



# KNIFE DESIGN CONCEPTS

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# What transforms a tool



Early Rifleman's knives on this and last slide.  
Maker not identified.





Into a piece of art?



# Topkapi dagger, Istanbul



Ear dagger, 17<sup>th</sup> century



# Persian knife





# Moro Barong



# Tai Goo knife







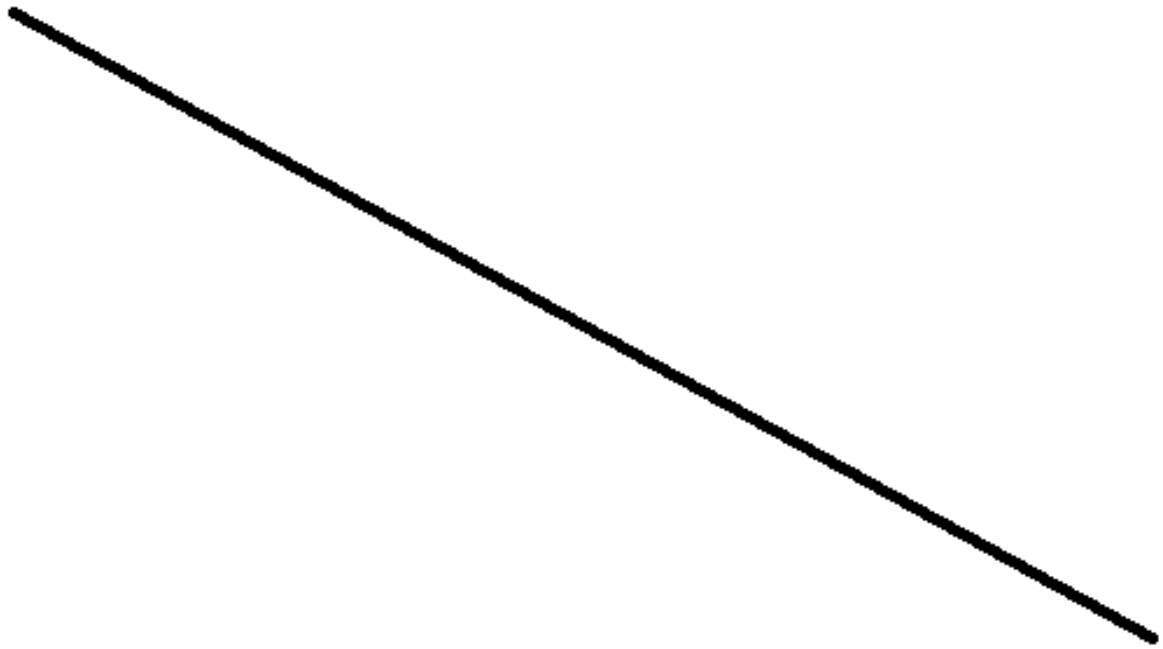
# Disclaimer

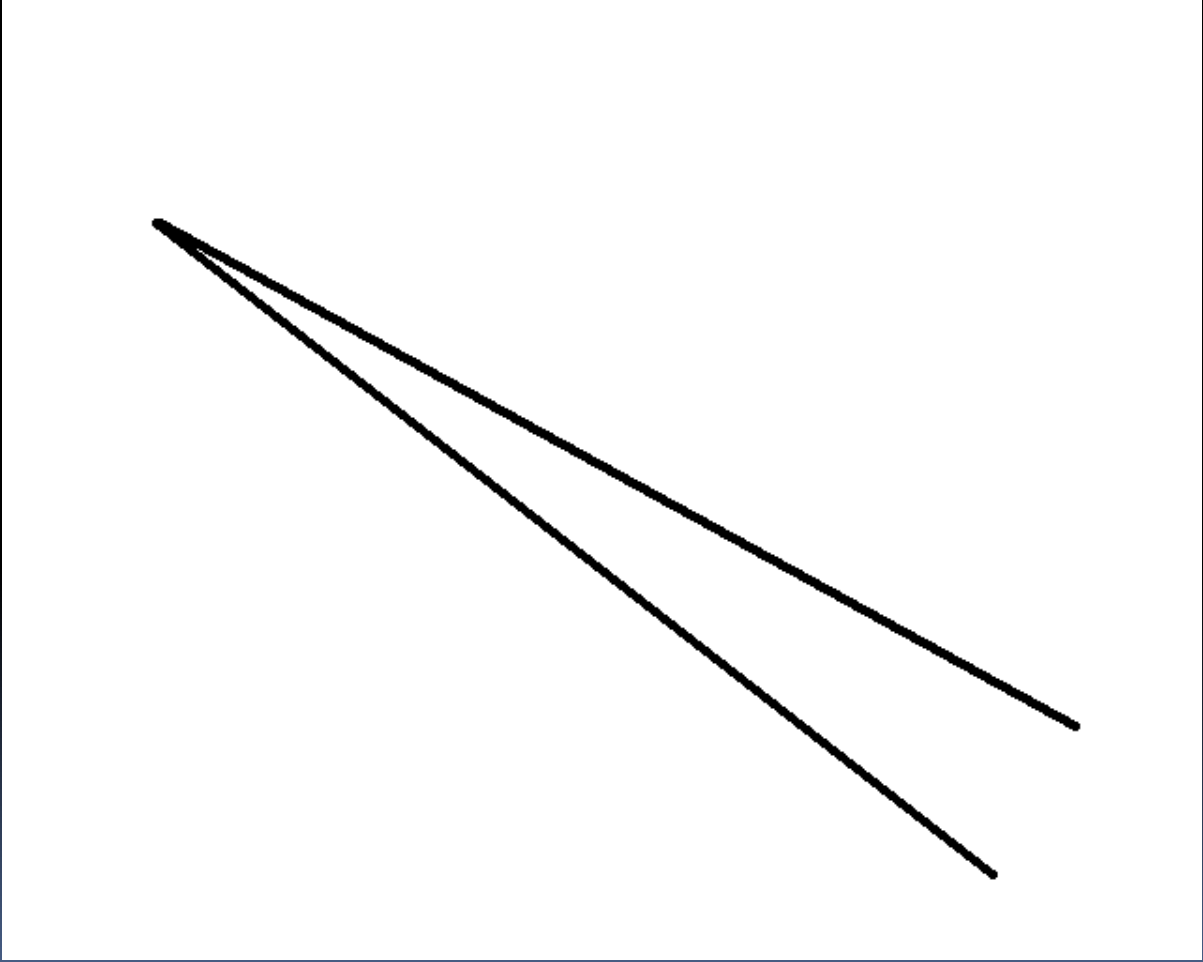
- There are no rules. These are only guidelines and a starting place for talking about design.
- As in all art, the beholder defines it for him or her self.
- Still, there are norms and general agreement on certain design constructs. Here is a beginning of a knife design primer.

