UFOs

AND THE

AEROSPACE ENGINEER

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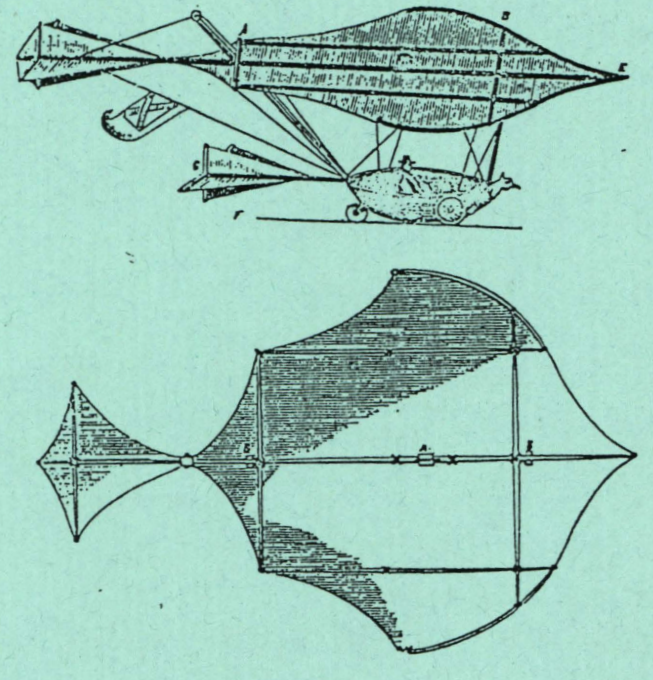
SIR GEORGE CAYLEY'S GOVERNABLE PARACHUTES.



Developed design for a man-carrying glider, called a "governable parachute"; facsimile of the illustrations as they appeared in the *Mechanics' Magazine*: 1852.

UFOs AND THE AEROSPACE ENGINEER

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The people of Earth look skyward to catch a glimpse of an orbiting satellite or a moon-bound spacecraft, dazzled by the event, but lacking in the understanding of the technological expertise required to make the event a reality. The series of space spectaculars beginning with the unmanned Sputnik and Vanguard and continuing into the manned space era with such greats as Mercury, Gemini, Apollo and the Space Shuttle is the result of the efforts of the greatest engineering team of all time -- the Aerospace Engineering Team.

Because of this responsibility for the vehicles that operate in the earth's atmosphere or above, the aerospace engineer should also accept some responsibility for the solution to the UFO problem. Three reasons form the basis for this responsibility. First, the UFO is reported to operate above the surface of the earth, an area normally reserved for birds, aircraft, and spacecraft. Second, because UFOs are reported by the citizens of earth, the aerospace engineer has a social responsibility to utilize his skills in providing solutions to such problems. Third, the aerospace engineer is seldom satisfied with terms such as: impossible, can't be done, won't work, etc.; he deals in answers. Through the years, these technological experts have banned together to work as a team to solve the unsolvable, to advance the ever elusive state-of-the-art. The UFO definitely needs to be approached in this manner.

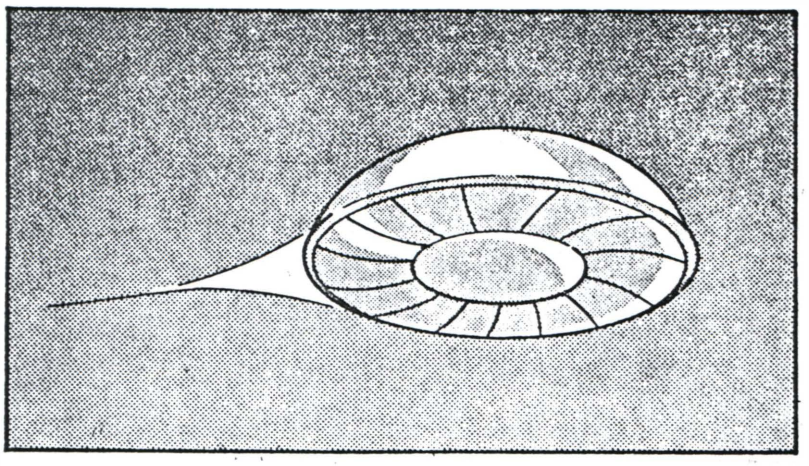
Certainly, no one can deny that UFO reports exist. These reports are based upon observations made by people of all types and from all walks of life. They are people that want and deserve a responsible answer. Time-worn cliches and ridiculous answers no longer suffice.

