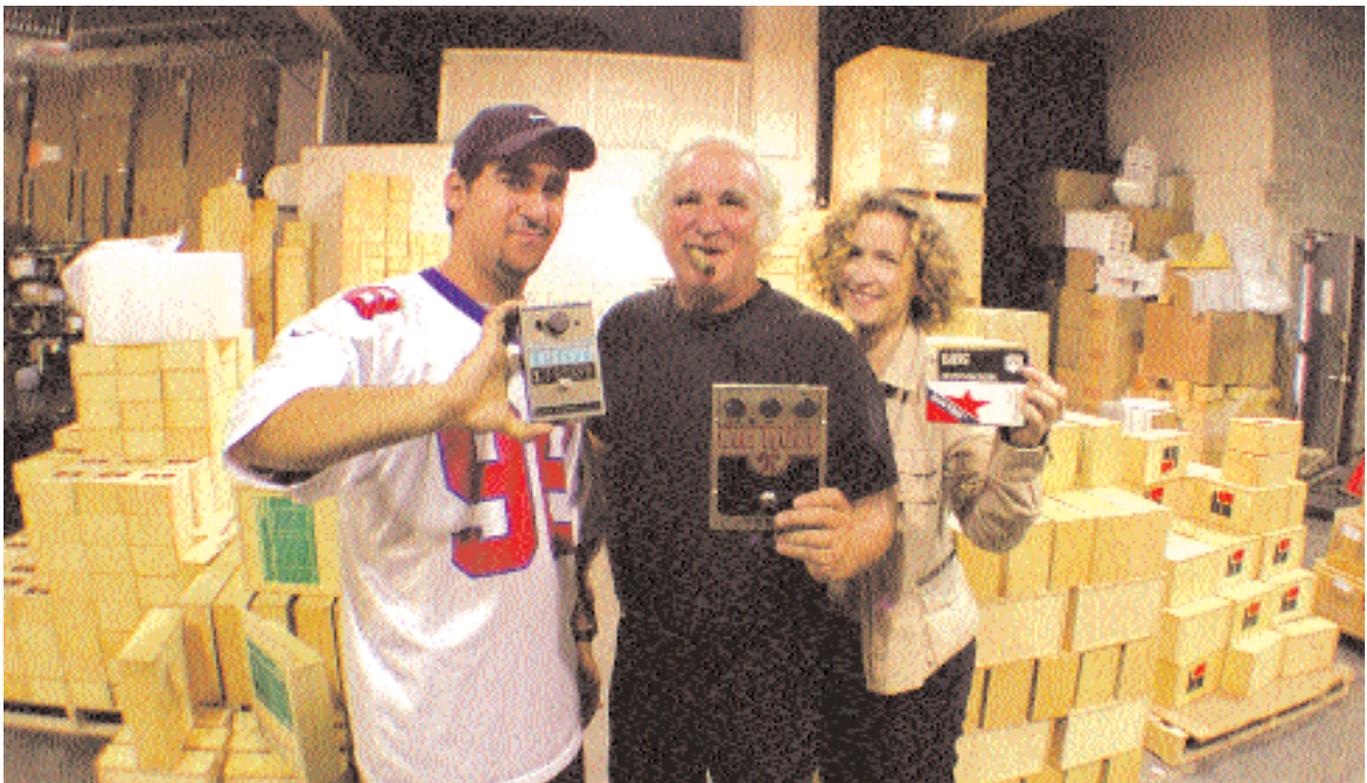


How Industry Pioneer Mike Matthews

Founded Electro-Harmonix, Redefined Guitar Tone, Kept Vacuum Tube Production Alive, And Left An Indelible Mark On The Music Industry...And He's Just Getting Started



THE NEW SENSOR FAMILY (l-r) Owen Matthews, assistant sales manager, with a Holy Grail reverb; Mike Matthews, president, with a Big Muff fuzz tone; and Suzi Matthews, artist relations, with Sovtek and Electro-Harmonix vacuum tubes. In the background, hundreds of Electro-Harmonix effects pedals packed in their distinctive Russian-made wooden boxes.

