

## Made by hand

By Joshua Polansky, BS, MDC

During the 18th century, a group of British workers rioted and destroyed laborsaving textile machinery in the belief that such machinery would diminish employment. They were called Luddites after Ned Ludd, an English laborer who was supposed to have destroyed weaving machinery around 1779. Luddism still lives in the 21st century, even our field.

That said, at the risk of sounding like a Luddite, I can't help but notice the amount of new technology coming into our market. As someone who was trained with a Bunsen burner and a glass slab, all of these new products seem quite overwhelming. As I look at the new products and evaluate the benefits they bring, I can't help but think of one fault that they may pose — forgetting our past. The foundation of dentistry cannot be forgotten and substituted by machines that do all our work for us. Dentistry was born out of craftsmanship, and craftsmanship still has its place.

I see many advantages to new technology once the basics are obtained and the technician has a good foundation upon which to apply the technology. The basic principles of dentistry cannot be ignored. Form and function rule our work. The dentist provides the information regarding functionality, but we must provide the proper form. Form, in my opinion, holds the greatest weight in the success of any restoration. Essentially, we are oral designers. Design takes into account many factors such as line angles, contours, position, color, texture, material, and functionality. Too many technicians get hung up on things like 30 powder buildups, internal effects, and crack lines, but without a true mastery of form. For the technician, great oral design starts with tooth form.

Everywhere we turn these days, we see design. Most great designers try to mimic nature, obviously the greatest of designs. It just stands to reason that we need to mimic nature. My mentor, Olivier Tric from Oral Design Chicago, taught me early on about the importance of studying natural teeth. In an almost obsessive "Karate Kid" type of learning experience, he inspired me to a level of observation that no machine could perfect. After awhile I began to see tooth form in everyday objects. I began to see images of helicopter propellers in the design of a natural canine. I began to understand how the mouth functions by observing wear patterns. Copying natural teeth was the single most important exercise in learning the craft. Even more than getting color and texture perfect, which some technology can perfect, getting form correct is the key to success.

Natural teeth are hard to obtain. I have been fortunate to build relationships with doctors who give me extracted teeth for my studies. You will begin to realize that examples of virgin teeth are harder to come by than you might expect. If you are not able to obtain natural teeth, just go into your model room every day and look at all of your impressions for the day. Once you have found teeth on the casts you like, simply separate the teeth from the cast with a disc. There are also many great books on the market that teach form and morphology that I believe are necessary for any dental technician. I have created training blocks of hundreds of natural teeth that are also available by contacting me.



Incorporating art with function. Observing how your restorations function in the masticatory system.

The medium doesn't matter. Natural teeth can be copied in any material. Whether wax, acrylic, composite, or porcelain, copying is all that matters. As a dental technician, if you can copy in one medium, you can copy in all of them. I recommend starting with wax. Once you obtain natural teeth, they must be duplicated with a poly vinyl duplicating material. Once the teeth are duplicated, pour two sets of the teeth in stone. After the sets are poured, you can prepare one of the natural teeth on the stone and mimic it in wax.



In order to re-create restorations with a machine, the user must master creating restorations by hand first (with wax).

When copying, look for every subtle detail. Rotate the tooth in every direction so that no aspect is neglected. If rigorously repeated, this simple exercise will be guaranteed to improve your skill as a dental technician no matter your level. When copying in acrylic or composite, the exercise is more about focusing on countering with your handpiece. For this exercise, I like to form a block of acrylic or composite and copy the natural tooth by carving the tooth out of the block. Like Michelangelo, you must see the David inside the block. The hands can't create what the mind cannot see. This exercise also leads technicians to better their skill at surface texturing and finish. Once these exercises are mastered, we can move on to copying nature with porcelain.



Exercises in re-creating nature with ceramic (by copying the outer structure of teeth as well as the inner structure).

When copying natural teeth with porcelain, I like to use a technique that I call "tissue teeth." It's a very simple technique where you build the tooth to full contour on a tissue. This exercise will not only teach technicians form, but also teach very important variables that must be mastered when working with porcelain. The exercise utilizes all aspects of a porcelain buildup that we use on a daily basis. It will teach moisture control, layering of colors, cutback, and proper firing temperatures. This allows technicians to get creative and practice tricky techniques that shouldn't be done on clinical cases until mastered, such as crack lines and intense internal staining. I recommend starting with one tooth just to get the hang of the exercise, but I would do the whole mouth over time to learn the form of each and every tooth.



Once copying exercises are mastered, the technician has complete artistic control of his or her restorations.

Although these exercises seem basic, they are slowly being forgotten in day-to-day practice in many labs. They don't take much time, and should be done daily. Think of it as working out. The knowledge and dexterity we learn from these exercises will wind up being your lab's strongest tool in successful restorations. Once our tools are shaped, they will shape us and lead us in the right direction.



Joshua Polansky, BS, MDC, earned his Bachelor of Arts degree, summa cum laude, from Rutgers University in 2004. While working part time at a dental laboratory, he took advantage of an opportunity to apprentice with distinguished master technician, Olivier Tric. Mr. Tric opened Joshua's eyes to a whole new world of possibilities. He made the decision to become a master dental technician following the path that Tric had forged. He continued to acquire technical skills by studying in Europe with other mentors and experts in the field. Joshua currently resides in Los Angeles, Calif., where he is earning his master's degree in dental ceramics at the UCLA Center for Esthetic Dentistry under Dr. Edward McLaren. Joshua is the owner and operator of Niche Dental Arts, a collaborative boutique Dental Laboratory with his father, Dr. Barry Polansky. Contact Joshua at his blog <http://nichedentalarts.blogspot.com/>.