

ALTERNATIVE SCIENCE?

By a curious coincidence, the titles of all papers in this issue of RB end with question-marks. This is not so strange, though. RIAP aims at scientific studies of *anomalous* phenomena, and anomalistics is in fact a big question-mark, erected before the modern scientific picture of the world. Do we need any "alternative science" to convert the potential of this doubt into the energy of knowledge? As experience tells us, pretensions "to go beyond the limits of science" rarely take their authors somewhere. On the contrary, attempts to approach "anomalous problems" in a rigorous scientific way can be fruitful indeed.

True enough, the number of real attempts of this kind is rather limited, to say the least. Nonetheless, they do merit attention. A prominent place among them is occupied by the problem of the Tunguska explosion. Science got its teeth into this problem, believing it could be solved within the limits of the established paradigm of meteoritics. It was known that on June 30, 1908, a fiery body had flown over Central Siberia and fallen not far from the Podkamennaya Tunguska river. On falling it leveled taiga for tens of kilometers around.

All this looked quite like the picture of the fall of a giant meteorite, its crater and debris remained to be found. The expeditions of the 1920-s and 1930-s, organized by the Academy of Sciences of the USSR and led by L.A.Kulik, were aimed just at normal meteoritic studies. Even when (practically immediately after discovering the area of the leveled forest) it was established that at the epicenter of the catastrophe the trees were still standing upright, showing no sign of a meteorite crater, no real significance was attached to this fact. There was just a little shift from the idea of a single meteorite body to that of a meteorite shower (which had to arise from destruction of the initial body due to air resistance at some altitude above the Earth's surface). Respectively, the forest was supposed to be leveled by the ballistic wave of the collapsed body. L.A.Kulik mistook thermokarst holes for meteorite craters, and nobody should throw a stone at him for this mistake: being a really eminent specialist in meteoritics, he looked for a meteorite, not for something else.

The real importance of the "first Tunguska anomaly" – the overground character of the explosion – was grasped rather late. Even in 1951 the most distinguished Soviet astronomers wrote in the popular-science journal "Nauka i Zhizn" ("Science and Life"): "There is no question that immediately after the meteorite fall, a crater-like depression formed where at present the Southern Swamp exists. It is quite possible that the... crater was relatively small and soon it was inundated with water. In subsequent years it was covered by silt and moss, filled with peat hummocks and partly overgrown with bushes. The dead trees standing upright can be seen not at the center of the catastrophe, but on the hill-sides which surround the hollow..."¹

Meanwhile, five years ahead of that paper, the Soviet engineer and science-fiction writer Alexander Kazantsev paid special attention to the overground character of the Tunguska explosion (as well as to a certain similarity between it and nuclear ones), advancing the hypothesis of an extraterrestrial spaceship which had met with disaster due to a malfunction at the final stage of its space travel. But it was not until 1958 that the work of the first post-war Tunguska expedition, organized by the Committee on Meteorites of the USSR Academy of Sciences (KMET) made everyone involved in the discussion to agree: the Tunguska Space Body (TSB) had in fact exploded in the air and it would be premature to classify it as a usual crater-forming meteorite. Thereafter the number of anomalies discovered on the site of the Tunguska explosion began to grow steadily.

The hypothesis of a thermal explosion, according to which the TSB was a meteorite or the core of a small comet that exploded as a result of the rapid deceleration in the lower atmosphere, met with difficulties trying to assimilate all of them. And as soon as in 1962 KMET got rid of the problem, turning it over to the Commission on Meteorites and Cosmic Dust of the Siberian Branch of the USSR Academy of Sciences (KM SOAN). The TSB problem was, so to speak, exiled to the place of its birth.

In reality it was the Interdisciplinary Independent Tunguska Expedition (its Russian abbreviation being KSE) that became the center of the Tunguska studies. It does not mean, of course, that only KSE and KM SOAN were entitled to study the problem (there have been some research teams outside these bodies, including, in particular, the team of A.V.Zolotov), but the role of KSE in this work can hardly be overestimated.

The Interdisciplinary Independent Tunguska Expedition is a kind of informal scientific research institute aimed at interdisciplinary studies of the Tunguska problem. It was formed in 1958 in the Siberian city of Tomsk, originally under the leadership of G.F.Plekhanov, and consisted at first of a dozen of specialists in various scientific disciplines, mainly physicists and mathematicians. A few years later the "core" of KSE involved about 50 scientists, some 100 specialists per year took a part in expeditions and the field-work on the site, and no less than 1000 researchers working in various institutes all over the country analyzed the collected materials.

KSE performed a really huge amount of the work, and its results have been published in a series of collections of papers. Nonetheless these results remain virtually unknown in the West and not fully assimilated in the CIS. The real extent of anomalousness of the Tunguska phenomenon that was discovered during this research work was hardly perceived outside the narrow circle of specialists on the TSB problem. Besides, there were very few special publications on this topic even in the Russian language, let alone the English one. The paper "The Tunguska Meteorite: A Dead-Lock or the Start of a New Stage of Inquiry?", by N.V.Vasilyev, fills in this gap. Part I of this paper appears in this issue of RB; Part II will appear in the next one. In fact, this is the most comprehensive survey of anomalous aspects of the Tunguska phenomenon ever published, being also the first work describing and discussing these aspects in sufficient detail. The author of the paper, Dr. Nikolay V. Vasilyev, Member of the Russian Academy of Medical Sciences and Deputy Chairman of the KM SOAN, has been the head of the KSE since 1963. One of his main tasks has been interdisciplinary coordination of the Expedition works. Actually, Dr. Vasilyev is in the best possible position to expound the results of the 35-year-long KSE investigations.