When he wasn't busy spearheading Electro-Harmonix' industry-shaping product innovations in the 1970s, Mike Matthews took some time to ponder life's bigger challenges. He studied tapping alternate energy sources such as wind power with giant umbrellas and the magnetic fields or "lines of force" in the magnetosphere

60 miles above the earth. With even greater passion he investigated the possibility of "whipping death in our lifetime" by harnessing and focusing mankind's intellectual potential on medical science through various metaphysical means including mental telepathy. The common theme of these explorations—harnessing and utilizing potential—also steered Electro-Harmonix,

where Matthews harnessed and utilized the creative potential of some of the industry's brightest minds, including his own. While he never "whipped death" in the cosmic sense, he did manage a small-scale equivalent when he twice resurrected the company whose products helped shape the sound of rock 'n' roll. Today, with his unruly white hair, rocker's black T-shirt, and the ever-

Mike Matthews... A Life Intertwined With Music



Born to rock, Mike Matthews playing the piano for Cornell University fraternity party twisters in 1961.



Mike gets down on the Electro-Harmonix Mini-Synth in 1980.



Glasnost with a backbeat, Mike Matthews (not shown) and fellow musicians literally stopped the show at a groundbreaking 1979 Russian trade convention, where Electro-Harmonix was one of just two American companies exhibiting.

Still rockin', Mike is always near a piano. Now and then he even takes time out to get in a few licks at his office in Long Island City, New York.



present cigar he chews but does not smoke, Mike Matthews cuts one of the more colorful figures in the music products industry from the helm of New Sensor Corporation. Encompassing the world's largest vacuum tube manufacturing operation and a much-diversified Electro-Harmonix, the Long Island City, New York-based New Sensor provides another medium for Matthews to harness creative potential and challenge conventional thinking.

While simultaneously completing Cornell University's MBA program and a five-year BSEE (which the school later commuted to a masters), Matthews, a keyboardist, still found time for playing rock 'n' roll. But his real talent, he says, lay in promoting top acts such as Chuck Berry, the Byrds, the Lovin' Spoonful, the Young Rascals, the Isley Brothers, the Coasters, the Drifters, and the Shirelles throughout the early- and mid-'60s. After performing one gig with the Isley Brothers in 1964, the band asked him to quit college and join them on the road. "Their funky groove was my bag," he says, but he resisted temptation in order to complete his education. One act that Matthews booked as a warm-up for Chuck Berry proved pivotal in training Matthews' ear and targeting his career. Jimi James, who later became known as Jimi Hendrix, took to Matthews, and the two became friends. Matthews even played a role in urging Hendrix to break away from Curtis Knight and the Squires, start singing, and launch his solo career, and over the years Matthews attended many of the rock icon's New York recording sessions.

Following his graduation in 1965 Matthews hired on with IBM as a computer salesman, but throughout his three years with Big Blue he directed his creative, business, and electrical engineering energies to building innovative new products. His Alpha Neon Resonator, designed to relax the brain and promote creativity with a number of small flickering bulbs, had few takers. But when the Rolling Stones' "Satisfaction" popularized a raunchy, distorted guitar sound, he designed a fuzz tone that caught the attention of Guild Guitars founder Al Dronge. Matthews contracted with Guild to produce fuzz tones that it branded "Foxy Lady," capitalizing on the hit by Jimi Hendrix. Spurred on by the success of his fuzz tones, Matthews left IBM in October 1968 to launch his own company, Electro-Harmonix, with \$1,000 cash, a \$5,000 bank loan, and some increasingly focused ideas about harnessing the rock 'n' roll-driven music market's commercial potential.