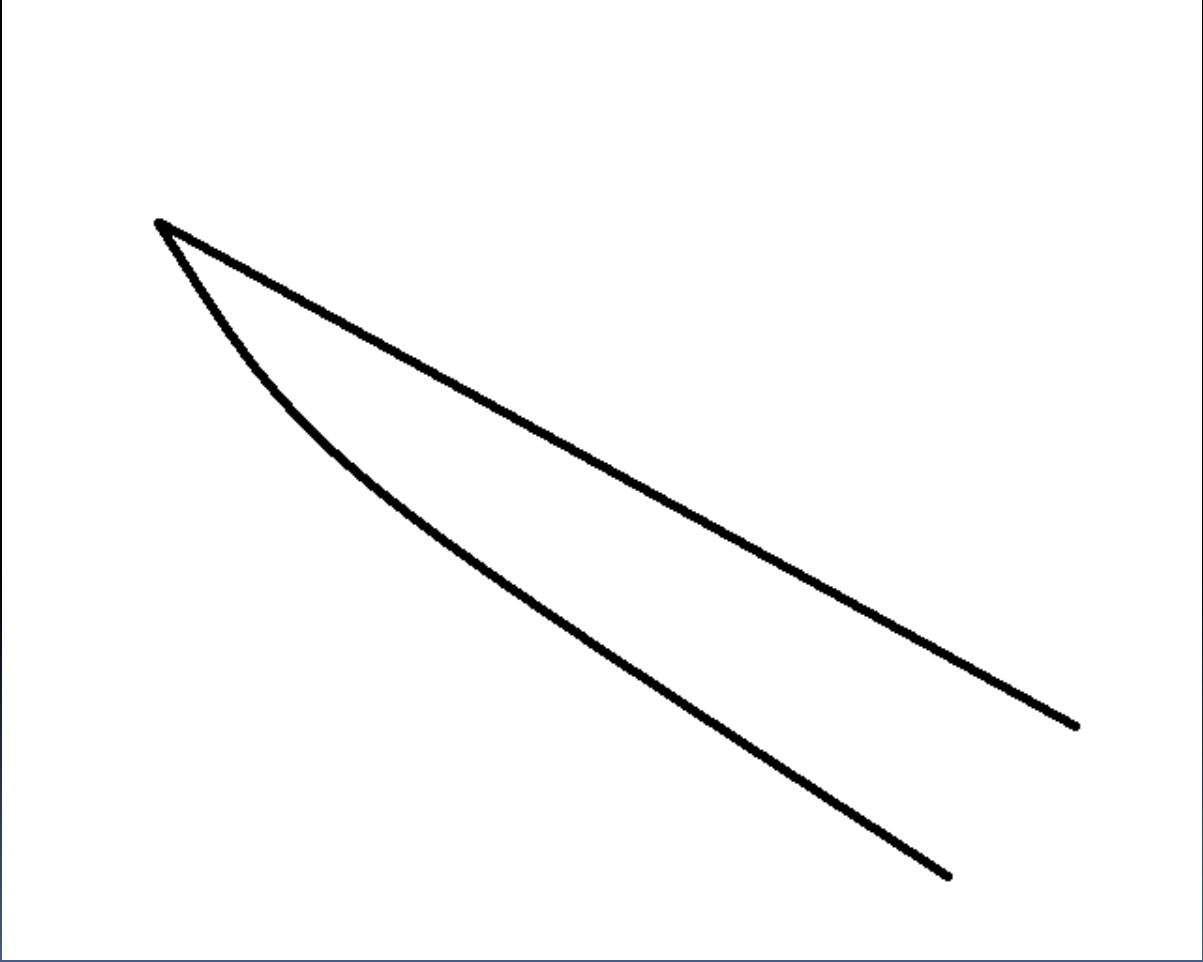


# LINE

We all know what a line is or do we? A line is what connects two points but a line can be straight or curved. How the line changes affects our emotional reactions to the object. Curves often are more pleasing to the eye than straight lines. Abrupt changes in a line draw the individual's attention to that place on the line. Many knifemakers and collectors may describe a blade as having "nice lines". The easiest way to think about line is to trace a blade and look at the lines you just drew. Are they smooth and clean and do they appeal to an esthetic sense?









