



# Behind The Gear

This Issue's Prince of Preamps  
**Michael Grace**  
 by Walt Szalva



Michael Grace started Grace Design in 1994, a boutique pro audio company located in Boulder, CO. The story of his rise as a designer is one born from a love of music. His need for a preamp to record Grateful Dead concerts drove him to design his first piece of gear. We talked about how this need grew into a highly regarded gear company.

**How would you describe your design aesthetic and design process?**

The key word for us is "musicality". The ultimate goal in designing all of our audio gear is that in the end when you're listening to it, you shouldn't be hearing it - you should just be hearing the music. Along with "musicality" is "reliability", and those are the two things that we focus on with equal intensity. The best sounding piece of gear in the world doesn't do you a lot of good when you're at a session and there are musicians waiting around and something is broken. I've done enough live remotes to be absolutely intolerant of any kind of reliability issues. Those are the two prime objectives, but obviously ergonomics and industrial design play into that as well. Pride of ownership of a good piece of gear goes beyond just knowing it sounds good, but when you go and reach the knob it should feel solid and give you confidence. It shouldn't have whistles and bells that you don't really need and it should be laid out so that you can quickly and easily achieve your task and get on to other important parts of creating music.

**There are a lot of preamps being developed and marketed these days, ranging from clones of vintage gear to new variations of tube-based preamps to "Made in China" \$200 bargain-basement preamps. What does Grace Design bring to the table that is not being done by other gear developers?**

The final test of any piece of audio gear is how it sounds. I think that is something that's not achieved through a singular design criteria like "discrete" or "Class A". It's something that is achieved through a holistic approach, taking a careful look at every aspect of the signal path, from passive components to power supply layout and grounding as well as amplifier topology. All of the amplifiers in our products in the critical gain stages use an amplifier topology called a current

feedback amplifier, or a trans-impedance amp, and these types of amplifiers use a different kind of negative feedback in the current domain instead of the voltage domain. They are able to track really complex waveforms, resolve rich harmonic structures and track transients without the various aberrations of slew rate limiting and things that are associated with textbook op-amp designs. I think people's problems with IC [integrated circuit-based] designs are that most are using standard op-amp type amplifiers that have these problems, and that is the characteristic solid state, integrated circuit sound that people are used to. I think the use of trans-impedance amplifiers gives our products the ability to have a very musical, very transparent sound and still be really linear and accurate, without having a solid-state characteristic. In a lot of our listening tests, when we'd compare our products to other types of preamps (our competition and vintage pieces and such), we were always kind of amazed that we found our preamps sounding closer to the higher quality tube preamplifiers than the ones you would expect to be aligned with, like other high-end solid state preamplifiers. There are so many other circuit decisions that have an equal effect on the overall sonic characteristic of the product. That is why we use only ultra precision metal film resistors and there are no electrolytic capacitors anywhere in the signal path. We try to direct couple as much as possible to keep the number of components in the signal path as low as possible. If you're following a design process with your ear, you're going to come out with something a lot different than if you follow a design process with analyzers and scopes.

**What was the first piece of gear you ever designed?**

As a designer you are always influenced by other people's designs - my very earliest designs were adaptations of high-performance phono preamplifiers. I dropped out of college and started working for a high-end home stereo amplifier and preamplifier company in Colorado Springs. This particular company really focused on things like eliminating capacitors from the signal path and using zero negative feedback or using current feedback. Early on I was a big Deadhead and I adapted some of the phono preamps from the company I was working for and turned them into mic preamps and hooked up phantom power supplies. I would drag those out to Grateful Dead concerts with an old [Sony] PCM-F1. Those were the earliest incarnations of what would become a long lineage of mic preamps. Around 1990 I

was getting pretty busy at night building custom mic preamps for people, so I quit working for that company and started out on my own. That remained a garage operation for several years until my brother Eben and I joined forces and became partners. We decided we wanted to start a manufacturing company and build preamps on a larger scale so we could take advantage of the economies of scale, being able to buy better components and build things that were not absolutely stressed in terms of cost. That was almost twelve years ago when we came out with the first official Grace Design product, which was the 801 preamp.

