TEKTITES FROM TIBET - FACT OR MYSTIFICATION? M. Trnka[1], [1]Lithos Co., Ltd., Durdakova 41, 613 00 Brno, Czech Republic (trnka@lithos.cz).

Introduction: Only a few abstracts or collector-oriented articles mention tektites from Tibet. Povenmire report [1] their occurrences north of Lhasa in a triangle between Lakes Zilling, Bam, and Chibchang. It is a large area of at least over 20,000 km2. Other sources [2-4] mention the Changtang area around Lake Motsobuhna as their source area. Unfortunately, a lake of such or a similar name cannot be found in the area in any available map or topographic database. However, all sources consistently indicate that the tektites were collected by the local nomads referred to in Tibetan as Drokpa (referred to as Drokma in all publications on tektites) at the bottom of dry lakes, into which they were transported by streams from the surrounding areas.

Chemical composition, iron oxidation state as well as absolute dating giving the age of 800 ka for tektites obtained from sellers [5-7] are identical to indochinites. Likewise, the appearance is unresolvable from indochinites as well. These facts were used to substantiate the idea that tektites from Tibet belong to the Australasian tektite strewn field.

Characteristics of Tibetan tektites: The appearance of Tibetan tektites is illustrated in photographs in original publications as well as on the Internet, where they are offered for sale (Fig. 1). Small angular fragments with a pit sculpturing and little or no surface abrasion predominate. Open bubbles up to1 or 2 cm in diameter are often visible on their surface.

Fig. 1: Angular fragments of "Tibetan" tektites with unabraded sculpturing. Many of them show imprints of large bubbles. Tektite dimensions 1 to 4 cm. Photo: M. Blood.

The larger fragments can be interpreted to form from strongly anisometric shapes, such as droplets, dumbbells, ribbons, biconcave flat bodies, and discs. Surface of tektites is occasionally decorated with star-shaped features, which formed due to corrosive widening of cracks formed during collisions between tektite and microtektite bodies before they hit the earth's surface. Also common are so-called bald spots, sharply delineated smooth surfaces produced by breaking-off flat surface splinters due to stress during their deposition in sediments. All these features cumulatively indicate that these tektites did not undergo significant transport neither before nor after the sculpture had formed.

Discussion: Since the overall extent of the entire Australasian strewn field is large, the occurrence of tektites in Tibet cannot be ruled out despite the obvious geographic separation of their localities from other parts of the strewn field. Another aspect worth of consideration is tektite preservation under very unfavorable conditions of the Tibetan plateau, which cannot be excluded either. However, the appearance of Tibetan tektites is completely different from that which a knowledgeable geologist would expect.

The first feature that must be considered is their morphology. Generally, the shape of the tektites varies across individual tektite strewn fields. In the case of a well-preserved Australasian field, the clear zonal spatial variability of tektite shapes was observed [8, 9, etc.]. The center of the strewn field is an area a with diameter of about 1000 km where layered tektites of the Muong Nong type occur. In the marginal zone of this area, not exceeding 300 km in width, splash form tektites, usually fragmented, are frequently found locally. They are characterized by distinct anisometric shapes. Most of these tektites contain larger macroscopic bubbles. Only the tektites from this zone have the starlike sculpture features mentioned above.

With increasing distance from the center of the area with Muong Nong-type tektite occurrences, tektites become more isometric. Spherical shapes and cores markedly dominate at distances of about 1500 km from the geometric center of the Muong Nong-type tektite area. Dumbbells change to cylinders due to widening of the middle part, and only slightly elongated droplets occur at the same place. The number of large bubbles in the tektite glass is decreasing and stars are no longer encountered.

The area of occurrence of Tibetan tektites is located at a distance of about 2400 to 3000 km from the

indicated center of the strewn field (Fig. 2). Nevertheless, their shape, number of macroscopic bubbles, presence of stars as well as other properties are identical to the indochinites occurring along the edge of the Muong Nong-type tektite area.

