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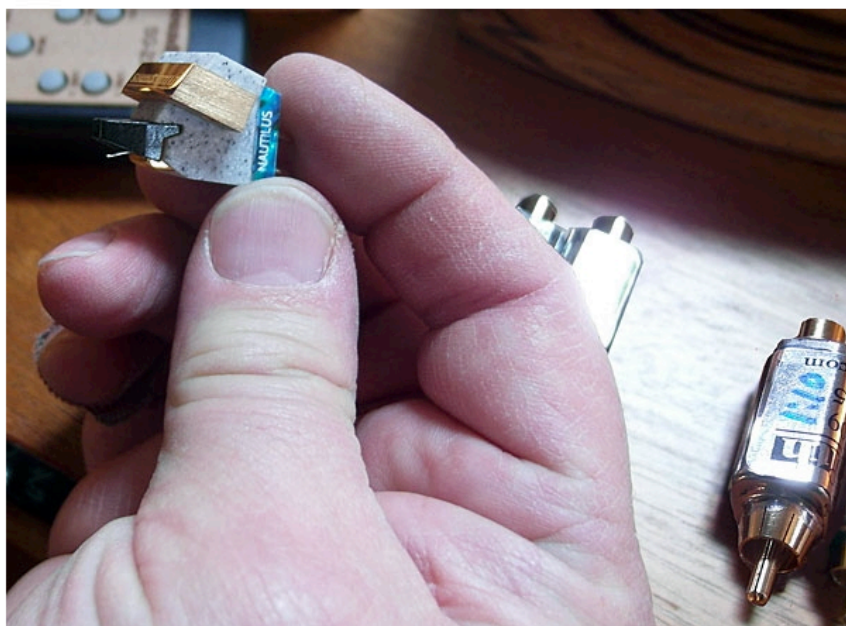
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ART DUDLEY LISTENING

Listening #152

By Art Dudley • Posted: Jul 28, 2015



The Nautilus (\$2250), whose nameplate is made from natural shell, is among Soundsmith's new series of medium-output moving-iron cartridges; a low-output version, the Paua, is also available.

During our second trip to the UK, my wife and I drove from Heathrow Airport to Swindon, to visit an older couple we'd met on our first trip. We arrived around noon, and Vera and Ross made us a nice lunch, which we enjoyed while looking at scrapbooks filled with family photos and well-worn newspaper clippings. Vera asked where we intended to spend the night, and I said that our next stop was York.

Our friends were horrified. "That's hours from here: You can't do it in just one afternoon!" (Our UK road atlas suggested we could make the drive in about four hours; it took slightly longer, only because I felt compelled to stop along the way to photograph a magpie, as I'd never before seen one.) We assured our hosts that, as Americans, we were used to driving hundreds of miles in a day, even for routine trips. Nevertheless, Vera and Ross insisted on packing a meal—cucumber sandwiches with salad cream, some nice cookies with jam filling, a container of orange soft drink—and extracting from us a promise that we would stop and rest along the way.

Vera and Ross, two of the sweetest people I've known, passed away long ago, but I think of them every time I set about driving any distance greater than 100 miles. I pack a meal, whether or not I think I'll want one—I almost always do—and I make sure to pause every few hours to rest my eyes and stretch my legs.

So it was on April 23, when I set the controls for the heart of Peekskill, New York, intent on visiting the headquarters of The Soundsmith (footnote 1): a manufacturer of electronics and loudspeakers that also happens to be one of only two makers of high-fidelity phono cartridges in all of North America (the other being Grado Labs, footnote 2). Soundsmith is owned and