**What kind of problems does a small manufacturer like yourself encounter in terms of designing and building something that a larger manufacturer might not encounter?**

Quality control is the top issue for any manufacturing company. Being a boutique manufacturer, most of our products are fairly expensive and not something that someone just plunks down on a credit card on a whim for their studio. So we can't build our equipment in very large production runs. What that means is that every time we go to build a product, we have to set everything up and get practiced and dialed in on what we're doing all over again. We've gotten good on that internally, but we have a lot of vendors that build parts for us in short runs, and we spend a lot of time rejecting components because they might vary from run to run. Whereas a large manufacturer would get all of their processes dialed in, and then spit out a thousand or ten thousand widgets, and they'll all be the same if they were all built at the same time. We definitely struggle all the time with making sure that every single piece of gear is absolutely a hundred percent perfect, because you can never expect it to be. Quality control is just something that we have to eat, drink, breathe and do all the time. Those are where the real challenges come as boutique makers - you're never in huge production runs, so there are so many variables that you have to keep in control.

**How does a designer such as yourself, who is rooted in traditional analog gear design, deal with bringing aspects of digital recording technologies into your products?**

Certainly, digital technology keeps changing at a very rapid pace and is evolving before our eyes. Keeping up with that keeps any electronics company really busy because customers start to expect and demand all sorts of features that they didn't have last year. There are all the bits and pieces of, "What type of digital format do you have to support this year?" In a bigger picture, I think people are so used to everything getting cheaper and more mass market and more "bang for the buck" and more inputs for the dollar that there is bound to be sort of a return to looking at, "Okay, now we've got all these features and all this power and all this capacity. Now how do we do things really well?" I think that is where we find all of our niches. When people were first realizing that the best mic preamps weren't inside their consoles and they started buying outboard mic preamps, to when it became clear that when consoles were going away, people still needed

**Continued on page 102>>>**

Here are some short reviews of a handful of the new releases that we've been enjoying down here at Tape Op headquarters. Many of these artists are the ones who will be making the cool sounds of tomorrow, so support them! -LC

**PERHAPST** *Perhaps* There are some people who almost inadvertently affect changes in your life without realizing it at the time. Perhaps it is my friend John Moen, drummer for The Decemberists, formerly of The Jicks (with Stephen Malkmus), The Maroons and the Dharma Bums (among others). John's trust in my recording skills in 1994 led to me buying an 8-track deck to record The Maroons' first album, which led to a commercial studio and all the silliness in my life these days. Hell, he even came over to the original Jackpot! and helped us build walls and fix shit when we moved in. With Perhaps he plays most of the instruments, and blesses us with his catchy pop songwriting in a similar-yet different (loopier?) way to the under-heard Maroons. His buddy and ex-Bum Eric Lovre recorded and produced with him at Eric's home studio (Sound In Motion), along with Jick and Jackpot!'s first "assistant", Joanna Bolme, on a few tracks. Mastered by Jeff Stuart Saltzman (another Jackpot! alumnus). This is a fun record - don't let the idea of "drummer-turned-songwriter" scare you! ([www.inmusicwetrust.com](http://www.inmusicwetrust.com)) -LC

**HUBER + MARIAS** *Lunar* David Miles Huber (C'mon, you know him from his book, *Modern Recording Techniques*, and TapeOpCon!) collaborates with Marcell Marias (Effect Unit) for some electronic mid-tempo instrumental space music. I just got a pair of ADAM A7 speakers for my office, and the treat of doing reviews while listening on these speakers has been a long time coming. This record has cool stereo effects, trippy depth of field (something forgotten in electronic music at times) and constantly morphs and changes through the pieces (the shortest one is 10:43). Something about this album reminds me of earlier, pre-digital electronic music - stuff I used to search out in the late seventies. Fun to listen to and space out on. ([51bpm.com](http://51bpm.com), [effectunit.com](http://effectunit.com)) -LC

**GITHEAD** *Art Pop* I've been a longtime fan of Colin Newman of Wire. His solo albums, *A-Z*, *Not To*, *Provisionally Entitled the Singing Fish* and *Commercial Suicide*, make for great companion pieces to Wire's arty take on punk. Here he collaborates with wife Malka Spigel (of the underrated Minimal Compact), Robin Rimbaud (of Scanner, here playing guitar) and Max Franken (also of Minimal Compact). It's delicious, droney guitar rock reminiscent of Wire's later *Send* LP, but more on the catchy side. Although parts of this album had been gestating at Colin and Malka's home studio, the sessions continued at their live soundman Frank Lievaart's new Metropolis 22 studio in Rotterdam. One of my fave releases lately. ([www.githead.com](http://www.githead.com)) -LC