# Pesh kahb



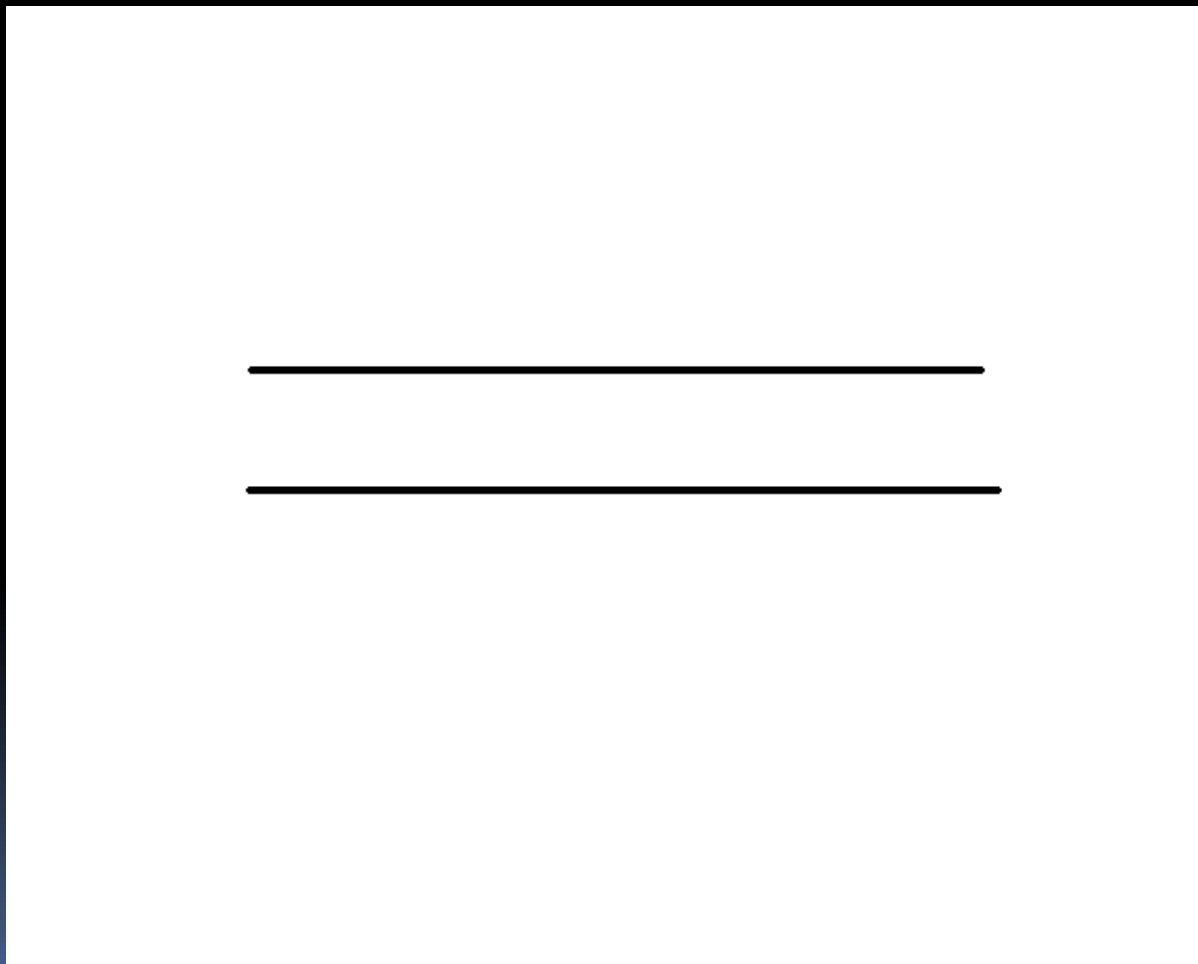
kukri

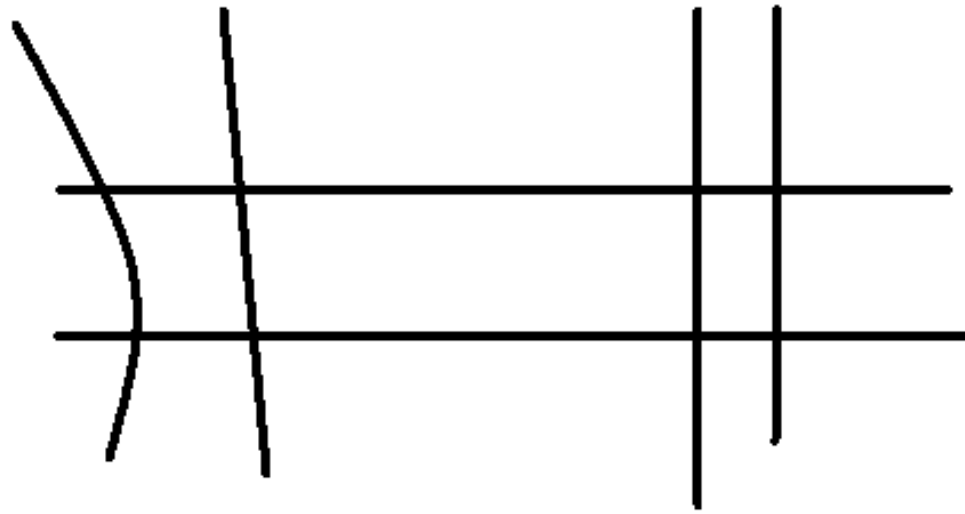


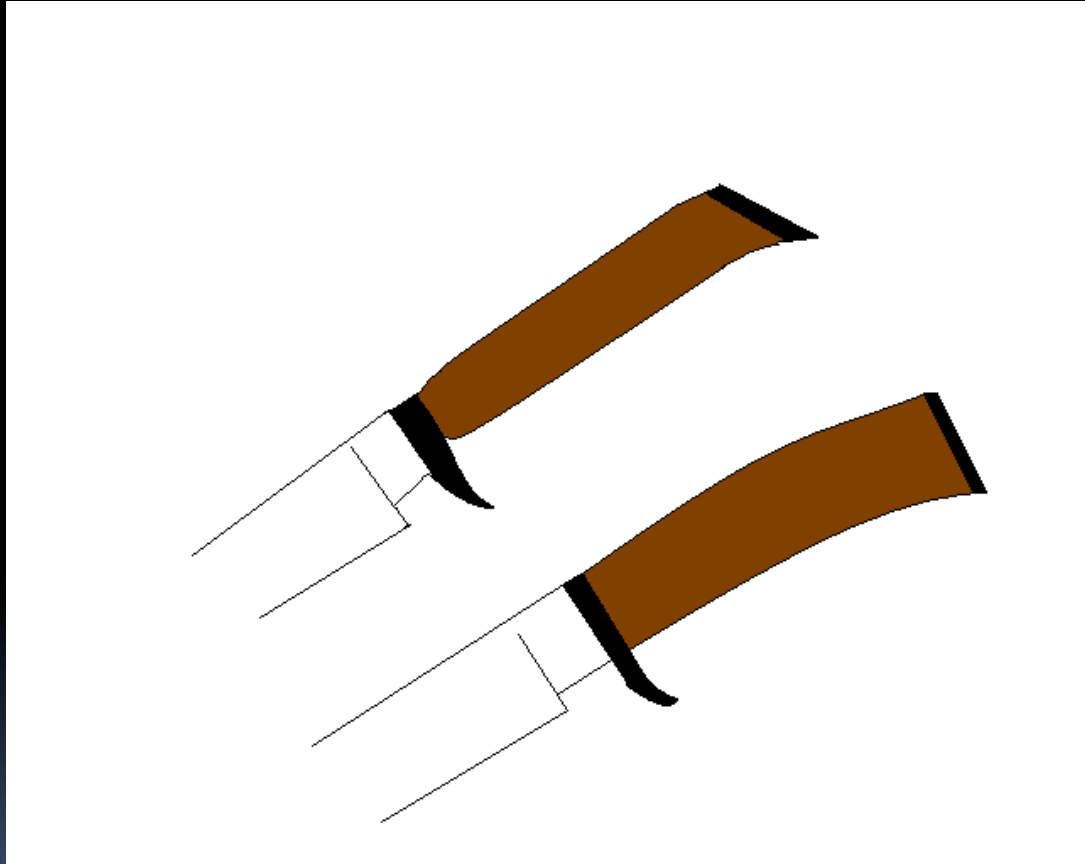
# Parallelism

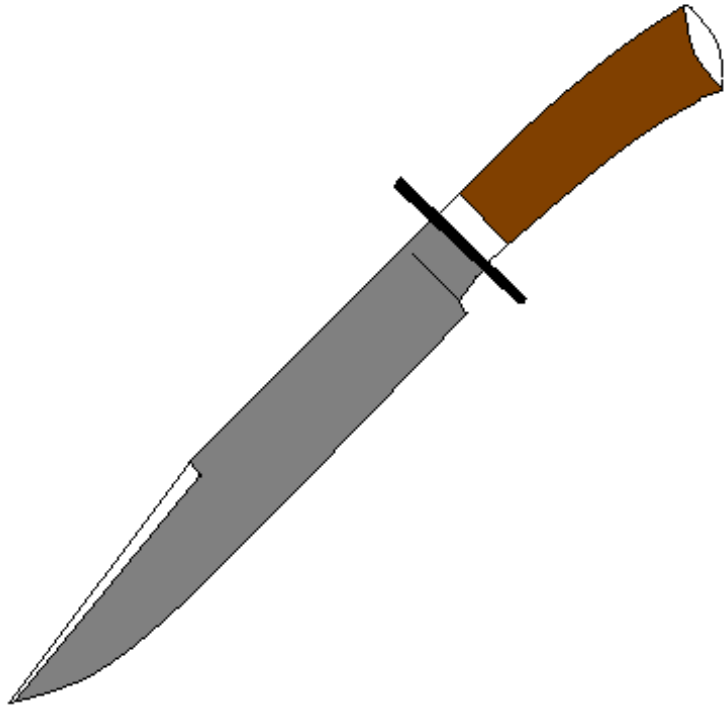
