CAMPBELL 1973.87). This theory is at least as good as the "psychological" variant, as animals are not known to read science fiction, and humming and buzzing sounds have been reported with low-flying or landing UFOs (ch.16). Care is called for in deductions from animal behaviour as there are innumerable mistaken IFO sightings. A grazing cow in a field could easily be upset by a large ballon, but there is ample evidence from bona fide cases (Mc-CAMPBELL 1973.52ff). In an admittedly extreme case culled from the Journal of Paraphysics survey of apparitions (HERBERT 1971.83), a frightened dog jumped to his death through a window. A herd of cattle in Madagascar, accustomed to aircraft flying at low altitudes into Tanarive Airport stampeded at the sight of a UFO to the extent of breaking down their fences; they had to be rounded up by the army and police (BOURRET 1974.27).

#### 19. THE CULT OF THE FLYING SAUCER

Among the multitudinous cults and religions of the world - some like Scientology and the "Moonies", of fairly recent ori-

gin - two only base their beliefs on objective and observable data - a sociological phenomeon of some interest - and may therefore justifiably claim at least vestigial allegiance to the scientific approach, in spite of their often declared historic disillusionment with Science as such (NELSON 1969). Spiritualism as an organised belief-system led the way to Psychical Research after losing its curiosity about the phenomena per se from the point of view of proper investigation as opposed to their exploitation for purposes of propaganda. Some prominent founders and early members of the Society for Psychical Research were themselves Spiritualists and their role in the foundation of the Society has perhaps been underestimated (NICOL 1972; GAULD 1968). But not all stayed the course.

Ufology quickly developed into a "Cult of Unreason" (EVANS 1974), though serious students retained their original interest in field-investigation and analytical study and stayed clear of involvement with the more bizarre parameters, even to the exclusion of some important aspects of the problem in hand.

Psychical Research (Parapsychology), Ufology, and Spiritualism all started at a particular point in time; the first with the foundation of the SPR in 1882, the second with the Arnold sighting, and the third earliest with the Fox sisters. All, however, have long antecedents, and good work has been done previous to 1882 by psychic investigators (SIDGWICK 1882.3). The majority of the educated public, the media, and general public opinion (which so much depends on the latter), are only very superficially informed on matters connected with these movements; they are, moreover

frequently confused with occultism and other esoteric forms of "knowledge." It has been said that in the case of Parapsychology its general neglect by scientists is due to an absurdly "obsequious .... defensive orientation (LESHAN 1979.7). Critics typically blur lines of demarcation that often precariously divide scholar and cultist, because of their inability to "make distinction within the group towards which they are prejudiced."

Robert Low, Dr. Condon's inept Project Co-ordinator at Colorado, disparaged "belief" in UFOs by linking it with other "discreditable" studies such as those of J.B. Rhine (SAUNDERS 1968), while Condon himself waxed eloquent in his ignorant condemnation of the alleged "crimes" of Parapsychology (WALLIS 1979.279).

But to dismiss valid data through prejudice is to perpetuate the old proverbial blunder of throwing out the Baby Hypnosis under any name with the murky waters of Mesmer's baquet (INGLIS 1977.140f), or of discarding observations in the seance-room on the grounds that they do not prove survival - as if a miracle such as materialisation needed justification by reinforcing our belief-structures.

## 20. "REMEMBER - MORALS ARE INVOLVED!"

"Along with problems still unsolved,  
Remember! Morals are involved."

Neil Innes.

Berthold Schwarz, in a timely article (1979), discusses the "ethical basis" of Ufology with special reference to hypnotic regression (op.ch.s 3 & 13). This aspect of the subject, Dr. Schwarz says, has been rather neglected. The investigator has a threefold responsibility:(1)

to the witness (the percipient), (2) to himself, and (3) to his colleagues (i.e. to Science). The witness has to be protected against "unnecessary criticism" and "ridicule". This usually means anonymity, either total or limited - but anonymity amounts to suppression of evidence: a parapsychologist investigates a haunted house. The case is prima facie, a watertight one, and such cases are rare. Here, however, it is impossible to check old accounts as the precise location of the building is concealed, and the subsequent history will remain unknown. By the time the investigator hears about the haunting, the principals have probably moved or been rehoused by a humane council. Was it the house that was "haunted", or its inhabitants? We shall never know, as a follow-up has been prevented to protect the tenant who has taken over. (Ideally, one would like to have a follow-up through several tenancies; this is hardly ever possible.) But the danger to those bold enough to reveal their experiences may be real. Playfair (PLAYFAIR 1980) gives an instance of such people being persecuted by their neighbours. Even witnesses to innocuous sightings of lights in the sky are sometimes severely harrassed - at least in the USA: witnesses are typically afraid of being thought "crazy" (only 13% report UFOs, as against 41% with victims of crime), and are likely to receive malicious telephone calls as a consequence (HENDRY 1979.106f). In other cases, extreme hardship may result. The Falkville police chief who photographed a "humanoid" (WEBB 1976.14) lost his car, his wife, his home and his job (BLUM 1978.98); the misfortunes of Joller (GAULD 1979.6) are too numerous to enumerate. Diener and Crandall's Ethics in Social