**GALACTIC** *From the Corner to the Block* In issue 59 I interviewed Count and we talked a bunch about his production (and engineering and mixing), with the band's saxophonist Ben Ellman, of this Galactic CD. I'd seen them live and thought them to be a better-than-average jam band, especially as their New Orleans roots were showing, but this album is crazy good. Guests abound, like Lyrics Born, Gift of Gab, DJ Z-Trip, Boots Riley, Soul Rebels Brass Band (I've seen them level a room) and many others - the best current hip-hop talent out there with some choice New Orleans locals. Count took their jams, built these tracks with them and then they brought in the guests. It's real, funky and groovin' and damn good - a well-crafted piece of work. It surprised me how much I really liked this album. ([www.galacticfunk.com](http://www.galacticfunk.com), [www.anti.com](http://www.anti.com)) -LC

**MARK O'CONNOR** *Robin's Egg Blues* Not the fiddle virtuoso Mark O'Connor, this is Mark from Limerick, Ireland, who we've met at a few TapeOpCons and I once spent a crazy night in Barcelona with along with Jules from Gearslutz.com. We finally get to hear this chap in action, having recorded his songs over the years at his always-shifting Balls of Iron Studios. It's a bit of a hodge podge, with tracks from some former bands and a variety of styles - from Dinosaur Jr. and Pavement influence to acoustic shambles ala Syd Barrett. It's a cool record. My only complaints are the length (1.3 hours!) and that the vocals are almost always mixed too low - perhaps some outside perspective would help? Mastered by Kramer at Noise Miami - and where's he been? ([www.myspace.com/markoconnor](http://www.myspace.com/markoconnor)) -LC

**TOM HEASLEY** *Where the Earth Meets the Sky* Processed tuba? Yup. Imagine big slabs of deep whale noise or low analog synth washes, and looping them like Eno's "Discreet Music", then working higher treated notes over the drone. It's peaceful, but not quiet, unsettling ambient music. Recorded by longtime Bay Area ambient musician Robert Rich at his Soundscape Studio, the record is deep and textured. Quite a late night pleasure. ([www.hypnos.com](http://www.hypnos.com)) -LC

**THE BEASTIE BOYS** *The Mix-Up* Recorded by Jon Weiner, who also worked on *To The 5 Boroughs*, at the Beastie's Oscilloscope Laboratories in Manhattan, this is a 12-song, all instrumental album. Let me wander off track a bit here: I have had it up to here with music critics. I have read so many reviews of this album calling it "instrumental hip-hop" and giving the album bad marks because it isn't the Beastie's typical thing. Duh. It's a fucking instrumental record, dumb shits. It has a few hip-hoppy-ish tracks, but it also draws from '70s dub, Pell Mell's rock, Meters-style funk, Booker T. melodies and such. The boys play the part of a trio, with longtime collaborators ("Money") Mark Nishita on keys and Alfredo Ortiz on percussion. It's a groovy, fun soundtrack to life - and I appreciate that a group like this can take the time to do whatever they'd like to do. Fuck the critics. Mastered by the king of cool, Greg Calbi. ([www.beastieboys.com](http://www.beastieboys.com)) -LC

<<< Behind the Gear from page 20

monitoring control. We were kind of on the forefront of high-quality monitoring controllers for studios without consoles.