- Lines that are parallel are often more pleasing to the eye than those that converge or diverge. Most knives have parallel features. The ricasso is usually parallel to the spine. Butt caps are usually parallel to the guard or hilt. The edge and spine are often parallel to each other for some portion of the blade's length.

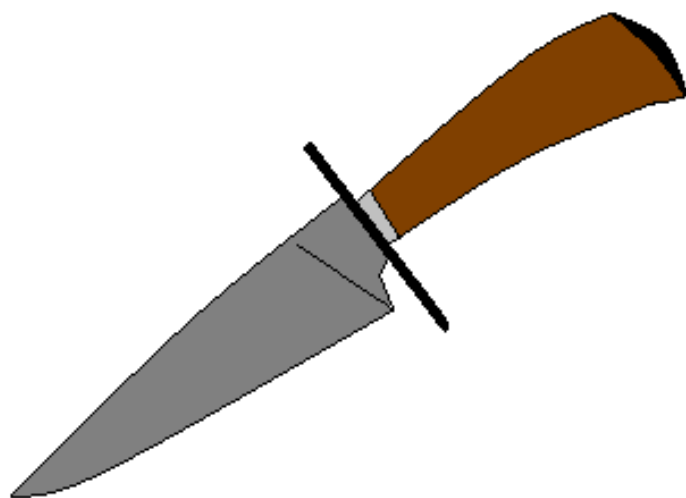
(However, both non parallel lines that converge or diverge are basic to design)