and Behavioral Research (Chicago 1978) has been reviewed with special reference to Parapsychology (WILLIAMS 1980.459f). The authors rightly insist on proper safeguards to prevent harm to subjects of research. Though primarily an ethical consideration, disregard of it is likely to backfire. The issue of privacy, which we have already dealt with, is discussed with reference to personality testing: in the twin subjects under discussion in the present study, one comes constantly up against such problems as, "Is the percipient sane?", "Is he telling the truth?" "Is he competent to report objectively?" Dissemination of information in particular presents serious ethical problems. Have we a right to impose our values? (Cultists and religious ideas, e.g. a spiritualistic interpretation of apparitions or the implicit assumption that UFOs must be from outer space can prove tiresome and time-consuming to the hard-pressed investigator. The co-authors stress the scientist's responsibility for the application of research; it should not be misused; on the other hand, potentially valuable information must not be neglected. This last point has important bearings on this interface: parapsychologists ignore or are ignorant of psi-data collected and published within the context of Ufology. A blatant and instructive example is the so-called "Welsh Triangle" (PUGH 1979. 91ff) with its apparently well-attested teleportation of a whole herd of cattle. Although this is akin to a well-known facet of Poltergeist syndrome ("Stallspuk"), this important incident does not feature in psychical research.

It may be thought that reflexion on people's possible reticence regarding their private thoughts and behaviour can be exaggerated. Field-investigation depends on reports and willingness to discuss data and to have them independently evaluated and quest-

ioned. The oversensitive are free to conceal data and cannot be forced to divulge them. The most pronounced conflict between Science (acquisition of knowledge) and protection of the individual from possible harm (Mostly psychological) arises in the case of Poltergeist infestation of the home, because of the sensitive and vulnerable nature of the highly personalised environment.

Finally, the Parapsychological Association has recently (Summer 1981) circulated to its members a study entitled "Ethical and Professional Standards for Parapsychologists." At the Second London International UFO Congress organised by BUFORA (May, 1981) a discussion group led by Jenny Randles attempted to formulate a "Code of Ethics for UFO Investigators." Such (independent) "duplications" (cp.ch.2) is, of course, typical of the two subjects - each studied in isolation by a different group.

## 21. THE SCIENCE OF THE NEGATIVELY DEFINED?

Our twin subjects deal with anomalies which, by definition, are imperfectly understood even by "acknowledged experts" in the respective fields. Psychical Research tends to be confused with the Supernatural, which strictly speaking appertains to Theology, and with the Occult (and as such classified by booksellers and librarians), things deliberately hidden (occultata) and therefore not accessible to Science. A recent history of Psychical Research is called Natural and Supernatural, and subtitled A History of the Paranormal (INGLIS 1977). Its author is a well-known authority on the subject and an ex-Council Member of the SPR. Parapsychology and Ufology are largely negatively defined; the latter, in par-

particular, is by definition the study of the Unidentified. This, not surprisingly, has sometimes led to considerable confusion. Edward Condon, asked to prepare a report on UFOs by the University of Colorado, delved into reports by unbalanced people, who failed to identify certain phenomena. With ill-concealed glee, Condon concentrated on the more bizarre cult-aspect. At the same time, he failed to pay proper attention to reports by bona fide witnesses (JACOBS 1975). It has been argued, particularly by the American Air Force, that as UFOs do not seem to present a defence problem, it is safe to ignore them altogether. By contrast, the attitude taken by the once influential Investigation Committee on Aerial Phenomena (NICAP) is equally revealing. This organisation took a leading part in the task of familiarising the world with the "Flying Saucer" problem in the post-War era. In 1964 it published The UFO Evidence which has remained a valuable source of information. Major Donald Keyhoe, a prolific populariser of the subject, was firmly wedded to the ET hypothesis (KEYHOE 1953, 1957, 1975). Humanoids were regarded with suspicion, nay, beyond the pale, to say nothing of abduction cases. In a statement by NICAP Board of Governors" said, in.al., that "it is a reasonable Hypothesis that the unexplained UFOs are "real, physical objects, rather than the results of imagination, illusion or delusion." At the same time it is further assumed that they are "under the control (piloted or remote) of living beings (my italics)" (NICAP 1964.11). These are confident assumptions stated rather dogmatically. Their authors meanwhile overlooked the fact that they had already defined UFOs as "residual cases", i.e. to the exclusion of "conventional objects and events": therefore, by their own definition, they cannot be the results of the factors enumerated above.