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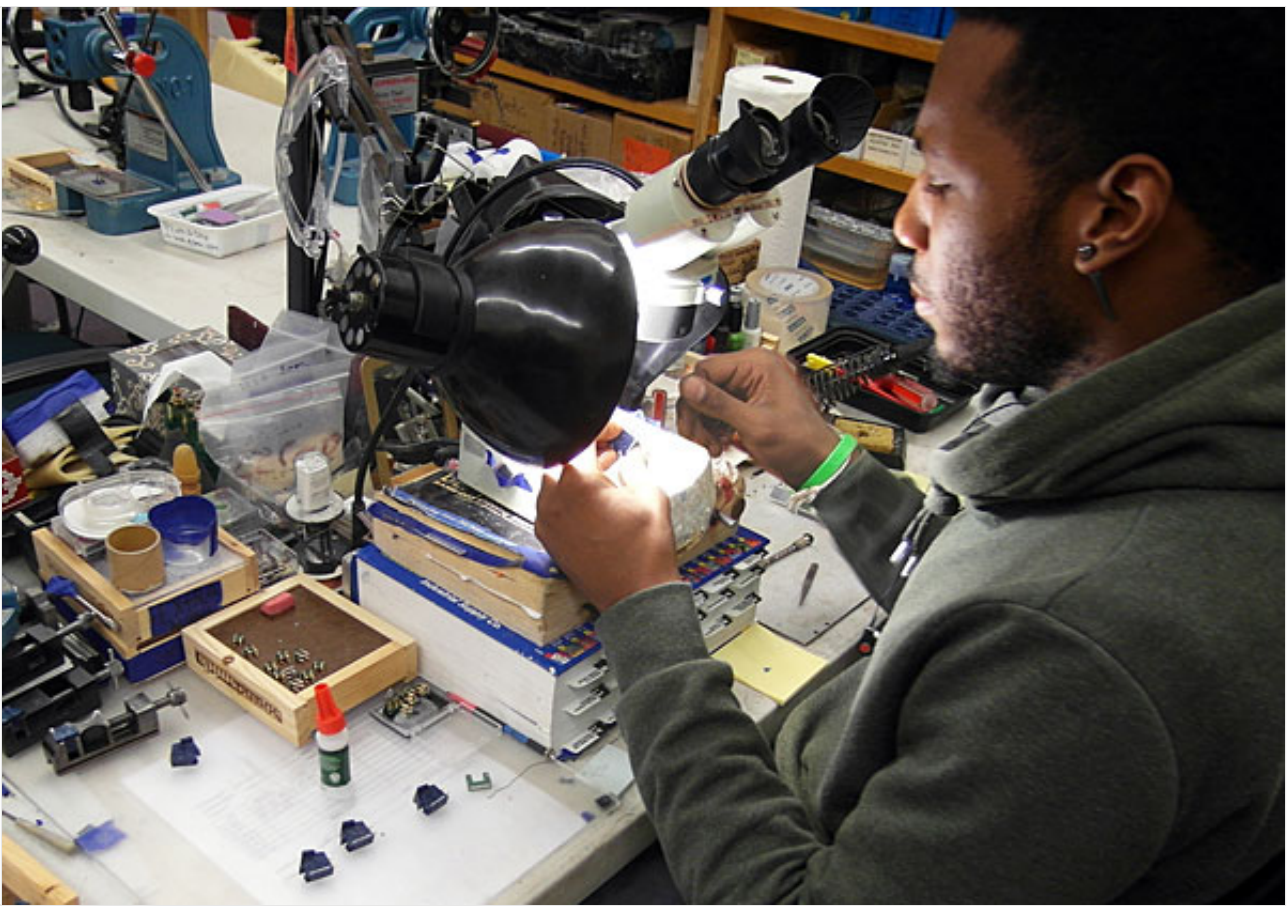
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So it was on April 23, when I set the controls for the heart of Peekskill, New York, intent on visiting the headquarters of The Soundsmith (footnote 1): a manufacturer of electronics and loudspeakers that also happens to be one of only two makers of high-fidelity phono cartridges in all of North America (the other being Grado Labs, footnote 2). Soundsmith is owned and operated by Peter Ledermann, a self-taught engineer whose love affair with audio began when, at the age of three, he assembled a crystal-radio kit his father had given him. By the time he'd entered his teens, Ledermann was salvaging and repairing all manner of electronics—radios, tape decks, even television sets—but it was the acoustic phonograph for which he felt a special affinity: "I understood Edison's elegant invention at a tender age," he says. "It matched the impedance of the groove to the impedance of the air. I got it!"

