

# TECH

SOCIETY OF NORTH AMERICAN GOLDSMITHS

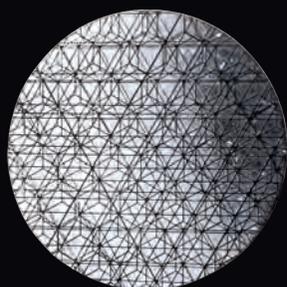
# METALS SMITH

## STUDIO VIEWS

Starting Your Studio for  
\$500 or Less

## THE NEXT GENERATION

Cuttlebone Casting  
for Teachers



## TECH TALK

E-etching Copper  
and Silver with  
Copper Nitrate

## 4 FOREWORD

## 9 OPPORTUNITY KNOCKS

**Win Win: The Halstead Grant**  
Katie Hacker

## 12 CROSS CURRENTS

**W.A.G.E. Hike**  
Luke T. Baker

## 14 TECH TOOLKIT

**Measured Vignettes: Calipers**  
Gabriel Craig

## 16 TECH TEACH

**Nomadic Pastoralism**  
Tanya Crane

## STUDIO VIEWS

**20 Starting Your Studio for \$500 or Less: A Guide**  
Tips, tricks, strategies, and must-haves to build a working studio from scratch with limited resources.  
*Dianne deBeixedon*



## THE NEXT GENERATION

**24 Cuttlebone Casting for Teachers**  
Cuttlefish bones provide an accessible and easy-to-handle material for teaching metal casting in middle and high schools. *Jim Bové*

## TECH TALK

**28 E-etching Copper and Silver with Copper Nitrate**  
Using electrolytic etching to create designs in copper, its alloys, and silver is more efficient, safer, and cleaner than using traditional processes.  
*Ben Dory*

Cover:  
• Top: A student cast using cuttlebone (see pg. 24)  
• Bottom: **Bryan Parnham**, *New Structure Brooch*, 2017 (see p.32)



*Metalsmith Tech* is published by the Society of North American Goldsmiths

Artists, Designers, Jewelers. [Metalsmiths.org](http://Metalsmiths.org)  
[www.snagmetalsmith.org](http://www.snagmetalsmith.org)

The Society of North American Goldsmiths advances jewelry and metalsmithing by inspiring creativity, encouraging education, and fostering community.

**Editor** Emily Zilber, [ezilber@snagmetalsmith.org](mailto:ezilber@snagmetalsmith.org)

**Contributing Editor** Kate Fogarty

**Graphic Design** Luke Hayman, Elyanna Blaser-Gould, Pentagram

**Advertising** John Garbett, [jgarbett@snagmetalsmith.org](mailto:jgarbett@snagmetalsmith.org)

**SNAG Executive Director** Gwynne Rukensbrod Smith

**SNAG Board of Directors**  
*President* Nicole Jacquard  
*Secretary* Becky McDonah  
*Treasurer* Anne Havel

Jill Baker Gower, Dominique Bereiter, Kat Cole, Dianne deBeixedon, Brian Ferrell, Anne Fiala, Brigitte Martin, Tedd McDonah, Ezra Satok-Wolman, Elizabeth Shypert, Emily Stoehrer, April Wood

**Printer** Allied Printing, committed to using environmentally friendly materials and methods.

*Metalsmith* (ISSN 0270-1146) is published both in print and digital formats in February, May, August, and November by SNAG, PO Box 1355, Eugene, OR 97440, 541.345.5689, [www.snagmetalsmith.org](http://www.snagmetalsmith.org).

Membership rates: \$85/year and up, full membership includes four-issue subscription to *Metalsmith*. Special student rates. Subscription to only *Metalsmith*: \$31/year and up.

**Postmaster/Members/ Subscribers/Copies**

*Metalsmith* is not forwarded by the post office. Send all address changes and any other requests, including missing issues, to SNAG, PO Box 1355, Eugene, OR 97440, 541.345.5689, [info@snagmetalsmith.org](mailto:info@snagmetalsmith.org). Claims for missing issues are accepted only if received within three months of publication.

The opinions expressed in *Metalsmith* are those of the authors and not necessarily those of the staff or directors of SNAG or *Metalsmith*.

