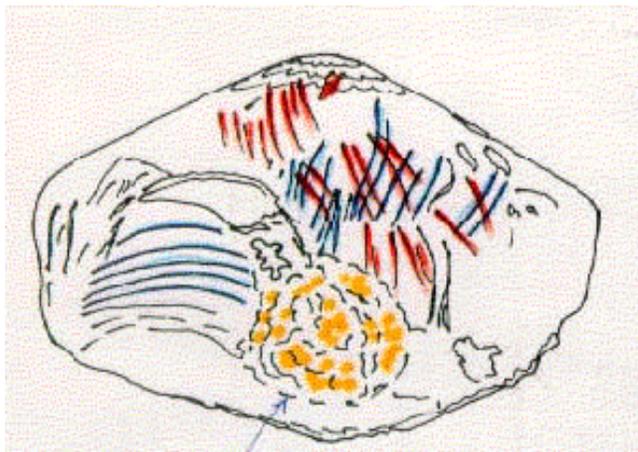


**THE SHAPE OF KABA: TWO MAIN STREAMLINE SYSTEMS ON ITS SURFACE, SHOWING ORIENTED FALL.** Sz. Bérczi, Eötvös University, Depts. G. Technology & Petrology/Geochemistry, Cosmic Mat. Space Res. Gr. H-1117, Budapest, Pázmány P. s. 1/a, Hungary, (bercziszani@ludens.elte.hu).

### ABSTRACT

The Kaba carbonaceous chondrite has been visually observed in Debrecen, Hungary [1]. On its surface two intersecting streamline systems were found. The last leading cone was not the leading side during most time of the oriented fall. There is a broken part on the surface, which focuses the initial streamlines, another system of lineamentation. For later studies we offer to fix a position and coordinate orientation, which is useful when the foliated character of Kaba [2-3] and other CV3 chondrites [4] will be described and compared.

Fig. 1. The double fist sized Kaba meteorite has a rather regular double conic shape. The yellow region is the leading side and center of oriented streamlines (with blue) at the beginning of the fall [5]. Later the meteorite turned over and took a more stable position: the new center of leading side, the conical peak (here upward), is surrounded radially with the streamlines colored with red. This second cone is on the top, shown on Fig. 2. from up.



### INTRODUCTION

On the occasion of the IGCP 384 Annual Meeting Conference on Budapest, a group of participants visited the falling site of Kaba in the vicinity of Kaba village on the Great Hungarian Plain, South-East of Hortobágy, Hungary. On the falling site the participants of the conference collected soil samples in order to look for ablation spherules of Kaba [6]. After field works we could visit and observe the famous meteorite itself. It is the treasury of the Reform Church College at Debrecen. It is stored carefully in a closed, large paper box and handled very carefully. It was allowed to photograph and to draw the meteorite, but not to touch. These on site observations are summarized here and drawings help to fix orientation of the meteorite.

### OBSERVATIONS ABOUT THE SHAPE OF KABA: THE TWO SYSTEMS OF STREAM-LINES

Kaba is a two fist sized, 2.5 kilogramm mass meteorite. On site observations revealed some of the falling conditions of the meteorite. The most important is the following: there was at least one overturning during its long way through the atmosphere. (On site falling observers in the last century said that the chart sized falling fireball arrived from South-East direction, at a rather low angle, flying trough the village.) Kaba has nice, almost regular conical shape, (rather similar to the Apollo cabin). But the original leading side was not the nice cone, but a more or less irregular surface region on the side of the cone (Fig. 1., yellow). There is a system of streaming lines (Fig. 1.and 2., blue lines) which radially surround this early leading peak of the meteorite. The second system of streaming lines belonging to the ideal conical shape is well expressed (Fig. 1.and 2., red lines). This second

center and the circularly downstream flow-direction is also preserved and well expressed by the flowing fronts concentrically surrounding the conical peak. (Fig. 2. all hand drawings by the author)

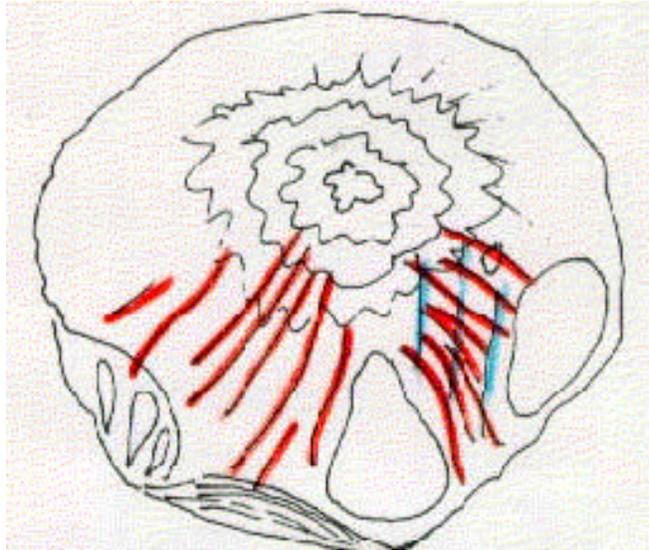


Fig. 2. The earlier (first) cone-like form is oriented toward bottom, almost in the center at the lower edge. This is the view orientation, where no cut surfaces can be seen on Kaba. Here the conical second peak is almost in the center of the meteorite oval. It is surrounded with concentric flow-fronts and the radial system of streamlines. Looking from almost the second cone axis direction, the early (blue) system is not easily discernable. No flow-fronts remained preserved around the early peak, which means that it was the leading side for a shorter interval. There are larger regions which are similar to shell-like dips frequently occurring on iron meteorites (3 elongated closed curves on the bottom of the drawing). The surface is rounded in these regions, too. (The bowl shaped concave dip forms were suggested to have been the cosmic ion-stream cavities, according to T. Földi's model [7-8] formed on orbit by solar UV radiation.)

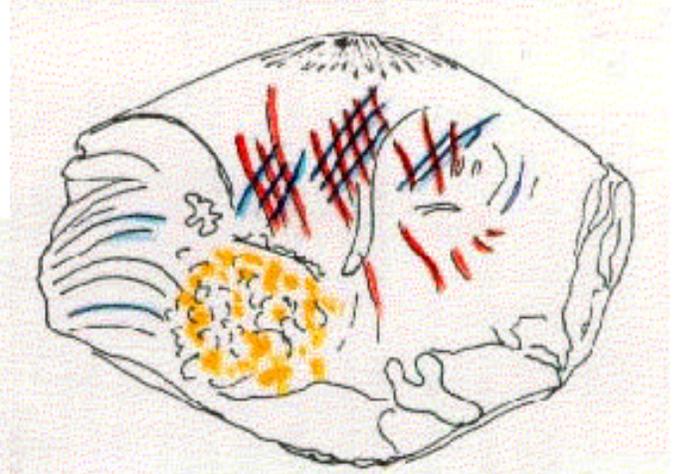


Fig. 3. This exactly equatorial view of Kaba shows that there is a conic structure also on the bottom of the meteorite, too. But no streamline system can be corresponded to this third conic shape orientation.

#### ACKNOWLEDGEMENTS:

Discussions with M. Zolensky about oriented falls is highly acknowledged.

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