# Lamm
# ML2.1
## MONOBLOCK POWER AMPLIFIER

Art Dudley


Lamm Industries ML2.1 monoblock power amplifier

**DESCRIPTION** Tubed, monoblock power amplifier. Tube complement: one each 12AX7, 6N6P, 6AK5, 5651; two 6C33C-B. Output power: 18Wpc into 4, 8, or 16 ohms at no more than 3% THD (dBW). Input impedance: 41k ohms in parallel with 470pF. Input sensitivity: 775mV for maximum output. Frequency response: 20Hz-20kHz, –0.3dB.
**DIMENSIONS** 16" W by 9" H by 20" D. Weight: 70 lbs each.
**SERIAL NUMBERS OF UNITS REVIEWED** B10115, B10116, listening; B10119, measuring.
**PRICE** $29,290/pair. Approximate number of dealers: 11.
**MANUFACTURER** Lamm Industries, Inc., 2621 E. 24th Street, Brooklyn, NY 11235. Tel: (718) 368-0181. Fax: (718) 368-0140.
Web: www.lammindustries.com.

One of my best friends is a serious jazz collector with a side interest in good replay gear. The last time we got together over a meal, he asked, "What do you think is *really* the most important component in an audio system?" He might have added "these days": It's a subject we come back to from time to time.

Because I meant my response in fun, I didn't think long. "The amplifier," I answered—and then, for the hell of it, I added, "By far."

There was a time in my life when I thought the speakers were most important. And, of course, there was a time when I thought the source was most important. Now it was something else's turn. Simple as that.

But only after I spoke did I realize that I actually *meant* what I'd said.

I meant it because, by that time, the Lamm ML2.1 ($29,290/pair) had convinced me it was so. The Lamm amplifier had also reminded me that, while audio

enthusiasts make good reviewers, audio nymphomaniacs do not: People who are prone to writing or even *thinking* that such-and-such a thing is the best—I've been guilty of it myself at times—are bound to be pulled up short, just as the ML2.1 pulled me up short. Now I have to rethink everything. John Atkinson, please revisit all my prior component recommendations and lower their ratings some.

## He who made the Lamm

Vladimir Lamm, who designs and assembles all of his company's products, emigrated from the Soviet Union in 1987. Before that, he received training in electronics at the university level—during which time he also played percussion in a symphony orchestra—and worked as an engineer for the Soviet military and space programs, as well as for one of Russia's most-well-known producers of consumer electronics.

During that time, Vladimir Lamm continuously refined his thoughts on the design of audio electronics, and at the same time developed a unique model of the human hearing mechanism, based on his research into

## MEASUREMENTS

Following Vladimir Lamm's instructions, I let the ML1.2 run for an hour or so before I checked the output tube's plate voltage and current. While the voltage was correct at 175V DC, the current was a little high at 0.35A. I adjusted it to read exactly 310mA, as recommended in the excellent owner's manual (one of the best I have encountered). All measurements were made using the unbalanced RCA input, as the XLR is provided as a convenience only. (Pin 2 parallels the RCA jack, pin 3 is connected to ground.)

As expected, the ML2.1's voltage gain dropped as the nominal value of the output transformer halved. From the 16 ohm tap driving 16 ohms, gain was a healthy 27.4dB. This dropped to 24.25dB from the 8 ohm tap into 8 ohms, and 20.9dB from the 4 ohm tap into 4 ohms. Absolute polarity was correct from all three outputs. The input impedance measured 41k ohms at 20Hz and 39.3k ohms at 1kHz. While it dropped to 23k ohms at 20kHz, this will not be significant.

Considering that the amplifier is single-ended, uses a single output tube, and has very little overall negative feedback, its output impedance was relatively low, at 2 ohms (16 ohm tap), 1.2 ohms (8 ohm tap), and 0.8 ohm (4 ohm tap). These figures held from the low bass through the mid-treble; the source impedance rose slightly at the top of the audioband, to 2.4 ohms, 1.8 ohms, and 0.9 ohm, from the 16, 8, and 4 ohm taps, respectively. As a result of this fairly low output impedance, the frequency-response variation into our standard simulated loudspeaker was also fairly low, ranging from ±0.5dB from the 4 ohm tap (fig.1) to ±1dB from the 16 ohm tap (not shown).

