MAY 1976

UFO INVESTIGATOR

NATIONAL INVESTIGATIONS COMMITTEE ON AERIAL PHENOMENA

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LAW ENFORCEMENT OFFICERS CONTINUE TO SEE UFOs

Unidentified flying objects continue to be sighted, logged and investigated by police officers throughout the United States. The answers to the age-old questions, "What are they? Where are they coming from?"—remains unknown.

UFOs are probably the most frustrating phenomena of all unknowns. The research that has been conducted is valuable. The answers that we are looking for will be determined.

ROSENBERG, TEXAS—January 26, 1976

Patrolman Bobby Slawinski was alone in his patrol car when he first saw three UFOs formed in a horizonital pattern with a fourth UFO located above the pattern. He watched in disbelief as the bright objects alternated colors with regularity. Patrolman Slawinski reached for his radio and called in Sgt. Ernie Watson and Patrolman Gil Steen to verify his observations. The other officers arrived within a few minutes.

The two officers were able to observe the unusual objects in the sky, and stated that they could see white, blue and red lights hovering over them. The three patrolmen watched the UFOs with the aid of binoculars in total disbelief.

STATE COLLEGE, PENNSLYVANIA—February 4, 1976

The local police of this small, quiet town were notified by a resident of an unidentified object with red and blue lights. Officers were dispatched to the area but sighted nothing. This was at approximately 6:29 pm. A short time later however, a state trooper reported seeing a similar object not far from the first location.

The UFO disappeared before the officer could attempt to identify it. At 9:00 pm, a third sighting was reported in the same general area. The police had no explanation nor comment as to what the colored lights might have been. They were not aware of any aircraft in the area at the times that the sightings occurred.

WOODLAND, CLAIFORNIA—February 12, 1976

A reserve deputy for the Yolo Sheriff's Department reported seeing two objects displaying very unusual characteristics in the night sky over Yolo County. The objects remained visible for approximately one half hour. The first object was described by the witness as, "Having no discernible shape as it hovered for almost five minutes." Suddenly, a red light appeared in the east and traveled north until it passed over the hovering object.

At that point, the first object became extremely brilliant, but then lost its coloration and intensity as the red light moved on away. Soon the first object appeared to fade into the atmosphere.

Spokesmen for the Travis and McClellan Air Force Bases stated that the federal authorities were aware of the activity, but denied any military connection.

GILLETTE, WYOMING—January 25, 1976

A Sheriff's deputy, who wishes to remain anonymous, was driving with his family when an object started coming toward their car. It was about 8:00 pm when the officer first noticed the object. He immediately stopped the car and turned off his headlights in order to view the object.

The officer described the object as, "Appearing to be the size of a semi-truck and having rotating lights of many different colors." The center of the object was a bright light.

As the object came closer to the car, the officer felt that, "It was trying to catch us," and he tried to turn his car around. When he was unable to turn on the narrow road, he started backing away from the UFO. After traveling for almost a mile, he reached a point where he could turn around. By this time, the object was about 100 yards from the car and about 10 feet off the ground. As the officer was attempting to turn this car, the UFO moved away and was lost from sight behind trees in a small valley.

The witness returned home and got into a truck in order to search for the UFO away from the main roads. Upon his return to the valley, a "bright light" rose swiftly and soon disappeared from view.

TERRACE, B.C., CANADA—April 21, 1976

Constable Bill Toffan, RCMP, was patroling highway 16, four miles west of the city, when he saw ahead of him what he thought was a vehicle with its lights flashing. As he drew closer, he saw that it was not on the road, but airborne above the highway. As Toffan approached the object there was a blinding flash which startled him so much that he nearly lost control of his car. The constable stopped and investigated the area on foot, but found no traces of anything unusual. The area was again searched by police in daylight, but nothing was found. The rescue coordination center in Victoria said that no aircraft were in the area.