While still at IBM Matthews befriended a gifted Bell Labs inventor named Bob Myer and asked him to create a distortion-free sustainer. "That's what guitarists thought they wanted to duplicate the sweet, singing tone associated with Jimi Hendrix," he observes. When Matthews visited Myer to test one of the prototypes, he noticed that between the guitar and the effect was a small box with a single toggle switch. Myer explained that after over-estimating the guitar's output voltage, he compensated by inserting a single-transistor preamp. "I plucked the guitar," Matthews recalls, "and when I hit the switch, it was really loud. I said, 'Wow, that's a product!'"

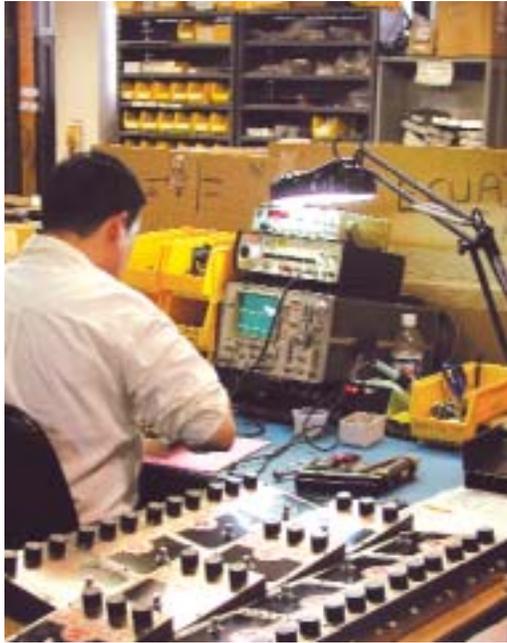
Indeed, it *was* a product—the first to carry the Electro-Harmonix brand name. Matthews dubbed it the LPB-1, short for Linear Power Booster. As simple as it was, the LPB-1 was revolutionary, the industry's first product that provided overdrive to guitar amps. "In those days, when you turned an amp up to 10, it was still clean," Matthews explains. "They had a lot of headroom. The LPB-1 overdrove the signal and dramatically changed the sound. We sold hundreds of thousands of them."

Electro-Harmonix' early impact on the industry is illustrated by Hartley Peavey's recollection of the first time he heard the LPB-1 at the 1969 NAMM show in Chicago. "There was a crowd gathered and

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a line of people waiting to enter a product demo room," he recalls. "After waiting in line for about 15 minutes I saw a guy with long, bushy hair, wearing overalls and a cotton sack slung over his shoulder. He was playing this cheesy guitar, one of those first Japanese electrics with a Masonite top, through a lousy, no-name amp and this little box he called the LPB-1. I thought, damn, that guitar played through that amp should sound like crap, but it sounds great! He was selling the little box for five bucks! I bought one, went back to my hotel room, and used the blade on my fingernail clippers to open it up to find out what was inside. There was nothing to it: a single transistor, a couple or three resistors, a couple of caps, and a battery! How could it make so much difference in the sound? When I got back from Chicago I started experimenting with raising the gain on my own amps. Every amplifier at that time had two channels, so I patched the output of one preamp into the input of the other preamp in our VTA400. That was where the whole channel-switching concept came from. That guy with the bushy hair and the little five-dollar box was Mike Matthews. He didn't invent the concept of channel-switching, but his LPB-1 was the inspiration for it."

Matthews immediately reinvested profits from the LPB-1 into designing other effects that would fit into the same box including the Screaming Bird treble booster, the Ego microphone booster, and the Mole bass booster. Even more popular was the two-transistor Muff Fuzz, which Matthews describes as "a little distortion unit with a milky, muffled overdrive and a muffled sound like a signal going through a slightly torn speaker." About six months later he introduced a modified, four-transistor version in a bigger floor box. Named the Big Muff to capitalize on the success and name recognition of its predecessor, it became one of the company's biggest sellers. Over the years the Big Muff has been used by such luminaries as Jimi Hendrix, Carlos Santana, Pink Floyd's David Gilmour, and currently John Frusciante of the Red Hot Chili Peppers, among others. In particular, use of the Big Muff by Jimi Hendrix and Carlos Santana helped fuel demand for E-H's



ALL ELECTRO-HARMONIX pedals are thoroughly factory-tested before shipment.

full line of products. Matthews recalls being "really proud" when he attended one of Hendrix' recording sessions and noticed, "Jimi's axe was plugged into an Electro-Harmonix Big Muff. Jimi rocked on that session."