To put it into different words, a UFO is a UFO, and an IFO is an IFO and never the twain shall meet! If an object is a true UFO, i.e. i.e. incapable of identification in conventional terms, it is not, and cannot be, ascribed either to purely psychological causes. The UFO's description as either "physical object" (or even necessarily an object), or as manned or controlled by "living beings" is a non sequiter. Many "UFOs" are, of course, only unidentified by default, are questionably considered "objects", and only described as "flying" on the analogy of aircraft and space-ships. Lately, dissatisfaction with the term "UFO" has led to the publication of a new and hopefully scientific Journal of Transient Aerial Phenomena (1980). This alternative nomenclature is also not entirely satisfactory (CASSIRER 1980.73). JTAP covers IFOs as well as UFOs; planets and stars, a potential source of IFOs, are not "transient" while humanoids cannot be put down as "aerial." To confuse matters still further, the latter are often only tenuously related to UFO sightings; in some cases humanoids have been reported quite independently of these (DAVIS 1978).

It is true, however, that there exists a definite statistical correlation between UFO landings and sightings of Ufo-nauts (ZURCHER 1979.59).

## 22. THE DIMENSION GAME

A book by a Berkeley physicist which, according to its subtitle, reconciles "Physics, Parapsychology, and UFOs" has recently seen the light of day (BRUNSTEIN 1979). We ourselves shall be content to be less ambitious for the moment, and at the same time less confident of rumours of "visitors from outer space," which appear on the back cover. However, the idea of a fifth dimension, esp-

used by that author is eradically associated with both subjects under discussion in this treatise,, and Zoellner's Transcental Physics immediately comes to mind. Johann Zoellner, Professor of Physics at Leipsic University, experimented with the famous Victorian medium "Dr" Slade. It is true that Slade was under a cloud, but the German professor was convinced of his supposed demonstration of the passing of matter through matter involving the existence of the fourth dimension. Others were less sure, notably the veteran Californian researcher of the paranormal, Hereward Carrington, who wrote a standard work on Physical Phenomena (CARRINGTON 1907.19ff); but Benson Herbert, who has published a condensed reprint (HERBERT 1975) accepts Zoellner's observations as basically sound. The concept of "higher space" has also come under discussion in connexion with the problems posed by "action at a distance" (teleportation; apports) with Poltergeists (OWEN 1964.413): objects might travel via routes "'outside' ordinary physical space." True, this "higher space" postulate fails to solve many questions, and the concept itself is unfalsifiable. This does not prevent it from being popular with some sections of the ufological fraternity, as UFOs are frequently observed to come from "nowhere" and to evaporate into "nothingness" though, paradoxically, they may leave physical traces! Discontinuities in time and space such as are frequently observed in psychological research suggest a "parallel universe system" merging into a single universe (HASTED 1981.235.244) The Parallel World of folklore and fairyland is involved by ufologists (VALLEE 1970; ZURCHER 1979). Critics of Parapsychology sometimes attempt to discredit it by raising objections to its alleged "magical" way of reasoning as presenting a throwback to primitive thought and a threat to Science. To be sure, the latter has

its difficulties in accommodating the strangely recalcitrant data of the newer disciplines with their ennumerable unsolved enigmas, even if quantum physics has created a more favourable climate for such paradoxes.

### 23. THE MEDIA

The media plays an important strategic role in the histories of the two subjects. Psychological Research was put on a relatively scientific footing of "respectibility" with the foundation of the Society for Psychological Research nearly a hundred years ago, whereas Ufology can boast of a mere 30 years, i.e. covering less than  $\frac{1}{3}$  of that period. It would, however, be rather misleading to suggest that UFOs have been scientifically investigated to any extent for even that long. The majority of publications are light-weight publications, though often not lacking in merit. In a recent article Bruce Maccabee complains, with some justification, that "no truly scientific investigation (of UFOs) has yet been done" (MACCABEE 1980.70), with the possible exception of the American Air Force's Project Blue Book Special Report # 14.