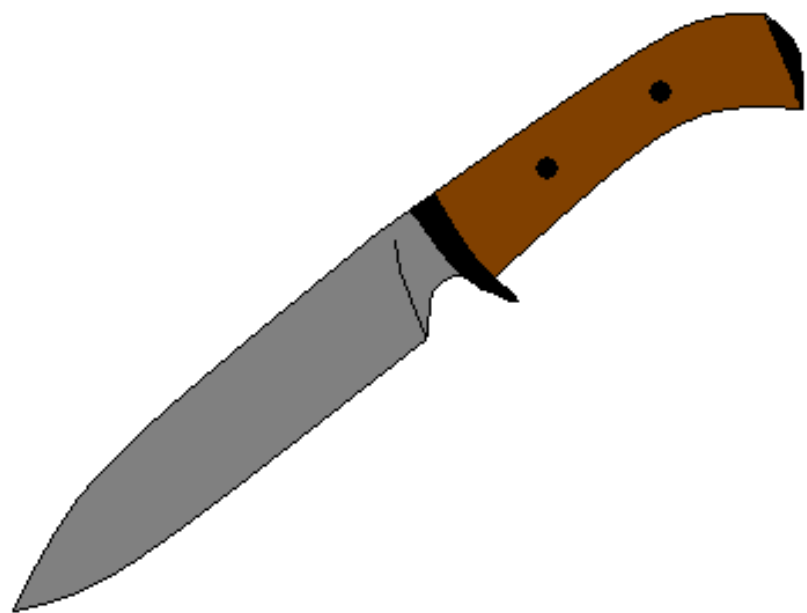












# Parallel form example

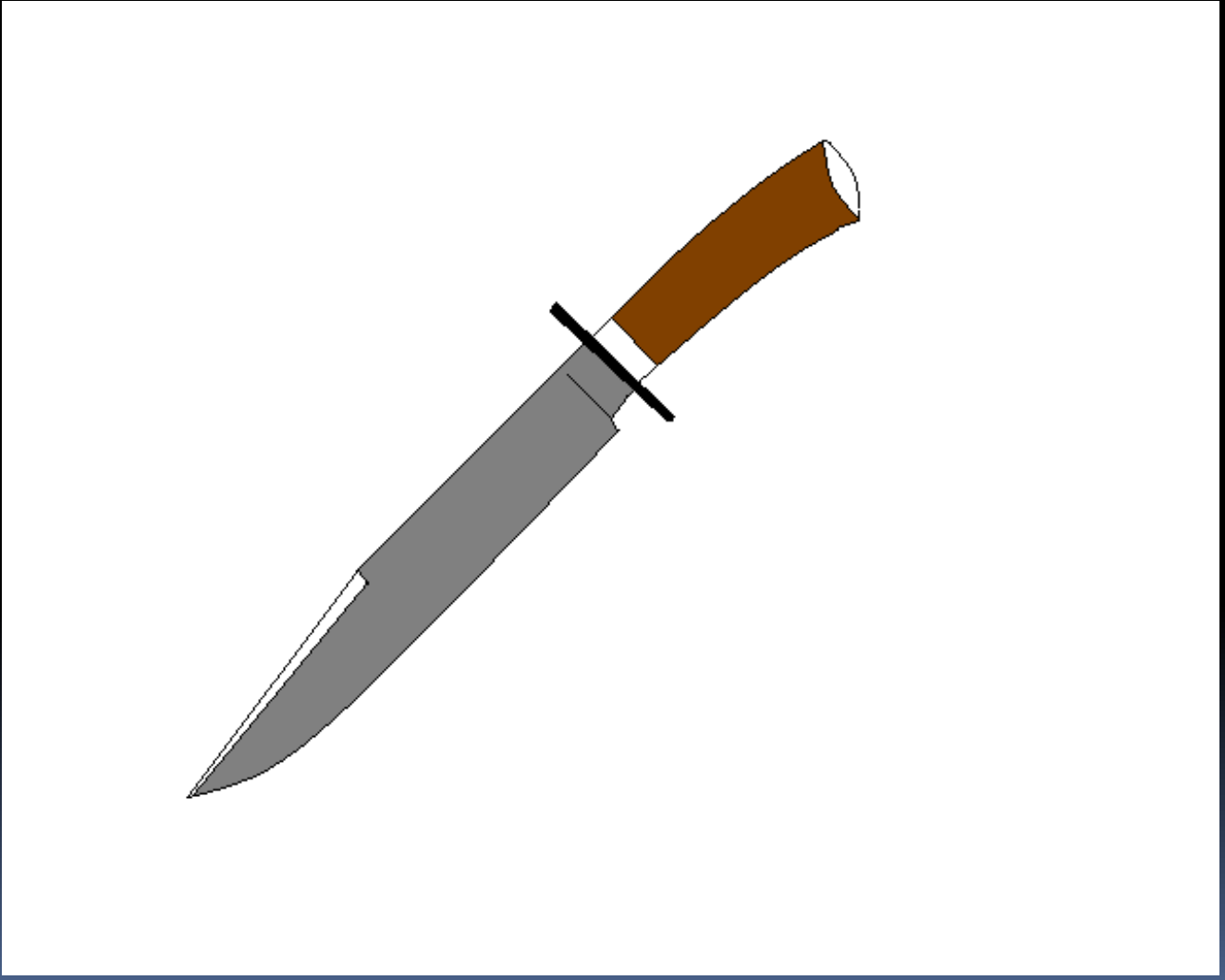


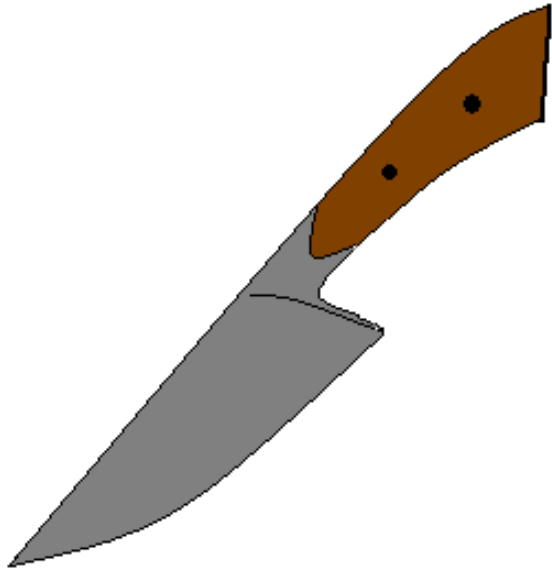
# 18<sup>th</sup> century rifleman's knife



# Convergence

- Lines that come together are more pleasing than lines that diverge. Obviously, most knives end in a tip where the lines of the blade converge. A pattern in Damascus that appears to get smaller as it moves towards the tip is common and provides a pleasing effect. If the Damascus pattern got larger (divergence) it would possibly seem wrong and have the opposite effect. As it turns out most patterns get smaller because of the forging process results in compression of the pattern making it smaller as it moves towards the tip.





# Pesh Kahb



[www.oriental-arms.com](http://www.oriental-arms.com)

# Divergence

- From any *reference point* on a blade lines can either diverge or converge. Lines that diverge are more difficult to use successfully and achieve a pleasing to the eye effect. However, there are positive examples. The use of a series of < cuts in a handle can be very pleasing.
- *Note: Whatever converges also may diverge depending on the reference point.*