Again considering what kind of amplifier this is, the ML2.1 has an extraordinarily wide frequency response, especially from the 4 ohm tap into higher impedance loads, where the small-signal output was just 1dB down at 95kHz into 16 ohms (fig.1). The bandwidth decreased into lower impedances, but the upper-frequency response from the Lamm's 4 ohm tap into 2 ohms was still –1dB at 29kHz and just –0.2dB at 20kHz. The 8 ohm tap has slightly less high-frequency output (fig.2), but is still flat to the audioband limit of 20kHz into higher impedances. The response from the 16 ohm tap starts to roll off in the top audio octave into loads of 4 ohms and below (not shown), but this will not be of practical relevance.

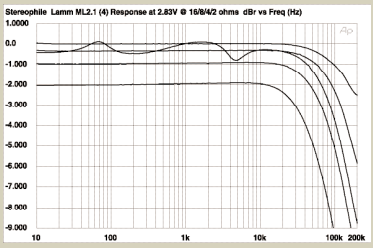


Fig.1 Lamm ML2.1, 4 ohm tap, frequency response at 2.83V into (from top to bottom at 2kHz): simulated loudspeaker load, 16 ohms, 8 ohms, 4 ohms, 2 ohms (0.5dB/vertical div.).

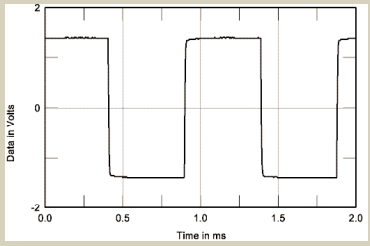


Fig.3 Lamm ML2.1, 8 ohm tap, small-signal 1kHz squarewave into 8 ohms.

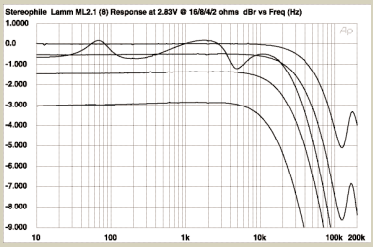


Fig.2 Lamm ML2.1, 8 ohm tap, frequency response at 2.83V into (from top to bottom at 2kHz): simulated loudspeaker load, 16 ohms, 8 ohms, 4 ohms, 2 ohms (0.5dB/vertical div.).

However, note that an ultrasonic resonance makes an appearance in this graph. Lying at an extraordinarily high 172kHz, this is a tribute to the maker of Lamm's output transformers—and because it is well-damped, I doubt that it will affect sound quality. This resonance was absent from the 16 ohm family of responses, though a slight upward tilt to the response (+0.5dB, 20Hz–5kHz) was evident with this tap driving 2 ohms. As the amplifier's output would be very distorted under these conditions, this slight frequency imbalance would be the least of the problems.

Note that the Lamm's low-frequency response is commendably flat down to the 10Hz limit of these graphs, which in turn means that the amplifier's reproduction of a 1kHz squarewave is almost perfectly square (fig.3). The 10kHz squarewave response is also superb, though a *very* slight amount of ultrasonic ringing can

psychoacoustics. This process brought him to a radical conclusion: There is indeed a strict set of predictable, observable, and repeatable design parameters that correlate with the way people do or do not enjoy reproduced music. Not only that, but these data are more or less hierarchical, in that certain design approaches are consistently more or less pleasing to most listeners. (Lamm observes that single-ended topology represents the pinnacle of amplifier design in this regard.) Lamm has refined his theories to the point where he no longer finds it necessary to design by ear. "I design by pencil," he says. "I don't need to listen. Using words to describe sound is not for me but for the *experts*." Even through his accent, I could hear the derision in that last word. Oh well.