Television most of the time fails to come to grips with the serious side, preferring a light-hearted approach that aims at entertainment than instruction - the lure of raising an easy laugh, and the dialogue weighted in favour of the "sceptic", are hardly ever resisted. It is inclined to succumb to the temptation to sneer at the lunatic fringe in preference to showing less amusing and possibly sinister aspects (except, of course, in fiction). Ufology in particular is so precariously established that the uninitiated, aided only by so-called (media) "research," is bound to lose his way. HENDRY

(1979.211ff.) in surveying the American scene, complains that newspapers are happy to report IFOs as UFOs without unduly bothering about such niceties as retractions. (This applied equally to British womens' magazines which "interview" by telephone.) UFO sightings are regarded by the Press not so much as news as "human interest" items (p.215). They are therefore not properly investigated, and likely to be suppressed to avoid "saturation". Thus the wrong impression that they are rare events is deliberately (but falsely) conveyed. Moreover, facts are misrepresented. In the present writer's experience, his own Poltergeist investigation at Bromley (CASSIRER 1975) was carelessly quoted by a sensational American paper. All this is not perhaps surprising in view of the fact that on both sides of the Atlantic the media employ young "researchers" without proper qualifications or knowledge of the subjects in hand. Hendry castigates American staff-writers who, through sheer ignorance, perpetuate ancient myths - much in line with mediaeval scholasticism (ANGLE 1977. 234). People who report their experiences are subjected to quite unwarranted ridicule by "know-all" journalists; at the same time, false "flags" are generated. In common with some who ought to know better, the media fail to appreciate the fact that they do not have to make "a choice between two polarised extremes" (ET hypothesis or nothing), but a broad, complicated spectrum of scientific sociological, psychological, and religious implications (p.220). Again, says Hendry, the media prevent people from making reports; they side-track the sceptical, fostering the impression among the learned that they have nothing to learn. All,

or at least most, of the above observations seem equally applicable to Parapsychology and its problems vis-a-vis of the media in our own country.

"Common sense" is often not a sufficient criterion. Thus the American Press took it for granted that a "false" stimulus such as the showing of the fictional "Close Encounters of the Third Kind" was bound to result in an escalation of UFO reports. Strangely, this did not happen, in spite of the known influence of Science Fiction on sighting reports (HENDRY 1979, 142; MEHEUST 1978).

HYNEK (1972.19) describes a test designed to evaluate public reaction to deliberately faked UFOs. Hot-air balloons and flares were dropped from planes, but failed to make an appreciable impression on observers and did not generate many reports. It is tempting to compare a simulated apparition scenario at Cambridge which aroused no reaction whatsoever from man or beast, though it was clearly witnessed by many passers-by, as well as by some cows! The ingenious experimenter (CORNELL 1959) speculated that he "failed" because the percipients' attention was not drawn to the (non-paranormal) phenomenon by some "self-induced psi stimulation." A comparable negative mechanism could be hypothesised in Hynek's case.

#### 24. THE ORGANISED STUDY OF PARAPSYCHOLOGY AND UFOs

Our own premier Society for Psychological Research studies "mental" (ESP; mediumistic) and "physical" (PK; Poltergeist) phenomena. Of late, Ufology was guardedly admitted by the backdoor as part of the legitimate work of the Physical Phenomena Committee of which the writer was then chairman. (CASSIRER 1979.57). Unfortunately, this Committee was soon afterwards

abolished, leaving the UFO as it were suspended in mid-air! Parapsychology flourishes in America under the auspices of our daughter Society (the ASPR) as well as under a professional body affiliated to the AAAS (the Parapsychological Association). The Parapsychology Foundation in New York was started by that famous medium, Mrs Eileen Garrett. Further south in the States, in North Carolina, there are two well-established institutions, one founded by J.B. Rhine (FRNM), the other by W. Roll (Psychical Research Foundation) who is still in charge. All have their own reputable publications. Others include the Zetetic Scholar and the more popular Fate Magazine, both of which cover both subjects under discussion. Back in England, Ufology is served by two BUFORA publications, BUFORA BULLETIN, and the more heavy-weight Journal of Transient Aerial Phenomena. The independent Flying Saucer Review is essential reading. This is equally true of a new journal Magonia, unpretentious and critical. In many ways the most important and scientific are the Italian UFO Phenomena and the American Journal of UFO Studies, which has just been started by Hynek's Center for UFO Studies. The latter has also printed a number of excellent monographs.

Most serious studies are to be found in the specialist literature with its limited readership, with leading scientific papers like Science and Nature adopting a negative attitude towards positive contributions. The literature of either discipline is too large to be mastered except by the most persevering enthusiasts, and few indeed are fully acquainted with even its major studies. A good knowledge of both subjects makes excessive demands on the time and energy of the average scholar who specialises in other subjects. However,

ignorance is no longer excusable as there are now a number of good introductions such as Wolman's Handbook of Parapsychology 1977. Even in Ufology, where standards are uneven and not usually very high, Hendry's reliable Handbook (1979) and Story's Encyclopedia (1980) go a long way to guide the reader through the maze of otherwise sloppy and ultra-dogmatic bilge, including ley-lines, dragons, and pseudo-archaeology. Scott Rogo, in studying American psychology text-books for undergraduates (Research Letter No.10 Utrecht) comes to the conclusion that "the coverage of parapsychology is receiving ... is abysmal. As to the other field, I have yet to hear of undergraduates anywhere being exposed to it via a text-book.

