

Craftsmanship and Modern Technology

(The Wisdom of the Galoot)

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Technology has affected craftsmanship throughout history, and the pace of technological change is accelerating, probably exponentially. Woodworking technology is advancing steadily, mainly for power tools. Its rate of advancement is orders of magnitude slower than in other industries, e.g., electronics. But the effect of information technology is pervasive. Electronics and woodworking may join forces. A computer plus two transducers (i.e., a sensor and an actuator) is a simple robot. This is represented today by computer numeric control (CNC) machines.

So, people ask whether modern technology will “ruin” woodworking as a craft. Another way to ask this is, how much technology we can use without changing woodworking from a craft into manufacturing. This is an old question, and it has already been answered repeatedly through history.

CNC woodworking machines in factories can automatically cut out perfect components for almost any piece of furniture. Large manufacturers use them for mass production, at present mainly for low-end merchandise. These machines are very expensive and setup (programming) cost presumably makes them impractical for making one-off custom furniture. Also, wood is not easily standardized as an input. Plywood is standardized, however, and surely setup costs will fall, as will the real cost of the machines.

Consumer versions of CNC technology are readily available. Reviewers say that they have many problems and are useful mainly for small jobs like routing sign boards and such. Surely, improved consumer versions are coming. Someday it may be possible to produce a unique piece of furniture automatically. When that day arrives, the craft of

making custom fine furniture will be revolutionized beyond recognition, just as other crafts have already been. Nobody can know the exact outcome of that revolution.

After moveable type was invented, books were printed instead of copied by hand. Printing did not make handwriting obsolete, however. (We still studied “penmanship” when I was in school, although admittedly that was a long time ago – a few years after Gutenberg – and in New England, naturally.) The best copyists became calligraphers, illustrators and graphic designers. Creative writing eventually received a huge boost because books were cheaper to produce. That trend continues today with self-publishing and e-books.

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Digital image processing (cameras, scanners and Photoshop) impacted traditional photography tremendously. It made it more accessible to unskilled photographers. It greatly extended the capability of good photographers and by the way, increased the amount of photographic junk.

Throughout history, both clients and craftsmen have sometimes opted out of technological change in order to preserve values that were important to them. In response to the Industrial Revolution, some craftsmen chose to work without the huge production efficiencies available from inventions like the steam engine. In woodworking, this question is answered by hand tool aficionados. Hand tools are not as efficient as power tools for many basic operations, e.g., preparing stock.

(There are some significant exceptions, however, such as when using a hand tool allows us to avoid complicated power tool setups.)

Nor is furniture made with hand tools necessarily better than furniture made with power tools. Hand tool enthusiasts have chosen to preserve other values, somewhat like some Mennonites and Amish. (I'll skip the obvious potential for jokes about hand tools being a religion.) Something about using hand tools makes the experience worthwhile for some people.

To me, hand tools are extensions of my eyes and hands. I can watch the hand saw follow the line, stroke by stroke. (Or not follow the line, as the case may be.) Either way, it's I who am doing it. On the contrary, I am merely an extension of a power tool. Setting up a power tool is not as personally satisfying as using a hand tool, but I admit that the results may sometimes be more accurate (for me).

Hand tool aficionados call themselves *Neanderthals* or *galoots*. They don't have derisive names for power tool users, as far as I know, but hand tool users tend to speak of using hand tools with pride. They speak of using tools "with tails on them" as if using a power tool would be a sad necessity, not first choice. The vocabularies of woodworking and anthropology are far apart, but I think the concept of a galoot or a Neanderthal is more about culture than tools.

My definition of craftsmanship is *directed self expression through the exercise of competence*. That's a mouthful, but I chose each word carefully. Craftsmanship involves, among other things, the personal values of both the craftsman and the customer. It is both a process and a result.

The ideal result of craftsmanship is a durable, useful, and attractive product. That is, if the article was designed for a use, it must be

useful in that way. (I don't insist that craftsmanship is married to utility.) The durability, usefulness and attractiveness of the product trumps other values for the user and practically everyone else, except possibly the craftsman.