In many ways, the ML2.1 is the culmination of everything Vladimir Lamm has learned about audio amplification throughout his career. It uses a single output tube, the Russian-designed 6C33C, operating in single-ended mode to drive a loudspeaker load with approximately 18W of power. The large and somewhat fleshy-looking 6C33C tube, which is an indirectly heated triode, was chosen for its extremely low internal impedance: about 80 ohms, which is considerably lower than most other audio output triodes. This allows the use of a much lower plate voltage than you might expect—175V—and, given an output transformer that's up to the task, it can be used to drive a primary with as much as 300 milliamps of current, which is a great deal more than average. In the case of the ML2.1, that transformer is an enormous custom design that is also enormously expen-

## measurements, *continued*

be just discerned on the leading edges (fig.4), correlating with the damped resonance mentioned above.

The ML2.1 is very quiet, with a measured unweighted, wideband signal/noise ratio of 86dB ref. 1W into 8 ohms from the 8 ohm tap, this figure increasing to an excellent 105dB when A-weighted. However, the amplifier showed some sensitivity to grounding arrangements; I had to experiment to get the lowest noise, with some ultrasonic noise appearing when the grounding between the amplifier and my test equipment wasn't optimal.

Lamm specifies the ML1.2 as giving a maximum output of 18W from each of the three transformer taps at 3% distortion. Figs.5, 6, and 7 show how the percentage of distortion and noise in the amplifier's output changes with increasing output power and decreasing load impedance, from the 4, 8, and 16 ohm output taps, respectively. While the single-ended design topology and minimal use of negative feedback results in steadily increasingly nonlinear behavior with increasing power, the ML2.1 actually gives out more power, and sometimes at lower levels of distortion, than specified. Refreshing. Note, however, that the THD drops below 0.1% only at low levels, when the load is higher than the nominal value of the tap.

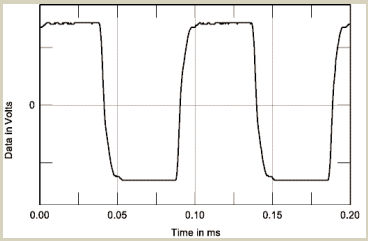


Fig.4 Lamm ML2.1, 8 ohm tap, small-signal 10kHz squarewave into 8 ohms.

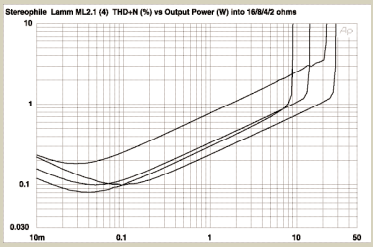


Fig.5 Lamm ML2.1, 4 ohm tap, distortion (%) vs 1kHz continuous output power into (from bottom to top at 1W): 8 ohms, 16 ohms, 4 ohms, 2 ohms.

The most power is available when the tap is matched to the load, with 19.4W available into 4 ohms from the 4 ohm tap, 12.5W into 8 ohms from the 8 ohm tap, and 5.2W into 16 ohms from the 16 ohm tap. All these figures are at 1% THD, our usual definition of "clipping." However, the waveform wasn't actually clipped on the oscilloscope screen at these levels; relaxing the definition to Lamm's specified 3% THD gave 28W into 4 ohms, 19.9W into 8 ohms, and 20.4W into 16 ohms, from the appropriate taps.

Figs.8 and 9 show how the ML2.1's small-signal THD+noise percentage varies with frequency and load. As expected from the output power graphs, there is more distortion apparent than I would like to see in absolute

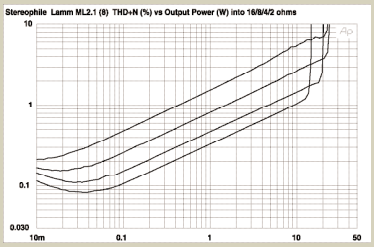


Fig.6 Lamm ML2.1, 8 ohm tap, distortion (%) vs 1kHz continuous output power into (from bottom to top at 1W): 16 ohms, 8 ohms, 4 ohms, 2 ohms.