## 25. TELEPORTATION AND LEVITATION

Teleportation is defined as the paranormal transportation of objects which, in Poltergeist cases, often involves "impossible" trajectories. It should be distinguished from Apportation, implying the mysterious arrival (and departure) of things of unknown origin rather than the "mere" movement of an object or objects already on the premises (HASTEAD 1981.1 165ff). Apports, may of course be simulated by conjuring, especially by physical mediums. They are, moreover, of limited interest in connexion with this thesis. If abductees could produce artifacts of demonstrably non earthly provenience, these could perhaps qualify as ET apports. So far this has not happened, and where objects have been allegedly abstracted from inside UFOs, they are then confiscated by humanoids to prevent their production as proof. Even the famous Ubatuba metal fragments of pure-then-

pure magnesium are disputed (STORY 1980.374).

Teleported objects are propelled by a psychokinetic process, the power being supposedly supplied by a "central party", epicentre (HASTED 1981.166.183), or medium. With regard to the latter, the Schneider brothers (WILLY: DINGWALL 1926; RUDI: PRICE 1930) produced strong effects under test conditions, as opposed to the weaker residual results in the laboratory (L. RHINE 1970). In poltergeist cases objects are not infrequently displaced in the total absence of any living being; this casts doubt on the "central party", or RSPK, explanation as a vademecum. Not only are there unexplained dislodgements, but the trajectory of the object observed in flight may contradict the laws of nature by wobbling or turning corners and even passing through matter; often the actual movement is concealed from the observer as if by deliberate misdirection, so that the impact only is seen. The movement of objects seem to be "controlled" (THURSTON 1953.2; a favourite phrase with ufologists), "tortuous and at variance with the laws of gravitation." Similarly a UFO which trespassed on an air show in America undulated with right angle turns (NICAP 1964.31). Sometimes there is a fall of "uncaring slowness" (OWEN 1964.270), and such slow-motion movement also occurs with some mediumistic phenomena; it hardly suggests the work of the conjurer. In a French case (OWEN 1964.271) apples were speedily navigated through a small hole. Poltergeists generally show intelligent direction in managing to avoid inadvertent damage to people's person: a stone in flight will descend suddenly at a sharp angle in front of the observer, while UFOs, on a collision course, veer away at the last moment with abrupt 90° turns away from aircraft. In a case personally observed, no one present was hurt by the

hurling of heavy weights by an invisible entity. On the other hand, Poltergeists allegedly instigated by "witches" cause serious psychological and physical harm, at times resulting in death (GILBERT 1971). Whether there is similar deliberate malice in some UFO activities is disputed.

Are UFOs then under intelligent control in a similar way to Poltergeists? That well-known standard work, THE UFO EVIDENCE (NICAP 1964), which takes the ET hypothesis for granted, has a whole section dedicated to this important aspect of the syndrome. Three features are enumerated as implying intelligent construction and guidance:

- (1) Inquisitiveness, and reaction of environment;
- (2) Powered flight;
- (3) Formations in co-ordinated flight.

Just as Spiritualists attribute intelligence via discarnate agencies to the Poltergeist whose phenomena had in turn been interpreted in terms of Witchcraft in preceding centuries, so many ufologists see in it the activity of "alien (ET) beings". The authors of the NICAP catalogue are careful to warn that alien intelligence does not necessarily coincide with our own. Indeed, some of its manifestations are extraordinary in the extreme by our own standards, while those of the Poltergeist are almost invariably of a regressive, infantile nature. Humanoids are fond of mimicking spacemen, but lack final conviction in their acts; Poltergeist "spirits" also ultimately fail in their assumed role. Generally speaking, coercive proof of both UFOs and psi is hard to come by, with many loopholes available for determined sceptics.

Levitation may be regarded as a more incredible kind of traction or teleportation involving humans and animals. The anecdotal evidence goes back a long time, and includes stories of mediaeval saints (THURSTON 1952.1ff). Some of these - particularly aerial flights of Joseph of Copertino - are well-attested. In more modern times, the evidence in connexion with D.D.Home is very strong. Though the Victoria Street incident is not perhaps as flawless as suggested by Crookes, the latter's testimony to the medium's indoors levitation seems unassailable (MEDHURST 1972.115). Abductees claim that they have been "levitated" into space-craft. This mode of transport is also apparently favoured by humanoids, who are variously described as "floating" or "flying" (WEBB 1973. 60ff). The floating of the Coles children in the Bristol Poltergeist Case is independently attested by witnesses (GILBERT 1971.37). Hypnotically relived "out-of-body abductions" feature in the UFO literature (ROG 1980.186.197.215). It is clear that OBEs have a strongly subjective element and are of a dream-like nature; at times they may be little more than "dramatised reconstructions based on memory" (ELLISON in BLACKMORE 1978.3). Instances of PK during out-of-body states are far and few between (OSIS 1979.142ff.) UFO abductions as we have seen cannot be accepted at face-value; nor can they be rejected out of hand as used to be the fashion at one time. They are most explicit in Poltergeist cases (GILBERT 1971.13).

