In the wind . . .

by John Bishop

How is it made?

We're driving on a highway and a flatbed truck with WIDE LOAD banners whips by in the other direction. The trailer is carrying a machine, big as a house and covered with a tarp that taunts as its corners flap in the wind. Aloud, I wonder what it's for, and my wife smiles—or is it smirks? There's a gap in the fence around a city construction site, and I stop to peer through to see what's going on. Or I'm waiting in an airport (that's what airports are for—I think they should call them *waitports*) amid hundreds of fellow waiters deep in laptop DVDs and MP3s. Important businessmen are having loud imaginary conversations on their iPhones, but I'm captivated by the panorama of activity outside. Each airplane is surrounded by a fleet of odd-looking trucks. By now, I think I know what each

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one is for, only because I've spent so much time watching them.

I'm fascinated by factories. I've seen steel, beer, automobiles, railroad cars, earth movers, and cigarettes being made. I've seen dollar bills, postage stamps, and newspapers fly through enormous printing presses at incomprehensible speeds. In the seventies, I rented a house from a guy who was a tool maker in an auto assembly plant. One December day, he invited me to a company Christmas party. We walked in to the din of the assembly line, and I quickly realized that the party was unofficial. Cars were being made by workers who were more focused on holiday cheer than the task at hand. I was secretly glad I was not planning to order a car that week.

Sesame Street was a staple in our house when our kids were young, and I loved the many segments of the show taking viewers on factory tours. Joe Raposo (brilliant composer of the show's theme song, along with such classics as *It's not easy being green*) wrote *It takes a lot of little nuts to make a jar of peanut butter*, a catchy tune that accompanied video shots of peanuts cascading down chutes into massive grinders and gooey paste blurping into jars as they shot along conveyor lines. Watching soda pop going into bottles at two or three a second, you might expect to hear the clanking of glass, but they shoot along obediently with only the whirr of the machines.

Organ builders spend much of their careers learning how to make little widgets one at a time, and figuring out how to make them better and more economically. I don't say cheaper, because it's a rare organbuilder who looks for cheap. Making a pipe organ part economically implies some kind of continuum that includes cost of material, time for manufacture, and artistic content. Just because you built a tremolo for less money doesn't mean it's going to "trem" musically. If you've developed a part that you know you'll need by the thousand, you develop the ability for mass production. A tracker organ might need two or three hundred squares—if you've got a good design, why not spend a week making enough for the next ten organs? Or if someone else makes them in greater numbers for less money per piece, why not buy them and use them in your organs?

Another case in point is the huge parts that comprise a large organ. Building just

32′ Open Wood pipes, Organ Supply Industries (photo John Bishop)

one 32-foot wood pipe is a huge undertaking that takes hundreds of board feet of lumber, hundreds of clamps, and plenty of person-power. Just turning a pipe to wipe off the glue takes several people. At the Organ Clearing House, we know that a 32-foot wood stop automatically makes a second semi-trailer necessary. Think of the floor space you need to make something like that.

Wal-Mart tops the list of Fortune 500 companies with 1,800,000 employees. Compare that to the city of Philadelphia with 1,500,000 residents. Ford and General Motors both top 300,000. I do not have exact statistics at hand, but I'm pretty sure that no modern organ building company employs more than 150 people. Off the top of my head and counting on my fingers, I can think of fewer than ten American firms that employ more than twenty people. By far, most modern organ companies comprise two or three workers.

A big early twentieth-century firm like Austin, Hook & Hastings, Skinner, Möller, Reuter, or Schantz had dozens, in some cases hundreds of workers. The factories were divided into small shops that specialized in windchests, actions, consoles, or pipes. The woodworking shop built casework, made wood pipes, and provided milled pieces for the console and reservoir shops. A factory superintendent managed a production schedule that called for all the components of a given organ to arrive on the erecting floor where the instrument was assembled and tested before being shipped, and an installation team would meet the shipment and install the organ.

So a worker at Hook & Hastings might have spent his entire working life making keyboards. He wouldn't be considered an organbuilder by modern standards. He might not have had any idea how a windchest works. But boy could he make keyboards. One of my colleagues talks about having tracked down one of the legendary, now very elderly women who glued pouches in the Skinner factory. While he was undoubtedly looking for hints about what machines and jigs and they used, she seemed to say that they just glued them. I doubt that she could tune an organ pipe, but boy could she glue a perfect pouch, and boy could she do it hundreds of times each day.

Which is the better organ? Is it the one that's made from stem to stern by two or three dedicated "all-round" organbuilders, or is it the one that's conceived by a salesman, designed by a team of engineers, endowed with standards and procedures established by the genius who founded the company, and built by a large group of people, each an expert and specialist in one facet of the trade? History has proven that both scenarios can produce wonderful organs.