After a few semesters of college in the late 1960s, Ledermann began his professional career in retail, doing repair work for Audio Experts, a shop in White Plains, New York. After that, he worked at RAM Audio in Danbury, Connecticut, alongside chief designer Richard Majestic—with whom he devised, among other things, a loudspeaker feedback system that used a transformer to derive an error signal. (I always perk up when I hear the word *transformer*.) Then, in 1976, Ledermann undertook his highest-profile audio job yet: director of engineering at Bozak, Inc. Once there, he was assigned to reengineer Bozak's entire line of loudspeakers and mixing decks—after which he designed a new miniature loudspeaker, the MB-80, by transforming Rudy Bozak's well-known 6" aluminum cone into a full-range driver.

In 1979, Bozak sold the company that bore his name, and Ledermann struck out on his own. He supported himself with repair work for a year, then began an 11-year stint at an IBM engineering think tank nestled away in the company's T.J. Watson Research Center, in Yorktown Heights, New York. Despite his lack of formal training in engineering, Ledermann says, he "became known in the company as someone who was resourceful and inventive. I paid my dues through intuition. I paid my dues by being as curious as I could be."



Technician Joe Davis-Logan assembles a Soundsmith cartridge; in the background, Theresa Pineiro tests coil assemblies.

But Ledermann's interest in designing and making audio products never waned. Indeed, he says, he created Soundsmith all the way back in 1970—as an audio-industry "mentoring company"—and kept it going throughout his other professional engagements. Then, in 1990, Ledermann left IBM and began to devote all of his energies to Soundsmith.

The needle wags

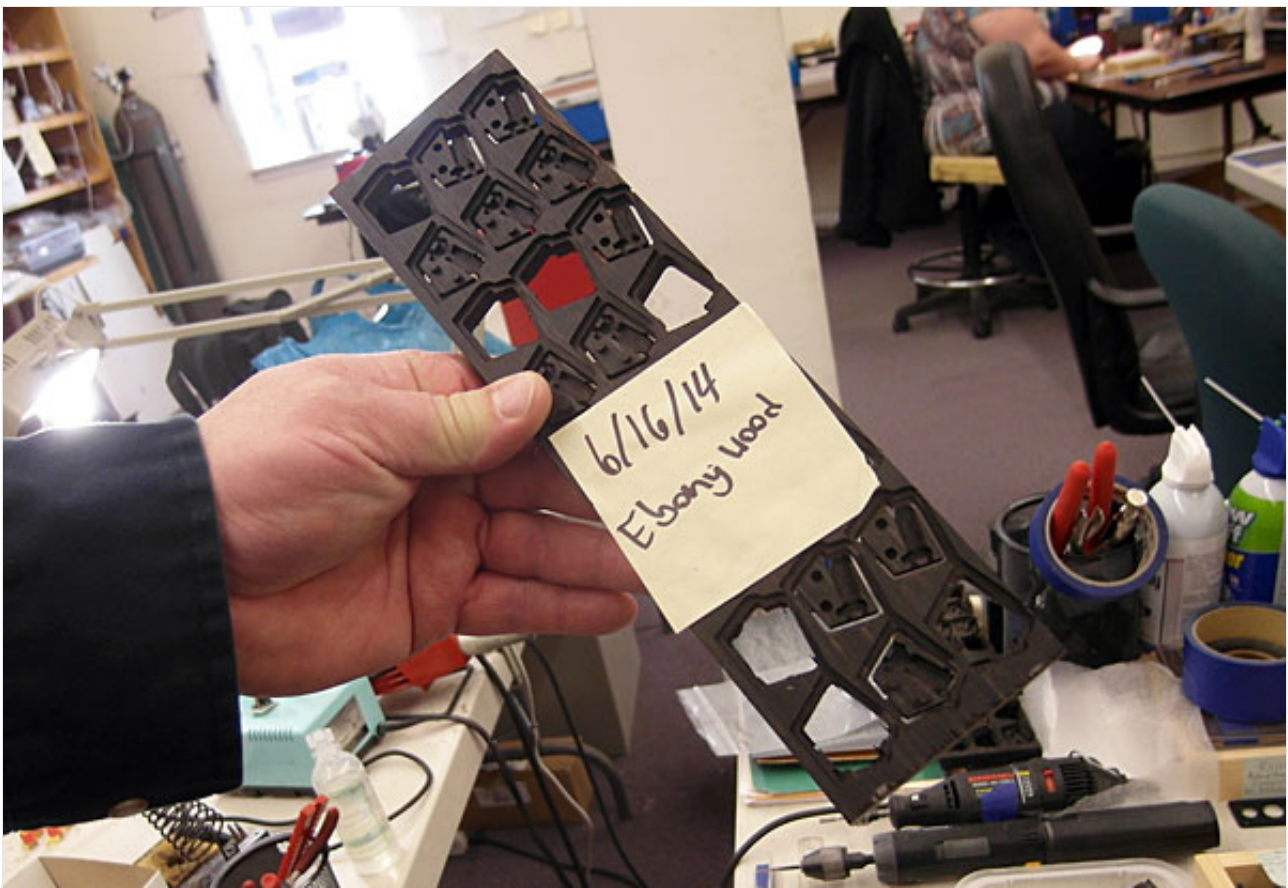
Peekskill is a decent enough small city, and Soundsmith is located in a decent enough industrial park, bordered on one side by the Hudson River and by historic US Route 9—aka Broadway in both upper Manhattan and Saratoga Springs— on the other. While navigating the latter, I scarcely missed being involved in an accident between the Toyota Prius directly in front of me and a pickup truck whose driver seemed oblivious to the hazards of sudden lane changes in busy traffic circles. Good thing I was well rested.