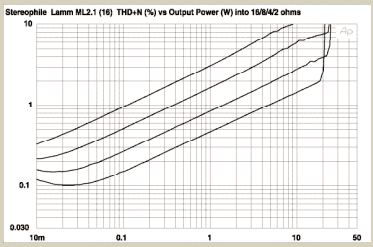


Fig.7 Lamm ML2.1, 16 ohm tap, distortion (%) vs 1kHz continuous output power into (from bottom to top at 1W): 16 ohms, 8 ohms, 4 ohms, 2 ohms.

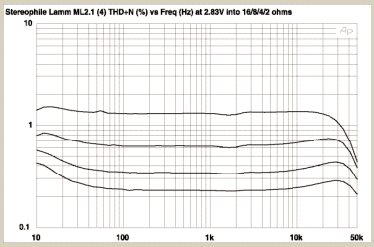


Fig.8 Lamm ML2.1, 4 ohm tap, THD+N (%) vs frequency at 2.83V into (from bottom to top at 1W): 16 ohms, 8 ohms, 4 ohms, 2 ohms.

sive to make, or so I'm told.

In Lamm's own words, the ML2.1 is like any single-ended amplifier, except in its execution. A key difference is the serious amount of regulation designed into the amp. When I first saw an ML2.1, at the Home Entertainment 2004 East show, I assumed it to be a single-ended amp using two output tubes in parallel. As it turns out, the second 6C33C tube per channel serves only as a voltage regulator for the first: Without it, fluctuations in the mains voltage could result in distortion and tube damage on the one hand, or less than optimal output power on the other.

The ML2.1's input stages, which comprise a 12AX7 dual triode for voltage gain and a Russian 6N6P driver tube, are also fully regulated—again, with tubes. Here, a 5651 voltage reference tube creates a reference signal from the input, and a 6AK5 miniature pentode continuously compares the output signal with the reference, and corrects the former as necessary by amplifying the difference. The amplifier's working voltages are supplied by an enormous toroidal transformer encased, like a bug in amber, in a proprietary damping resin so that buzzes and vibrations won't obscure or obliterate subtle musical details. Beyond that, the power supply is actually quite simple, using a solid-state rectifier bridge and a combination of chokes and capacitors to smooth out all the wrinkles.

A look inside the ML2.1 reveals a neatly and solidly built amplifier, but nothing terribly exotic—again, apart from the sheer enormity of the mains and output transformers. Most of the amplifier exists on a single large circuit board, excepting a very large power-supply board.

terms, especially into loads much lower than the output tap value. However, the distortion is predominantly second-harmonic in nature (fig.10), which will work against the distortion being a) audible and b) objectionable.

Perhaps more important, the Lamm's distortion spectrum doesn't vary with frequency or with output tap. Fig.11 shows the spectrum of the amplifier's output as it drives a 50Hz sinewave at 1W into 8 ohms, while fig.12 shows the spectrum of a 1kHz sinewave driven at the same level into 4 ohms from the 4 ohm tap. They are very similar, with the second harmonic by far the highest in level. The third harmonic lies much lower in level—more so with the low-frequency tone than with the midrange tone—and power-supply–related spuriae are better than 100dB down, which is excellent.

Whether or not an amplifier's primarily second-harmonic distortion is subjectively benign (even if audible) depends on there not being high levels of intermodulation distortion. Fig.13 shows the spectrum of the ML2.1's output while it drove an equal mix of 19kHz and 20kHz tones at 2W into 8 ohms from the 8 ohm tap. The higher-order components are 80dB down, though the 1kHz difference tone lies at –52dB (0.25%), a little higher than I would have wished. (Ignore the low-frequency noise in this graph, which I believe is due to a grounding incompatibility between the ML2.1 and the Benchmark D/A processor with which I drove it for this measurement.)