**The QA process, I imagine, adds to the price of the units.**

Absolutely, we have to spend so much time on every preamplifier, checking and double-checking and inspecting and testing. A lot of big manufacturers, when they're spitting out a run of a thousand little sound cards or what have you, they'll test every tenth one just to make sure that nothing has gone wrong inside the machine, but we have to test every single function of every single preamplifier - every gain setting, every switch position, every jack, every single thing has to be tested. If it's not tested, that will be the one thing that is broken! ☺

[www.gracedesign.com](http://www.gracedesign.com)

**THE BONGOS** *Drums Across the Hudson* Richard Barone was in issue 54, and in that interview he told the story of The Bongos, his early '80s pop/rock band. Here they've remastered the album with Steve Addabbo at Shelter Island, and included bonus live tracks and a new take on their song "The Bulrushes", produced and played on by Moby. The original... *Hudson* was produced by the illustrious Ken Thomas (long overdue for a *Tape Op* interview) at Jacobs Studios in the UK (which is currently moving to Cornwall with a nice ocean view). This is quality, catchy power pop, a bit jangly and always melodic - it's great to see it back in print and done with the right care. ([www.drumsalongthehudson.com](http://www.drumsalongthehudson.com)) -LC

**TERRY LEE HALE** *Shotgun Pillowcase* I met TLH through The Walkabouts back in the late '80s, and recognized right away a strong songwriter and performer. On his tenth album Chris Eckman (issue 48) produced at Studio Zuma in Ljubljana, Slovenia, and Tucker Martine (issue 29) mixed at his FLORA studio (in Seattle, now in Portland). Additional recording was done at Dancing Bear Studio in Zagreb, Croatia with Mladen Malek and one song TLH recorded at home. Terry Lee told me Chris pushed him hard to write new material and really focus on his work, and I believe it, as this is strong stuff and a cohesive album. The recording, arrangements and production are perfect for the intensity of the material. Mastering was done at Studio Metro in Ljubljana by Janez Krizaj (page 29). ([www.borderdreams.com](http://www.borderdreams.com)) -LC

**JAMIE LABOZ** *The Green Album* A home-recorded concept album based around an idea of a guitar-less future society? Shades of Rush's *2112*? Jamie was in issue 57, with the story of how he started writing incidental and jingle music from his modest home studio. Here he puts the studio to work, playing almost all the instruments and singing, tracking, mixing and mastering in the box, even downloading drum tracks from his pal Aaron Comess via email! The recording is high quality - I don't hear balance problems or crummy room ambience that plague so many home recordings. This is an excellent psychedelic pop album, and since you can download it for free off his site or buy a CD version, there's no reason not to check it out. ([www.jamielaboz.com](http://www.jamielaboz.com)) -LC

**KARATE** *595* Karate exists somewhere near the intersection of rock, jazz and punk - an intersection that could be a wreck but isn't with the bands smart songwriting and playing. Their guitarist and vocalist Geoff Farina is a long time *Tape Op* contributor as well as one of Gear Geek Andy Hong's best pals. I was a Karate fan before *Tape Op* published its first issue, so it's bittersweet to hear this live CD documenting the band who called it a day in 2005. Andy recorded quite a few of the Karate albums so check those to hear the band's studio work. (My fave is probably *Some Boots*). Check this well recorded live disc to hear how great the band was live and to kick yourself if you missed them. I had a chance to see them twice and both shows were stellar but according to the band this is their favorite live recording of all the takes they heard of their 694 shows. As the title implies, this is a recording of show number 595. Recorded live @ Stuk, Leuven, Belgium, 5/5/2003 by Joachim Glaude and Greet Vyvey and mastered by Dan Stout at Colossal Mastering. ([www.southern.com](http://www.southern.com)) -JB

**IRON AND WINE** *The Shepard's Dog* In my book, Sam Beam is one of the finest songwriters of our time. This is his third full length release along with several EPs and the excellent Calxico/Iron and Wine collaboration *In the Reins* that *Tape Op*'s own Craig Schumacher recorded at WaveLab. The first LP, *The Creek Drank the Cradle*, was recorded by Beam at home on various small format analog machines. Like the last full length, *Our Endless Numbered Days*, this was beautifully produced and recorded by Brian Deck (*Tape Op* 36). And like... *Days*, this CD moves even further away from the stripped down folk/blues arrangements of... *Cradle* to good effect, although some early fans will surely grumble about this. I found that *Shepard's Dog* both grew on me, and the songs really stuck with me. Especially the closing track, "Flightless Bird, American Mouth," surely one of the best Iron and Wine tracks to date in a catalog of great songs. Look for an interview with Sam by Craig in *Tape Op* soon! ([www.subpop.com](http://www.subpop.com)) -JB