In a French case (OLIVER 1980.10f) 10f) which lacks corroboration but cannot easily be dismissed, a young man is said to have disappeared from a car at the time of an alleged UFO sighting to reappear a week later. Poltergeist cases provide better evidence for the phenomenon of human teleportation (GAULD 1979.113). Sometimes (though more frequently on the Continent) animals are involved (FLAMMARION 1924.263; GAULD 1979.29). A UFO case in which a whole herd of

cattle was repeatedly teleported over some distance has recently been reported from Wales (PUGH 1979).

## 26. ASSAULT

The mysterious but powerful forces involved in some anomalous manifestations (e.g. Poltergeists) are capable of serious assault on humans. The latter react variously, either by being amused (in less malign cases) or, more commonly, by overt neurotic behaviour. Cases of actual bodily harm resulting from such assault are rare, but do exist (GILBERT 1971). The writer has witnessed the repeated throwing of heavy weights and "Growmore" in confined quarters at Bromley, but no harm was done to spectators other than their being showered with fertiliser. However, when the place was empty during the lunch-hour, a thirty-pound weight spontaneously rose into the air to a height of about five feet, smashing a window. One of the men who ran the business (a nursery) was pushed from behind on two occasions in my presence, but was able to break his fall at the last moment (CASSIRER 1975). In other recorded cases, victims of psychic infestation have been bitten and slapped, cut, pricked, and strangled (like the mediums Florence Cook and Osbourne Leonard), scratched, smacked and assaulted with thick saliva and excrements (GAULD 1979.115). The Bromley man (CASSIRER 1975), had his shirt torn by violent psychic activities. At Livingston (KEATMAN 1979.4) a man's trousers were damaged, so also in a French case (ZURCHER 1979. 245). But Poltergeists are more notorious for their damage to property, which may be either the home or, less commonly, one's place of business, causing loss of money, general chaos,

and disruption of commercial transaction.

UFOs - especially those encountered at close quarters - can also prove dangerous, but their physical effects are predominately of a different kind. The most serious effects of proximity are both physiological and psychological (as in Poltergeist cases) in as far as these two can be differentiated. Radiation-like symptoms are commonly reported. We do not know whether these are genuinely physical in origin or psychosomatically induced; they are certainly very curious and mysterious. (McCAMPBELL 1973.67ff).

"Abductions" often feature physical examination carried out by humanoids inside their "space-craft" this may be of a painful and distressing nature to its victims (FULLER 1966.191ff). The stalling of cars and interference with radios and TV, discussed elsewhere, are minor instances of assault on human liberty and rights by comparison.

There remains finally the category "paralysis", apparently induced by hostile external influences beyond our control. These are most noticeable during encounters with ufonauts who are often (but not always) observed to direct "instruments" such as tubes towards percipients with resulting paralysis of varying degree (ZURCHER 1979.32). This also occurs at the supposedly other extreme end of the scale of the "objective"/"subjective" apparitions, where paralysis of the observer has been reported at various stages - "before, during and after" the experience (GREEN 1975.128). One would accordingly expect some evidence for this phenomenon with Poltergeists, but I have found none up to date.

#### 27. AIR DISPLACEMENT OR "PSYCHIC BREEZE"?

Critics may summarily dismiss this as a typical pseudo-problem on the grounds that while both phrases describe the same phenomenon (or all-

eged phenomenon), the first is a scientifically and rationally acceptable formulation while the second smacks of occultism and charlatanism. Nevertheless, and in spite of some sympathy with this view, I think that the distinction is a valid one and worthy of being defended in the interests of clarity. It raises, moreover, a genuine problem of interpretation within the context of the phenomenology of the UFO. In some accounts of apparently dematerialising "objects" from the sky mention is made of a "strong air displacement" or "rush of air" (McCAMPBELL 1973.50; CRAMP 1966.122). This is the language of the "nut and bolts" man with the tacitly implicit assumption that a machine is involved in the sighting. The interpretation of the data in terms of the ET hypothesis has converted the simple observation of a strong gust of wind or air-current into an "air displacement" caused a more rationally acceptable physical object.

