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# HP's WORKSHOP

## McIntosh Tubed Electronics: C2300 and MC2301

The McIntosh Mystique

Harry Pearson



This is a difficult review for me to write.

There are several reasons why this is so.

First, the McIntosh (Laboratory, Inc.) tubed electronics under review here—the C2300 preamplifier and the MC2301 amplifier—lack a signature sound. All the other tubed units I have heard up until now exhibit an obvious character, either slightly yin or yang in overall coloration. The sound of the Mc units, however, is so subtle and elusive that it is difficult to ascribe a character to them.

Second, the C2300 preamplifier is exceedingly complex in many of its key design features. And it is this very engineering sophistication that has a great deal to do with some of the audibly impressive (and describable) sonic attributes. Explaining such complexities doesn't come as second nature to this non-technofreak.

Then there is the McIntosh mystique itself. The company is celebrating its official 60th anniversary in 2009 (although its germinating seeds were planted before that). This gives it a continuous lifespan (but not a continuity of ownership) that exceeds every other high-end company in America. It has been around for a long time, and one of the reasons it has is because its outlook is essentially a conservative one—and I don't mean conservative in any political sense, but rather its reliance on the historical tried-and-true, a refusal to abandon the technologies that work and have worked. And its refusal to abandon its high standards of construction (I know of no tubed electronics better built or quite as classy looking) and its aesthetic signature.

Despite its somewhat stodgy image in the upper echelons of audio elitists, McIntosh has experimented in some surprising

ways: It once almost marketed a vinyl playback system (with a pickup arm designed by the redoubtable Bob Graham); there are McIntosh CDs out there, not to mention some privately produced LPs recorded by its founder, Frank McIntosh; there was a short-lived McIntosh 30-watt amp in kit form, and under its Japanese owners (beginning in 1991), a line of car stereos and an ill-fated experiment in less expensive gear marketed under the name Stereotech; it even designed a radio for Harley-Davidson riders; and it has just issued a Blu-ray player to complete its line of home-video equipment.

Of course, being conservative sometimes means it has been truculent, especially about its belated switch to all-solid-state gear and subsequent championing of transistorized gear. It was the last of the major audio companies of the early high-fidelity era to make the switch (its engineers didn't think the first transistors were good enough to use in Mc gear). The debut solid-state unit, a preamp, was introduced in 1967; the first amp followed four years later. But once the switch was complete, it went whole hog in pooh-pooing tubes, with its (then) in-house PR firm twice issuing stentorian denunciations of tube gear, in no-never-not-us tones, and once just before the new Japanese owner, Clarion, insisted on a resurrection of tubed electronics.<sup>1</sup>

But while McIntosh, which is like a family-run organization

<sup>1</sup>A few quotes from the press release issue a year before the company reintroduced a tubed amp to its line, an updated version of its classic MC-275: "A few music listeners still have the illusion that...tubed units are in some mysterious way better than present solid-state models. The overall superior performance of solid-state design has been scientifically proven...Anyone investing in a contemporary vacuum tube product will experience less than the best available performance." After this, Clarion dissolved that in-house p.r. arm.

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(many, if not most, of its employees have been with the company since its early days), had not changed in the essentials or in most of its key players, its ownership did in 1990. Earlier, founder Frank McIntosh retired and left the company in the hands of three trusted lieutenants, who decided to sell because, it was said, they were nearing retirement, and perhaps because then the company could use an infusion of outside capital. It first went to Clarion, a Japanese car-stereo manufacturing giant, and then in more recent years, in 2003, to another large Japanese corporation, D&M Holdings. It was Clarion that applied pressure for Mc to reintroduce tubed electronics. (The company and its marketplace allies were certain that tubed electronics from McIntosh would be big sellers. Should I say the obvious, that American tubed electronics are held in the highest regard in most of the Orient?) Also, one more thing I should note, McIntosh folks, as a condition of sale, wanted the company's tradition of excellence (its rep) to be respected and protected by the new owners, and this caused no little friction along the way in those first few years.

And so, with one toe in the water, McIntosh Laboratory, Inc. called its designer of the earlier classic tubed gear, Sidney Corderman, into action. The first result was a limited-edition "Gordon Gow Commemorative" version of the MC275 amplifier. The company's then president Ron Fone made it clear that the amplifier would be identical to the original version, except for two things: "balanced inputs and gold-plated loudspeaker terminals." Not exactly an update to the best developments in tubed design during the "silent" generation when Mc was producing solid-state designs (of no great sonic distinction in the minds of many). A second commemorative unit, the "Frank McIntosh" C22 preamplifier soon followed and both editions sold out.<sup>2</sup> Because the revived electronics were a financial success, other followed. This time Corderman was prompted to do an all-out design, the C2000 preamp—not replicate a historic relic, but to incorporate all the latest technological advances.

