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CAMBRIDGE *vs* CARY

IF EITHER OF THESE AMPLIFIERS IS RIGHT…
THE OTHER MUST BE WRONG

IN REVIEW

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PIONEERING AUDIO

ART DUDLEY

Cary Audio CAD-805RS

MONOBLOCK POWER AMPLIFIER

There's no place for fashion in epidemiology, aeronautical engineering, or the mining and storage of uranium. Fortunately, domestic audio is less serious, its goals more scattered and ambiguous, than those and a thousand other pursuits.

And so, throughout the 20th century, any number of trends in domestic audio popped up their heads, some remembered as fads, others as legitimate approaches to playback. Among the latter are amplifiers whose output sections operate in single-ended mode, in which the entire signal waveform is amplified by a single[1] device—usually a tube, most often a triode—rather than being split into positive and negative halves and sent to complementary pairs of output devices. Single-ended output stages, which by definition operate in class-A, were common in the early days of consumer electronics—most tubed table radios, for example, had single-ended outputs—and were phased out during the nascent solid-state era. But in the early 1990s that technology made a comeback in the high-end audio markets of Europe and the US, accompanied by a parallel interest in compatible high-efficiency speakers, particularly horns.

Until then, high-end audio had been strangely conservative, most of its distinctions existing on the plane of excess: more boxes, bigger boxes, costlier boxes, and ever more output power. Modern single-ended amps, which offer notoriously low output power—for example, the popular and altogether good 300B output triode, operated in single-ended mode, can just about manage 8W—were embraced by many, but derided by as many others. When I remember the condemnation of single-ended triode (SET) amps heard from some corners of our little world, I can't help thinking of Pete Seeger, he of the supposedly open mind, attempting to literally pull the plug on Bob Dylan's electric band at the Newport Folk Festival of 1965.

With a wink—and, one assumes, more than a little cunning in the unsmall matter of newsstand sales—the cover of the January 1994 issue of *Stereophile* gained attention by juxtaposing a 300Wpc, push-pull, solid-state Krell KSA-300S amplifier and a 27W, single-ended, tubed Cary CAD-805 amplifier, and declaring: "If either of these amplifiers is RIGHT . . . the other must be WRONG." The controversy was real; the dichotomy wasn't. Both were, and are, good amps, suited to different systems and different priorities in playback characteristics—in other words, suited to different humans, which the most serious hobbyists sometimes forget they are.

In 2019, it's still easier to find something like the Krell than the Cary. Yet Cary Audio continues to thrive, and 25 years later that very same amp endures, having evolved into the CAD-805RS monoblock [redacted], the last two letters of its name standing for *Reference Series*.

Description

Now as then, Cary's top model of single-ended monoblock is nearly twice as deep as it is wide: a shotgun house of an amp whose 24" by 12.25" steel case rules out most equipment racks of my experience, my own included. Immediately behind its aluminum front plate—available in silver or black, the latter to match the rest of the case—are two 6SN7 dual-triode input tubes, plus a brace of user controls including toggle switches for separately powering up the tube filaments (On/Off) and tube plates (Operate/Stand-by). Lined up behind these are: one 300B directly heated driver tube; one 845 or 211 directly heated triode output tube (both are supplied); output and mains transformers, and power-supply reservoir capacitors; and a potentiometer for adjusting the driver tube's bias current. On the rear panel are RCA and XLR inputs, both unbalanced, and a small toggle

Under demanding playback conditions, the Cary's output section slides into class-A2.

1 Two output tubes can be used in parallel in parallel for additional output power while still maintaining single-ended architecture.

SPECIFICATIONS

Description Single-ended, tubed monophonic power amplifier. Tube complement (each amp): two 6SN7, one 300B or one 845, one 211. Inputs: 2 single-ended (1 RCA, 1 XLR). Output power with 845 power tube: 27W (class-A, 14.3dBW), 50W (class-A2, 17dBW). Output power with 211 power tube: 27W (class-A, 14.3dBW), 70W (class-A2, 18.45dBW). Input impedance: 150k ohms. Output impedance: separate connectors for 4, 8, 16 ohms. Signal/noise: >80dB below rated output. Frequency response: 20Hz–20kHz, ±0.5dB, at full power output.
Dimensions 12.25" (310mm) W by 10" (255mm) H by 24" (610mm) D. Weight: 85 lb (38.6kg).
Finish Anthracite Black, black or silver front panel.
Serial numbers of units reviewed 180218, 180219.
Price [redacted] Approximate number of dealers: 25. Warranty: 3 years (tubes, 90 days).
Manufacturer Cary Audio, 6301 Chapel Hill Road, Raleigh, NC 27607. Tel: (919) 355-0010. Web: www.caryaudio.com.

ERIC SWANSON


CARY AUDIO
Power Transformer
CARY AUDIO
Output Transformer
CAD-805
REFERENCE SERIES
Class A Triode
Monaural
Power Amplifier
211 845
OUTPUT TUBE BIAS
300B
5 DB
DB
10 DB
FEEDBACK LEVEL
▲ ON
▼ OFF
6SN7
6SN7
OPERATE ▲
STANDBY ▼

switch for selecting between them, alongside three pairs of output jacks, for loudspeaker loads of 4, 8, and 16 ohms.