AN EAR TO THE UNIVERSE

Sensitive antennas, pattern recognizing computers, and informed conjecture are being tuned to possible signals from the stars

Robert E. Machol, Ph.D.

Robert E. Machol (SM), professor of systems at the Graduate School of Management, Northwestern University, was previously professor of electrical engineering at Purdue, vice president of Conductron Corp., and head of the Department of Systems engineering at the University of Illinois (Chicago). He holds the Ph.D. in chemistry from the University of Michigan. His books on system engineering have been translated into several languages. He was president of the Operations Research Society of America, 1971–1972. Dr. Machol spent his sabbatical year (1974–75) and the winter quarter 1976 at NASA's Ames Research Center, where he performed the systems analysis described in this article.

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Because of space limitations and the technical nature of the material, Dr. Machol's article has been greatly condensed for publication in the UFO INVESTIGATOR.

Right now, electromagnetic waves from a civilization outside the solar system may be passing through this page. Although such waves may be at levels too low to be detected with present equipment, there are good reasons for believing they exist. Thirty years ago, most astronomers thought that man was alone in the galaxy. Today, it is believed by most (but not all) knowledgeable scientists that in our galaxy there are billions of stars with planets on which life could originate. It is probable, therefore, that there exist a great many civilizations capable of communicating—or at least making themselves known to us.

Today, in fact, astronomers are more likely to discuss ways of discovering extraterrestial civilizations than to debate their existence. One reflection of the seriousness U.S. scientists accord to the search is a project at the National Aeronautics and Space Agency's Ames Research Center to determine the feasibility of looking for signals. Known as the Search for Extraterrestrial Intelligence (SETI), the project is small (funded at a rate about 0.0001 that of the Apollo Project) but work has proceeded for nearly five years, beginning in 1971 with a summer study called Project Cyclops under the direction of Bernard M. Oliver of Hewlett-Packard.

The SETI team is presently studying advanced technologies to determine whether they can provide improvements and cost reductions. In addition, the team is performing preliminary system design, elaborating search strategies, and supporting some related development efforts (especially in data processing). Finally, the team is studying schemes for detecting signals—a prerequisite to communication. The plan right now is only to listen—transmitting a response would involve a whole added set of problems—but deciding how best to listen is, in itself, a project.

At various times, a number of signal types have been mentioned as possible communication media. Current thought is that only electromagnetic radiation offers a reasonable hope of providing a detectable signal.

Why search?

Why—when millions are starving; when man is dangerously polluting his environment and exhausting the earth's resources; when the human race may extinguish itself in atomic war—why should money be spent on seeking signals from intelligent life on another world? There is no reason, if one believes that our civilization is at the end of the road after 4½ billion years of evolution. In fact, there is then little reason to carry out any large-scale socially supported projects such as the space program or research into biochemistry, medicine, cosmology, particle physics, or the mysteries of the brain.

But there is every reason for the search if one believes that the human race has not yet attained the peak of the evolutionary development, and that it may survive long enough to inherit a future as far from modern man's comprehension as the present world would have been to Cro-Magnon man. The search is prerequisite to communication, and communication will yield a vast array of benefits.

It would be an extraordinary coincidence if some other race were exactly as advanced as we were—more probably it is millions of centuries older or younger. But if it is as much as one century behind us, it is not yet using radio. It follows that any civilization that we contact is likely to be enormously more advanced. Thus, we may be able to use "their" knowledge and take a giant leap in our own science and technology. Far more important, we may discover the social structures most apt to lead to self-preservation and genetic evolution. We may discover new art forms that lead to a richer life. At the very least, communication will end the cultural isolation of the human race, enabling us to participate in a community of intelligent species. Then, perhaps, a spirit of adult pride in man will supplant childish rivalry among men.

It is likely that interstellar communication has been going on in our galaxy ever since the first civilizations evolved some four or five billion years ago. The participants in this heavenly discourse will have accumulated an enormous body of knowledge handed down from race to race—a sort of cosmic archeological record of our galaxy. If such a heritage exists, it will illuminate the human race's future. It would certainly be worth the cost of the search many times over.

