

Illustration The Luristan Project - Results from Cut Sword; Part 3

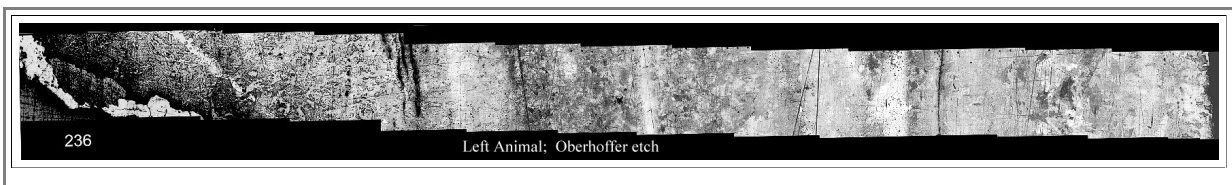
Area Definition

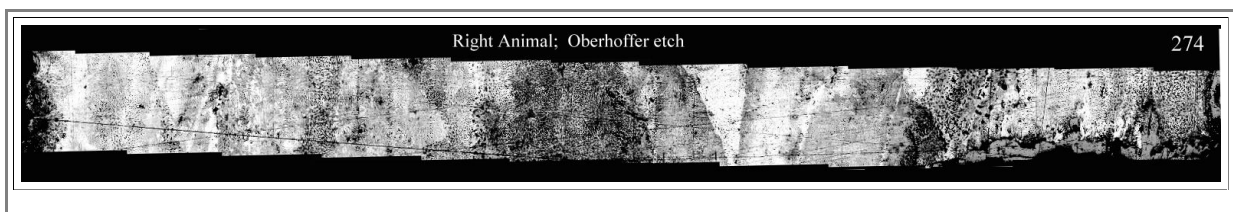
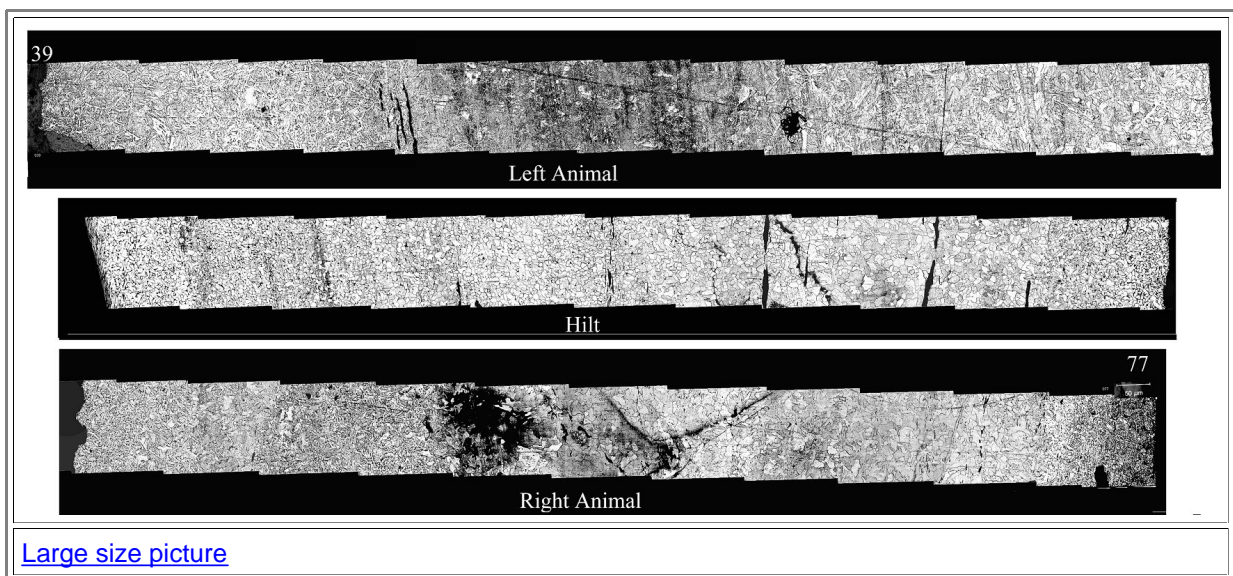
For ease of reference the following picture shows the scan details for the succeeding pictures:



