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Issue 147

## Trickle-Down TECHNOLOGY B&W's 704 Speaker



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PART 2 Of Our Survey

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Tubes vs. Transistors

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## Tubes and Transistors in Happy Harmony McIntosh in a New Century

Paul Seydor

It continues to amaze me that at the beginning of the 21st century audiophiles can still get into heated, even acrimonious arguments over tubes versus solid-state. With long experience in both camps, McIntosh shows that enthusiasts of both can happily coexist. Indeed, because this fifty-five-year-old company has never forsaken the traditional electronics' hierarchy of flat frequency-response, low distortion, and high tonal-neutrality, the basic sonic characteristics of Mac's tubes and transistors resemble each other rather closely, which is as it should be. There are, nevertheless, differences that will be meaningful to the discerning audiophile. In this spirit, I thought it might be both fun and instructive to have a listen to a pair each of McIntosh's comparably priced tube and solid-state preamp/amp combinations, especially since the company obviously has no particular ax to grind. As Ron Cornelius, Mac's product manager, told me, "People are always saying our tube units sound like transistors and our transistors sound like tubes."

Mac's MC2102 tube power amp (\$6100) is a spin-off from its MC2000 power amplifier, a fifteen-thousand-dollar limited-edition behemoth, no longer available, issued to commemorate the company's first half-century in business. Both were designed by the legendary Sidney Corderman, who has been with Mac since it was founded in 1949. The companion C2200 (\$4600) is the company's first new tube-preamp in more than forty years, co-designed by Corderman and Roger Stockholm, a thirty-year Mac veteran as committed to solid-state as Corderman is to tubes. The C46 preamplifier (\$4350) and MC402 power amp (\$5100) are two of Mac's latest solid-state products, both designed by Stockholm and Charlie Randall, McIntosh's president. Chris Bomba, a relative newcomer who's been with the company a "mere" five years, is responsible for most of the C2200 and C46's ingenious microprocessor circuitry. Together these four products represent over five decades of some of the most accomplished, innovative, and time-proven engineering in all audio. How rare to find a company whose products do exactly what is claimed, with no apologies, glitches, quirks, idiosyncrasies, or



other weirdnesses. The performance of these amps and preamps is so outstanding—their features, function, and real-world usability so thoroughly thought-through—that it took me only a few days to understand why McIntosh has inspired such fierce loyalty among its customers for half a century.

The tube pair, the C2200 and MC2102, arrived first. Following a week of 24/7 break-in, I started listening, with associated equipment consisting for the most part of my Quad ESL 988s, Sony's XA777ES SACD and Quad's CDP-99 CD

**On most recordings played at moderate levels, these two pairs of electronics could easily be mistaken for one another, the tubes a little yielding and forgiving, the solid-state a little more forthright, defined, and transparent.**

players, a SOTA Cosmos/Graham 2.2 combination, several pickups (including a Dynavector 17D Mk II and Sumiko's excellent new Blackbird), and the Phenomena phonostage.<sup>1</sup> First up was the SACD version of Jacintha's *Here's to Ben* [Groove Note], reproduced without any electronic edge, haze, or overlay that could be attributed to the Macs. Her

closely-miked voice hung there, transparent and open, surrounded by the light jazz ensemble in some of the truest timbres on any recording. I stayed with vocal recordings, moving onto Harmonia Mundi USA's *Bitter Ballads*, with Paul Hillier's baritone accompanied by Andrew Lawrence-King on baroque harp and psaltery. The piquant sonorities of harp and psaltery nip the ear with the gentlest of touches while Hillier's baritone

emerges as the strong, warm instrument it is. The rich ambience of Skywalker Sound was persuasively rendered as well.

Other recordings, similar results. Well-recorded piano, like Murray Perahia's *Goldberg Variations* [Sony] or JVC's XRCD reissue of Rubinstein playing Chopin, emerge with a three-dimensionality and a timbral faithfulness that draw all the attention to the music. Sonny Rollins' *Way Out West* [Analogue

<sup>1</sup> I am treating these preamps as linestages because I believe that is how most people will use them. C2200's phono stage is very nice: quiet, but a little dark, veiled, and lacking in detail, albeit very neutral. The C46's is quite a bit better: clean, clear, lively, with excellent detail yet still admirably neutral. Depending on your choice of pickup and how much vinyl listening you actually do, this could be all the phono stage you'll ever need.

