

# Metropolitan Museum

## New York City / USA

### Mr. Föll goes to the Metropolitan

Advanced

The Metropolitan is one of my favorite museums and I try to visit it whenever I hit NYC. Marvelous stuff is on display, and you will always get your money's worth when going there. Let me state right at the beginning that it has wonderful Internet pages with pictures and information to about every object they own, not to mention a zillion books and magazines about their stuff. This is not a matter of course. Other major museums have practically nothing in both categories right now (2015)

- However, as far as "old metals" are concerned, some improvements are possible. I won't go into much detail but just give a few examples; first from an Aug. 2011 visit.



- So what is it? Copper or bronze? One might guess that "Early Bronze II-III" refers to some part of the "bronze age". Some visitors might be aware of that, but very few will be familiar with that specific fine-tuning of "[the ages](#)". Not to mention that the early bronze age divisions for the middle east, according to wikipedia, are as follows:  
Early bronze age (EBA): 3300 - 2100

EBA I: 3300 - 3000

EBA II: 3000 - 2700

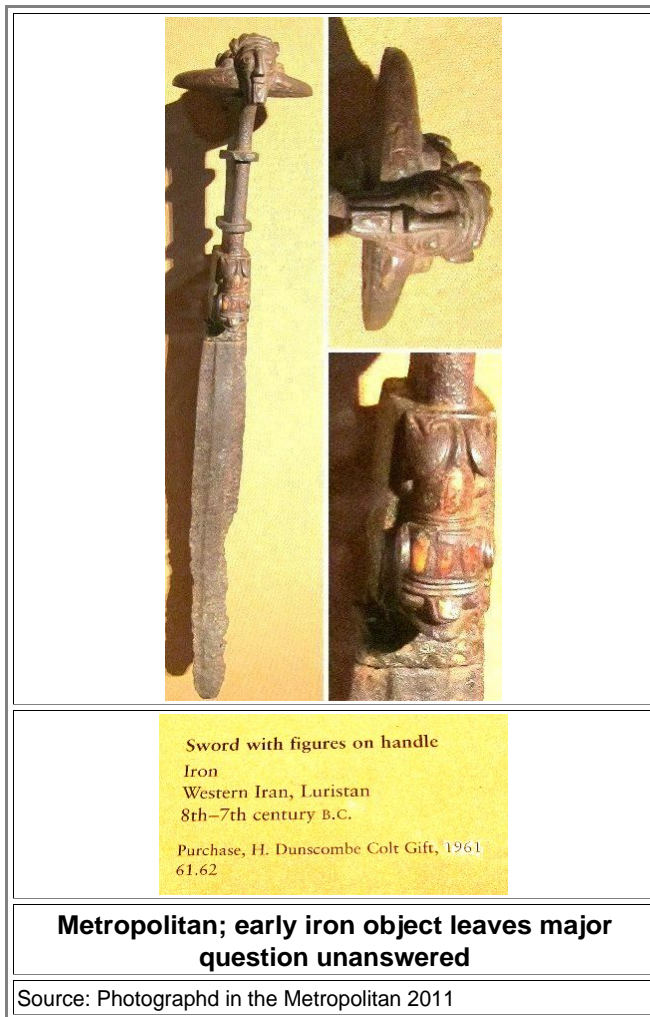
EBA III: 2700 - 2200

EBA IV: 2200 - 2100

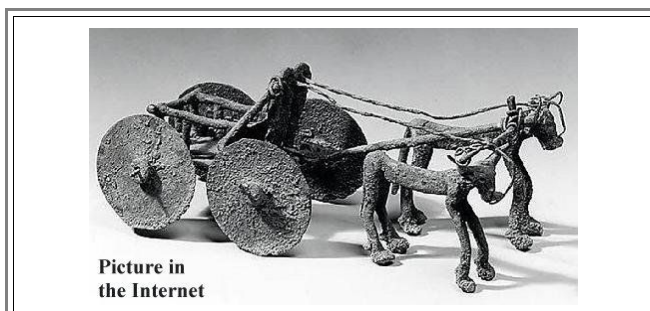
The time slot given of 2400 - 2000 then would be III - IV.