*Metalsmith Tech* is indexed in EBSCO Media.

Copyright 2018 by Society of North American Goldsmiths, all rights reserved. Reproduction in whole or in part without written consent is prohibited.

Printed in the U.S.A.

## STUDIO VIEWS

# Starting Your Studio for \$500 or Less: A Guide

BY DIANNE DEBEIXEDON

**A STUDIO IS A PERSONAL SPACE**, built slowly and thoughtfully to suit your style of working. Making the transition from a teaching space to a personal studio can be overwhelming—and expensive. Most of us learn our craft in a spacious classroom full of benches, tools, equipment, and supplies. However, when leaving that environment and looking to establish a studio, artists typically face thousands of dollars of expenditures, often at a time in their career when resources are limited. There needs to be a cost-effective, practical way to replicate what was previously provided by an academic setting.

## MY BEGINNING

After my graduation, I moved to a beautiful area in rural Georgia about sixty miles from the nearest metropolis. I didn't anticipate the feeling of artistic isolation from fellow smiths, nor the profound effect of losing a working studio. If I were to continue in metals, it was obvious that I not only had to create my own space, but also reconnect with the metalsmithing community.

The Internet was not as pervasive as it is today, but SNAG was there. It became, and remains, my connection to our "tribe" of artists. As a teacher, my students are faced with the same dilemma I confronted—with the additional complication of a plethora of information online. It can be so overwhelming that it's almost impossible to know where to begin.

Each semester, I speak with students individually to discuss how to develop a brief strategy for space, equipment, tools, and supplies, customized to the way they work. Based on my experience, I try to offer my students a suitable and attainable approach. With limited financial resources and outstanding college loans, I found creating my first studio to be a slow build.

---

The first item on my list was locating a usable space: *Working space is a tool.*

To even begin, I had to formulate a strategy that would focus on priorities. While some choices seemed obvious, I devised a list of needs, with attention to the *absolute minimum required* to create a working space—my personal bottom line. Next were items that could be put off for a few years, when I might broaden my repertoire. Working further down the list, I identified the higher-quality tools, equipment, and facility features that I would need in the years to come.

A funny thing happened along the way. As I proceeded toward my goals, my needs diverged from my intended inventory. For example, casting equipment was initially at the top of the list. However, I changed direction artistically, and it fell to the bottom. I never dreamed that a longing for casting equipment would be replaced by a longing for a forge and a Peter Wright anvil! Several criteria guided my changing priorities. Some were based on my perception of whether a tool, equipment, or space was an investment that would serve me well into the future, or whether a less expensive alternative with an acceptable reduction in quality would meet my needs. Sometimes I decided that making the tool myself would be a better option than buying. Balancing planning with allowing my list to evolve in real time helped me evaluate decisions.

## GETTING STARTED WITH SPACE

The first item on my list was locating a usable space: *Working space is a tool.* My first studio was a small, narrow back porch. Fortunately, jewelers can often work in compact spaces such as a basement, garage, shed, or rented space, with a basic workbench and a table for soldering. The few tools I had consisted of a saw frame, two hammers (both of which I still have), assorted files, and a small mushroom stake. I was fortunate to own a torch tank setup, a required purchase as a student. I had grumbled about the cost at the time, yet as I set up this first studio I was grateful. When considering a space, keep in mind adequate ventilation, lighting, safety, and access to water.

My second priority was finding suitable work tables for bench work, soldering, and equipment. Using large, heavy tables and stumps drove me crazy! The tables had to be braced, which

The working table in schematic below, and in DeBeixedon's studio, at right.



required a large footprint and wasted valuable space. After years of struggling, I changed my criteria and used smaller custom-built tables. I designed a small basic table made from 2x4s and 2x6s that is sturdy, heavy, and easily moved on a hand cart. The drawing on this page shows how the table was put together, and it can be any dimension depending on the size of your materials. Using only two cross braces allows the space under the table to remain accessible. Since the tables can be configured side by side, staggered, or separated, they easily accommodated moving into my sixth studio a few years ago. The small tables—four now in total—fit this new space easily. Underneath, I store heavy tools, pitch posts, steel blocks, and sandbags. With the added heft, they weigh close to 200 pounds, giving me a table strong enough to mount vises, rolling mills, stakes or buffing wheels. Even with the constant hammering during raising, the table stays in place. There's just no substitute for mass!