Yes, the ML2.1's basic linearity is not anywhere as near what is routinely achieved by high-feedback, solid-state amplifier designs. But this is almost entirely due to the fact that the Lamm's output stage is single-ended. Considering that the circuit uses very little overall negative feedback, its measured performance suggests that the amplifier circuit's open-loop performance is actually very linear. In its idiosyncratic way, the ML2.1 is good engineering.

*—John Atkinson*

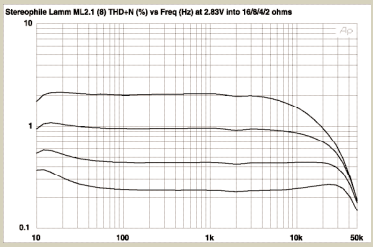


Fig.9 Lamm ML2.1, 8 ohm tap, THD+N (%) vs frequency at 2.83V into (from bottom to top at 1W): 16 ohms, 8 ohms, 4 ohms, 2 ohms.

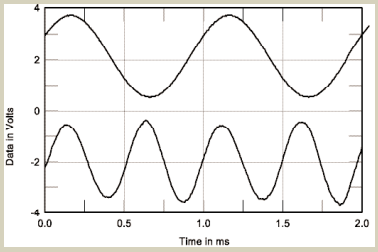


Fig.10 Lamm ML2.1, 4 ohm tap, 1kHz waveform at 2W into 4 ohms (top), 0.5% THD+N; distortion and noise waveform with fundamental notched out (bottom, not to scale).

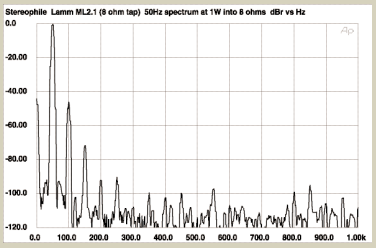


Fig.11 Lamm ML2.1, 8 ohm tap, spectrum of 50Hz sinewave, DC–1kHz, at 1W into 8 ohms (linear frequency scale).

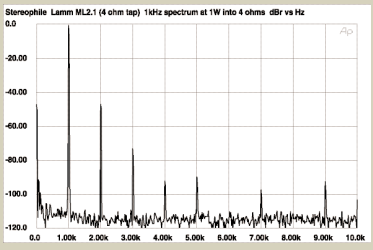


Fig.12 Lamm ML2.1, 4 ohm tap, spectrum of 1kHz sinewave, DC–10kHz, at 1W into 4 ohms (linear frequency scale).

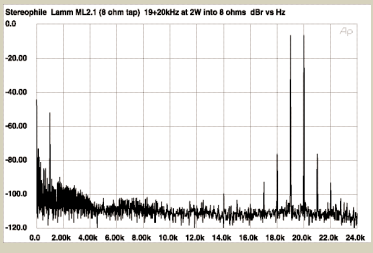


Fig.13 Lamm ML2.1, 8 ohm tap, HF intermodulation spectrum, DC–24kHz, 19+20kHz at 2W into 8 ohms (linear frequency scale).

supply capacitor, a rather pedestrian Hammond power-supply choke, various connectors, jacks, and binding posts, and the sockets for the two nipple tubes. But the board is double-sided, and it's difficult to get a clear idea of the circuit architecture, apart from the fact that some feedback is apparently employed. Beyond that, all I can offer is the admittedly dull observation that the ML2.1 appears at once to be both simple and complex.

From the outside, the ML2.1 looks merely simple—but well made. The six tubes have lots of room to spread out, and the two big trannies sit side by side under matching black boxes. The metalwork is thick enough to resist flexing under the strain of its heavier parts—it's sad how many expensive amps aren't made this well—but no thicker. The Lamm bespeaks quality, but subtly.

I was also impressed with the professional quality of the Lamms' packaging and documentation. The former is a nicely made wood crate for each amplifier with glued-in foam bumpers; the latter consists of a few separate warning documents plus a thick, clearly written operating manual that covers in generous detail everything you might conceivably need to know about the ML2.1. I can't think of a single company in perfectionist audio that would not benefit from this example.