By responding to a beacon, we reveal our existence and advertise earth as a habitable planet. Will then hordes of superior beings invade earth and annihilate or enslave mankind? If, as seems probable, interstellar travel is enormously expensive even for an advanced culture, then only the most extreme crisis would justify a mass interstellar migration—and even then it seems likely that the migrating population would seek uninhabited worlds to avoid adding the problems of conflict to those of the journey itself. In any event, our not responding would not really protect us, since a race bent on invading us could find us through our present radio emissions.

The possibility that mere communication with a clearly superior race could be so damaging to our psyches as to produce retrogression instead of advancement, even with the best intentions on the part of the alien culture, has been suggested. But there will be time for mankind to prepare itself. The round trip for communication may take a century or more, so the information exchange will not be a rapid-fire dialog. We may receive a vast amount of information, but the rate of reception, the gaps in the picture, and the effort needed to construct a model of the other race from the data should prevent any violent cultural shock.

No one can assert that interstellar contact is totally devoid of risk. But the potential benefits outweigh the risk. To obtain the benefits we must take that first step: We must search.

Bernard M. Oliver
Hewlett-Packard

Why not travel?

Why not visit instead of sending messages? Because interstellar travel—while not theoretically impossible—is extremely difficult.

Theoretically, if a spaceship could accelerate at 1 g for one year, it would reach approximately the speed of light. If it accelerated at 1 g for 4.6 years (according to its own clock) and then decelerated at 1 g for 4.6 years, it would arrive at a point 100 light-years away. Within 100 light-years there are more than 1000 stars sufficiently like our sun (types F, G, and K) to be interesting. The ship could travel to one of these, explore it, and then return in a total ship time of only 20 years (of course more than 200 years would have passed on earth before the ship's return—the "twin paradox" of relativity).

But from the viewpoint of energetics, it is not so easy. Consider the energy required for a much more modest journey—round trip to the nearest star, 4.3 light-years away. In ten years. For the spaceship propulsion system, assume the theoretical ultimate: 100-percent-efficient matter-annihilation engine whose exhaust velocity is equal to the speed of light. The trip would consume 34 pounds of fuel (half matter, half antimatter) for each pound of payload. For a 1000-ton spaceship (including crew, living quarters, engines, life-support systems, and whatever else is needed), 34,000 tons of fuel would be required. The total energy expended in the trip would be about 10^{18} kWh—far in excess of all the fossil and nuclear energy expended in human history.

For more moderate amounts of energy, the trip time and the size go up rapidly. A fusion rocket would take 80 years for the round trip and require a minimum theoretical mass ratio of 80; a fission rocket would require many hundreds and a conventional rocket many thousands of years. This is only to visit the nearest star, and we would expect to have to visit thousands—perhaps hundreds of thousands—of stars before detecting intelligent life.

Would even a highly advanced civilization be able to surmount these obstacles? It doesn't seem likely. Certainly, we on the earth lack by many orders of magnitude the ability to explore other solar systems.

In comparison, the energy requirements for radio communication are surprisingly modest. It would take of the order of 1 kW to power a transmitter that could be detected from as far away as 1000 light-years, using transmitting and receiving antennas no larger than the 300-meter dish at Arecibo, and a bandwidth of 1 Hz at S-band.

For further reading

The literature on life in the universe and the problems of detecting it is scattered through many journals and books. *Intelligent Life in the Universe*, by Sagan and Shklovskii (Holden, Day Inc., 1966), is a classic reference. *We Are Not Alone*, by Walter Sullivan (McGraw-Hill, 1966), is an excellent popular treatment. The technically oriented reader will find the "Project Cyclops" report (NASA document CR 114445, available from John Billigham, NASA/Ames Research Center) enlightening reading; many points that are omitted here, or treated only sketchily, are examined there in greater detail. A comprehensive bibliography prepared by Linda D. Caren, Eugene Mallove, and Robert L. Forward—all of Hughes Aircraft Co.—appears in *Interstellar Communication: Scientific Perspectives*, Cyril Ponnamperuma and A. G. W. Cameron, editors (Houghton Mifflin Co., 1974), a book that provides a good overall view of the subject.