A safe table for soldering is another essential consideration. The surface, which might be covered with solder board, charcoal, or fire bricks, must be able to withstand the intense heat of a torch for soldering and annealing. The soldering table I have been using for many years is custom-made (by my talented spouse!) and surfaced with small 2x2 ceramic tiles. The

## THE CHECKLIST

Without knowing an individual's working style, it is difficult to devise a specific list that meets the \$500 budget. However, these recommendations are general guidelines when creating a studio.

A "◊" symbol by an item means that it could be found second-hand at a flea market, garage sale, thrift store, discount hardware provider, or drugstore.

## MUST HAVE HAND TOOLS

- Files: Ring file, bastard file, needle files, Magicut file for steel, file cleaning brush ◊
- Bench blocks: steel and rubber
- Brushes: brass (fine bristles) and steel bristles (small gun-cleaning type)
- Center punch
- Cutters: flush cutters, heavier duty wire cutter (hardware) scissor or shears
- Hammers/Mallets: Chasing, rawhide, planishing, forging (midweight) brass dead blow ◊
- Loupe and/or other magnifying glasses, optivisors
- Mandrels: round ring, large for bracelet
- Metal dapping set with a large variety of punch sizes ◊
- Pliers: flat nose, round nose, chain nose ◊
- Ring gauge
- Safety goggles
- Saw frame (adjustable) with tension screw for blade
- Stone setting: stone setting tools, burnisher and scraper

## SOLDERING TOOLS AND SUPPLIES

- Bowl for water ◊
- Copper tongs
- Crock/pickle pot ◊
- Soldering pick(s) (A 36 steel/1/8–1/4 inch)
- Soldering blocks, charcoal, bricks
- Sparker/lighter
- Torch (propane or acetylene)
- Tweezers

## GENERAL SUPPLIES

- Beeswax
- Binding wire
- Buckets ◊
- Epoxy
- Flux
- Grinder ◊
- Ivory bar soap, Castile soap, and Dawn. Use Ivory soap or Castile for tumblers
- Liver of sulfur and/or Silver Black
- Microcrystalline wax
- Polishing compounds
- Polishing cloth

- Rags ◇
- Sandpaper (various grits), scotch bright and 0000 steel wool
- Scissors ◇
- Sharpies
- Solder snips
- Solder: hard, medium, easy, extra easy (cadmium free)
- Sparex #2 pickling solution
- Toothbrushes ◇
- Yellow ochre

#### DIY: TOOLS THAT IT PAYS TO MAKE YOURSELF

- Bench pin
- Burnisher
- Center punch
- Chasing tools
- Hammers: make out of wood, bone, or plastic
- Jump ring mandrels: make from 01 or W1 steel
- Mandrels: large for bracelet (large diameter PVC pipe)
- Scraper
- Soldering pics
- Stone setting tools

#### IF YOU'RE FEELING FLUSH: INVESTMENTS IF YOU HAVE MORE THAN \$500

The tools below are suggestions of “investment” acquisitions which might be either future purchases, or secured used and in good condition, but which may not fit in a \$500 budget.

- Anvil: 55 lbs ◇
- Bench Shear
- Casting Equipment: Centrifuge, burnout kiln, and accessories
- Doming Block and punch set
- Drill Press (large)
- Drill Press (small table top)
- Flex Shaft and motor attachments
- Polishing unit
- Rolling mill
- Tumbler/polishing machine
- Ultrasonic cleaners
- Vises ◇

tiles are easy to clean and repair, and protect the top from heat transference. Soldering board is placed on top of the tile, where I created a firebrick surround to contain the heat.

#### TOOLING UP

Determining which hand and power tools were an absolute necessity was my next challenge. For tools that are essential but expensive, I recommend regular visits to flea markets, garage sales, estate sales, and thrift stores, looking in particular for quality used files and rasps (which can be cleaned in a 50/50 solution of vinegar and water), stainless steel pots and pans for chemicals, pliers, hammers, and C-clamps in all sizes. One of my favorite finds when I was setting up my studio was a 1950s Craftsman grinder, purchased for \$5 to “make do” until I could invest in a quality machine. I fixed the safety shields, painted it in the original color, and twenty years later, the “make do” grinder is a permanent member of the studio.

