

Metalsmithing 101

For those who may feel too intimidated to take a jewelry making class, Product Editor Lorraine Suermann offers this account of her recent experience at the Revere Academy. She found class can be instructive and fun

From Hawaii, from Philadelphia and everywhere in between, we travel to San Francisco to begin a new class at Revere Academy of Jewelry Arts.

I am one of 11 students who find our spots at workbenches that Alan Revere, the academy's director, designed in the style of those used by goldsmiths for 200 years. But our focus is on the future, not the past. Our goal: to learn how to make jewelry in a class titled "Beginning Fabrication."

"The mission of this class is for each student to walk out with basic fundamental skills for making jewelry," says instructor Karen Sprague.

Designed for people with limited or no experience in jewelry making, the class is perfect for me. I have no such experience, but in my job as product editor, I must evaluate jewelry for use in *PROFESSIONAL JEWELER*. So like many newcomers to the jewelry store, I need to learn the basics of how jewelry is made.

In Class

The three-day class begins with a rundown of safety procedures followed by instruction on how to use and care for 36 tools.

Our fabrication assignments: make an identical pair of



Alan Revere instructs Lorraine Suermann at the bench.

Projects completed by Product Editor Lorraine Suermann include an identical pair of geometric silver earrings and a soldering project (top), one pair of copper ear wires (right), three silver bands (bottom), a sterling-and-copper twisted ring (left), and two 14k gold bands and one onyx set in a bezel (center).

geometric earrings, bend wire to make French hooks, make rings and set an onyx in a bezel. The necessary skills are measuring, drilling, sawing, soldering and finishing. Here's a closer look at each.

◆ **Measuring.** Accurate measurements are crucial in making rings and bezels. I use a caliper to find the diameter of a ring blank. Multiply the diameter of the ring by 3.14 and add 3.1 times the thickness of the metal to determine the necessary ring blank length. A bezel is more



Certificate of completion from the Revere Academy.

difficult, and I find out the hard way how the smallest calculation error can throw off the entire bezel. I use a slide caliper again to measure the diameter of the stone and the metal thickness, add these two numbers together and multiply by 3.14 to get the bezel length.

◆ **Drilling.** My classmates and I learn how to use a flex shaft and pedal with a chuck key for drilling, and we discuss the purpose of different drill bits. The mantra during our practice: "high feed, low speed."

◆ **Sawing.** How to hold and turn a saw while cutting – without breaking a blade – is a talent all its own. Unfortunately, I think I hold the record for most saw blades broken in any 10-minute period (eight).

Metalsmithing Terms

Annealing: Heat-treating work-hardened metal to reorganize its grain structure and return the metal to a softer, more workable state.

Ferrous Metal: Any metal containing iron, including steel and stainless steel.

Fire Coat/Boric Acid Solution: A mixture of denatured alcohol and boric acid powder in a slightly soupy solution. Protects metal from oxygen to keep the surface from oxidizing.

Fire Scale: A purplish scale that normally forms on the surface of silver when overheated. A mixture of 50/50 nitric acid and water slightly heated normally removes fire scale.

Flux: A solution used to guide the solder flow. It's applied during annealing, casting or soldering operations, forming a glass river that enables the solder to flow in the area and sealing the seam from oxygen oxides.

Non-Ferrous Metal: Any metal that does not contain iron, including gold, platinum, silver and copper.

Oxidation: A blackened film on the surface of the metal caused from copper-bearing alloys combined with oxygen oxides.

Plating Solution: A cyanide-based solution used in conjunction with the plating rectifier (see definition under "Equipment").

Work Hardening: When a piece of metal is hammered, bent, rolled or subjected to another form of fatigue.

Equipment

Flexible Shaft: Used in drilling, polishing and setting stones. It's operated with a foot-activated rheostat.

Grinding Motor: Used to grind steel to shape tools, gravers and punches.

Pickle Pot: Used to remove crusted boric acid, hardened flux, fire scale and oxidation from the surface of non-ferrous metals. The solution contains one part sulfuric acid to 16 parts of water or a dry chemical compound (such as Sparex pickle compound).

Plating Rectifier: Used to plate the surface of metal to create an even color.

Polishing Lathe: Used for polishing, grinding and inside ring finishing.

Steam Cleaner: Used to clean excess polishing compound from a piece of jewelry. The polishing compound is used to keep out contamination during the polishing process.

Ultrasonic Cleaner: Used to clean jewelry. An electrical sound wave is sent through the cleaning solution to clear away dirt.

—J.M.S.