Installing the ML2.1s was a straightforward and uneventful procedure, notwithstanding the Lamms' weight (60 lbs each) and the manual's frequent admonitions against carelessness. Although 6C33C tubes are still being made, Vladimir Lamm builds his amps using New Old Stock output tubes (he says he suspects that the design was cheapened after 1980), each one hand-tested and labeled for its precise destination. Consequently, either the owner or the person who installs the ML2.1 must check and, if necessary, adjust the plate voltage and plate current. This is easy to do, but requires a high-quality *true RMS* multimeter. (Lamm recommends the Fluke 87 or equivalent; I borrowed one from *Stereophile*'s tool chest.)

Each ML2.1 has a pair of input jacks: an RCA for unbalanced operation, and an XLR for…well, for unbalanced operation. Because balanced operation isn't really an option in an amp of this sort, the input circuitry addressed by the XLR is only quasi-balanced. Lamm says he provides the jacks merely for the convenience of users who have that sort of cable, and not with any claims of improved performance.

At the other end, three pairs of chunky binding posts are provided, for operation into loads of 4, 8, and 16 ohms. The rear-mounted power switch addresses a protection circuit that begins by powering all the tube heaters; then, two minutes later, after the caps have charged up and the tubes have warmed up a little, a hefty relay kicks in and the plates see their respective rail voltages. This system worked perfectly every time; not once did I hear a single buzz, hum, burp, brap, or bang. Nor did the plate voltage or plate current—which I tended to check weekly—ever drift to a significant degree.

## Music

Sir Adrian Boult's 1976 recording of Elgar's *The Dream of Gerontius* (LP, EMI SLS 987) is arguably one of the finest records ever made, in every sense. There is abundant, realistic texture in the sounds of the strings; singing voices have just the right scale; all the instruments and voices have plenty of color; there is believable depth and just the right amount of "air" in the sound; and, above all, it's a superb, transcendent, landmark performance, one that builds from a mystical, *Parsifal*-like introduction to a moving three-hankie finish. One might ask: How could such a thing *not* sound good?

With the Lamm ML2.1 amplifiers driving my Quad ESL-989 loudspeakers, I learned that there's good—and then there's *magnificent*. During the *Prelude*, just a moment or two before the entrance of tenor Nicolai Gedda ("Jesu Maria…"), the sound of the massed violas and clarinets was so colorful and *present* that their beauty all but overwhelmed me. (It's probably just as well I've never heard *Gerontius* performed live: I might not be up to it.) Gedda's voice was itself similarly tactile and real. And the fortes in his opening soliloquy ("this natural force, by which I come to be…") gave no hint of amplifier strain. Yes, before the piece was over I heard a few instances of compression—the very loud passage just prior to Gedda's last solo, for example, was cut off at the waist—but it was a subtle effect, and never accompanied by gross distortion.

Let's pause for a moment and think about that: I drove a full-range electrostatic loudspeaker—one with an electrical sensitivity of 86dB and a moderate impedance—with an 18W amplifier, and the combination exhibited no coarsening, hardening, or thinning of the sound of a forceful singing voice. This was in a room of only moderate size (about 230 square feet), and at a volume level selected by someone who is neither deaf nor insane (me). I can't predict whether you or anyone else will enjoy the same success with this combination, but I couldn't help but be very impressed.

Back to *Gerontius*: The natural decay—the slight amount of performance-hall sound—that's overlaid on Gedda's voice just prior to the choir's first entrance reminded me that, with the finest reproduction gear, it's often the subtlest details that impress and startle the most. That effect was artistically right, and very convincing. The same can be said of the choir's many pianissimos in *Part Two*: With the Lamm amplifiers in the equation, each was more convincing, and more crucial to the overall effect, than I've heard before.