Less harrowing was my elevator ride to the fourth floor of 8 John Walsh Boulevard, where Soundsmith occupies two adjacent spaces totaling some 8000 square feet. The door to the first and larger of those spaces opened onto a small reception area decorated with photographs, posters, awards, and a silent display of mint-condition vintage hi-fi gear. (MasterCard and Visa signs suggested that consumers are, indeed, welcome.) From there,

Peter Ledermann led me to a large, well-lit room, where two of his 13 employees were engaged in the commercial activity for which Soundsmith is now well known: the manufacture of a line of phono cartridges, the vast majority being of the moving-iron (MI) persuasion.

On the subject of his transducer technology of choice, Ledermann is passionate and articulate. While acknowledging that there exist many good cartridges of the moving-coil (MC) and moving-magnet (MM) varieties—in the former, tiny bobbins of fine wire are stylus-shook within the flux fields of stationary magnets, while the latter employs stationary bobbins of wire, in whose face the needle wags one or two tiny magnets—Ledermann prefers the MI, in which magnets and coils stay put and the stylus coaxes into motion a very small piece of magnetically permeable metal, which displaces the flux lines of the former and induces signal in the latter. In person, as on his website, Ledermann points to numerous advantages of his third-stream technology, most pertaining to a single fact: In an MI cartridge, the moving mass tends to be lower than in other cartridge types. And, as Ledermann says, "I am an absolute believer that moving mass is the enemy of cartridge performance."

The moving element in Soundsmith's MI design is appropriately tiny, but that isn't its only claim to fame. Inspired by a design created in the 1960s by Bang & Olufsen—replacements for whose cartridges and styli are now manufactured, under license, by Soundsmith—Ledermann chose for his moving element a cross shape, and aligned it so that, when the cartridge is subject to the prescribed downforce and placed on a record, the cross hovers perfectly equidistant from four stationary coils and magnets. When stylus deflection moves one leg of the cross away from one set of magnetic flux lines, the position of the opposite leg of the cross is moved closer to its own electromagnetic sweet spot—and so the Soundsmith design avoids the dynamic compression that would occur if a single element were moved too far from the flux-line epicenter. It is, in a real sense, a push-pull cartridge.