But strong - often icy - blasts are typical of psi-manifestations, familiar to most readers from the Bible as a "rushing, mighty wind" (Acts 2.2.). Latin spiritus suggests this idea, and Swedenborg knew of the "cold non-natural wind" which often accompanies seances (LANG 1896.36) such as one attended by the writer (CASSIRER 1975). It is commonly reported not only in sittings but also in haunted houses. The fact that the lowering of temperatures under these conditions has been objectively recorded and measured shows that the phenomenon is real.

#### 28. POLTERGEISTS

This term was popularised by Harry Price. Though of German origin (lit. "boisterous spirits"), it is not nowadays used by German writers, who refer to the phenomenon as



"Spuk" (anglice "spook"). Its unfortunate implication is that spirits are involved or implied as agents. Accordingly, American parapsychologists prefer the allegedly less loaded but more cumbersome "Recurrent Spontaneous Psycho-kinesis (RSPK) which in its time suggests that all such cases are (a) "person-centred", (b) are explicable in terms of human energies. In other words, the underlying idea is that of an unconscious medium or "epicentre", Neither conceptualisation is unassailable or totally acceptable. The links between this topic and Ufology have lately become somewhat of a common-place of the latter. (ROSO 1980.6.145). However, there is much misunderstanding due to ignorance of the parameters of the syndrome, rich and manifold though it is. Significantly, UFO manifestations may concentrate on "house, a family, or a single person" (ZURCHER 1979.80).

There is an affinity between the extraordinary observed trajectories described in the respective literatures which seemingly resist integration with lawful physical models. Certain features of Poltergeist manifestations occur, but only rarely e.g. Lithobolia (stone-throwing), which is therein commonly reported (FOODOR 1966.293). In a South African case a farm building was attacked by showers of stones; there were also strange lights (cp ch.14). It was believed that there was a connexion between the lithobolia and some flying objects hovering over the house, and animals are said to have been affected (cp.ch.19); BUCKLEY 1967.230). Poltergeists, like ufonauts, may have a "message" or, at any rate, engage in conversation. What either party has to say, is, more often than not, hardly worth the effort of

undivided attention. At their best, they tell the truth as at Ylojarvi (Finland), where a voice of unknown origin correctly proclaimed that something had been poured out of a barrel (GAULD 1979.72), while the obliging entity at Saragossa gave the exact measurement of a chimney-pipe. More commonly though, Poltergeists combine absurd claims, and are clearly not to be trusted; they are, according to Jacque Vallee, Messengers of Deception.

TO BE CONCLUDED IN THE  
NEXT ISSUE

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(Continued from page 169)

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# Letter to the Editor

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Sir - I read with interest the thoughts and theories put forward by Chris Strevens in your correspondence pages (JTAP 3/2 p.127). However I was most interested by one of the cases he cites, namely the scoutmaster incident. Mr Strevens appears to think that the details in this case provide evidence for his photon rocket theory yet I feel that further clarification on this particular case is urgently required before Mr Strevens becomes too excited.

The scoutmaster, named in Ronald Story's ENCYCLOPEDIA OF UFOSS (pp.128-31) as D.D. "Sonny" Desvergers was alleged to have seen some lights above an area of wood, and went to investigate. He is reported to have been struck by balls of fire emitted by the object he encountered, and remained unconscious for a short period. He suffered singed hair on his forearms (although some accounts maintain that just his hands were affected) by protecting his face, and three holes were burnt into his cap.

Other elements in the story have also varied, depending upon where one reads it. Such variations have been the scoutmaster's name, which was written as J.D. (Sonny) DesVergers in George Adamski's INSIDE THE SPACESHIPS, Appendix A, p.223 and referred to in the text on page 156 (although in the Adamski book there is a ridiculous explanation for the case). The number of scouts who accompanied the prime witness also varies, being either three or four. Story and Adamski both offer three, whereas Dale White in IS SOMETHING THERE? (pp.68-79) maintains that four were there with the scoutmaster.

The main gist of the story is basically how Desvergers, whilst

taking some scouts home in his car, saw some lights flickering above trees at West Palm Beach, Florida. The boys also saw the lights and Desvergers volunteered to go looking for what was causing them. The boys themselves were too scared to go. Although Ronald Story only touches on the subject, the actual integrity of the case as a whole was very much in doubt. Captain Ruppelt of Project Blue Book became involved in the investigations, and research uncovered details of Desvergers' past.

He had been dismissed from the Marines for being AWOL and for stealing a car. He had served time in a reformatory, and had been sacked from his petrol station job. He had also been responsible for raising the topic of "flying saucers" before the lights were seen. This talk scared the scouts prior to their arriving at the site. All the boys admitted to seeing were lights above the trees which were almost certainly aircraft landing lights. Such aircraft were seen on location during investigations. Experts concluded that the holes in the cap were cigarette burns and the singed hair caused by a lighted match brushed over the head/forearms. There is no explanation for the singed grass. Alternative accounts claim that no traces, not even footprints, were found at the site. Was the grass burned? The whole case is shrouded in contradiction and deceit.

