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A Search For Alien Artifacts On The Moon

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ABSTRACT The moon is an attractor of alien artifacts, hence, the search for alien artifacts on the moon (SAAM) is a promising unique project developed by the Research Institute on Anomalous Phenomena (RIAP). SAAM activity and current results are reviewed.

INTRODUCTION

In recent years, interest has grown among researchers in the search for traces of extraterrestrial intelligence within the solar system. It has been shown earlier that within the time of existence of our planet, approximately 10 stars capable of having inhabited planets approached the Son to distances within 1.5 pc (Arkhipov, 1994a). Such distances can be covered by space probes even at the present day level of science and technology (Project Daedalus 1978).

These researchers have chiefly concentrated on a search for artifacts which are in orbit, on the Earth, or on asteroids. It seems that this list should also include the moon (Graham 1990, Arkhipov, 1993a).

THE MOON AS AN ATTRACTOR OF ARTIFACTS

As early as the 1950s it was noticed that the moon was of great strategic importance for military and weather forecasting observations of our planet. It is reasonable to expect that intelligent beings that might have explored the solar system were interested in the Earth as a unique planet having a rare oxygen-containing atmosphere, and hence a biosphere. Thus, the natural satellite of the Earth could be used as a convenient site for long term observations of Earth.

Additionally, there is a variety of other substantial arguments for placing equipment for prolonged Earth monitoring on the moon rather than in orbit or on the Earth (Arkhipov 1993b, 1994b):

1. The maximum lifetime of probes is at least doubled because the moon shields the device from meteoroids for 2π steradians.

2. Electronic devices will enjoy more stable performance and for longer times because the moon shields equipment from half of the ionizing radiation.
3. Stabilization of apparatus is simple.
4. The mission is easily camouflaged.
5. Lunar soil can be used for life support and repair of equipment.
6. The unfavorable atmospheric, geological, and biological factors of the Earth are lacking on the moon.

It should be emphasized that because of these reasons, landing on the moon would be for ET visitors a necessity rather than a convenience. The indisputable advantages of the moon as an intermediate base for interplanetary flights are clearly demonstrated by the rise of interest of the USA and Japanese space agencies in the moon (Burnham 1991). Thus, the moon should be an attractor of alien artifacts too.

THE UNKNOWN MOON

Only about 0.5 percent of the lunar surface has been photographed with a resolution of 1-10 m (Hansen 1970). But even the 1 m resolution photography can prove to be insufficient for an artifact discovery. For example, a photograph taken by Lunar Orbiter 3 shows the Surveyor 1 station on the lunar surface merely as a light-colored boulder (Jaffe and Steinbacher 1970). Modern lunar base projects (Shevchenko and Chikmachey 1989) contemplate placing manned modules under the lunar surface to protect them from radiation and meteorites. It is not improbable that our predecessors did the same billions of years ago. Since that time traces of their constructions could be destroyed by erosion, making objects hard to find. Indeed, the rock layer of 1-2 m must have been broken during one billion years (Horz et al. 1975). However, a few centimeters-thick layer of lunar regolith is redistributed, i.e., “gardened” every 10^6 years. So, the search for any small artificial imprints in the soil of more than 10^7 years age is naive. In this manner we can explore only about a fraction of a percent of the age of the lunar crust.

But the main obstacle in the search for artifacts is the principle of Occam’s razor which makes researchers regard a priori an artificial object on the moon as a giant natural formation or as an image defect. A geologist, for instance, will hardly identify a separately standing stone as a menhir even in England, let alone on the moon. It is only a criminalist who can distinguish an artificially exploded crater from a natural one. But the moon is usually studied by geologists, geophysicists, geochemists, and astronomers accustomed to dealing with natural formations. All of this is enough to suggest that the moon is practically untouched in terms of the search for alien artifacts on its surface.

THE SAAM PROJECT

The unique Ukrainian establishment now involved in SETI is the new Research Institute on Anomalous Phenomena (RIAP). An interesting project “Search for Alien Artifacts on the Moon” (SAAM) is being developed here.
The SAAM activity is the following (Arkhipov 1994b):
Methods of search for rare traces of intelligence on the moon;

a. Recommendations for an archaeological reconnaissance of the moon;
b. Analysis of reports concerning lunar transient phenomena (LTP)
c. (Cameron 1978) as part of a search for possible manifestations of extraterrestrial intelligence;
d. Most probable scenario of interaction between human and non-human cultures on our satellite.