Scan Through Animals and Hilt

First we look at the scan through the animals and the hilt (39 - 77). Nital etch pictures are given for the whole ensemble and Oberhoffer etch pictures for the two animals

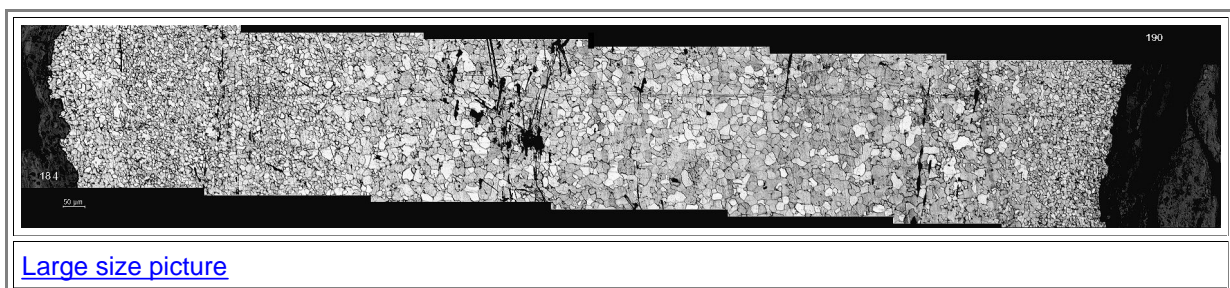




Once more the Oberhoffer etched parts show strong contrast variations compatible with the striations. The Nital etch reveals very inhomogeneous structures in the animal parts, including [Widmannstätten structures](#). The [Large size picture](#) indicates that the white parts are cementite, calling for hypereutectoid steel. Moreover, this indicates that the forging temperature was fairly high and cooling rather fast. The hilt part contains less carbon and is comparatively homogeneous. The distance between the large elongated slag inclusions is roughly constant which might be hinting at a piled structure. As noted before, the repeated heating of the blade / hilt part necessary for forging such a large object would tend to even out structural differences. What we see thus does not come as a big surprise.

Scan Through Upper Blade

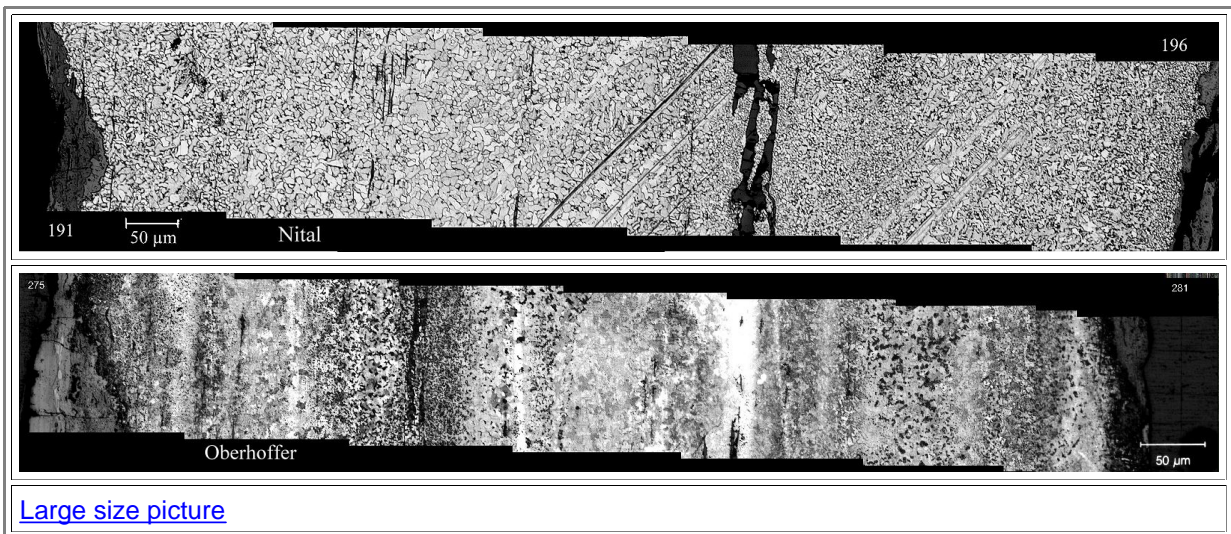
Now let's look at the blade not far from the hilt (upper blade; 184 - 190):