- More to the point: Was this "wagon drawn by bulls" *cast* or *banged into shape* with a hammer? Looks like the latter to me, with individual parts joined by some hammer-welding at medium temperatures. If so, why wasn't it cast? The technology should have existed in 2400 BC. How do we know those animals are bulls and not cows or oxen?

Here is a "[Luristan sword](#)", an extremely remarkable object with respect to early iron. When I wrote what follows I wasn't aware of just how remarkable:



- While it is possible that a good smith could have *forged* the handle of this sword, it does look like it was *cast*. If it was *forged*, i.e. made by hammering, the smiths' in Luristan (wherever that is) must have been ahead of others by half a millennia or so. If it was *cast*, what is it? Certainly not iron or steel, at best *cast-iron*. Did the old Luristanis have a cast-iron technology? Could it be that the handle is actually some bronze?
- Lots of questions come up when one wanders through the (marvellous, certainly!) exhibition. Maybe the book shop helps, where one could find the extensive descriptions in some book relating to the exhibition?
- Well, maybe. I don't know because there are hundreds of books. It simply takes too much time to find out if the answers to one's questions could be found in one of them.  
 But we are living in modern times, so there is always the Internet.  
 I have to hand it to the Metropolitan. It has wonderful Internet pages. So let's see what we can find out about early metal objects in the Metropolitan.
- Here is what you find in the Internet about the objects from above (I changed the size of the pictures somewhat and edited the second one):



### Wagon drawn by bulls

Period: Early Bronze Age II-III  
Date: ca. 2700–2000 B.C.  
Geography: Anatolia  
Medium: Copper  
Dimensions: 3.31 x 2.99 x 8.86 in. (8.41 x 7.59 x 22.5 cm)  
Classification: Metalwork-Sculpture  
Credit Line: Edith Perry Chapman Fund, 1966  
Accession Number: 66.15

This artwork is currently on display in **Gallery 403**



### Sword with figures on handle

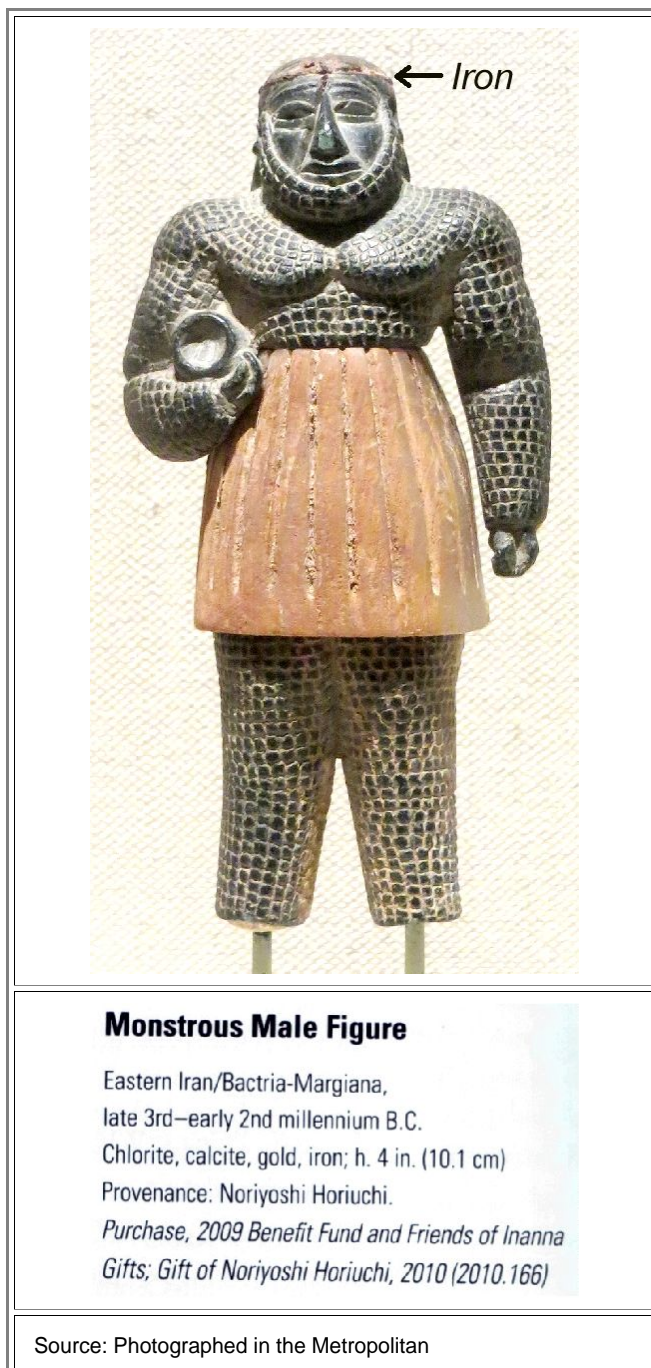
Period: Iron Age III  
Date: ca. 8th–7th century B.C.  
Geography: Iran, probably from Luristan  
Medium: Iron  
Dimensions: 19.72 in. (50.09 cm)  
Classification: Metalwork-Implement  
Credit Line: Purchase, H. Dunscombe Colt Gift, 1961  
Accession Number: 61.62