Georges Prêtre's 1961 recording of Poulenc's *Gloria* (LP, Angel S35953), while not as good-sounding as the Elgar—it lacks midrange richness and texture, and gets a little grainy in the louder parts—is a similarly committed

## ASSOCIATED EQUIPMENT

**ANALOG SOURCES** Linn LP12 turntable, Naim Armageddon power supply, Naim Aro tonearm; Galibier Quattro Supreme turntable, Graham Robin & Schröder Reference tonearms; Lyra Helikon Mono, Miyabi 47, Linn Akiva, Denon 103 cartridges.
**PREAMPLIFICATION** Audio Note AN-S2, Tamura TKS-83 step-up transformers; Fi Preamplifier.
**POWER AMPLIFIER** EAR 890.
**LOUDSPEAKERS** Quad ESL-989, Lowther PM2A in modified Medallion horns.
**CABLES** Interconnect: Audio Note AN-Vx, Nordost Valhalla, homemades. Speaker: Audio Note AN-SPx, Nordost Valhalla, homemades.
**ACCESSORIES** Mana stands (Linn LP12, Fi preamp); Base base (EAR 890); Wally tools for phono setup.

*—Art Dudley*

performance of great 20th-century music, and it, too, was brought to new heights by the Lamms. Even when compared to my beautiful-sounding EAR 890 amplifier,[1] the ML2.1s made the voices sound more human, the flow of the notes more natural and convincing. By contrast, other amps sounded mechanical on the jaunty *Laudamus Te*, with the notable exception of the Fi 2A3 Stereo SET (and that won't come close to driving Quads). And nothing that I've heard apart from the Lamms—nothing at all—catches the detail and the sheer tactile feel of the oboe trills in that piece.

I played the Borodin Quartet's fine recording of their namesake's String Quartet 2 in D (LP, Decca/Speakers Corner SXL 6036), and marveled not so much at the presence of this or the neutrality of that as at the sheer intense *believability* of the music. More than ever before, I got the sense not of pretty or even musically involving sounds that were disconnected from reality, but of something that was connected to its own progeny—*ie*, it felt more like music that had been made by humans. The intensity of the players—the *touch* of the players—was much more evident. The Lamms, I would come to realize, could do this with most good recordings—and more so as the evening wore on. The longer they warmed up, the better they played music.

While reviewing the Lamms, I received a copy of Cisco Music's exceptionally good LP reissue of Ian and Sylvia's *Four Strong Winds* (Vanguard VSD-2149)—which, like the above-mentioned Elgar, would probably sound wonderful through almost any amp. The two voices in the title song, which are panned straight to the two speakers in the stereo mix (there's no center fill other than a bit of the guitar backing), sound startlingly real. With the Lamms, they were almost frightening: the most uncanny reproduction of a singing voice I've ever heard. Had I stripped my Quads of their protective film, the experience would have probably given me a heart attack.

## Louder music

So far, I had limited my Lamm time to the Quads—and while I couldn't help being surprised by how well the combination worked, I would have been remiss not to try the 18Wpc ML2.1s with my SET-friendly Lowther horns.

Once they'd worked themselves back in—I'd been enjoying the ML2.1s on the Quads longer than I'd thought—my Lowthers sounded superb with the Lamms. Aimee Mann's "This Is How It Goes," from *Lost in Space* (in a fine new LP reissue, Mobile Fidelity MFSL 1-278), fairly leaped from the system in the best and most engaging way possible, with much tighter bass than I'd ever heard from my horns: Great though it is, the Fi 2A3 Stereo amp can't seem to coax as much bass out of the anemic horn-loaded Lowthers.

The stacked synthesizers—Arps, I think—in the title track of Procol Harum's *Broken Barricades* (LP, A&M SP 4294) sounded thick and appropriately analogish. And in the following track, "Memorial Drive," although the low F-sharp on the electric bass didn't have near the *whomp* through the Lowthers as it had through the Quads, the Lamms made the gap smaller than in the past. I heard more body, timbral richness, and impact from bass notes with the Lamms driving my Lowthers than with any other SET I've tried.