The present-day Mc tube electronics are different in many respects from the commemorative editions. (The MC275, for example, is now in its fifth iteration.) The extensive hand-wiring on those circuit boards has been brought into line with Mc's reliance on printed circuit boards, using wires as minimally as possible. Today's metal-film resistors and polypropylene capacitors are far superior to what the designers of the early Mc gear could use. These give significant reductions in noise and distortion levels. But, says Ron Evans, the vice president of engineering and a leading light on in-house tube designs these days, the basic circuitry remains pretty much as it was devised by Frank McIntosh, from the unity-coupled transformer, a bifilar design that used both the cathode and plates of tubes fed into the transformer, thus achieving much more efficient tube operation and longer tube life with considerably lower distortion. (It its day, this design allowed Mc to be first to achieve 20kHz

<sup>2</sup>McIntosh was the original founder and owner of the company, and, after his initial contributions to the design of the circuitry, pretty much a hands-off, out-of-town owner. His choice of president was Gordon Gow, one of its most colorful and spectacularly charismatic leaders, and the man, by the way, behind the push for an Mc LP playback system. The names were another example of Mc honoring its own. Family again.

range with one percent distortion, considered something of a miracle 60 years ago.) The voltage units operate in Class AB mode, "closer," Evans says, "to Class B without ...unacceptable levels of increased output distortion." Evans, by the way, still likes solid-state better.

One of the problems that worried the folks behind the restoration of tubes was the quality of today's tubes, a far cry from the glory days of tube manufacture in the U.S. and abroad. Tubes are now largely produced overseas (in Russia and China) and not considered the old reliables of Mc's tubed salad days.

At present, McIntosh is using, in the MC2301, eight KT88s (four per side) made by SED, a division of the Russian giant Svetlana. The six 12AX7s in the C2300 are, Evans says, made in China: "We buy them pre-tested and sorted from a distributor we've used for nearly 20 years."<sup>3</sup>

And so, at present, says Sally Goff, who is the marketing and PR relations manager (now once again an in-house operation, at least in part), tubed units account, in dollar terms, "for about 25 percent of Mc sales." The units (none of which have been discontinued) are: In amplifiers, the MC275, the MC2102 (100 watts per channel), and the MC2301 (300 watts per channel); in the preamp line, the C1000 (a three-chassis piece), the C500 (two chassis, with the option of either being tubed or solid-state), the C22, the C220, and the C2300. And, oh yes, an integrated amp, the MA2275.

Which brings us around to the C2300 and the MC2301. (I shall defer extended commentary on the amplifier until Part II of this essay. But let it be said that the MC2301, a monoblock rated at 300 watts, is Mc's most powerful tube amplifier, and no matter how hard I pushed it—and I pushed it—it never clipped, and always sounded the same, translucent and easy-going, at whatever volume level it encountered.) The official summation? The MC2301 is a unity-coupled, quad-differential, balanced design with hand-wound output transformers. And the C2300 has both a moving-coil and a moving-magnet input (balanced or un-);

<sup>3</sup>The background story is more complex than what I am reporting here. For instance, Mc had, at first, an arrangement for the KT-88s to be produced in the U.S.

## SPECS & PRICING

### C2300

**Rated output:** 2.5 volts (unbalanced), 5V (balanced).

**Maximum voltage output:** 8V RMS (unbalanced), 16V (balanced)

**Sensitivity (for rated output):** High level, 450mV (unbalanced), 900mV (balanced)

**Output impedance:** 220 ohms

**Input impedance:** High level, 20k ohms (balanced), 40k (unbalanced)

**MM phono:** 4.5mV; MC phono, 0.45mV

**MM phono:** 47k ohms, 50 to 750pF, in 50pF steps

**MC phono:** 25, 50, 100, 200, 500 or 1,000 ohms; 100 pF

**Price:** \$6000

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eight inputs; four outputs; and a noise-attenuation circuit, whose operation is most difficult to describe but whose presence in the circuitry accounts for the seeming absence of most forms of tube noise. It just may be that this noise-attenuation technology is at the heart of the C2300's purity of sound.

These are hardly all of the features in the C2300, and I am not going to summarize every one. All switching is done by electro-magnetic devices, themselves a thing of wonder—the instruction book gives details, but you might want to consider just the first sentence: “Each switch consists of a glass tube that is filled with an inert oxygen-free atmosphere and sealed with tiny leads protruding from either end. . . .” It gets more complex from there. There is tone-control circuitry with a bypass switch that removes all the circuits from the signal path. The volume-control switch is “actually a special digital optical encoder” wherein a beam of infra-red light is counted each time the volume is moved by a microprocessor, which means, in practical terms, you get 213 half-dB steps. Since a moving-magnet or moving-iron cartridge must be precisely matched with a picoFarad load in order to reproduce sound accurately, Mc allows adjustments from 50 to 750 pF, in 50pF steps.