In the course of these investigations the problem of the Tunguska explosion has evolved into a multidisciplinary field of research, with its own research community, a set of publications, research methodology, etc. In respect of the "meteoritic establishment" (personified in the KMET), this community turned out to be to some extent alternative, since it was ready to consider *every* hypothesis of the TSB origin, even the technogeneous one. However, KSE combines its unconventional research strategy with strictly normal, rigorous, scientific research methods. Thus, KSE has been performing a normal scientific investigation of an anomalous phenomenon. This investigation can be considered exemplary in respect of its scientific level, seriousness and unbiasedness. If we associate normal science with these distinctive features (and not with the dullish following paradigmatic models even when the latter are obviously inconsistent with the phenomena under investigation), then we are dealing here with *normal alternative science*.

I would also like to emphasize the importance of the not-so-peaceful coexistence of the "technogeneous" (or "artificial", A-) and "natural" (N-) conceptions of the TSB nature for the development of the Tunguska studies. In fact, their entire history, beginning from 1946 (the year when A.P.Kazantsev published his hypothesis) is a history of the A-N competition. The alternatives "nuclear-thermal" (explosion) and "artificial-natural" (body) have remained the keynote in the whole Tunguska affair, especially in the work of the research team led by A.V.Zolotov (at first in the town of Oktyabrskiy, Bashkir ASSR, and later in Kalinin—now Tver).

Zolotov succeeded in establishing, even on the basis of that empirical material which was collected by the middle of the 1960-s, the following important points: 1) the forest destruction was made by the blast, and not by the ballistic wave; 2) the latter one was rather weak, and hence the velocity of the TSB at the final stage of its flight was low (some 1.2 km/s); 3) the concentration of the energy of the explosion approaches that of nuclear ones.²

The question whether or not the Tunguska explosion was in fact nuclear remained thus far unanswered. One can see from the paper by N.V.Vasilyev that some data do support this assumption. However all attempts to prove or disprove it have not met with success. Nevertheless, it seems that the basic tendency of the results obtained favours the artificial nature of the TSB and at least unconventional character of its explosion. The technogeneous hypothesis is thus coming to the fore in the Tunguska studies. However, the "big science" does not appear to be mature enough to treat it unbiasedly.

There certainly may (and probably must) be elaborated different versions of the "artificial" TSB-conception, not only of the "natural" one. The long investigations of the Tunguska explosion area made it possible to realize the complicated and complex character of this phenomenon, which far exceeds the limits of the simplest models still existing in popular-scientific and even scientific literature. In particular, there are some grounds to believe that more than one body was involved in the Tunguska catastrophe.³ Whether this assumption is correct, remains an open question, but when working in the middle of the '70-s together with A.V.Zolotov and his colleagues, I accepted the so-called "model of the air (or rather aerospace) battle". Of course, to assume that there happened in 1908 over Central Siberia an aerial engagement between two or more extraterrestrial spaceships does not mean to solve the problem. I will not assert that this model is fully adequate, but as a working instrument it was helpful.

In conclusion — a few words about a "less spiritual" matter. Even "normal" (in the "high scientific sense") investigations of anomalous objects frequently remain "alternative" in that they are not (or not sufficiently) funded from the social system of science funding. You will find in the present issue of RB a letter of A.V.Arhipov containing intriguing information on the fall, not far from Kharkov, of a strange object, different both from usual meteorites and usual spacecraft debris. Frankly speaking, this object is reminiscent of some rusty fragment of a starship from the well-known movie serial "Star Wars". Just too strange a case to remain unnoticed... But one more point of interest has attracted my attention to it. The author of the letter, when quoting the article by the Director of the Kharkov University Astronomical Observatory Dr.V.A.Zakhozhay, removed its last paragraph, probably believing it bore no direct relation to the affair. Meanwhile, it is also worthy of attention. V.A.Zakhozhay admits a curious character of the find, agreeing that it should be examined, but confesses that the Observatory has got no financial means to perform such a work. I think it is safe to say that on this background the discussions about the "principal" normality or anomalousness of the investigations will hardly be of prime importance.

References

- ¹ Fesenkov V.G., et al. On the Tunguska meteorite. " *Nauka i Zhizn*, 1951, No. 9, p. 20.
- ² Zolotov A.V. *The Problem of the Tunguska Catastrophe of 1908*. Minsk: Nauka i Tekhnika, 1969, p. 74, 110, 118.
- ³ See: Rubtsov V.V. Dichotomy "natural-artificial" and its role in the problem of extraterrestrial civilizations. " *Proc. of 15th Tsiolkovsky Readings, Philos. Section*. Moscow: Academy of Sciences of the USSR, 1981, p. 67. See also: this RB issue, p. 4-5.

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