## Specs, Features, and those Gorgeous Meters

**H**ow's this for a radical notion? McIntosh's designers actually believe that preamplifiers should do something besides raise and lower volume and select sources. The C2200 and C46 are what used to be called "full-function" preamplifiers, and as such are a standing rebuke to over twenty years of the folly of minimalism. I haven't the space to detail every input, output, feature, and configuration possible. Complete specs, brochures, and manuals are available on McIntosh's Web site. But here's a brief rundown. Both preamps have eight inputs (one balanced on C46, four balanced on the C2200), including phono stages (MM or high-output MC only), with  $\pm 6$ dB of level matching for each input; three outputs (balanced and unbalanced), two with independent front-panel muting; a stereo/mono switch; a headphone jack; and individual power on/off for two McIntosh amplifiers. A digitally-controlled master volume control has 214 steps in 0.5dB increments with tracking accurate to within 0.1dB, while the balance control has a hundred steps of resolution in either direction. Full tape-monitor and external-processing loops (two EPLs on the C46) are supplied with independent tape and listening capability. Electromagnetic switching eliminates all electronic noises, while a soft-start/turn-on delays operation until all circuits are stabilized. Remote control is available with the supplied handset.

The C2200 has conventional bass and treble controls, centered at 30Hz and 10kHz with  $\pm 12$ dB cut/boost, that work flawlessly. The C46 goes several steps further with an eight-band graphic equalizer, also with  $\pm 12$ dB cut/boost in frequencies centered at 20, 35, 70, 300, 600, 4k, and 12kHz. It too works flawlessly, even allowing for some effective room correction at the bass end. I made liberal use of these with both preamps, and got an especial kick out of slyly applying a judicious amount of bass boost to my Quad 988s, then watching the faces of unsuspecting skeptics as they asked, "What happened? I thought these things weren't supposed to have any bass." My only complaint is that neither the tone-correction controls (including bypass) nor the superb balance control is accessible from the handset. But the large alphanumeric-display and the LEDs let you know the status of all selections and settings from across the room. And what a tactile pleasure it is to operate these units: the silken feel of the knobs, the buttons that switch with absolutely no swishes, pops, ticks, or other transients, just a quiet but satisfyingly firm mechanical click to let you know you've engaged or disengaged them.

Both amps have balanced and unbalanced inputs, and heavy-duty WBT speaker terminals. The MC2102, which uses eight Russian-sourced KT88 tubes to generate its 100 watts/channel, incorporates McIntosh's "Unity Coupled Circuit," patented in 1949 and still going strong today, whereby the tubes deliver power from both their anodes and their cathodes, which, together with the way the output transformers are wound, results in unprecedentedly wide bandwidth for a tube amplifier (full output down to 17Hz and only -3dB at 100kHz), extremely flat 20–20kHz response, high power, and exceptionally low distortion.

Together with most of McIntosh's solid-state amplifiers (and unlike almost all others), the MC402 is not direct-coupled, but instead, rather like tubes, uses a form of transformer, called an *autotransformer*, between the output transistors and the speakers. This allows the transistors to transfer power with maximum efficiency, resulting in flatter frequency response, far lower distortion, and far longer life. (An additional advantage is that the amp is incapable of passing potentially harmful DC current to the speakers.) Despite its incredibly high power—400/watts channel into 2, 4, or 8 ohms!—the MC402 runs so cool you scarcely know it's on but for the meters.