Yet while stretching the Lowthers' performance envelope, the Lamms helped them maintain the strengths that made me buy them in the first place: their sensuously textured midrange, and the almost eerie presence with which they reproduce voices and solo instruments. The vocal color and bounce of Josephine Veasey's Dido and Helen Donath's Belinda in the Colin Davis recording of Purcell's *Dido and Aeneas* (LP, Philips 6500 131) made listening an almost physical experience with the Lamm-Lowther combination. And the realness of the stereo imaging—the solidity of the voices, as well as their placement—added to my enjoyment.

With record after record, the Lamms sounded superior to other amps in the way that an exceptional musical instrument sounds superior to one that is merely good. Ron Thomason, the great musician and storyteller, once let me strum a chord on his 1924 Gibson F-5 Lloyd Loar mandolin (there are precious few in existence): that mandolin against my chest felt like a living, breathing thing. That's the key word, I think: It wasn't just responsive, it was *alive*. The Lamms excelled in much the same way.

To listen to the ML2.1s was to imagine—that's the most certainty anyone can apply to such a thing—that I was hearing music's original complex wave stripped of more garbage than ever before: Notes were more distinct, as were the relationships between them. Sounds were true, and the presence of the performers in my room, though always little more than a suggestion, was surer and more engaging.

**WITH THE LAMMS, THERE WAS THE MOST UNCANNY REPRODUCTION OF A SINGING VOICE I'VE EVER HEARD.**

## Chris Henderson: don't read this part

At one point during the review period, I was walking to the far end of my listening room to open a window when I stubbed my toe on one of the Lamm amplifiers: This was no minor toe-stubbing, but one of those really spectacular, bloody events that would have sent me to the emergency room if such a remedy didn't also require an explanation. I reacted in the usual way, swearing lustily at the thing on which I'd stubbed my toe—but with one additional curse: "For $30,000, you ought to pick yourself up and get the f★★k out of my way when you see me coming!" A foolish remark, I know, but, just like Dick Cheney, I don't regret for a second having made it.

## Conclusions

Does it get any better than this?

I've learned my lesson: the answer is, *sure*.

For one thing, there are dozens of amps out there that I haven't heard, and that seem to stand a chance of also being very good at playing music. For another, although Vladimir

1 Reviewed in April 2004, see www.stereophile.com/amplificationreviews/404ear. **–Ed.**

Lamm has observed elsewhere that he cannot improve on the ML2.1 (actually, he said that about this amp's predecessor, the ML2), he also said to me that he could, except that he added "We have to be realistic: That's too expensive." My thinking is that, once you're at the point where you can consider spending $30,000 on a pair of amps, what's another few thou? Realism be damned, Vladimir: Do it.

For another thing, one can almost imagine a near-ML2.1 level of performance for less than half the price: Mr. Lamm says he has finished designing a 13Wpc stereo version of the amp that would retail for $12,000 to $14,000. The only catch is finding a way to produce it: "To make a less expensive model, you have to produce in quantity," Lamm says. "To do that means you have to invest a lot of money. Right now I'm doing things that nobody else can do: Why should I change and do what everybody else is doing?" Add that to the folder labeled "GOOD QUESTIONS FOR WHICH I HAVE NO ANSWER."

I'm afraid that's where you'll also have to file the issue of value. It's my professional responsibility to tell you that I just plain don't see anywhere near $15,000 worth of parts inside one of these chassis, no matter how much the trannies cost. Are they that difficult and time-consuming to build? Maybe.

Then again, Vladimir Lamm has been building amplifiers for 45 years, and he's poured everything he knows about music reproduction into this product. To buy the ML2.1s is to buy a piece of his life's work: The only person who can say whether or not that's worth the asking price is the person signing the check. All I can say is that, if this guy made fly rods the way he makes amps, there would be no safe trout within the sound of my voice.

Reviewers often speak of wanting to keep certain review samples indefinitely. (Unfortunately, some reviewers do more than speak of it.) Toward the end of the review, I rushed things a little. I couldn't wait to get the ML2.1s the hell out of my house—if only because I dreaded seeing them go and I wanted to get it over with.

A good amp. A damn good amp. Vladimir Lamm played percussion in a symphony orchestra and worked as an engineer for the Soviet military and space programs.