

Damascene Meanings

How to Spread Confusion

Illustration

Enter the words "*damascene process*" into a search engine and you will experience a surprise. All articles coming up relate to the making of tiny metal wires on integrated circuits. Enter "*damask*" (or the German "*damast*"), and you get links relating to the making of special fabrics. Enter the verb "*damascening*" (or German "*damaszieren*") and you get many meanings. Foremost will be: damascening = art of inlaying different metals into one another, but the welding of different kinds of steel is also covered by the term. Enter "*damascus steel*" and you find references to wootz steel. Try the same thing in German ("*Damaszener Stahl*") and you are referred to pattern welded swords. And not to forget: a *damascene* was and is simply a person from Damascus, the capital of Syria. To a pigeon aficionado, however, it is a special breed of pigeons.

Obviously there are many meanings to words containing the root "damascene". To make things even worse, the meanings of the same word in English or German might be quite different. Enough confusion? I think so.

The question is: who is to blame? And what does the city of Damascus have to do with all of this? I'll try to give some answers but it is neither possible nor sensible to go into every murky detail. But first let's go through some of the meanings alluded to above.

Damask fabric. My mother was proud of her "damast" table cloth and bed pillow covers. They were only used on special occasions. What her damask looked like can be seen below. Damask in its original sense was a name given to one of the five basic weaving techniques of the Byzantine and Islamic weaving centres of the early Middle Ages. Damascus was such a center but neither the only one nor particular special, it seems. Nevertheless the "West" called these special imported textiles "Damask".

The damask weaving technique is rather tricky (it employs one warp yarn and one weft yarn, usually with the pattern in warp-faced satin weave and the ground in weft-faced or sateen weave; whatever that means). It makes no sense to feed an expensive technique with cheap materials and therefore expensive materials like silk are typically used for making damask.



Damask table cloth and napkin

Source: Commercial

Damascening is the art of **inlaying** or **encrusting** different metals into one another. Typically gold and silver are inlaid into a dark or black oxidized steel substrate. The effect is fetching (note that I avoid the term "kitschy").



- Grooves or undercuts in the substrate are made with a chisel, followed by hammering wires of the other metal into the grooves. The Japanese excelled in this technology, as did many other cultures. The ancient Greeks, for example, used the technology already in the Bronze Age.

The city of Damascus is in no way special to the technique. The term "damascening" for the technology seems to come from England, where the resemblance of some objects made this way to ["watered silk"](#) lead to an association with wootz swords that exhibit the "watered silk" pattern, and these swords were (wrongly) called damascene swords then. A whole cascade of nonsense, in other words.

As pointed out above, the corresponding German word has an entirely different meaning. The proper German word for "**damascening**" is "**tauschieren**", which in turn is derived from the Arabic: tauschija = coloring.

- Damascene Technology in Microelectronics** This is essentially damascening as defined above once more - just on an extremely small scale. In essence, you "chisel" a groove, about half a micrometer deep and many micrometers long, into some isolating layer on a microelectronic chip and fill it with a metal, typically copper. Now you have a tiny copper wire, going from here to there on your chip, connecting whatever needs connecting. Make 50 billion or so of these wires in the right places, together with a similar number of transistors and so on, and you have a working chip. No microchip has ever been made in Damascus (or any other Arabic City), so "damascene technology" has nothing whatsoever to do with Damascus.

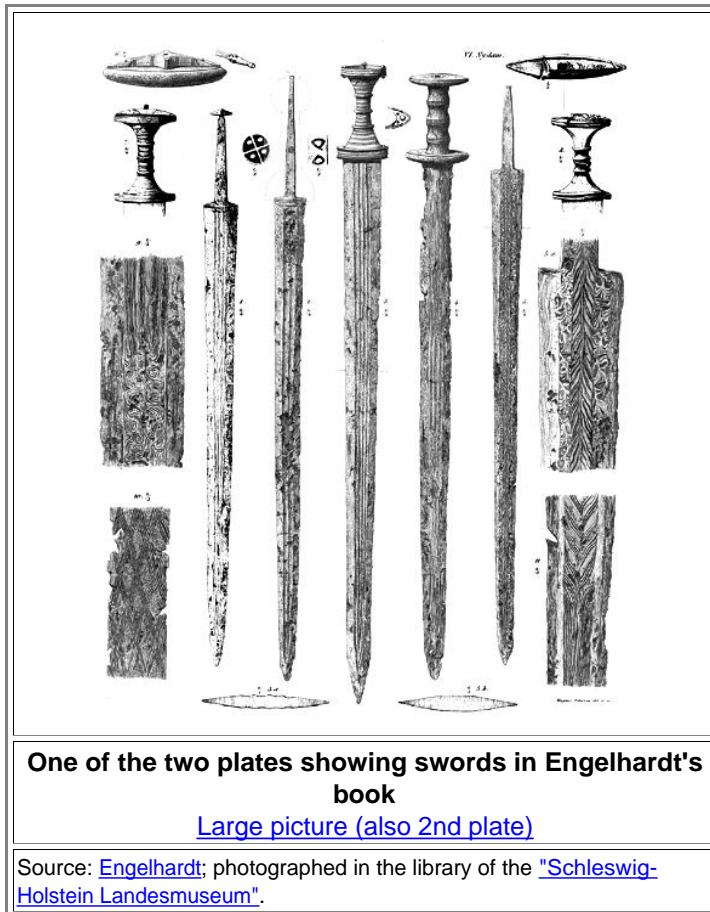
Oh, and don't ask me how it is done - or I will tell you!