Consider these examples:

Example No. 1: A prominent St Louis businessman and his son, both amateur astronomers, were in the backyard of their home in south St. Louis, Missouri, on October 30, 1966, hoping to observe the passing of the Echo or Pageos satellites. It was 6:50 pm, a bright clear night with a full moon approximately thirty degrees above the eastern horizon. The 35° temperature and the cloudless sky made the stars shine brilliantly. This serene evening beauty was suddenly shattered by the passing of an object, directly overhead, going from west to east. Judging by the height of the trees in the yard, the observers surmised that the UFO was no higher than 200 feet above them. Its passing took only seven seconds, but this scene was etched firmly in their minds. The object appeared as two soup bowls placed top to top, about 50 feet in diameter, slightly ovoid and about 12 feet thick. It had a slight tail protruding from the rear and vapor seemed to emanate from that point. The

whole object glowed like metal being heated, the color ranging from brown-orange to light red-orange and definitely was not reflected color. The exterior surface was sectioned and devoid of windows and portholes. A significant feature was the lack of sound - the UFO was completely silent.

The older observer in this case operates a business in which observations, the use of colors, knowledge of perspective, and commercial art are all highly important; thereby enhancing the credibility of his observations. Following the incicent, he made an excellent illustration of the UFO and presented it along with the report. A sketch of that object is shown below.



Example No. 2: On March 6, 1967, a private pilot, along with his mother and sister, observed a similar object in broad daylight about sixty miles southwest of St. Louis, Missouri. The duration of the sighting was three minutes. The sky was overcast with broken cirrus clouds at 3,000 feet. It was 6:03 am and light enough for the observers to see the object quite clearly. At first it was hovering at 2000 feet altitude. Then it proceeded to do a slow 360^{o} turn down to an altitude of 1,000 feet. During this maneuver it was pitched up at an angle of 5^{o} - in aircraft terms it was nose high. Next it turned on a heading of 90^{o} and accelerated up through the cloud layer while changing to a bright red color.

Example No 3: The evening of April 8, 1967, eight people, one of which is a manager for a large aerospace firm, were having a cookout at their home about thirty miles west of St. Louis, Missouri. Suddenly, a UFO descended into an open pit clay mine only 250 yards distant. Almost immediately, another UFO stationed itself at treetop level and a third at approximately 2000 feet higher. Since it was still daylight and the weather was clear and calm, the objects were quite visible. Again, they were disc shaped, metallic, fifty feet in diameter and much like the objects described earlier. As they hovered they pulsated with a high intensity white glow, the light reflecting from one to another.Just after dark the objects rose one at a time and accelerated until they were a pinpoint of light high in the sky. The ascent took only 3 seconds.

Some of the basic characteristics given in these examples should convince aerospace engineers that UFOs are worth examining. For instance:

- the objects moved through the atmosphere at speeds ranging from zero to several hundred miles per hour.
- Color changes appeared to be associated with speed.
- Each object was completely silent.
- One of the sightings was in total darkness, one in daylight, and the other in daylight changing to darkness, presenting a full range of observational conditions.
- In each case the witnesses were reputable, wanting no publicity, and fearing ridicule.

Realizing that many cases are reported but not accepted by the scientific and engineering community because they were not authenticated by some group with the proper credentials; let us consider some of the cases studied by the University of Colorado while under contract with the United States Air Force. Some of these cases contain sufficient authenticate data to titillate even the most skeptical engineer.

The photographs taken by Paul Trent of McMinnville, Oregon, on May 11, 1950, were extensively investigated and analyzed by the Colorado team and their conclusion was as follows:

> "This is one of the few UFO reports in which all factors investigated, geometric, psychological, and physical appear to be consistent with the assertion that an extraordinary flying object, silvery, metallic, disk-shaped, tens of meters in diameter, and evidently artificial, flew within sight of two witnesses. It cannot be said that the evidence positively rules out fabrication, although there are some physical factors such as the accuracy of certain photometric measures of the original negatives which argue against fabrication."