Don Fogg and Jim Kelso, *Life and Death Dagger*

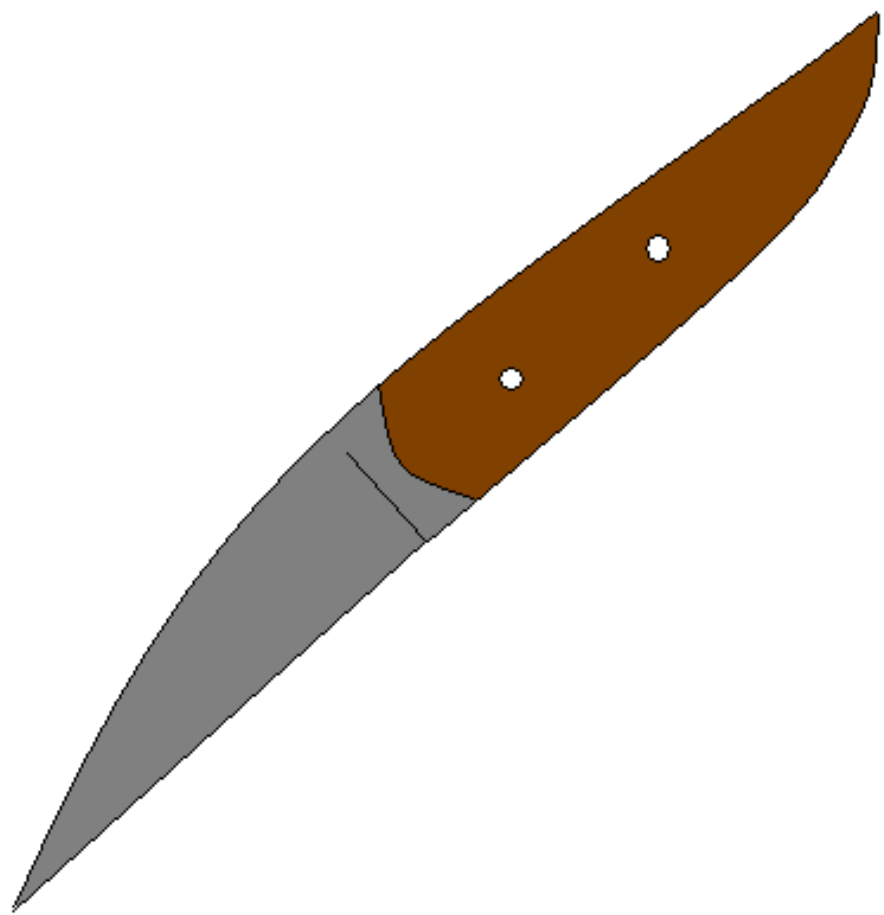




# Symmetry

Symmetry is a combined effect. It usually encompasses multiple lines or sections. Often symmetry relates to the parallel aspects of two halves or sections of an object. However, symmetry can be rotational or helical or mathematical. At its simplest it helps us see an object in relation to its parts. For example, a handle can be in symmetry with the blade or not.

A pattern that appears in a damascus blade may also appear in the handle. A good way to think about symmetry is to think of the concept of balance.



unknown



# Indonesian kris



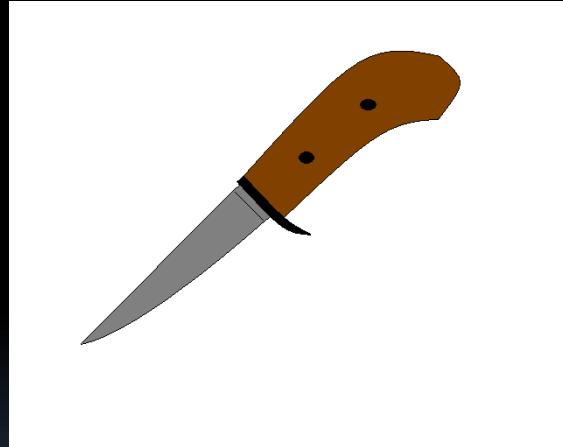
# Caucasian Kindjal





# Proportion

Proportion could be described as an aspect of symmetry. In knives, proportion is worth mentioning as a separate concept. Think of proportion in relationship to the size of the blade versus the size of the handle or the size of the guard in relation to the size of the blade. Do each of the pieces appear proportionate in size to each other. Proportion can be used to draw the eye to the intent of the artist, but it can also result in a piece that looks clumsy or “off”.





# Fikes and Fogg small sword



*Cloud Cutter*

J. Fikes and D. Fogg



# Patterns

- Patterns that repeat are often more pleasing to the eye than those that are random. Order from chaos seems to be a part of the human psyche. Patterns that change in organized discernible ways are more acceptable than those that do not. As an example, look at most file work on the spine of a blade. The visual repetition of the pattern is more pleasing than random cuts. I once tried using an arithmetic progression in my filework on a blade. No one saw the pattern until I pointed it out. Even then I got the impression they did not like it.

Unknown maker



# Rick Dunkerley knife







# Contrast

- Certain features of a knife can be used to accentuate and strengthen a piece. The maker can use texture, color, reflection of light, and other features to make a statement. For example, an ivory handle set between a deep hot blued guard and buttcap uses contrast to accentuate a dynamic relationship in those parts of the knife.



JR Cook, MS bowie





# Kaj Embretsen Knife



© KnifeLegends.com


Knifemaker ~ Kaj Embretsen

Image ~ SharpByCoop.com



# Caution

Be careful not to put too many things on a single knife where each thing fails to add to an overall effect. What is that overall effect the maker is trying to achieve? In my opinion the knifemaker should ask that question prior to making the knife rather than trying to justify it afterwards. For example, a knife with a scrimshawed ivory handle, file work, Damascus blade, engraving, mokume buttcap may be just too much with each aspect distracting rather than adding to the whole. Each aspect may have been excellently done, but the overall effect can still be distracting. Still, as was stated when we began this primer on design, these are guidelines and not rules.



## Closing Comments

- There are no rules from my perspective. The question surrounds guidelines and sometimes what we think of as norms. It is fine to vary from the norm and it may just be that variance that turns it into art. Of course, if there is no understanding by the maker of what the norms might be or even simple related structural patterns, then deviation is accidental and so is the knife as art.
- Having said all that I guess my position is related to "intention". What does the smith or knife maker intend to do? Did they intend to vary from the norm? What effect did they intend to achieve? Did they use texture as a central focus? Did they try to achieve a simplicity of form? Or, did they throw everything that is popular into a blade with no thought as to how the parts fit together?
- I think this PowerPoint only attempts to understand the norms and give a language to some of these concepts. Over the centuries there appears to be a set of norms that dominated the form of what we call a knife. Understand these norms and then manipulate them or deviate from them. That is intentional and the first step in creating intentional art.