Desvergers was a very unreliable witness, a conclusion confirmed by those who knew him. The case was made more unlikely when he tried to sell the story to a national newspaper. Blue Book labelled the story as a hoax. Mr Strevens should not use evidence such as this for his theories. Explaining one untested theory with an even less testable case will never work. IAN MRZYGLOD. BRISTOL

## Aims and scope of the Journal

Research and investigation into unidentified flying object (UFO) phenomena has progressed from the early days of wild speculation into an area where scientific analysis and evaluation methods can be applied to a number of specified areas.

It is realised that ufological research is subject to a great deal of speculative comment, much of which lies on the boundaries of current scientific thought. Many existing scientific institutions accept limited discussion of UFOs and related phenomena where it has some bearing on their discipline. The Journal of Transient Aerial Phenomena (Journal TAP) offers a forum for scientists and researchers to present ideas for further discussion, results of investigations and analysis of statistics and other pertinent information.

Journal TAP aims to meet a wide range of discussion by incorporating an approach with breadth of scope, clear and topical comment conducted with scientific rigour. It intends to offer a truly international forum enabling researchers throughout the world to publish results in an authoritative publication which should serve to further knowledge of the cosmos and benefit mankind in so doing.

## Notes for contributors

The Editorial Board will be pleased to receive contributions from all parts of the world. Manuscripts, preferably in English, should be submitted in the first instance, to the Editor-in-chief, 40 Jones Drove, Whittlesey, Peterborough, PE7 1UE, United Kingdom.

Manuscripts should be typed double-spaced on one side of A4 size paper with wide margins and submitted in duplicate. While no maximum length of contributions is prescribed, authors are encouraged to write concisely.

The author's name should be typed on the line below the title. The affiliation (if any) and address should follow on the next line. The body of the manuscript should be preceded by an abstract of around 100 words giving the main conclusions drawn.

All mathematical symbols may be either hand-written or typewritten, but no ambiguities should arise.

Illustrations should be restricted to the minimum necessary. They should accompany the script and should be included in manuscript pages. Line drawings should include all relevant details and should be drawn in black ink on plain white drawing paper. Good photoprints are acceptable but blueprints or dyeline prints cannot be used. Drawings and diagrams should allow for a 20 per cent reduction. Lettering should be clear, open, and sufficiently large to permit the necessary reduction of size for publication. Photographs should be sent as glossy prints, preferably full or half plate size. Captions to any submitted photograph or illustration should be appended and clearly marked.

In the interests of economy and to reduce errors, tables will, where possible, be reproduced by photo-offset using the author's typed manuscript. Tables should therefore be submitted in a form suitable for direct reproduction. Page size used should be A4 and width of table should be either 10.5 cm or 22 cm. Large or long tables should be typed on continuing sheets but identifying numbers should be placed on the upper right-hand corner of each sheet of tabular material.

Reference to published literature should be quoted in the text in brackets and grouped together at the end of the paper in numerical order. A separate sheet of paper should be used. Double spacing must be used throughout. Journal TAP references should be arranged thus :

(1) Jacques Vallee: 1965. *Anatomy of a Phenomenon*, vii, Henry Regnery, Chicago.

(2) David Haisell: 1980. Working Party Report, *Journal TAP* 1/2, pp36-40

With the exception of dates which should be presented in the astronomical convention viz : 1977 August 06, no rigid rules concerning notation or abbreviation need be observed by authors, but each paper should be self-consistent as to symbols and units, which should all be properly defined. Times however should be presented in astronomical form using the 24 hour clock and Universal Time (UT) where possible. If local time is used, this should be specified viz 19h 15 GMT.

The Editorial Board shall have the right to seek advice from referees on suitability for publication and may, on their recommendation, accept, seek revision of or reject manuscripts. If considered unsuitable for Journal TAP, the Editor-in-chief reserves the right to forward manuscripts to the Editor of *Bufora Journal* for consideration. The Editor-in-chief's decision will be final.

Book reviews and letters for publication will also be considered.

Where permission is needed for publication of material included in an article, it is the responsibility of the author to acquire this prior to submission. All opinions expressed in articles will be those of the contributor and unless otherwise stated, will not reflect the views of *Bufora*, its Council or the Editor-in-chief.

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The Journal of  
Transient Aerial Phenomena

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C O N T E N T S

SOLAR AND EXTRATERRESTRIAL LIFE  
- A NEW HYPOTHESIS (Part 3)

ALI ABUTAHA

POHER'S FALSE CORRELATIONS

STEUART CAMPBELL

TOWARDS A PSI/UFO INTERFACE  
(Part 3)

MANFRED CASSIRER