With minimal start-up resources, Matthews initially sold the first Electro-Harmonix products strictly through mail order, but he soon realized that a much larger opportunity awaited him in music stores. To hedge his bet throughout the transition, he maintained the mail order channel, but to avoid forsaking the retailers he'd begun to court, he sold his products at full-list price. "Our ads also told the reader that our products were available at leading music stores around the world," he explains. "But they also included a mail-back coupon. When the order coupons came back to us, we could tell which magazines were producing [sales] for us. Eventually I only advertised where the ads were producing. I didn't have to make a significant profit; I just needed to avoid making a loss. That process allowed my itty-bitty company to advertise really effectively, and I got the company's name out a lot."

Matthews followed his hit LPB-1 and Big Muff products with a string of industry firsts. Highlights included the AC/DC/battery-operated Freedom Amp (1971); the Small Stone phase shifter with feedback (1975); the Electric

Mistress guitarist's flanger (1975); the low-cost Memory Man analog delay (1976); an inexpensive, two-second digital delay (1979); a 16-second digital delay (1982), and the inexpensive Instant Replay sampler (1980). Mike reports that the factory couldn't build the all-time bestseller Small Stone fast enough to keep up with sales of nearly 7,000 units a month.

In 1973 Bob Myer finally developed the distortion-free sustainer, the product that Mike Matthews had originally asked him to design. Matthews reveals that its commercial name, "the Black Finger," implied that it would help a white musician get a soulful, "black" sound. "But it turned out that people didn't want it to be totally distortion-free," he says. "They wanted a few more harmonics. Our new Black Finger, which has two vacuum tubes, sounds really wonderful."

Electro-Harmonix' runaway success in the '70s suggests that Mike Matthews possessed a fundamental understanding of what rockers wanted to hear. A distinguishing element of his effects design philosophy is his willingness to accept a little noise in return for organic tones and new sounds at the edge of oscillation. "I hate hum," he stresses. "Hum sucks, and I don't ever want it in our gear. But noise is different. We created effects that, when you turn some knobs, they began to approach some weird, new effects, but they also got noisy. We left that in, giving the musician the choice to crank it up to that noisy, novel stage or not. When you're playing rock 'n' roll live, you don't hear that noise, and the warmth and response of the sound was so much nicer than you get with digital effects. The Japanese product designers hate noise. They always eliminate it. But a lot of times the result is dull; it's less lively."

Another area where Electro-Harmonix products scored with consumers was its price tag. "Cost was very important," comments Matthews. "I knew what it was like to be a starving musician, so we always tried to keep our effects affordable." In time that simple formula—great sounding, innovative products at a great price—rang up annual sales of \$5 million.

Mike Matthews' musings on Life's Big Questions took him deep into the human mind and to the magnetosphere. In busi-

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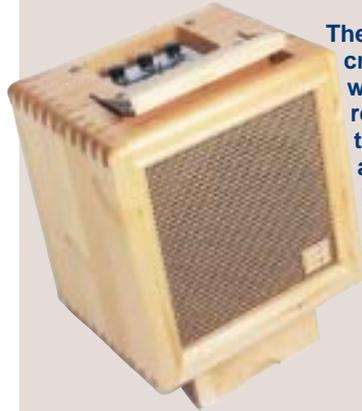
ness his vision was a little more provincial, but during the 1970s, not much. He started doing business with China in 1974 after he was invited to attend a trade show in what was then Canton. "It was all Mao Tse-Tung and the Red Guards then," he recalls. "Everybody was wearing the same color. A third of the population was working in the fields, and two thirds were standing around in circles reading Mao's little book." Early in the decade he began selling effects pedals to numerous Eastern Bloc countries including Hungary, Poland, Czechoslovakia, and Yugoslavia. And in 1979 Electro-Harmonix was invited to exhibit at the Consumer Goods and Fashions Exhibition in Moscow, the first Russian consumer trade show that was open to Western companies. "We were already doing so much business in that part of the world, and Russia represented a huge market, so I figured I had to exhibit," he recalls. E-H was one of only two American firms to be represented at the show.