This artwork is currently on display in **Gallery 404**

- This is better - but not yet what one would have hoped for. Some other objects, however, are [much better described](#) in the Internet than in the exhibition.

### Prof. Dr. Föll Writes to the Metropolitan

- I do not only visit the Metropolitan whenever I'm in NYC; I (via my wife) have some kind of membership and receive some periodicals on a regular base. In the "Bulletin" of the Metropolitan from fall 2010 I found a picture and a description of this:



Now that is interesting. Iron from around or even before 2000 BC? Which part of the figure is iron? Was it cast or hammered?

The main text not shown here doesn't offer any information to these question. And what the f--- is chlorite? To me or anybody else with a minimum of chemistry knowledge, chlorite is the name for the anion  $\text{ClO}_2^-$ , forming minerals like sodium chlorite ( $\text{NaClO}_2$ ), magnesium chlorite ( $\text{Mg}(\text{ClO}_2)_2$ ), and so on. Wikipedia agrees.

I decided to inquire and wrote a *letter*, asking what to make of the questions above. Eventually (those people are busy); I got an answer. The questions I had were answered as follows:

1. "This figure (2010.166) is composed three main parts: the upper body made of chlorite with a headband inlay made of iron and a white, unidentified inlay in the lips (probably shell or calcite); the skirt made of calcite with gold foil inlaid in the vertical grooves and the legs also made of chlorite."  
Now that is helpful
2. "Chlorite" is a general term referring to a group of mostly monoclinic (also triclinic or orthorhombic) micaceous phyllosilicate minerals. The general formula may be stated  $A_{5-6}T_4Z_{18}$ , where  $A=\text{Al}, \text{Fe}^{2+}, \text{Fe}^{3+}, \text{Li}, \text{Mg}, \text{Mn},$  or  $\text{Ni}$ , while  $T=\text{Al}, \text{Fe}^{3+}, \text{Si}$ , or a combination of them, and  $Z=\text{O}$  and/or  $\text{OH}$ .  
Well, yes - but how do you know it's "chlorite" without knowing which kind?
3. "The use of iron on this figure is very early and it is *assumed* to be of meteoric origin since the technology necessary for the extraction of iron from iron ores would not be known until the 1st millennium BCE. No analysis has been carried out on the iron. Meteoric iron is often thought to contain higher amounts of nickel than that obtained from the reduction of terrestrial ores but recent work suggests that this is not necessarily the case. The iron was probably broken off in bits and crudely hammered into shape as forging and casting technologies were not known until much later."

This is the standard response - in case of doubt early iron is [meteoritic iron](#). However, as far as I know, that claim has rarely been found to be correct when a test was done later.