In our experience with the moving-iron Sussurro cartridge (from SoundSmith), we were able obtain its best performance

with 400pF, but had fun playing with other settings to see how the sound changed. With the re-emergence of moving-magnet and moving-iron cartridges as a serious playback tool for LPs, I found this adaptability more than useful. (The Sussurro will be reviewed along with high-output versions from other cartridge makers, from Goldring to Shure and Audio Technica later.)

Let us consider the lilies. The C2300 is a beautifully crafted device, with the traditional McIntosh styling, down to the read-out meters. In the many months the unit has been here, there have been no problems—a distinction in itself, given the problematic behavior of individual tubes, noisy volume controls, and faulty input and output connectors. The cost of the unit is \$6000, and with this you get a transparent set of high-level stages, and the moving-magnet and moving-coil stages. (The Zanden 1200 we had on hand cost circa \$20k, and the new conrad-johnson TEA-1, \$7000.)

The most amazing thing, for me, is the silence. If you want to hear any trace of tube noise, you'll have to turn the thing up past 70 on the readout, where the noise attenuation circuit no longer kicks in.

In our experience, we never came close to a 70 readout (100 is the top); most of the time, the volume settings were in the 35–50 range.



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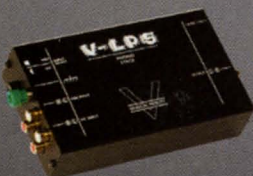
Bellari VP-130



SimAudio LP-5.3



PS Audio GCPH



Musical Fidelity V-LPS

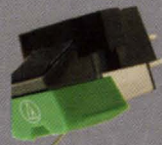


Graham Slee Era Gold Reflex

## Phono Cartridges



Dynavector 10x5



Audio Technica AT-95E



Grado Reference Sonata



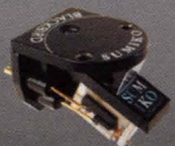
Dynavector XV-1S



Benz S-Wood



Clearaudio Maestro



Sumiko Blackbird



Ortofon 2M RED



Lyra Skala

# HP's WORKSHOP

(It will come as no surprise, perhaps, that you can adjust the output levels of each input to conform to the others.) As a result of the silence—the relative absence of audible noise artifacts—you can hear deeper into the soundstage, not only hearing the air around each instrument (and the stage itself), but also the dimensionality of instruments within their own pocket of air.

There is a kind of “sweetness” (a relaxed quality, like that of live music played at less than ear-scorching levels) to the C2300's character. Often tubes that exhibit a quality like this achieve it by rolling off the top octaves and softening the transient attacks, but not the C2300, which does neither. In this respect, the C2300 is made for the sharp attacks and transients of rock and roll—from Cat Stevens' early work to America's and David Crosby's. It is just as effective on the unamplified classics, particularly those minimally miked (for a kind of realism that will take you by surprise). It is as revealing of multi-miking as any tubed unit I've heard (try the Bernard Herrmann *The Three Worlds of Gulliver*). Its high-level stages are particularly revealing of the differences in present-day CD technology, especially of the best new issues (a Sibelius Third on the Avie label, or the stunning virtuosity of the players on *Les Triaboliques* on the World/Village label).

Do I have any reservations about the performance or the sound?

Well, yes, one, and it has to do with the moving-coil stage. There is a sonic protuberance in the midbass (try the opening doublebasses on the XRCD or LP of Mehta's reading of “Saturn” in *The Planets*) that obscures the very bottom octave (you will note the lack of articulation and air on the bottom pedal points at Saturn's conclusion). The midbass emphasis sounds like a second harmonic of the poorly reproduced bottom octave. From the upper lows to the top, the moving-coil stage shines, in respect to transient reproduction and a sense of “aliveness”—it sounds great on popular recordings. Most people's systems simply do not reach much below 32Hz, and so this shortcoming may not be considered major. A small flaw, perhaps, in a jewel of a preamplifier, one that is, by any measure, a steal and best buy at the unbelievably low price.

I received considerable help from many folks at McIntosh, including Sally Goff, Ron Evans, Sidney Corderman, Ron Fone, Ron Cornelius, and Roger Stockholm. I owe an especial debt to Ken Kessler, whose huge (coffee-table-size, lavishly produced) and somewhat disjointed history of McIntosh helped me get a grasp on the company's ethos and values. (Kessler is an American-born audio writer plying his trade in England.)



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