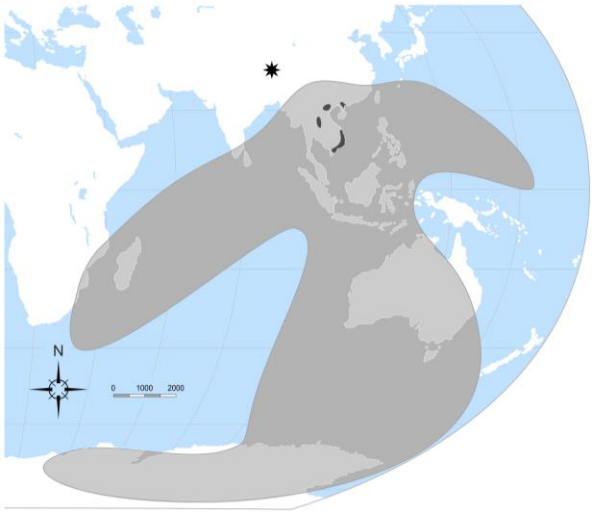

Fig. 2: Map of the Australasian tektite and microtektite strewn field (gray area) showing areas where "Tibetan-like" tektites (black spots) occur. Asterisks indicate the approximate location of occurrences in Tibet based on published data.

The depth and overall character of the sculpture is substantially influenced by the climate [10]. Surprisingly, sculpture of the alleged Tibetan tektites, which had to develop in the dry, cold climate of Tibet, is indistinguishable from the sculpture of indochinites from the humid tropics. Residues of a rusty lateritic material, a product of tropical weathering, even occasionally occur in the tektite surface pits, which logically exclude their Tibetan origin.

The preservation of the surface of Tibetan tektites is an additional feature discrediting the stated site of the find. Tektites from young river sediments, whose material was washed into the drying lakes of the Tibetan Plateau, would display a strong surface abrasion and pebble like shapes. Small angular tektite splinters had to be destroyed during such process. In addition, in an environment where temperatures drop deep below freezing point in winter and everything thaws during the summer, frost-induced surficial phenomena develop on tektites from the top layer of sediments. However, any traces of such abrasion are either completely missing or insignificant.

The credibility of Tibetan tektites is further doubted by their frequency. Originally, they were reported as very rare. Initial reports from the authors of the published information, quoted that the Tibetan tektites came from the treasure of nomads accumulated over a long period of time and later hidden during their moving. At present, however, the supply of Tibetan tektites is huge questioning their rarity. According to a very moderate estimate, Tibet would have to be the source of more than ten thousand tektites in the last quarter of a century.

Over the last twenty years, I have asked several travelers who have headed to the Tibetan Plateau area to try to get some information about the tektites there. And I tried the same thing on my visit to Tibet. In Lhasa or in the monasteries around it, none of us came across Tibetan tektites, or in fact any tektites at all. In addition, none of the interviewed monks or other local people have ever encountered anything like this. This is in stark contrast to the information that local people are well acquainted with the tektites, donated them to monasteries, and monks called them "gifts from heaven" and highly valued them [2-4].

Should, in theory, any Tibetan tektites existed at all, they would probably be abraded isometric pebbles. However, such samples are not among offered items. Considering the mentioned large number of tektites, the specific places of finds would also be known. It wouldn't make much sense to conceal them, because any attempt to search for them in the field at an altitude of about 5,000 m above sea level would be restricted just to local nomads and few well-trained people.

Conclusion: Based on these facts, I am convinced that tektites cannot occur in the area north of Lhasa or other parts of Tibet. The overall appearance and specific features on the surface of the alleged Tibetan tektites are unresolvable from those found on tektites from the province of Guangdong in southern China. In individual cases, it may also be material from Vietnam or from the Khorat Plateau in Thailand. The obvious reason to claim South Chinese tektites as Tibetan is the possibility of selling almost worthless material at high prices.

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