

## Early Places With Metals:

### Asikli Höyük

Advanced

Asikli Höyük is similar to [Çatal Höyük](#) but even earlier. Its occupational period was from 8200 BC – 7400 BC. We have rectangular mud-brick buildings entered through the roof; plastered and occasionally painted walls, skeletons in the cupboard excuse me - under the floor, and so on.

It's easy enough to imagine such a settlement; it's not so easy to actually dig it up. Here is a picture of what digging in Asikli Höyük implies.

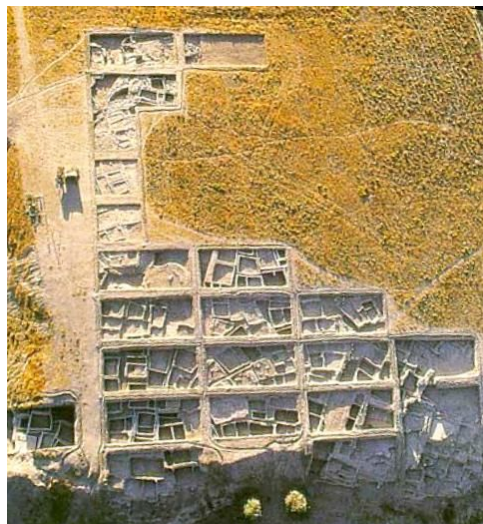


Digging in Asikli Höyük

Source: Mihriban Özbasaran: "RE-STARTING AT ASI KLI" The Anatolia Antiqua XIX (2011), p. 27- 37

New buildings were continuously raised right on top of "collapsed" old buildings, and all that's left in most places is a compact layer of stratified debris forming a mound.

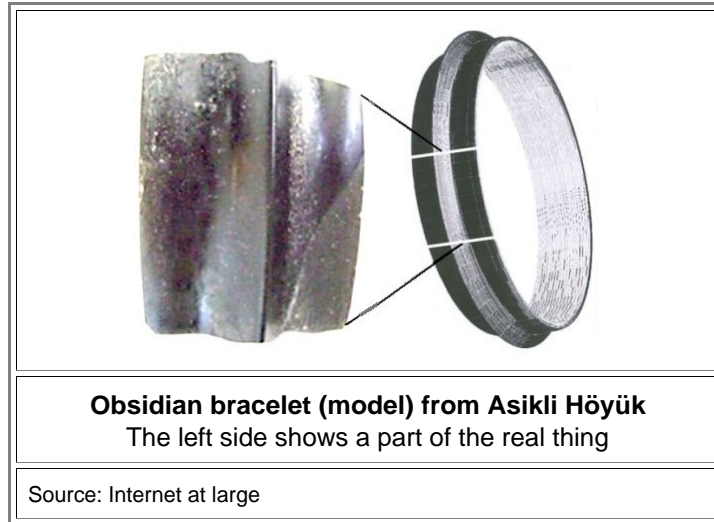
What one can see on a visit looks like this:



## Asikli Höyük today

Source: Mihriban Özbasaran: "RE-STARTING AT ASIKLI" The Anatolia Antiqua XIX (2011), p. 27- 37 and Hadi Özbal: "Ancient Anatolian Metallurgy". Internet presentation. With friendly permission.

Asikli Höyük, like [Çatal Höyük](#), may have "lived" from the obsidian trade. Plenty of the stuff was found there, and the artisans of the place could do amazing things with this hard and brittle material (it is essentially like glass). The (parts of the) obsidian bracelet shown below has been investigated in great detail<sup>1</sup>. As one would have guessed, it took a lot of skill for making it with only primitive stone tools



The Asiklians left some burial gifts; a potpourri is shown below. It is of interest for us because it is supposed to include *copper things*



Well, I'm not sure if I see copper there. So let's look at the real stuff:



**Copper beads from Asikli Höyük**

Source: Master Thesis of F. V Güngördü; who had it from Esin, U., Harmankaya, S. 1999. "Asikli"; In Özdoğan, M. and N. Başgelen, eds., "Neolithic in Turkey, The Cradle of Civilization, New Discoveries". İstanbul: Arkeoloji ve Sanat.

- That's it. There are some more beads and other small parts, and some of them have been analyzed in detail. They go back to the 8th millennium and were made from native copper, mostly by producing thin sheets by hammering, followed by rolling into beads. The microstructure analysis indicates some annealing, so exposure to high temperatures after the hammering (or in between) must have taken place. Technically, annealing means that grain boundaries and dislocations can move with some ease, which in turn means that atoms become mobile via vacancies; consult the [diffusion super module](#) for details. Typically, this happens at temperatures around 2/3 of the melting temperature. For copper (melting temperature 1084 °C; 1982 °F) temperatures around 600 °C (1112 °F), easily reached in a regular fire, are thus sufficient. One might conclude:

**For people who could make the objects shown above, the production of some copper beads should not have been a problem.**

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<sup>1)</sup> L. Astruca et al.; "Multi-scale tribological analysis of the technique of manufacture of an obsidian bracelet from Assikli Höyük", Journal of Archaeological Science, Volume 38, Issue 12, December 2011, Pages 3415–3424