Where do ebony cartridge bodies come from? They come from a CNC machinist, who supplies clamshell-like halves in a manner reminiscent of model-car kits.

Thus my amazement to see, in real life, how tiny are those crosses and coils, and how much painstaking care is required of the technicians who align and assemble them—and who anneal the magnetically permeable elements, and weld in place the thinner-than-hair wires, and perform all manner of other seemingly impossible tasks. Surely, the clinical lab at our local hospital has at its disposal fewer microscopes than does Soundsmith, where I counted at least eight in the cartridge-assembly area, and a couple more in Ledermann's office alone. All Soundsmith cartridges are made by hand, and most are the products of a few different technicians; the top-of-the-line models are built solely by Ledermann.

Pecos Pete

Distinctions among Soundsmith's various MI models fall into a few different categories. The company makes cartridges that produce low, medium, and high output voltages, with suspensions that exhibit low, medium, and high levels of compliance. Cantilever choices include aluminum alloy, telescoping aluminum alloy, boron, ruby, and specially treated cactus spine. (The last is no joke: Not long ago, Peter Ledermann discovered that, carefully trimmed to the right shape, the once-popular stylus material makes a superior cantilever that offers a virtually perfect combination of self-damping properties and stiffness.) Stylus

shapes include titanium-bonded elliptical, nude elliptical, contact line, and optimized contact line. And, of course, the bodies of Soundsmith cartridges are made of different materials, including acrylic, composite (think: *kitchen counters*), and various species of wood.

Taking into account the options described above, as well as the company's unusual naming conventions, there would seem to be about 30 different Soundsmith cartridge models—a high enough number to impart to this perfectionist brand the slightest whiff of JC Whitney. The actual total is closer to 60, given that all of Soundsmith's MI models are also available as mono cartridges. The mono versions are still push-pull, still four-coil cartridges, but with coil arrangements that differ, electrically, from those of their stereo counterparts. Thus, by sheer numbers alone, Soundsmith is pretty much Mono Central. And it's no coincidence that Ledermann shares my enthusiasm for single-channel playback, hailing its comparative lack of phase distortion and consequent sonic wholeness and whomp.

Ledermann's enthusiasms also include a healthy sense of thrift: While it's true that no Soundsmith MI cartridge has a user-replaceable stylus—an unavoidable state of affairs, given the high level of skill required to align the teensy iron cross vis-Ö-vis the cartridge's similarly small signal coils—the company guarantees that every cartridge it sells can be retipped for 20% of its original price. Repeatedly.

Footnote 1: The Soundsmith, 8 John Walsh Boulevard, Suite 417, Peekskill, NY 10566. Tel: (800) 942-8009, (914) 739-2885. Fax: (914) 739-5204. Web: www.sound-smith.com

Footnote 2: Shure Brothers phono cartridges are now made in Juarez, Mexico. Stanton Magnetics, now owned by the Gibson Guitar Corporation, of Nashville, Tennessee, recently ceased production of all cartridge models and all but one of their replacement styli.

Lower still is the cost of maintaining Ledermann's top cartridge model, the Soundsmith Strain Gauge (\$8600, including the most basic version of its requisite preamp, footnote 3): Replacement styli can be swapped out in the field, and range in price from only \$350 to \$950.

User-replaceable styli with three-figure price tags are made possible because the transduction principle for which the cartridge is named—at least two other strain-gauge pickups have appeared on the market in years past—is so different from that of most other

phono cartridges. MI, MC, and MM cartridges all respond to the bumps in the groove of a moving record by generating their own electrical signal. (As pointed out in the June 2014 "Listening," those products are unique among all source components in that regard.) But a strain-gauge cartridge responds to those bumps by modulating a current supplied by its partnering preamp, which it does by means of a tiny silicon element that varies resistance in response to physical stylus deflection. Thus the Soundsmith Strain Gauge can claim even lower moving mass than an MI cartridge—and, as a bonus, its modulated signal requires only minor amplitude-response correction, and not the full-blown RIAA equalization required by most phono pickups.