Damascene Swords

- Enter the German words "Damast", "damaszieren" or "Damaszener Stahl" into a search engine and you will be rewarded with plenty of pictures that show pattern welded steel structures, mostly made by modern smiths, interspersed with the occasional damask table cloth or bed spread. Texts coming with the pictures often refer to the origin of these technique in the orient or the city of Damascus. Somewhat more sophisticated contributions maintain that European smiths tried to emulate the "true damascus" blades; i.e. wootz blades, by pattern welding.

This is utter nonsense!

- The roots of North European pattern welding technique are much older than the [making of "wootz" blades](#) in India, Iran, Asia, wherever. Moreover, when the crusaders encountered wootz blades, they might have been impressed by the sharpness of these blades but saw no reason whatsoever to emulate the technique. They had long since outgrown the pattern welded blades of their ancestors. Crusader swords were made from solid steel and good enough for what they had in mind. They did make it into Palestine and so on for quite some time, after all, while the "Sarracenias" with their (maybe) wootz blades did not get all that far during the time of the [crusades](#).
- It seems that [Conrad Engelhardt](#), the guy who was instrumental in unearthing the [Nydham treasure](#) with all its pattern welded swords, was the first one who used the terms "damascene" in connection with old pattern welded swords. He realized that there was a pattern produced by different metals. He had some magnificent lithographs made to illustrate this; they can be found in his [major book](#). Several pattern welded swords were rendered in great detail, including swords with the special [chevron](#) and [palmette](#) pattern. Here is plate VI:



That **Engelhardt** used the word "damascene" in the context of composites of two different kinds of iron / steel is not surprising because pattern welded blades, and in particular pattern welded gun barrels, were enjoying large popularity in the 19th and early 20th century. In Germany (and presumably also in Denmark) this was called "Damaszenerstahl" for all the usually wrong reasons. I'll call it pattern welded steel for all the reasons given above. In German the proper name is "Schweissverbundstahl", literally "welded composite steel"; the patterns are "Schweissmuster" or weld patterns.

Engelhardt, however, may not have worried much about the precise meaning of "damascened" because in his book he equates "damascening" not with pattern welding but with *inlaying* or *encrusting*.

Here is his text:

"Fortunately, the discovery of more than a hundred swords in Nydam moss supplied this deficiency. The Nydam swords are of iron, long, straight, and two-edged; the blades are for the most part - ninety out of a hundred - richly damascened in various patterns, and afford good illustrations of the poet's sword, " the costliest of irons, with twisted hilt, and variegated like a snake" (Beowulf). Iron wires, arranged in patterns, have been laid in grooves made in the surface of the blade, and then the whole has been welded together, so that the surface must originally have been smooth. That we now see the patterns raised is probably owing to unequal oxidation. Among the many elegant and ingenious patterns represented on Plates VI and VII., I would call special attention to Fig. 5 and 5a, with borders of flowers freely rendered in twisted iron wire."

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- Unfortunately, Engelhardt's use of the word "damascene" in the context of ancient pattern welded swords survived to our time. Ironically, the chevron or palmette patterns he encountered might have been produced to some extent by "damascening = encrusting and *not* by pattern welding. However, all the other patterns are due to pattern welding.

How Engelhardt could be ignorant of all the pattern-welded stuff right around him, in particular [gun barells](#)), is beyond me.

- ▶ With all this hindsight there is no longer any reason whatsoever to refer to piling in general and pattern welding in particular by words that contain variants of "damask". People are generally not reasonable, however, and are going to talk about "damascene steel", "chevron damask patterns, damascening a blade" and so on.

[Manfred Sache's](#) wonderful book is called "Damaszener Stahl". So be it. As long as it is clear what is meant, there is no problem.

I, however, will not do it. I will try to avoid all the damascene words as far as that is possible.

- ▶ All that remains to do is to consider the "**true damascene**" swords. That term typically refers to single-edged curved swords ([scimitar](#), kilij, shamsir, tulwar, ..) that were made from [crucible steel](#) and show the "[watered silk pattern](#)" or in short "water pattern". Wootz blades, in short. Note once more that most swords made from crucible steel [do not show the water pattern](#), either because it is not there or because it has not been made visible.

- Does "true damascene" make any sense? Where these swords really made in the City of Damascus? Well - why not? "True damascene" or wootz swords were made in many places for quite some time. Damascus, however, was not special in any way. The core region for making ancient "wootz swords" was rather present-day Iran, while in newer times (up to the early 19th century), the honor may have to go to India.

So once more and finally:

**There is no factual reason to invoke
Damascus in anything related to
Iron Steel and Swords!**