Either mankind is alone in the galaxy, or he is not; either alternative is mind-boggling.—Lee DuBridge

UFO SIGHTED BY 5 CITY LEADERS

Kissimmee City, California commissioners John Spencer, George Grant and Jim Dyer and two staff members saw a saucer-shaped UFO after leaving a city commission meeting. The five men were driving in separate cars to a restaurant, when the object was seen at about 10:30 the night of February 8, 1976.

All of the men described the UFO as being silver or whitish in color, disk or blimp shaped, soundless and capable of rapid acceleration.

Grant, Dyer and Bauer are private pilots. All stated that there were no visible aircraft lights on the object. Each of the observers estimated the altitude to be less than 1000 feet when the UFO was seen at an angle of about 20 to 45 degrees above the horizon. Their estimate would seem to be fairly accurate because of their familiarity with aircraft, and because the low cloud cover present that night gave a point of reference. Their inability to make an estimate on the distance of the object leaves the question of the objects size unanswered.

The UFO then moved to the west, dwindled in size and rapidly disappeared. One witness stated that it, "Seemed to be lighted from the opposite side with a sort of indirect backlighting appearance."

Jim Bauer said the object appeared to be, "A set of lights connected together and hovering." At first, he too thought the UFO might be a blimp, but realized that it was not as the lights became dimmer and seemed to go closer together before the object moved away rapidly. Bauer stated that, "It was definitely not anything that I would be familiar with. It was one object. It was definitely something in the sky and it was definitely unidentified."

John Spencer felt the "saucer-shaped" object was about 500 feet above the ground. He described the object in much the same way as the other witnesses and confirmed that it accelerated rapidly and moved out of sight in a few seconds.

Five well qualified observers saw a UFO from five viewing points. All of the descriptions of the object, and its behavior were nearly identical and gives strong evidence that a UFO was seen over Kissimmee City.

NICAP BOARD OF GOVERNORS 1976

John L. Acuff, Jr., Chairman and President

Mr. Acuff was elected Chairman of the Board and President of NICAP in May, 1970. He was the first businessman with a scientific background to serve in these capacities. He is President of his own firm, Acuff Associates, Inc., a management services organization formed in June, 1970, Chairman of J Med Enterprizes, Inc., a biological products company and serves as Executive Director for three scientific associations in addition to his duties with NICAP. He is a native of the Washington, D.C. area, a graduate of American University with a major in biology and minors in psychology, chemistry and mathematics.

Col. Joseph Bryan, III (USAF, Ret.)

Colonel Bryan has had dual careers as a military officer and writer. He initially served in the Army and Navy, then received a commission in the Air Force. While in the latter, he served as special assistant to the Secretary of the Air Force, and spent considerable time in Europe on the staff of NATO. His writing career includes stints with many well known publications, plus extensive free-lance work and the authoring of five books.

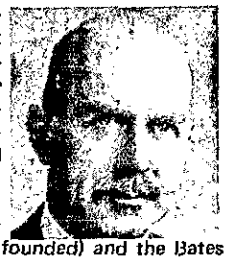
Dewey J. Fournet

Mr. Fournet has played a key role in the UFO story. As an Air Force Major assigned to Air Technical Intelligence in the Pentagon, he worked as liaison with Project Blue Book for Air Force Headquarters during one of the most dramatic years in UFO history, 1952. By training, he is an aeronautical engineer, having studied and taught engineering at Louisiana State University, and worked for Lockheed Aircraft. He was born in Louisiana and is presently employed there as an executive with the Ethyl Corporation.