An LTP network of observers from Belarus, Russia and the Ukraine has been formed for the SAAM project. There is cooperation with the American Lunar Society and ALPO. Of course, LTPs cannot be regarded as evidence of artifacts; rather they are only hints. Nevertheless, a list of possible SETI areas on the moon would be used during some lunar missions of the future. The first complex scientific analysis of this problem has been performed by the author (Arkhipov 1994c).

We cite some interesting, preliminary results below.

ARCHAEOLOGICAL ASPECT

Recently the evolution of small (1-10 cm) artifacts and optical surfaces on the moon has been considered by the author (Arkhipov 1994d). For the first time, the theory of chaotic motions of small objects by the shocks of weak meteoroids was constructed. The following principles of lunar archaeology could be formulated as a consequence of this theory:

1. Only big (> 1 m) ancient artifacts could be found on the lunar surface.
2. The discovery of small (< 1-10 cm) artifacts is most probable in regolith layers at depths of 10 m, and in craters especially.
3. The original site of the artifact usually is different from its discovery site.
4. The excavation must be done within a radius of = 1 km (to cover the dispersal area of non-rolling artifacts at least).
5. The old stand sites localized with high accuracy if the smallest and most dense artifacts are used.

Lava tubes and strange depressions only 10 years old (Shultz 1991) seem to be promising sites for archaeological reconnaissance.

LUNAR TRANSIENT PHENOMENA

Star-like phenomena of 20-60 minutes duration on the lunar surface appear to be possible manifestations of artifacts on the moon. The reflection of sunlight from a motionless lunar mirror would look like this. But the mirror area must decrease exponentially from 1 km^2 to only 1 m^2 during ~3 10^5 years because of the lunar dust cover (Arkhipov 1994d). Nevertheless there are reports (Arkhipov 1993b, 1993c, 1994c)of observations of reflection-like transient points in lunar formations that are too old: Aristarchus, Gassendi, Furnerius, Stevinus, etc. (Cameron 1978), Obviously possible natural mirrors from the active geological past of the moon (> 109 years ago) must be destroyed and covered now (Arkhipov 1993b, 1994c, 1994d). But allow us to note that flat polished surfaces are typical of our own space probes and satellites.

There are many reports (e.g., cases No. 74, 137, 140, 151, 152, 153, 312; Cameron 1978) of nocturnal points of light on the moon. The long life-time of these point phenomena (from 15 minutes to > 2 hours) and absence of visible variability contradict all traditional explanations of nocturnal LTPs (electrical discharges, luminescence of gas, meteor strikes; Robinson 1986). It is not impossible that some fraction of the nocturnal lights on the moon could be artificial.

Of course, the “presumption of naturality,” a principal component of current SETI programs, is ineffective in a search for camouflaged activity. But the well-known intelligence scheme of provocation for responsive reaction seems quite pertinent. The invasions by Earth vehicles in certain lunar regions stimulate a statistically significant, real, temporary increase in the probability of LTPs there (Arkhipov 1994c, 1994e). The first impact of Luna 2 and its booster on September 13, 1959 was accompanied by simultaneous LTPs (flashes, dust clouds) from at least four distant sites (Fielder 1960). The reports of those LTPs were confirmed. Moreover, a clear “invasion effect” was also noted in Mare Tranquilitatis (1964-1969) and in the crater Gassendi (1966-1967). Observational selection cannot be an adequate explanation of this effect (Arkhipov 1994c, 1994e). That is why the “artificial” interpretation of the “invasion effect” is worth discussion.

CONCLUSIONS

Based on these considerations, it must be concluded that:

1. The moon may be an indicator of alien presence in the solar system and beyond during past 4 10’ years.
2. Although the moon is the best studied celestial body, it evidently has not been studied well enough for bioastronomy.

3. There are some phenomena on the moon which could be possible manifestations of alien artifacts.
4. It must be expected that alien artifacts, if they exist on the moon, are concentrated in the region of the crater Aristarchus (lava tubes, nocturnal lights, possible mirrors etc.), on the peak of the southern wall of the crater Malapert (the optimal site for alien reconnaissance devices because the Earth can always be seen there and sunlight is accessible about 94% of the time), in the crater Herodotus (possible mirror), in the crater Gassendi (possible mirror, invasion effect), in Mare Tranquilitatis (unusual depressions, invasion effect),etc.

So, the selenological approach seems very promising for SETI. The work is quite contemporary in the context of modern plans for exploration and colonization of the moon.

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