Attractiveness may include details of material and workmanship. For example, a client may look for dovetailed drawer sides, a hand rubbed finish, etc. It is also true that a product will have some emotional meaning that trumps even durability, utility and attractiveness. Some clients are delighted by the very idea that something was made specifically to their order, perhaps by a family member, etc.

Of course, the result is also important to the craftsman, but most craftsmen place value on other aspects as well. For example, I have a friend who assembles furniture from kits. If he can't get a kit for what he wants to make, he uses as many prefabricated turnings, etc. as he can get. His main interest, by far, is in producing a result. He gives most of his output to family and friends, and he is proud of it. I don't know whether he considers himself a craftsman.

Another acquaintance produces custom built-in furniture out of MDF and plywood, with butt joints and pocket screws. To him, the result is no more than an article of commerce. It's how he prefers to make his living. He considers himself a tradesman, not a craftsman. He jokingly says that he is a woodworker, because MDF is made out of wood.

For many craftspeople, however, craftsmanship is much more complicated than that. Technology affects different aspects and values of woodworking unequally. It limits some and extends others. Because the process of craftsmanship is personal, adopting one technological innovation may be compatible with a person's values, while another may be

incompatible.

Design is foremost for some woodworkers. Designers seem to occupy the highest sphere of our craft, even those who design for form over function, for example chairs that most people would find uncomfortable to sit on.¹ Nobody cares whether a designer used modern technology (i.e., a computer program). For a competent designer, the technology enhances the production of the design.

Design seems to be one aspect of woodworking that would be enhanced rather than threatened by computers.

Many woodworkers most value construction, especially joinery. "Perfect hand cut dovetails" would be an example. Some dislike design and prefer to build another person's designs. Some craftspeople are passionate about this, even though will not matter to anyone else whether a tenon was cut by hand or by machine, any more than it would matter whether the planks were cut by hand or by machine at the saw mill.

Still others emphasize the finish. They take as much pride in finishing a piece of furniture that was made by somebody else as they do in finishing their own production. The technology that went into formulating the finish often does not seem to matter. (It matters to me, however. I brush shellac and varnish. Spray coating is my finishing analogy to power tools.)

Each one of the values mentioned above must meet a high standard before we would consider a product to be fine craftsmanship. Its not that we ignore aspects that interest us less. But still many of us place much more value on one aspect than another.

¹I made up a riddle. "When is a chair not a chair?" Answer: If you can't sit in it, it is not a chair, it is a sculpture.

A wise woodworker would follow the *wisdom of the galoot*, which is to pick and chose which technology will complement his or her objectives and style of work. One should also control how quickly one adopts innovation. Advertising often carries a meta-message, usually not stated explicitly, that "modernity" is good, and that we must accept innovation or somehow fall behind.

For example, you may occasionally meet a woodworker who assumes that box joints should be cut with a router, because somebody is advertising a jig for that. I think that is why the culture of hand tools uses words like *Neanderthal* to describe itself.

Personal engagement in a process is a hallmark of craftsmanship. The classic distinction between craft and manufacturing depends in part on how much the *experience* of production allows self-expression and pride of accomplishment. (It also depends on who owns the tools and the level of competence required). To the extent that an experience has no possibility of self-expression, personal pride, etc., then I would say, to that extent it is that it is manufacturing.

This distinction is flexible, even for an individual. Richard Raffan is a highly regarded craftsman on the lathe. He tells of turning thousands of kitchen scoops and other small articles by hand, one after another as fast as possible, to make his living during one period in his career . Making the first 10-50 scoops might allow self expression, pride, and exercise of skill that I would call craftsmanship. After the 100'th scoop or so, however, making them must have become a lot like manufacturing. It would not matter whether the turner was using a foot-operated lathe or the latest high-tech machine.

Of course, professionals are paid for results rather than process. Nonetheless, professionals spend most of their time *doing* processes. The nature of the process matters to

many professionals, therefore, just as it does to a hobbyist.