Sen. Barry Goldwater

Senator Barry Goldwater was born in Phoenix, Arizona. The Senator was the Republican presidential candidate in 1964. When Senator Goldwater was running for president, he was completing his second term as a U.S. Senator from Arizona. During World War II, the Senator served as an Army Air Corps pilot overseas. After the war, he helped organize the Arizona Air National Guard. He remained active in the Air Force Reserve, and became a Major General in 1962. He was working outside of politics after the 1964 presidential election until 1968, when Arizonians again elected him to the Senate.

Joseph B. Hartranft, Jr.



Mr. Hartranft is President of the Aircraft Owners and Pilots Association (AOPA), the major American organization for general aviation. He is also involved with other aviation groups, including the National Intercollegiate Flying Club (which he founded) and the Bates Foundation for Aeronautical Education. Born in Buffalo, New York, he is a graduate of the University of Pennsylvania and private pilot of 40 years' experience. During World War II, he served in the Air Force, and was instrumental in the founding of the Civil Air Patrol. He presently lives in Bethesda, Maryland, where AOPA is headquartered.

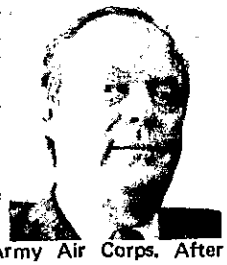
Maj. Donald E. Keyhoe (USMC, Ret.)

Major Keyhoe is reknowned for his work in the UFO field. Author of the 1950 *True* magazine article that helped make UFOs a major public issue, he has written four best-selling books on flying saucers. He served as NICAP Director from 1957 to 1969, helping to make it a highly respected organization. His military career dates back to 1920, when he graduated from the U.S. Naval Academy, and includes duty as a Marine Corps pilot. He later worked as chief of aeronautical information for the Commerce Department.

Charles P. Miller, *Vice-President*

Mr. Miller, NICAP's Vice President, is a Texas-born journalist. At the end of World War II, he came to Washington to help the State Department organize the United States Information Service (now USIA). He then joined the Aircraft Owners and Pilots Association (AOPA), and later was named Vice President for editorial affairs, a post he held until retirement in 1971. He is a graduate of Simmons College (now Hardin-Simmons University), a resident of Washington, D.C., and currently a consultant to AOPA.

Brig. Gen. Robert C. Richardson, III (USAF, Ret.)



General Richardson is one of the few West Point graduates to serve on the NICAP Board. On leaving the Academy in 1939, he attended flight school in Texas and Oklahoma, then took command of a Fighter Group in what was then the Army Air Corps. After World War II, he served in various planning and R & D assignments for NATO, Air Force Systems Command, and Defense Atomic Support Agency. He retired from active service in 1967 and is currently a businessman and security policy consultant.

Dr. Bruce A. Rogers

A native Iowan now living in Arizona, Dr. Rogers is an engineer, physicist, and metallurgist. His last position, before retirement in 1960, was professor of mechanical engineering at Texas A & M University. Prior to that, he taught chemistry at Iowa State College, where he did his undergraduate work. He received his doctorate from Harvard.

Hon. J. Edward Roush

Congressman Roush achieved a permanent place in the UFO field when he chaired the *Congressional* "Symposium on Unidentified Flying Objects," held July 29, 1968, before the House Science and Astronautics Committee. The Symposium served to put on record some of the best opinion currently available on the UFO subject. Mr. Roush is a Democrat from Indiana, a native of Oklahoma, and a graduate of Huntington College and Indiana University. He is a lawyer by profession.

Frank B. Salisbury

Frank B. Salisbury is professor of Plant Physiology and Professor of Botany at Utah State University. He is now on leave from the University and is serving as Plant Physiologist at AEC in Germantown, Maryland.

Dr. Salisbury received his Ph.D. from the California Institute of Technology. While a graduate student, he published an article for "Science" about the possibility of life on Mars. The correspondence generated from the article led to his interest in UFOs.

Dr. Salisbury has lectured on UFOs at universities and other institutions in many states, Canada and in Europe.

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