Mr. and Mrs. Trent saw and photographed an object from the back-yard of their farm home, located about ten miles southwest of McMinnville. The exhaustive examination concluded that their report was authentic. Some of the facts from that report that are of interest to engineers are as follows:

- A wingless (disk-shaped) object maneuvered in the atmosphere. The object was gliding slowly, without rotation or undulation; then it shifted its position and orientation with an increase in speed. This complicated maneuver merits engineering evaluation for obvious reasons.
- The object was described as bright and metallic, evidently of artificial origin; thus providing a challenge to aerospace structural, materials, and processes engineers.
- The lack of noise or vapor emission presents a very real question to the propulsion engineer. How is the object propelled and controlled?

The skeptical engineer must also consider the many radar cases

on record, many of which involve multiple radar sightings and radar-visual verification. The aforementioned University of Colorado study also covered the Lakenheath Air Force Base, England, radar-visual incident that happened in 1956. At least one UFO was tracked by several radar stations while the round object was observed by military personnel on the ground.

RAF aircraft were vectored to the UFO and the pilot reported airborne radar contact. The UFO circled around the aircraft and followed it through various evasive maneuvers until the aircraft ran low on fuel and was forced to land. The report concluded that "the probability that one genuine UFO was involved appears to be fairly high." The combination of visual observations, plus multiple ground radars and airborne radar, along with the aerial dogfight between aircraft and UFO makes this a highly significant incident.

As one can easily see, the UFO presents a challenge to every facet of the aerospace engineering profession. Radar, photographic and eyewitness reports by the thousands are made by competent observers from all over the world. The reported objects exhibit such unique flight characteristics that normal terrestrial explanations must be eliminated from consideration. Technological as well as social responsibility places the search for a solution to the UFO problem in the hands of the engineer.

ENGINEERING, by definition, is but a science by which the properties of matter and the sources of energy in nature are made useful to man. This matter is the substance that constitutes the observable universe and together with energy forms the basis of objective phenomena. The engineer utilizes this branch of science for continued technological advancement in flight vehicles such as aircraft, spacecraft, and missiles. The state-of-the-art, as it is often called, has been advancing almost exponentially since the end of World War II and appears to be continuing along a sharp upward curve. In fact, technological breakthroughs are made almost daily now. In the same way, the UFO presents the most challenging and appealing opportunities for advancement that the engineering profession has ever known.

The presumption that our technology is the ultimate in perfection is ridiculous. We still have quite a distance to go. It is now generally accepted in scientific circles that there are civilizations elsewhere and probably more advanced than man will become in the next hundred years. Synergism between man and UFO can lead to new and exciting frontiers in science and engineering. History demonstrates that major technological advancements have not been made simply by enlarging or speeding up; they are made by finding a different and better approach to a problem. Some examples are thermonuclear fusion, the transister, laser, and the jet engine. UFO reports make it appear that intergalactic engineers have found a better way to fly and are utilizing it to explore Earth.

It was reported that the Boeing Company, during its wind tunnel research for the supersonic transport, found that an aircraft with a flat lower surface could potentially fly faster than the speed of sound without causing a sonic boom. The vehicle would leave an ordinary shock wave from its upper surface which would slant upward and rearward; while the shock wave from its lower surface would go straight back from the rear of the craft, thereby never touching the surface of the earth. The problem with this configuration comes when a control surface is actuated, breaking the smooth lower surface, directs the sonic boom towards the ground. As shown in the sample UFO reports, the disc shaped UFO appears to have solved the problem. It would behoove the aerospace engineer to determine how this was accomplished, even if it means utilization of a new and different means of propulsion.

It is a fact that the chemical means of propulsion used by NASA is inefficient and expensive. Nevertheless, many workers in the field refuse to discuss the potential of advanced methods such as antigravity; they consider it akin to the 19th century search for perpetual motion. In actuality, we know almost nothing about gravity and antigravity, except they have measurable effects. Physicist Joseph Weber and others continue to research the possibilities. Nevertheless, the application of this new area of technology requires the talents of the engineer.