Pipe metal, A. R. Schopp's Sons (photo John Bishop)

Reservoirs, A. R. Schopp's Sons (photo John Bishop)

Supply and demand

I've been thinking about organ shops large and small because I just returned from a delivery tour that included visits to two large companies that are important suppliers to the pipe organ industry. The Organ Clearing House is involved in two projects that involve renovation and installation of historic organs, and these companies are adding their vast resources to our work. A. R. Schopp's Sons of Alliance, Ohio, is an important supplier of new organ pipes. They also produce windchests, wind regulators and reservoirs, casework, and swell shutters. Organ Supply Industries of Erie, Pennsylvania (known across the trade as OSI), does all of that. In addition, OSI fills an essential niche as suppliers of widgets and doo-dads—the countless catalogue numbers refer to chest magnets, leather nuts, voicing tools, organ blowers, leather, wiring supplies, specialty lubricants, valves, and the squares I mentioned earlier. It is the rare American organ builder who does not rely on OSI for something.

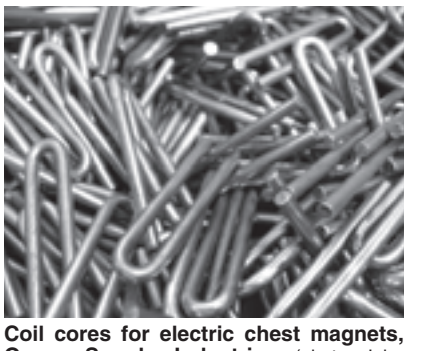
I drove a truck filled with large components from the two organs, loading in Deerfield, New Hampshire, and Melrose, Massachusetts, on a Tuesday morning, and driving (in accordance with Department of Transportation rules) through heavy rain as far as Wilkes-Barre, Pennsylvania, where I spent the night. What had been rain in Pennsylvania was ice in Ohio, so Thursday brought a drive through rural countryside festooned with beautifully crafted ice formations, and low-hanging tree limbs slapping the side of the truck body. I spent Thursday afternoon with the people of A. R. Schopp's Sons, and drove on to Erie, where I spent the night before visiting OSI on Thursday morning. Early morning television revealed the wisdom (or luck) of the schedule—northeast Ohio was blanketed with heavy snow on Thursday, and I spent the rest of the trip leading the storm east. And here's a comment on the cost of doing business: my 1,800-mile trip consumed nearly $700 worth of diesel fuel.

I had substantive conversations at both factories that gave me new insight into the importance of their role in our trade. The phrase "supply house" can stir up negative connotations. I've used it myself to imply cheapness: "They replaced it with a supply-house console . . . ." Plenty of organs have cheap replacement "after market" consoles, but that's not a fair way to judge the contemporary work of such important companies.

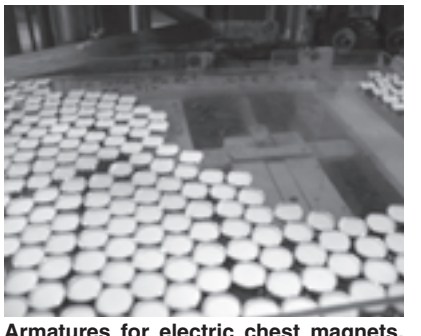
Let's talk about the electro-pneumatic chest magnet. A century ago, much of organ building was prototypical. Most organs were incorporating the new-fangled electro-pneumatic action. In fact, at that time, the application of electricity was new throughout the industrial world. So naturally, organbuilders developed their own versions of the electric chest magnet. Some had one-piece cast-metal housings, while some were assemblies that combined punched brass plates, drilled maple blocks, and wood screws and tacks. Over the ensuing decades, the best features of each style were slowly combined, until today, most new electro-pneumatic organs incorporate chest magnets from one source.

The modern small organbuilding shop is challenged by the struggle between artistic content and commercial reality. No client purchasing an organ will agree to a price "to be determined." Any organbuilder is expected to state a price be-

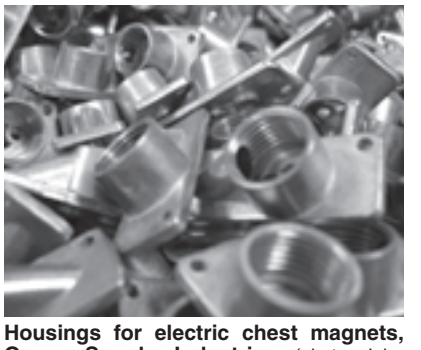
32′ Bombarde, A. R. Schopp's Sons (photo John Bishop)



Coil cores for electric chest magnets, Organ Supply Industries (photo John Bishop)



Armatures for electric chest magnets, Organ Supply Industries (photo John Bishop)



Housings for electric chest magnets, Organ Supply Industries (photo John Bishop)

fore work starts. It makes no sense for a small shop to mess around developing the ideal chest magnet to complement their artistic philosophy when a century of research and development provides a universal model with space-age specifications at mass-market prices with the help of FedEx.

