



Hadar Jacobson

Art in Metal Clay

918 Ventura Ave, Berkeley, CA 94707-2123, (510) 528-4193

hadar@pacbell.net • www.artinsilver.com

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Combining Silver and Copper Clay

The following photos show experiments with firing silver clay and copper clay together in a single piece. I repeated the experiments several times and the results were consistent. I am not trying to explain the results, just to show which combinations worked well, which worked only some of the time, and which did not work at all.

Firing copper and silver green (both dry and unfired)



A silver washer and a copper washer were linked and fired with no contact between them. Both sintered well.

Linked pieces of copper or silver clay can be fired together successfully.

However, silver and copper can be fired successfully in the green state *only* when they are not in contact. The next experiment shows what happens when unfired



Copper washer was wrapped around silver washer; silver washer was wrapped around copper washer In both cases the silver and copper sintered but separated with very little effort.

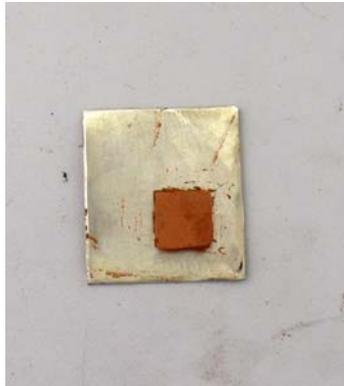


Here a strip of copper clay was placed on a strip of low-shrinkage silver clay and the two strips were rolled into a coil. The silver and the copper sintered, but easily separated.

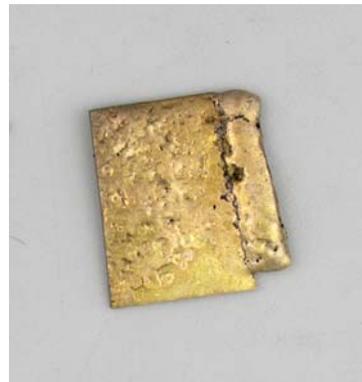
Copper and silver don't stick together. Though copper clay shrinks less than low-shrinkage silver clay, the shrinkage of the silver over the copper is not enough to hold them in place.



Firing Silver First



This experiment was done with sterling and fine silver sheet as well. An unfired square of copper clay was connected to fine silver sheet with oiled paste. The copper sintered but the pieces did not adhere.



An unfired strip of copper clay was wrapped around fine silver sheet. The two metals alloyed. Notice how in both cases the color of the fine silver changed.





A strip of copper clay was wrapped around fired silver hollow forms.



There was no alloying but the copper strip shrank and broke at the seam.

The 2 metals alloyed and the piece melted.



The strips broke easily to multiple pieces. They were not properly sintered.





A strip of copper clay was wrapped around the sides of fired silver hollow forms. With all three pieces it took many firings to reach the result shown in the photo. The strips split and I had to make many repairs. Every repair required a full cycle of firing.



I managed to repair the left hollow earring in the photo above. The right earring was fired so many times that it started to swell. Trying to flatten it by grinding the surface ended up in penetrating through the surface and creating holes.

The only case that was successful so far in firing the silver first required many repairs and firing and took a long time.





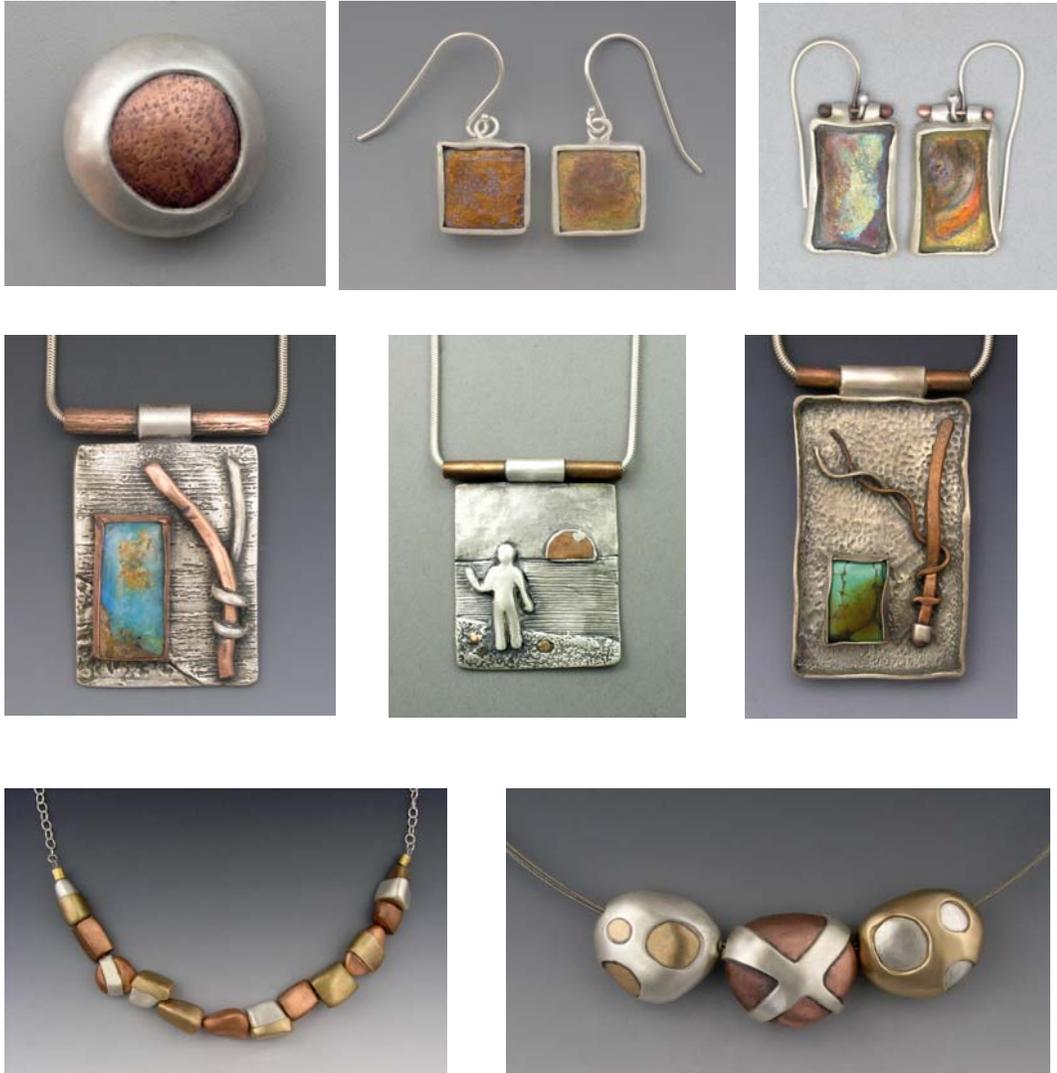
Copper clay was inlayed in fired silver hollow forms so that the copper surface was flush with the silver surface. The metals alloyed and the pieces melted.

Firing the silver first is not successful in most cases.



This is the opposite of the case above. Silver clay was inlayed into fired copper hollow forms and fired with a torch. All cases were full success.





In all the photos above low-shrinkage silver clay was fired with a torch over fired copper. Unlike silver and bronze, the ratio between the surface of the copper and the surface of the silver is not an issue, as seen in the photo on the bottom left. (Firing bronze and silver clay together is extensively discussed in my book: *Silver and Bronze Clay: Movement and Mechanisms.*)

Firing copper first seems to work best!