A well documented UFO incident providing interesting speculation about the propulsion system was presented to the United States House of Representatives SYMPOSIUM ON UNIDENTIFIED FLYING OBJECTS on July 29, 1968 by Dr. James A. Harder. The sighting occurred during the night of August 11, 1960 near the city of Corning in northern California and was witnessed by two California highway patrolmen for two hours. Significantly, there was no detectable noise. The UFO hovered and moved in various directions without altering its orientation. At times it achieved high speeds and rapid acceleration. At other times it would hover or move extremely slowly in a manner that precludes suspension by aerodynamic lift forces. As Dr Harder indicated, we gained negative information about propulsion from this report. It is obvious that a jet engine or a rocket was not used. This was not a typical airplane or balloon; however the UFO performed as reported, apparently in sheer defiance to our laws of science.

A common misconception is that if the earth is being visited by extraterrestrial civilizations then their vehicles (UFOs) must be made of extremely new and foreign materials. As a result, when fragments of UFOs are analyzed and found to contain iron, manganese, silicon or other terrestrial materials, they are rejected as false, hoax or a case of mistaken identity.

Scientists have determined that our basic elements are found throughout the universe, at least as far as we can explore with our earthbound instruments. In fact, huge turbulent clouds of hydrogen

have been detected far out in space, some larger than our solar system. Earlier this was considered to be impossible. Each time we design a new spacecraft or aircraft new materials and processes are developed. Evenso, the same basic building blocks are used, but restructured and mixed to appear new to the observer.

Many technological changes have occurred in the UFOs observed over the last twenty years. As reported in the book UFOs OVER THE AMERICAS, by Jim and Coral Lorenzen, there exists four general types of UFO configurations: globe, disc, cigar and egg. Although these basic configurations remain the same, the triangle and diamond have been added since the early 70s. One significant change that has evolved is the lighting system. Perhaps the need for lights stems from the desire for concealment, misidentification, or collision avoidance. Lighting may be in the form of an overall glow, rotating lights, or distinct beams. In the case of the glow, color seems to vary with respect to speed; thereby indicating some connection between color and the propulsion system.

I believe it is completely logical to expect more than one UFO configuration. No single configuration of truck, aircraft, or spacecraft has been satisfactory to fill our needs. Designs are dirven by the purpose of the vehicle, the budget, and often the whims of the user. One would expect the need for several configurations for planetary exploration and interplanetary travel.

Much could be gained if we could duplicate the capabilities exhibited by UFOs, regardless of what they are or where they come from. Engineers have three options. They are:

- Do nothing
- Apply their individual talents on a voluntary basis
- Establish an engineering team and attempt a solution from an integrated point of view

The first option is already being done, as is the second. Engineers throughout the world are investigating UFOs individually and in conjunction with private groups. Slowly the UFO is losing its connotation of kookiness and is being approached by objective, respectable individuals that spend much time and effort in the application of the scientific method. Success in this approach is limited due to lack of a unified effort and sufficient funds.

The third option, the engineering team, offers the most net worth. The team effort would be similar in scope to a NASA space program. The definition phase would solicit proposals from various aerospace corporations. The organization, manpower requirements, facilities, technology plan, operations plan, and timetable would be fully defined.

The operational phase would then utilize all the engineering and scientific talent necessary to execute the program. By accumulating data on observations and effects, the UFO would eventually be duplicated.

Naturally, the first step would be a math model, followed by systems prototyping, and finally a full operational model. The goal is flight hardware.

The core of the program is the propulsion system. Sufficient information is presently available to start the math model. All vehicle power is keyed to the propulsion technique; i.e. life support, communications, instrumentation, stabilization, etc. Materials and processes now exist that may be applied to the problem.

The major tool in the program is the computer. It is to be used for modeling, analysis, and reporting.

The most important aspect of the program is the aerospace team itself. Once the scope of the problem has been defined and the plan established a diversified team will be pulled together that is capable of goal achievement. The management will provide the proper environment to foster a 'can do' attitude on the program. That means creating the proper work climate, providing dynamic leadership, keeping the communications channels open, and providing challenging personal opportunities.

Among the side benefits of this program are the possibilities for improvements to our energy systems and a reduction in environmental damage.

All breakthroughs in engineering have been the results of hours of independent investigations, followed by the pooling of knowledge. Each has been a challenge and resulted from much hard work. Future breakthroughs will be no easier, but they will be magnificent and astounding. The UFO, although well observed and poorly explained, fits into this category. The time has come to strip away the ridicule, misperceptions, categorizations, and personal egotism. The UFO is not just a problem for the U.S. Air Force, or the astronomer, or the psychologist, it is an engineering problem. The mystery is gone.....