Ledermann would also have you know that, because of its incomparably low moving mass and its freedom from the mechanical compression that bedevils electromagnetic cartridges, the Soundsmith Strain Gauge cartridge is an incomparably good tracker. Indeed, he says, the Strain Gauge is kinder than most cartridges to one's records, a claim he illustrated by playing for me a record that not only had lots of bass, treble, and sheer juice, but that exhibited not a single tick or pop. Except it wasn't a record—it was a half-speed-mastered lacquer. While a typical lacquer can't be played more than a few times before audible groove damage sets in, Ledermann said that *this* lacquer had been played approximately 150 times—but only with a Soundsmith Strain Gauge.



The Soundsmith Strain Gauge cartridge with stylus removed.

The rest of that playback system seemed similarly impressive—and, with the exception of the VPI turntable and Schroeder tonearm, all components were designed and made by Ledermann. The cartridge was the Soundsmith Strain Gauge Signature Series SG-810 (\$33,900), the partnering preamp for which also includes line inputs, manual and remote controls, a tape loop, and automatic cue-up muting. Power amplifiers were a bridged pair of Soundsmith HE-150 zero-feedback, 200Wpc MOSFET monoblocks (\$43,000 each), and loudspeakers were the compact (14" tall), two-way Soundsmith Monarchs (\$4000/pair), mounted on Soundsmith Versa-Stands (\$900/pair). The sound lacked the casual, natural forcefulness I hear through my Altec horns, and when I played an LP I'd brought with me—Country Cooking's *14 Bluegrass Instrumentals* (Rounder 006)—I was surprised to hear a less dry, more echoey sound than I hear at home. But color, detail, scale, and width of frequency range were all very impressive. I may or may not have been correct in attributing to the Strain Gauge cartridge the system's abundance of sonic detail, but there was no doubting the little Monarch speaker's ability to sound surprisingly huge, and to play low-frequency tones I would have thought beyond its reach.

Grace notes

After a bit more listening, Ledermann and I retreated to a local restaurant for some lunch and a more relaxed, far-ranging conversation. We hit upon all manner of hi-fi and music topics, during which I became acquainted with some of Ledermann's likes and dislikes regarding analog playback in general. For the sake of both sound and cartridge longevity, he is an ardent believer in keeping records clean, and prefers radial-slot, vacuum-dry cleaning machines such as those from VPI and Hannl, the latter of which Soundsmith offers for sale. (Earlier in the day, when we were about to play that Country Cooking LP, Ledermann asked if I'd let him wash the record beforehand; having recently cleaned it on the [Audiodesksysteme Gläss Vinyl Cleaner](#), which I prefer, I declined with thanks.) As for stylus cleaning, Ledermann recommends lowering the tip into a gummy, sticky, putty-like substance, which is presumed to retain any and all contaminants, and which can be reused multiple times. (Although Ledermann doesn't specifically endorse it, the Onzow Zerodust cleaner works in that manner.)

Perhaps unsurprisingly, Ledermann also has much to say about cartridge alignment—but is refraining from making detailed comments on the topic until such time as he can deliver one of his next commercial products, the Soundsmith Cartright. This bundle of hardware and software, reportedly in the works for some time, is expected to carry a price in the high

three figures. For now, suffice it to say that Ledermann's geometry of choice is Baerwald—and take to heart his observation that "azimuth is a supercritical alignment, but there is a difference between generator alignment and stylus alignment." That's not as enigmatic as it sounds.



The lion in early spring: Peter Ledermann at lunch.