I have never depended on wood-working for my livelihood, so I admit that I may not really know what I am talking about here. But the profession I did follow certainly included large elements of craft. I carried out my teaching and research activities every day.

How I did them, how *well* I did them, and how they *felt* to me mattered a lot, even though I was judged mainly by my results, e.g., publication in refereed journals. Most people can see teaching as a craft, but, believe me, writing research publications is a craft as well. Naturally, I used technology to enhance and extend my effort, but every decision required a balancing of values. The same things that mattered to me as a professional teacher/researcher matter to me as a hobbyist woodworker.

In summary, my points are:

(1) Advances in technology have already taken any hope that a craftsman could compete with large manufacturing companies in the production of ordinary furniture, i.e., the stuff that is readily available in stores. This began in America in the middle of the 19th Century and was nearly finished by the middle of the 20th century.

(2) Custom furniture is still available only from craftsmen. I'm referring to unique pieces of furniture designed to suit a client's particular tastes and needs for color, style, dimensions, materials, and finish, and which are also durable, useful and appealing. There is demand for such furniture.

Such custom furniture would inevitably require a considerable amount of hand work, and may deserve to be called hand made despite the fact that power tools were used in some operations.

In David Pye's terminology, making such furniture must include *workmanship of risk*, where an operation is under the control

of the workman and could go wrong if he were not sufficiently competent and attentive. Pye believed that such work would produce small diversities in fit and appearance that would enhance the beauty of the piece and which factory made furniture could never achieve.

(3) It is certainly possible to lose the pleasure of craftsmanship by using technology. It is also possible to use technology to extend your reach. It depends on whether a technology is consistent with your values.

(4) If your values are clear to you, if you know why you work, then you minimize the risk of "buyer's remorse," after the values you ignored become painfully clear. (This is another advantage of reflection.)

Nonetheless, even if you understand why you do woodworking and what you want from it, you can allow your values and decisions to get out of balance. When I get all enthusiastic about the latest cool tool, I ask whether its advantages will reduce my pleasure in process and pride in workmanship.

For example, I enjoy making well-fit mortise and tenon joints. I use machines to cut them and then I fit them by hand. Mortising is a challenge for me, and I fuss over it. Fitting tenons is time consuming and can become tedious. On the one hand, cutting tenons with a hand saw and chopping out mortises with a chisel is a bit more fun than I require. On the other hand, I certainly do not want to use a machine to cut mortises in both sides of the joint so that I can slip in a loose tenon. Joints cut by any of these methods will produce equivalent results. It would be stupid for me to strike poses or argue about which is better. I use methods that suit me, because then I do better work.

I do not own a dovetail jig. I cut half-blind dovetails by hand, for the joy of doing it and the pride in my results, even if imperfect. Some times I cut them all by hand.

Other times I cut the tails on my bandsaw.

On the contrary, however, I attach drawer backs to drawer sides with finger joints that I cut with a jig on my table saw. I certainly consider these drawers to be hand made and take pride in them.

Hand work is not quite as much fun for 24 finger joints as it is for four dovetails, per drawer. Also, if cutting dovetails by hand ever becomes tiresome, e.g., if I get good enough at it or need to cut more than 20-30 at a time, I will buy a jig without hesitation.² Then I would use the time and effort I saved to make my work interesting in another way.

So, I'm a galoot at heart. I value novelty and learning new things as much as I value efficiency and results. Still, I wonder whether the number of my fellow woodworkers who buy the latest fad are really gaining anything but a shiny expensive new toy.

I sometimes persist in using methods that are becoming tedious or that take longer because I feel that I have not mastered them yet. They are still teaching me something that I need to learn.

On the other hand, I won't sign up for the drudgery of ripping 10 feet of 8/4 oak with a hand saw. When I find a technology that suits me and that furthers my craft, I use it. Otherwise, I stick to what I know. The wisdom of the galoot.

². And I did, in 2015. After I gave up my table saw in a downsizing, I needed another way to cut box joints. A jig was the way I chose. I still cut dovetails by hand when I just have a few to cut.