Initially Matthews planned to attend with just one demonstrator as he had at other trade shows. But then he got "carried away" and started inviting some of the musicians among his factory workers to form the six-piece Electro-Harmonix Work Band. "It was a ten-day show," Matthews recalls, "and by the third day, the band was *rockin'*. It was a very big trade show; some countries like India and Colombia had their own buildings. We shared a separate two-story building with companies from Japan and Germany. Aside from our demos, the band played three times a day, and during those performances, all the other buildings closed down to go hear the crazy guys from America. We started glasnost!"

Matthews' experience at the trade convention in Moscow was more than a good party, and more than good business. In ways that he couldn't have predicted at the time, it created options that would later facilitate his rebirth in the industry.

By 1978 the company Mike Matthews had launched with little cash and a small bank loan was operating in a 50,000-square-foot Manhattan manufacturing facility and generating \$5 million in annual sales. For this remarkable achievement The Small Business Administration named him New York

A Legacy Of Innovative Products



The Freedom Amp cranks out 15 watts from a rechargeable battery and features a handcrafted pine cabinet and great tone from a custom 8" speaker.



The LPB 2UBE Stereo Tube Preamp is the 21st century version of the LPB-1, the product that started it all for Electro-Harmonix.



The MINI Q-TRON Envelope Follower fits the funky sounds of its bigger brother into a small, inexpensive pedal.



Russian-made versions of three E-H pedals feature simpler cosmetics and a significantly lower price tag.

State Small Business Person of the Year and sent him to Washington, DC, where he hung out with Jimmy Carter and rapped about the Small Stone.

It might have seemed that nothing could impede his ascent, but ironically success and public recognition had drawn attention of a less auspicious type. After he declined a 1979 "invitation" to unionize his company, union organizers set up outside the E-H factory and attempted to persuade its workers to join the union. Enjoying a good relationship with Mike as well as paid vacations, health insurance, on-the-job training, and merit-based pay and advancement, his employees turned down the union. Three years later the union returned to set up a picket line and accuse Matthews of exploiting minority workers. It offered money to employees to sign union cards and threatened those who refused, effectively blocking the factory's entrance. One summer day in 1981 six men attacked Matthews as he attempted to enter the factory. They knocked several teeth out of an employee who tried to defend him.

"It wasn't like a real labor union action," Matthews contends. "They were labor racketeers who took over the Ladies Garment Workers Union. Their people brought in picket signs and out-

side thugs who started harassing and beating up me and our employees. The police set up barricades, but they didn't do much to protect us. *They* were unionized, so they sided with the people posing to represent the union. They treated it like a labor dispute, which it wasn't."

With nowhere else to turn, Matthews called his friend Jim Van Sichel, who was a TV reporter with the local NBC News channel. "Two days later he told me that he'd used hidden cameras to film these gangsters clubbing people at the subways and throwing eggs. NBC covered the story on the 6:00 and 11:00 news for three nights." Matthews also stated his case on a local TV talk show. All the media exposure spurred the National Labor Relations Board to issue a cease and desist order to the union, but by that time the damage to Electro-Harmonix was done. After struggling for five months to return to full production—in the dark, with minimal electricity supplied by an in-house generator—Matthews was forced to file for bankruptcy in January 1982.