But of all the topics that inspire Ledermann's passion and industry, none seems as near to his heart as his favorite charitable enterprise: the worldwide abolition of childhood slavery. To that end, he has created his own record company, [DirectGrace Records](#). The label specializes in direct-to-disc recordings of acoustic music, recorded and mastered by Ledermann on a Neumann VMS70 lathe at the Soundsmith offices; all proceeds go to support such nonprofit organizations as the African Network for the Prevention and Protection Against Child Abuse and Neglect (www.anppcan.org). Among the titles presently available are *Flower by the Dry River*, by jazz pianist Elio Villafranca and his ensemble (LP, DG 00106 S), and the eponymous debut album by singer-songwriter Samuel Searle Morris (LP, DG 00103 S). You can buy one or both of them right now and do something nice for the world *and* your ears.

After lunch, we returned to Soundsmith for a little more listening, and to drop in to see

their cartridge-repair department—a visit I'd looked forward to all day. Among some phonophiles, Soundsmith is best known for its ability to retip and repair almost any phono pickup you can name, from Allaerts to Zyx—and for a price usually considerably lower than that charged by the original manufacturer. Soundsmith can do this in one of two ways: The repair technician—Ledermann himself, or the affable David Moskowitz—can remove the entire cantilever and replace it with a brand-new cantilever-stylus assembly, with various options regarding the material of the former and the profile of the latter. Alternatively, the technician can leave in place the original cantilever and remove only the stylus shank—usually by dissolving the cement that holds it in place—after which a brand-new diamond can be fitted. Costing between \$350 and \$650, the latter is Soundsmith's more expensive option, simply because it's difficult to perfectly align—within an opening that may not have been correctly made in the first place—a microscopically small nub of transparent material. By choosing the cantilever-plus-stylus route, the consumer is on the hook for as little as \$150, with prices in some cases ranging up to \$450.



The faceplate of the Soundsmith SG-810 preamplifier is machined from cocobolo, a popular tonewood; the light-colored strip near the bottom edge is of sapwood, prized by some luthiers for adding visual contrast to the backs and sides of instruments.

Even the highest of those prices seems cheap, and may well coax from the cynical that

great refrain of American salesmanship: Why pay more? The answer, from some, might be that a new stylus isn't enough to fully reset the odometer on a high-performance cartridge, which may also require a remagnetized magnet, a thorough purging of magnetically permeable detritus, retorquing of the tensioning wire, and, most of all, new suspension parts. Soundsmith, of course, can do much of that work themselves, although many notable cartridge makers do not make available to other service facilities their proprietary replacement materials—and so they have the advantage. (Just as Ledermann believes the materials he chooses for his cartridges are the best, so may other cartridge makers suggest that they, too, chose for their products the best possible materials in the first place.) But no matter how you look at it, spending \$650 or less for a fresh start with a brand-new stylus, especially on a megabuck cartridge, has tremendous appeal.

For reasons almost entirely selfish, I asked: "Can you replace the elliptical stylus of a 12-year-old Japanese cartridge with a spherical tip?"

I received from Ledermann the answer I expected: "Why would you want to do that?" When I pressed him, and explained that I simply prefer the unfussy sound of a spherical tip, he said he would be happy to make the change whenever I wish. Setting my selfishness throttle to full steam ahead, I then offered for his inspection a very old Decca Gray that someone had given me just a few days before. Ledermann kindly put it under his 'scope and, in short order, discovered two things: The Gray's own spherical tip showed no wear whatsoever, and one of its coil wires had come unsoldered, rendering the thing useless; the latter more or less explained the former. In any event, Ledermann offered to try to fix it.



Left behind in the good hands of Peter Ledermann: my Decca Gray.

And so, when I left Soundsmith that day, I left a little something behind. Ledermann saw me to my car, and we chatted a few minutes more. Then we shook hands, and I set my Garmin for the trip home. It was afternoon rush hour, and before I reached the Newburg-Beacon Bridge, it had begun to lightly snow—on April 23. It had been a long winter. Now, I wondered if that would ever change.

Footnote 3: Michael Fremer reviewed the Soundsmith Strain Gauge cartridge in [March 2011](#).