And those gorgeous meters, bright blue against the glass-black faceplates, have been Mac signatures since the early days. Here beauty does as beauty is. Ten times faster than their professional VU counterparts, these meters are calibrated to display real output in *watts* (not voltage), which they do with 95% accuracy. But what about the C2200—whoever heard of meters on a preamp? Well, here I think Mac might be accused of a bit of window dressing. However, if you happen to have Mac's classic but meterless MC275 tube amplifier, reissued in 1995 to impressive sales, the C2200's meters will read its output in watts (as they will also any amplifier's of 2.5-volt sensitivity). Besides, they sure look cool, and I've no doubt they're one reason the C2200 is selling faster than Mac can make it.

Very few components in my experience inspire the kind of confidence these do, with build, parts, and engineering that continue to make McIntosh the leader in the industry it helped create. The word masterpiece is both overused and far too often inaccurately applied in reviewing. But these four McIntosh components are true masterpieces in the root sense of the word: products in which a long tradition dedicated to the highest excellence is realized in the most exacting craftsmanship. **PS**

Productions], a classic recording from the beginnings of stereo, can sound a bit edgy in the upper midrange, just the region where tubes too often exhibit glare. I noted none of that with this McIntosh duo; instead, the saxophone had almost tactile presence and body. Rollins can be an aggressive player, which comes through forcibly enough; but the aggressiveness inheres in his style of the playing, not the amplification chain.

Pure Audiophile's vinyl reissue of Ray Brown's *Soular Energy* revealed no problems with these tubes' bass extension, definition, and articulation. Warm and full, the bass exhibits none of that tight, dry, nonresonant character so beloved of audiophiles, especially the speed-and-detail brigade, who will doubtless find the presentation not detailed enough. But the details *are* there: the chair squeak, the rustle of pages on the music stand, the breathing of the concertmaster, the bassist whispering the rhythm to himself behind the singer on the first cut of Mapleshade's *Sunny*. But you have to make yourself listen *through* the music for these things, which is surely as it should be.

The glory of tubes consists in the midrange, and these Macs do not disappoint; they have the flattest, most neutral midrange I have heard in any tube unit. There is no presence dip followed by an upper-mid glare, no peaches-and-whipped-cream coloration, either (unless it happens to be on the recording, e.g., Doris Day's *Hooray for Hollywood*). Rather, the mids are just *there*. However, if a ripe, golden haze on the meadow is in the recording, these Macs will unveil it in all its splendor.

While the MC2102 presents orchestral material very naturally with excellent dynamics, it does not in my system project an especially large sense of size and scale, nothing on the order of, say, Mike Sanders' sensational Quicksilver V4 monoblocks. It's outstanding on smaller scaled, more intimate music, and overwhelmingly persuasive when it comes to reproducing vocalists and instrumentalists.

Enter the C46 and MC402; could they possibly hold up? I'll not keep you in suspense: this combination yielded, all in all, the most musically satisfying reproduction I have so far experienced in my present system. I should point out that I have had on extended loan solid-state amplifiers costing \$34,000/pair and an amp/preamp combination priced at \$35,000. This Mac pair trumped them all, often by a comfortable margin. They are fantastically clean and clear, utterly open and transparent, wholly lacking in grain, grit, and hardness, and with an impression of exceptionally low noise and distortion. (In fact, all four of these

Macs left me with a subjective sense of lower noise and distortion than their already impressive specs suggest—not a hint of grunge.) The top end extends further, yet is entirely natural without any aggressiveness, Lawrence King's psaltery and baroque harp reproduced with just that degree more *authentic* bite and air around them. The bottom end has greater heft and weight. Indeed, with both Mac amplifiers I want to stress how truly natural—that is, warm and resonant—bass reproduction is. And the midrange? Again, gloriously present, lively, vivid,



without sacrificing that peerless neutrality without which timbre cannot be reproduced accurately.

On most recordings played at moderate levels, these two pairs of electronics could easily be mistaken for one another, the tubes a little yielding and forgiving, the solid-state a little more forthright, defined, and transparent. But on big orchestral recordings played loud the 402 emerges a clear winner, its soundstage wider and more spectacular when called for, its response a bit quicker. I have found that with tube amplifiers, big orchestral chords, such as you find at the opening of the Mahler Second or Rachmaninoff's *Symphonic Dances*, exhibit a very subtle but, under critical listening, noticeable "spread," as if the transient is being rendered over a slightly longer period of time than with solid-state units. No tube amp in my experience is completely free from this phenomenon; the 2102 is freer than most, but go to the 402 and you'll hear superior transient attack in addition to a bigger overall presentation.