But Matthews was far from beaten. Though most creditors were wary of a broke manufacturer with a history of "labor problems," Matthews managed to

buy back his company within a couple of months by selling his 123 acres of ocean-front property in the Hamptons. He had the factory staffed and running a few weeks later. Electro-Harmonix was full of promise as it expanded into new territory with its electronic art, Mini Synthesizer, and inexpensive samplers. According to Matthews, it was also enjoying tremendous acclaim and a fast-growing profile. E-H products were being exhibited at New York's Museum of Modern Art and sold from its own kiosk in Bloomingdale, and the son of Panasonic's founder expressed interest in buying the company. But while the reconstituted Electro-Harmonix was still regaining its financial footing, Matthews found himself confronting an increasingly competitive industry with "rules" he'd never dealt with in the past. Just as Japan was taking over the U.S. auto industry, large Japanese musical instrument manufacturers began to devour market share, especially in the electronic instruments and accessories segments. This powerful new competition alone represented an imposing challenge. But Matthews' plan to meet it head-on with a new range of groundbreaking products was thwarted when his supply of next-generation integrated circuits was held up in Japan.

"We were the first company to offer an affordable solid-state echo, the Memory Man," Matthews explains. "It used Reticon Bucket Brigade chips, which were a little noisy. A couple of years later Panasonic introduced a quieter chip, the MN3005, with longer echo capability. In 1979 we designed new products—the Stereo Memory Man and the Deluxe Memory Man with chorus—to use that chip. I knew from my experience with hot products in the past like the LPB-1, the Big Muff, and the Small Stone that these second-generation echoes would be bigger than all of them. We were getting tons of orders [for new products], so we placed big orders for the chips with Panasonic USA, but the chips didn't come. They kept saying 'next month.' I'd ordered thousands of chips and they sent me a couple of hundred. Finally I went to Japan to visit Panasonic. They promised me the chips again, but we never got them."

Electro-Harmonix went bankrupt again in 1984. Years later a salesman who had worked with Panasonic in the '80s

revealed to Matthews that the Japanese giant had diverted the chips it promised Electro-Harmonix to Roland, Ibanez, and other Japanese competitors, and to several karaoke machine manufacturers. "I don't think any of our competitors instigated it," he adds philosophically. "I think it was Japanese cultural tradition to serve their countrymen first."

Matthews regained ownership of the Electro-Harmonix trademark in 1991, but, twice burned, he was hesitant to return to that arena. Instead, he began cultivating some seeds he'd planted in Russia back in 1979. "At the end of the 1979 Moscow convention, the Russians

"That junky guitar played through that cheesy amp should sound like crap, but this little box made it sound great! I had to figure out what was inside."

Hartley Peavey

wanted to buy a lot of stuff from us, but no one had any money," he observes. "So I started wondering what I could buy from them. The first thing I looked at was the cheapest type of older integrated circuits, what we called 'jelly bean' ICs that sell for around 15 or 20 cents apiece. I knew from building solid state electronics that the integrated circuit market is very cyclical. Every few years the manufacturers stopped making the cheap ones to concentrate on making the big money stuff. But when supplies of the cheap ones ran out, their price would shoot up to a dollar or a dollar-fifty—if you could find them at all. I figured that when the price cycled upward again, I'd have the source for them—Russia—where I could get them cheap and where they'd stay cheap."

Matthews started selling ICs in the mid-'80s, when all Russian electronics were handled through the Central Ministry of Electronics. In 1988 during one of his trips to discuss business with the Ministry he saw some vacuum tubes like the ones used in guitar amps. He took some samples of the Russian tubes to his friend Jesse Oliver, who had designed most of Ampeg's amps, and who gave the tubes his stamp of approval. "It was

easy to start manufacturing in Russia," says Matthews. "Russia was full of military factories that were out of money and struggling to make the transition from a military economy to a consumer economy. They were looking for non-military stuff to produce." Making a transition of his own, Matthews worked his way out of the IC business and began investing time and money into a vacuum tube factory in St. Petersburg. In 1988 he founded New Sensor Corporation, and a year later he launched the Sovtek (pronounced SAWV-tek) brand of vacuum tubes for guitar amps.