But there is another side to this issue. You can go into a Crate & Barrel store in Texas and buy a half-dozen beautiful wine glasses, take them home and enjoy them as part of your home, and then with a pang of disappointment see the same glasses on the table of a friend in Seattle. Or notice that the books featured on the front table at Barnes & Noble on Union Square in New York are identical to those in a shopping mall in suburban Phoenix—as if tastes in reading would be the same in any two places. It's a natural impulse for an organbuilder to make his products unique—you feel a little pang when you see the same stuff you use in an organ built by another firm.

Is the magnet the artistic core of the organ? How many other little parts could be uniform through a variety of organ companies before the instruments all blended into one? How do we define the parameters for performance of the pats in an organ? One way to judge the performance of an electric or pneumatic organ action is the repetition rate—how fast can the note repeat? (The real key to fast repetition is quick release, not fast attack.) A standard answer is sixty repetitions per second, a speed faster than an organist can go, faster than a pipe can speak—in short, fast enough so the magnet would never be the weak link. Would it be worth the time and expense to spend a couple months developing a new magnet that could do sixty-five? Would the player be able to tell?

Router (photo John Bishop)

While the two companies I visited last week have different priorities and personalities, in my judgment they share a common philosophy. Because they work in large volume, they can afford sophisticated modern automated equipment that is beyond the reach of a small shop. But what they really offer is service. An organbuilder can choose to purchase a mass-produced reservoir from a list of sizes in the catalogue, or order one that's custom built to specifications for a particular organ. And a small organ shop can view a supplier as an annex capable of providing anything from a box of screws to a complete organ.

These venerable companies employ engineers who advise their customers about the use of their products. They can help with the design of custom parts and components. And they work very hard to be sure that the quality of their products is high enough to complement the quality of the work of their customers, the American organbuilders.

Last year the Organ Clearing House completed the renovation of a three-manual Casavant organ. Because the organ was being moved to a totally different architectural environment, we provided a new case with new façade pipes. The case was built by another supply company, QLF Pipe Organ Components of Rocky Mount, Virginia. OSI supplied the polished pipes. Before and after photos show what "supply house" really means. (See "Here & There," The Diapason, April 2008, p. 10.) It's the next best thing to running a company with a hundred cars in the parking lot and a roster of specialty departments. ■

On Teaching

by Gavin Black

Registration and teaching—Part III

To all this was added the peculiar manner in which he combined the different stops of the organ with each other, or his mode of registration. It was so uncommon that many organ builders and organists were frightened when they saw him draw the stops. They believed that such a combination of stops could never sound well, but were much surprised when they afterwards perceived that the organ sounded best just so, and had now something peculiar and uncommon, which could never be produced by their mode of registration. This peculiar manner of using the stops was a consequence of his minute knowledge of the construction of the organ and of all the single stops.[1]

In the last two columns we have gone over, as carefully as possible, all of the aspects of the art of organ registration that are objective and systematic—that is, the meaning of the pitch designations given to stops, and the science of combining stops as it relates to the different pitch levels and to overtones. By devoting two whole columns to these matters and in the way I laid out all of their details, I have tried to make the case that students wanting to study registration should be encouraged to understand these things extraordinarily thoroughly at the very beginning of that study. This seems to me to be the necessary first step in achieving the "minute knowledge" attributed to Bach by Forkel (and his sources) in the famous account quoted above.

The next step in achieving the level of knowledge and understanding that permits freedom and confidence in registration—or, I should say, the next set of steps—involves beginning to explore the actual sounds of the stops: the thing that makes organ registration exciting and challenging, and that gives meaning and variety to the essentially infinite number of different combinations of stops that a mid-sized or large organ possesses. Let us begin with a few principles. These partly reflect my practical experience—they seem to me to provide a good foundation for an approach that clearly and simply works to help students to feel comfortable with registration and to achieve results with which they are happy. Partly, however, they reflect my belief—which I admit probably rises to the level of an ideology—that every musician ought to think for him- or herself and be willing or eager to achieve results that are different from anyone else's. These principles are as follows:

1) The art of registration is fundamentally the art of really listening to every sound that you hear—also really hearing every sound that you listen to—and noting carefully and honestly your reaction to it.

2) The ideal approach to choosing a sound for a given piece or passage is to try it out with every available sound. This is almost always actually impossible (see last month's column), but it is still an interesting and invigorating concept to keep in the back of one's mind.

3) The names of the stops are only a general guide to what they sound like or how they should be used. These names can be very helpful for targeting which stops or combinations to try, given that it is impossible to try everything. How-