When it comes to vocal reproduction, the tube combination buffs off sibilants slightly so that they sound more natural; the solid-state combination renders them crisper and more present but maybe a little less natural sounding. There's the conundrum: given how closely miked most vocalists are, I believe that solid-state is more accurate even as its *effect* is less realistic. This is one reason I continue to empathize with hardcore tube fanatics' allegiance to the beauty of tubes over the truth of solid-state.

Another area where tubes excel is in a subtle but unmistakable sense of roundedness and solidity (my word, I believe, for what Harry Pearson calls "continuousness") with which they project musical instruments. No solid-state unit I've heard quite equals tubes in this elusive regard. But where I part company with tube fanatics is their insistence that solid-state reproduction is wholly bereft of it. Right now I've got four solid-state amplifiers in the house—the MC402, Quad's 909, and two Carver/Croft models—that wipe the floor with that prejudice. But I freely grant that the *degree* of solidity does make for a meaningful basis of choice. The Mac C46 and MC402 project solidity, with its associated roundness, to a greater degree than any other solid-state electronics in my experience and come awfully close to the best tubes.

The MC402 does something else as well: it allows my Quads to play at subjectively louder levels than any other amplifier I have used. I can only guess at the reasons. Perhaps

## THE CUTTING EDGE



it's the MC402's vast power reserves, which ensure the amplifier never gets close to distress, thus passing along essentially no distortion products, only pure signal; perhaps it's the absence of direct-coupling (see sidebar), which prevents any DC or ultra-low-frequency muck from getting to the speakers. Whatever, not once during the evaluations did I trip the Quads' protection circuits, despite a lot of Mahler played at pretty healthy levels, often with bass boost applied!<sup>2</sup>

To give some idea how special these components are, a classical-record-producer friend of mine—winner of several prestigious awards, whose recordings are highly regarded both musically and sonically (some of them grace HP's Superdisc List)—stopped by one day to let me hear the final edit of her most recent recording, a Russian symphony that is one of the staples of the repertoire. After a few minutes of listening she pronounced this the best sound she had ever heard in my system, better than hers at home (Quad 989s driven by vintage Audio Research tubes), and some of the best she's heard period. "It has," she observed, "an ideal combination of warmth and detail." The C46/MC402 pair was in use at the time.

Can you mix and match? By all means. Roger Stockholm helped design the C2200 so that Mac customers could have tube sweetness along with solid-state crunch (as this is being written the C2200 and MC402 are making lovely sounds together). My only caveat would be that the overall sonic character is determined far more by the amps than by the preamps. So if it's classic Mac tube sound brought up to date that you want, get the

<sup>2</sup> For what it may be worth, according to the meters, even when the music was really loud, the Quads rarely drew more than eighty or ninety watts with either amplifier, even on peaks, and most of the time much, much less.

MC2102 and turn it one way or the other with the preamp.

Whichever component or combination you decide upon, this much I can say with fair confidence: no matter how much you spend, you're unlikely to find better amps and preamps on the planet. Day in, day out, these McIntoshes are the most completely pleasurable electronics I've used in nearly four decades of pursuing high-end audio. 

### SPECIFICATIONS

#### C2200 Tube Preamplifier

Dimensions: 15.5" x 7.75" x 20"

Weight: 26.75 lbs.

Price: \$4600

#### C46 Audio Control Center

Dimensions: 17.5" x 5.75" x 19"

Weight: 26 lbs.

Price: \$4350

#### MC2102 Tube Power Amplifier

Power (stereo): 100 watts/channel into 2, 4, or 8 ohms

Dimensions: 17.75" x 10.25" x 17"

Weight: 88 lbs.