The business grew, and in 1999 Matthews bought the vacuum tube factory outright. Sovtek tubes are used in amplifiers made by Fender, Peavey, Mesa Boogie, Crate, Soldano, Korg, Marshall, SLM, and "countless other types of amplifiers all over the world," he says. "There are only about five factories in the world that make vacuum tubes. Ours is the biggest, and it's the only one with designers who create new types of tubes. Also, we offer the best quality and price. Vacuum tubes might be considered a dying technology, but most guitarists still prefer them in their amplifiers."

Hartley Peavey adds, "Mike really got it right on these tubes. You can buy cheaper tubes, and you can buy more expensive tubes, but today he delivers the best tubes you can buy."

In a very tangible vote of confidence, Fender gave Matthews a low-interest loan when he announced his plan to purchase the Russian factory. "Our tubes were vital to Fender," he notes. "They wanted to ensure our stability in case we got cash-tight." Matthews gratefully accepted the loan but never had to use it thanks to New Sensor's quick market penetration and steady growth. In 2001 he launched a range of higher-end tubes marketed under the Electro-Harmonix brand name. The line includes models that were specially engineered to replicate the tone and noise characteristics of classic tubes of old, including prized models made by Mullard, Telefunken, and RCA. "Our customers are attracted to our price, our quality, and our service," Matthews says. "When we get an order faxed in the morning from a customer in Japan, we ship it out the same day. They also trust us to bill them for the

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correct freight; we calculate it out and give them the best type of shipping.”

As his vacuum tube business was growing Matthews noticed that some of his old stomp boxes were commanding top dollar—up to ten times their original new price—in the vintage instrument market and later on eBay. Initially he didn't have the capital to resume production on them, but as Sovtek prospered he began exploring ways to revive the Electro-Harmonix effects pedals operation—again. The decade's first newly made Big Muff, Small Stone, and Bassballs pedals were manufactured at the factory in Russia. While continuing that overseas production, the company then began making a full line of effects at its U.S. headquarters, which is now a 45,000-square-foot building in Long Island City, New York. “More of our customers throughout the world want to see products that are made in the U.S.A.,” notes Matthews. “Most people prefer the U.S.-made Big Muff, but some people prefer the Russian-made ones, which are about 25 to 30 percent cheaper.” Today the company ships thousands of pedals a year from both facilities to music stores throughout the world.

Matthews' diversification of New Sensor has continued, providing a steadier revenue stream than his effects boxes did even during Electro-Harmonix' halcyon days in the '70s. Although it enjoys strong sales of vacuum tubes to music stores and manufacturers of guitar amps and high-end audio equipment, its most profitable base comprises several thousand service shops worldwide where guitar and hi-fi amps are repaired. Matthews explains, “The repair shops buy our tubes, so it's convenient and cost-effective for them to also buy capacitors and transformers for tube amps, as well as speakers and all sorts of other replacement parts like jacks and switches.” Matthews points out that New Sensor has become the world's largest independent distributor of speakers including Celestion, Eminence, and its own Electro-Harmonix lines. New Sensor began offering its own line of guitar strings as well, marketed under the Electro-Harmonix brand.

Introducing promising OEM lines like Electronic Harmonix speakers and guitar strings is enhancing New Sensor's rev-



JOHN PISANI (right), whom Mike Matthews calls “Johnny Pi,” created Electro-Harmonix' Holy Grail. He is working with Mike on several new product designs.

enues and stability, but Matthews' greatest professional passion remains designing and marketing innovative new products. In 2001 E-H debuted the Holy Grail, its first entirely new offering since the '80s, and quickly followed it with the Holier Grail. And at last month's AES show in New York, Electro-Harmonix ventured into a new category with two exciting new products. Matthews describes the NY-2A Compressor, created by J.C. Morrison, as “a super-high-quality vacuum tube compressor, better than the famous early LA compressors. It

“Hum sucks, and I don't ever want it in our gear. **But noise is different.** When you're playing rock 'n' roll live, you don't hear that noise, and the warmth and response of the sound was so much nicer than you get with digital effects.”

uses special military tubes that we make at our factory in Russia.” The company's new rack-mount stereo envelope follower, designed by Mu-Tron and Q-tron inventor Mike Beagle, includes many additional features created especially for the recording studio.