The ability to harden and temper steel provides the opportunity to custom-make tools that are not commercially available, made in the size or weight you need. While it may seem as if you are wasting time and money making tools, by making your own you become a more discerning buyer and recognize quality in the work of others. Students in my classes learn how to forge, grind, anneal, harden, and temper a few basic types of steels, then craft their own tools for chasing, burnishing, stone setting, chain making, waxing, and custom soldering pics. Some tools function much more effectively if they are formed to specifically to fit your hand, or they might not be commercially available in the size you need. Burnishers, for example, are important for stone setting, but are only available in one or two sizes in standard shapes. However, you can make small burnishers in different shapes, with a curve perfectly suited for chasing or stone setting. I particularly like to make some wax tools out of wire hangers because the cheap steel holds heat so well. There is a particular joy in using a custom chasing tool with a slight twist to fit your thumb placement.

Some of my favorite tools were just scrounged and repurposed. A few examples were gifts from friends. One was a shallow cigar box that I filled with soft microcrystalline wax, into which I press small items; I use it as a holding device that won't scratch or mark the metal. I was also given a large steel theater curtain weight that I adapted for shallow chasing. A large discarded piece of Corian cut out from a kitchen sink counter is one of my favorites. I use it as a work surface on top of my bench. The Corian has a smooth matte finish that can be kept immaculately clean. I can draw or put notes in pencil on the surface while I am working, which later



Right:  
DeBeixedon's 1950s  
“make do” grinder  
purchased when  
she first set up  
her studio, and  
still in use.

## Tools are everywhere, if you know how and where to look.

can be easily removed with a mild cleanser. Tools are everywhere, if you know how and where to look.

### MONEY MONEY MONEY

Your creativity can provide many workarounds when a tool is out of reach financially. Years ago, I needed a curved surface for cold forming. A large anvil or mushroom stake was not an affordable option. Instead, I purchased a bowling ball in a thrift store for under \$10 and an unmounted lawnmower tire. By placing the bowling ball in the tire for stability, I had the large curved surface I needed! Later I made a freestanding base for the bowling ball, which I use to this day. Even though I now have an anvil, sometimes only the bowling ball gives me the curve I need.

When considering making a long-term investment, it may not be cost effective to purchase more quality than you need. Likewise, “knock-offs” may serve you well in the near term. I frequently peruse discount hardware stores, where I’ve bought

inexpensive vises, dental tools for wax work, a dapping set with block (quite nice), dead blow brass hammers for stamping, needle files, C-clamps and a small 55-pound anvil. When I acquired an antique Wilton and Charles Parker vise to replace two good but lesser quality “knockoffs,” I gave them to people just starting out. In contrast, anvils for me are an investment purchase, and I did not buy second rate. For most of my students, a Harbor Freight anvil is a perfect match in size and quality.

### SHOP TALK

Talk to other metalsmiths online, at conferences, symposia, and any gathering. We’ve all created studio spaces, and other smiths are likely to have ideas, solutions, and suggestions that will serve your situation. Talk to vendors as well. I owe a debt of gratitude and appreciation to the vendors that SNAG has worked with over the years. All of them have generously offered their knowledge and expertise directly or indirectly to us, to help set up our studios and become practicing metalsmiths and artists.

*Dianne deBeixedon studied metals at Southern Illinois University and the University of Georgia before beginning her career as a professor at Old Dominion University in Norfolk, Virginia. She began the metals program, now fully equipped in a new studio building, with few tools in a damp classroom under the football stadium.*

## Author Portfolio



Dianne de Beixedon  
*Shape Shifting Camouflage*, 2015  
 niobium, sterling silver, fine silver,  
 titanium druzy (chasing and repoussé)  
 4 x 2 x 2"  
 Photo: Eric Lusher



Dianne de Beixedon  
*Octopus's Garden in the Shade*, 2017  
 copper, pewter (chasing,  
 repoussé, forging,  
 patination)  
 22 x 10 x 7"  
 Photo: Eric Lusher