Price: \$6100

#### MC402 Power Amplifier

Power (stereo): 400 watts/channel into 2, 4, or 8 ohms

Power (mono, parallel): 800 watts into 2, 4, or 8 ohms

Frequency response: +0/-0.25 20–20kHz, +0/-3dB 10–100kHz

Dimensions: 17.5" x 9.5" x 20"

Weight: 110.5 lbs.

Price: \$5100

### MANUFACTURER INFORMATION

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Binghamton, New York 13903

(607) 723-3512

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

Warranty: three years (parts and labor)



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## McIntosh: Then and Now

Paul Seydor

“**G**ee, Paul, I thought only doctors and lawyers owned McIntosh!” Thus a friend upon seeing the four McIntosh units I am reviewing elsewhere in this issue on my equipment shelves. Yes, that has always been the image of this venerable fifty-year-old company. It’s not just that McIntosh electronics were expensive, it’s that they conjured up a certain kind of owner. Back in the late sixties, when I first cut my teeth in high-end audio, I always imagined McIntosh products were purchased by men who actually wore smoking jackets for their intended purpose, lighting up pipes and cigars while sequestered in dark, wood-paneled libraries, a cognac on the side table, Rubinstein or Brubeck on the turntable, those beautiful back-lit blue meters against black-glass faceplates accurately tracking each modulation of the signal. In the early days of stereo, the topic of best speaker would guarantee a lively debate; but mention electronics and there were no arguments, just the two “M” words: McIntosh and Marantz, everything else a distant second or lower.

In America, serious electronics, like serious automobiles, were big, and they had lots of stuff on them. The front panels of Mac’s preamps really made you feel you had *control* over the signal. Nor was it just window dressing; every knob, switch, and button served a logical, usable, necessary function.

McIntosh’s tube gear was the leader of the pack, along with Marantz’s, for the better part of a decade or more, and as an independent outlasted its esteemed competitor. But in the early seventies a segment of the audio community began to define itself apart from the audio market at large (never large to begin with). Calling itself the “high end,” this emerging subculture never embraced McIntosh despite the company’s reputation. Sometime in the first decade of TAS I recall a review of a Mac amplifier, the gist of which was that the performance was disappointing and—kiss of death—that “McIntosh” had become synonymous with “middlebrow” audio—in other words, doctors and lawyers who bought

more for image than for sound. Nor did it help that by then the company had gone exclusively solid-state, its styling stubbornly unchanged, its philosophy anti-minimalist with a vengeance. I mean the preamps continued to sport more knobs than just volume and source selector; they had a stereo/mono switch, tone controls, input-level adjustments, and more. Come the eighties, old grandfather McIntosh was looking pretty square in both the literal and figurative senses. What self-respecting TAS or *Stereophile* reader would own such equipment? I guess those doctors and lawyers weren’t the only image-driven audiophiles on the block.

Yet somehow, even without the fickle imprimaturs of independent reviewers, McIntosh survived and continued. Check eBay and other sites and you’ll discover that long after the umpteenth modification of whatever-was-the-flavor-of-the-quarter in those years was consigned to the junk heap—there were some manufacturers, most of them of highly praised tube electronics, that never seemed to get the design right, hence the endless stream of Mk I’s, II’s, III’s, a’s, etc.—McIntoshes continued to reward their owners with excellent performance year in, year out, their reliability then as now the industry gold-standard.

A song tells us that everything old becomes new again. In the nineties, McIntosh began to stage a comeback, introducing a new generation of solid-state, then home-theater components, and reintroducing tubes—all of which some of the most demanding high-end critics have lavishly praised. And the company managed to do this without sacrificing its integrity, losing its identity, or abandoning its familiar look.

Thoreau’s fellow who doesn’t keep pace with his companions because he marches to the tune of a different drummer comes to mind. McIntosh is one of the last living links to the birth of high fidelity as a medium for the reproduction of music in the home; and it continues to embody all that is best in the traditional values of high-end audio. Mere fashion always comes and goes, but true style is perennially fresh. It’s a privilege to salute this pioneering company at the beginning of a new century. 