Still harnessing and utilizing human potential, Matthews recently rehired David Cockerell, whom he calls “the greatest circuit designer in the music industry,” to work on a new generation of Electro-Harmonix innovations. Among other products, Cockerell designed E-H's best-selling Small Stone, its early samplers, and its 16-second digital delay. Matthews cites Cockerell as one of the reasons he expects Electro-Harmonix to

reclaim its notoriety as an innovator as well as a source for rock 'n' roll's classic effects. “We're about to release a range of dynamite new products. Instead of seeing all the re-issues and a few new tube boxes, you're going to see some really amazing things.”

For 35 years Matthews has trusted designers like Myer, Cockerell, Beagle, and Holy Grail inventor John Pisani—as well as his own ears—to guide Electro-Harmonix' product development. “We don't do market research,” he states flatly. “We just develop what we dig and hope it fills a niche. Too much research leads to less novel products. I'd rather take my chances and have five duds and one hot product that can satisfy musicians for years and years.”

In general, Matthews favors tubes over transistors for musical instrument applications, as is illustrated in E-H's new tube version of the Black Finger Compressor, its LPB 2ube Stereo Preamp, and several other tube-powered effects. “Tubes' warmth, the way they distort, and their noise characteristics are more musical than those of solid state,” he asserts. Similarly, he is amused by up-to-the-minute digital technology that samples or models decades-old amps, speakers, cabinets, and effects, and he's undaunted by the trend to cram dozens of effects into a single product. “The small, dedicated devices sound better,” he suggests. “The more complex the product, the more you chop up the sound, compress and compand it, the more you lose the feeling. The feeling starts when you first pluck the string; the note's attack contains frequencies that get lost in these complex digital devices. Some companies claim that they model or simulate our effects, but even if they sound basically the same to the audience, they just don't *feel* the same to the player. A lot of the musician's playing well comes from his getting off on the sound and the feel. Why do you think electronic drums haven't replaced the traditional drumset?

“During the time that Electro-Harmonix was out of business, the demand for our old products and our reputation grew so that we have more fans now than we did back in our heyday in the '70s. Those old products still have their special sounds. It's very easy to lose a sound. A minor change such as a different capacitor or a

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new transistor, even one that has the same specs as the old one, might distort a little differently, and without intending it you depart from the original sound. It's hard enough to keep your own products as true to the original as possible. For someone else to copy it, especially on analog circuits... It's like a special cookbook recipe. So we just do what we do. Instead of trying to compete with the big company's products on price and develop huge sales volume, we've been satisfied just to sell our steady volume of Electro-Harmonix and grow in our tube and speaker businesses."

Though Matthews is still a divergent thinker and adventurous rocker at heart, time and adversity have focused his commercial pursuits. He admits that along with getting "hit with too many obstacles at once"—namely the labor racketeers and the diversion of critical supplies—he had "expanded into too many areas at once. I was always into the fringe," he says. "Sometimes I exploited it; sometimes it got me into trouble. I'm much more conservative than I was in the old days. It used to be that I spent every penny I made to pay my bills and expand the company. Now I go slower,

and we have some money in the bank."

"A lot of people think Mike is crazy," says Hartley Peavey, "but I think Mike is crazy like a fox. I have a lot of respect for him. He's had his ass kicked two or three times, but each time he's dusted himself off and kept on going. Most of the people who change industries are characters. Mike is one of our industry's true pioneers."

Matthews' projections for New Sensor's future? True to form, he replies simply, "Rock 'n' roll."