4. Regarding the 8th-7th century iron alloy sword (the Luristan sword [shown above](#)): *it was forged in 9-11 separate components (plus the [carnelian inlays](#)) that were fitted together and locked in place mechanically—possibly with the application of heat. It represents an incredible level of skill at such an early period of the “Iron Age” and is one of the technical masterpieces in the collection. (see [O. Muscarella](#), *Bronze and Iron* (New York 1988), p. 184-189.*

OK - that is good information. Why can't it be given in the exhibit / Internet pages, considering that we have a "technical masterpiece"?

▶ The conclusion is clear. They have a lot of good information about the objects they show. Well, big deal! That's what one would assume, of course. In case of doubt, they simply make up information (as we all do): it's meteoritic iron, man! As long as you don't allow somebody to check that claim, you run no risk.

- Why the Metropolitan and most others museums refuse to give the *proper* information as far as they have it in the exhibits or in the Internet is beyond me. It would not take up more room than what they did write, especially if they leave off completely useless information.

### The Tale Continues...

▶ While O. Muscarella's book was not all that easy to get, my University librarians eventually managed to round up a copy. It's a big volume, full of many (black-white) pictures of mostly bronze objects. I couldn't find the Luristan sword at first because I looked in the [wrong chapters](#) but I did learn a lot of fascinating things from the book. Enough, actually to produce a whole module about [iron swords from Luristan](#). I also give you the relevant pages as a [direct quote](#).

- However, my [main question from above](#) has still not be answered satisfactorily. O. Muscarella emphasizes that everything was forged and suggests that the intricate figures were obtained by swaging using "moulds". One could bang soft iron into a mould with a hammer of course, but I wonder what kind of mould would take that (at the high forging temperatures!) and how it was made.
- Once again I conclude: The Metropolitan displays an object that is quite interesting from several points of view - and makes absolutely nothing out of that!

### ... and Continues

▶ In July 2013 I made it once more to the Metropolitan. I wanted to take some more pictures, in particular of the Luristan sword. That didn't work out, instead I experienced my first GAB.

- If you are a German, you know what a **GAU** is: The "**Größter anzunehmender Unfall**" or *maximum credible accident* for a nuclear power plant. It is one of the best known acronyms in Germany and played a role in the decision to abandon nuclear power for good.  
In the same spirit, a GAB is the "**Größter anzunehmender Blödsinn**" or *maximum credible idiocy*. I ran into it quite unexpectedly when I entered the Metropolitan and wanted to check my rucksack containing some unopened bottles of red wine.

## They wouldn't let me in!

"Sorry Sir, fighting terrorism, you know"! Unopened bottles of what is clearly red wine obviously constitutes a threat to the Nation of the Free. I had to toss about \$ 100 worth of wine into the garbage can!

To add insult to injury, the Luristan sword I wanted to get pictures of - a wish that made me sacrifice my wine - was *no longer on display*. The display of ancient things had changed since I visited last (it got somewhat better but not yet really good).

- In order to get at least something out of this expensive expedition (\$25.- entrance fee + about \$ 100.- for the wine), I went to the picture exhibition, intend on increasing my collection of [Leda's and the swan](#).  
They don't have one!  
No more need to be said.

### ... and Never Ends

▶ Searching for something else I found this on the pages of the [Louvre](#) in Paris:



- Looks familiar? The Louvre, however, has far more to say about this kind of composite figure than the Metropolitan: "Scarfaces" are anthropomorphic dragon-snakes belonging to the mythology of central Asia, where they incarnated the hostile forces of the underworld. Their power was controlled not by killing them but by reducing them to silence by a slash across the right cheek. Thus dominated, they could become benevolent". The Louvre also remains vague about the iron: "The head is circled by a band of meteoritic iron and there is a small hole in the forehead for fitting horns". The complete descriptions given by the two museums can be found [here](#). And [here](#) is yet another one. It's from the so-called Foroughi collection and now in a Teheran museum. Since only 4 scarfaces seem to be known, the three I give you here is a real treat! And now I'm going to top myself: [here is No. 4!](#) Even better: [No. 5!](#) And [No. 6](#) A direct comparison of all 5 scarfaces can be found [here](#).