We have a fairly homogeneous piece of ferrite with little carbon but the usual elongated slag inclusions. If the big black "spider" in the middle is a real feature or some artifact of etching is not clear at present. There is no obvious evidence of welding but a closer look does suggest a piled or layered structure produced by fire welding. This is outlined in the [.large size picture](#)

Scan Through Middle Blade

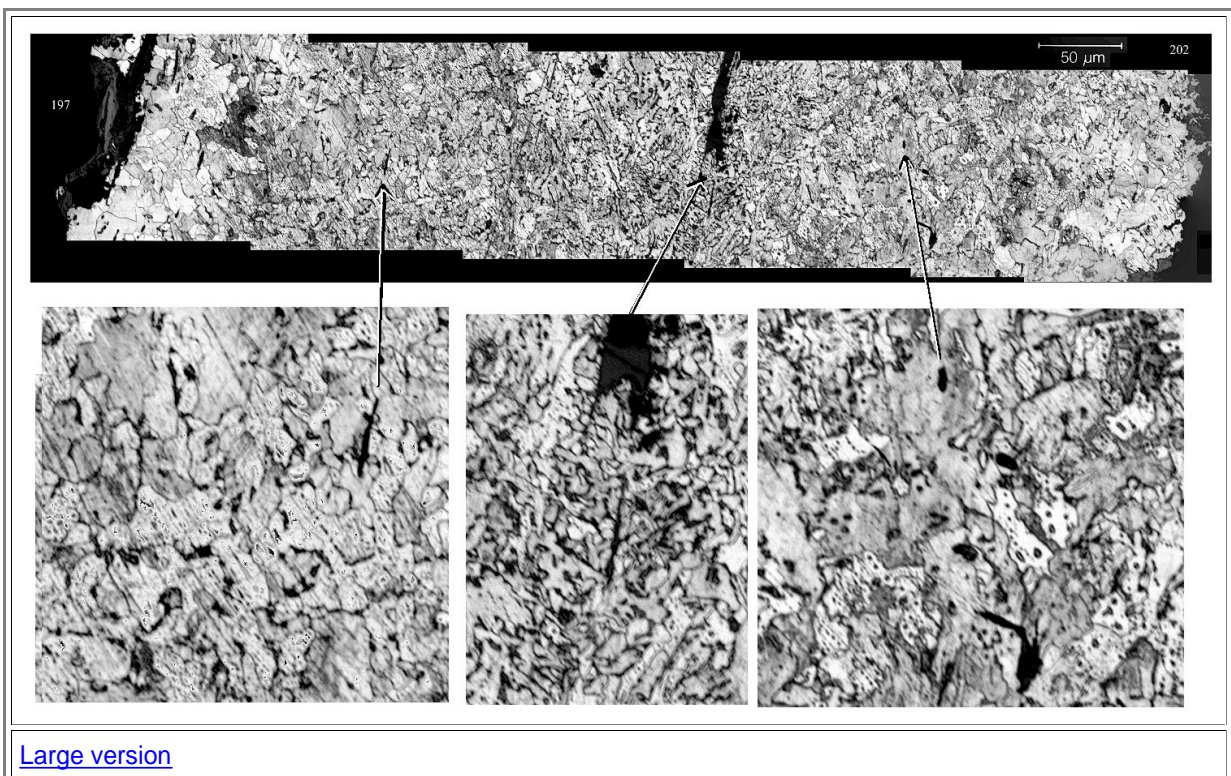
Here is the mid-section of the blade (middle blade; Nital 191 - 196; Oberhoffer 275 - 281):



Strong structural changes across the blade are seen in the Nital etch; they are at least partially due to a changing carbon concentration. Looking closely, evidence for the layered structure can be suspected as above. The Oberhoffer etch produces once more strong contrast variations in possible agreement with the macroscopic striations.

Scan Through Lower Blade

The last scan runs through the lowest part of the blade (197 - 202)



The structure encountered is unlike anything else found so far. The scientific term for a structure like this is: really weird. I have some ideas of what I'm seeing here, but won't speculate at this point.

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- [Part 1](#) Heads
 - [Part 2](#) Pommel and hilt
 - [Part 4](#) Discussion of the results
 - [Large Pictures](#)