The CAD-805RS mixes fixed-bias and auto-bias circuitry. The gain stage formed by the two 6SN7 tubes is capacitively coupled to the grid of the 300B, which operates in fixed-bias mode; bias for that tube is adjusted with the aforementioned pot, the user relying on either the ammeter built into the Cary's front panel or an external ammeter[2] with a range of at least 0–300mA, which can be plugged into a ¼" phone jack next to the bias pot. The plate of the 300B is transformer-coupled to the control grid of the user's choice of an 845 or 211 triode. That output tube is operated in auto-bias: Its control grid is referenced to ground, and its cathode is held above ground by means of a stout resistor—and so, without the need for a bias-supply stage, which adds complexity and expense, the grid has the desired negative charge *relative* to the cathode.

Or, at least, it does *most* of the time. Cary uses a neat trick to extend the CAD-805RS's output beyond that of which a single-ended 845 or 211 is normally capable: Under demanding playback conditions, when the amp is compelled to pass ever-greater amounts of current across the loudspeaker load, the Cary's output section slides into class-A2, in which the control grid goes from being negatively to positively charged—again, relative to the cathode. Thus the control grid goes from selectively impeding current between the cathode and the positively charged plate to scooting along that flow of electrons—while continuing to mimic the shape of the AC music signal that's also on the grid. But class-A2 output is prone to distortion, so the CAD-805RS is designed to remain in pure class-A for all but the briefest of moments.

According to Cary's specifications, when run with an 845 output tube, the CAD-805RS can produce 27W in class-A and up to 50W in class-A2; with the 211 output tube, those numbers are, respectively, 27 and 70W. Among the amp's other user controls is a two-position knob that must be set to the correct position for the tube in use; presumably this sets the voltage potential available at the cathode pin. The remaining user control—another knob, this one with continuous travel—lets the user adjust the amount of negative feedback applied, from 0 to 10dB. This can be done while the amp is in use.

The CAD-805RS is well built and, despite its generous and somewhat unusual proportions, very nice looking. (Supplied with each amp is an aluminum tube cage, also black, though Cary didn't include those with my review samples.) The basic chassis and bottom plate are steel, the upper deck aluminum; the amp sits on six soft, Sorbothane-like feet fastened to its bottom. Inside, all wiring is point-to-point, with nary a circuit board in sight. The mains and output transformers are designed by Cary and made in the US by a firm that, according to Wright, has supplied Cary with transformers for over 25 years. DC rail voltage is provided by a full-wave rectifier comprising 16 of the most robust discrete diodes I've ever seen, while low-voltage AC for the tube filaments is supplied by a small Triad transformer that's separate from the main mains transformer. Signal and bypass caps are a mix of Solens and, mostly, Mundorfs.

Installation and setup

Each of the two Cary CAD-805RS monoblocks arrived in an unusually sturdy cardboard carton inside its own wooden crate, the amp secured within the carton with various foam fittings, and each tube in its own little box. Plain black power cords are provided, as well as simple cotton gloves for handling the tubes without leaving behind skin oils or other contaminants. (I don't always take such precautions when handling tubes, but I did with these—especially the 845s and 211s.)

In their very good owner's manual, Cary says that where the CAD-805RSes are placed is not critical; I took them

2 Cary offers an optional meter for $100. However, CEO Billy Wright told me via e-mail that the meter built into the CAD-805RS's front panel "is very accurate."

MEASUREMENTS

I measured one of the Cary CAD-805RS amplifiers (serial no. 180218) using my Audio Precision SYS2722 system (see the January 2008 "As We See It"[1]). Before doing so, I installed all the tubes, following the guide in the manual, and checked that the bias current for the 300B driver tube was the recommended 60mA, using the front-panel meter. I checked the bias current several times while performing the measurements, but it hadn't changed. I took complete sets of measurements from the 4, 8, and 16 ohm output-transformer taps with the 845 output tube that AD preferred, and with the negative feedback set to 0, 5, and 10dB. I repeated some of the tests using the 211 output tube.

The Cary's impedance measured a usefully high 55k ohms at 20Hz and 59k ohms at 1kHz, and was still 51k ohms at 20kHz. The three outputs all preserved absolute polarity (*ie*, were non-inverting). The CAD-805RS's clipping power, voltage gain, and output impedance all varied with signal frequency, the output transformer tap, the output tube, and the level of negative feedback selected. The voltage gain at 1kHz was highest from the 16 ohm tap with the 211 output tube and zero feedback, at 21.75dB; it was lowest from the 4 ohm tap with the 845 tube and 10dB of feedback, at 14.85dB. In general, increasing the feedback from 0 to 5dB reduced the gain by around 0.35dB; the 10dB setting reduced the gain by another 2–2.5dB. Art's preferred setting of the 8 ohm tap with 6dB of feedback gave a gain of 19.5dB.

As expected, the CAD-805RS's output impedance was lowest from the 4 ohm tap, with 10dB of negative feedback at 0.61 ohm with the 845 tube, and 0.71 ohm with the 211 tube, both measured at 1kHz. Reducing the feedback to 5dB increased these impedances to 0.78 and 1 ohm; the

1 See www.stereophile.com/content/measurements-maps-precision.

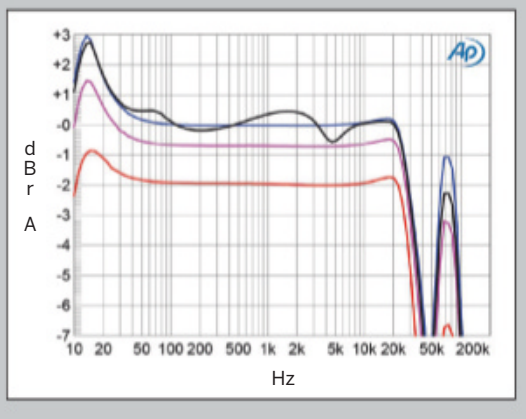
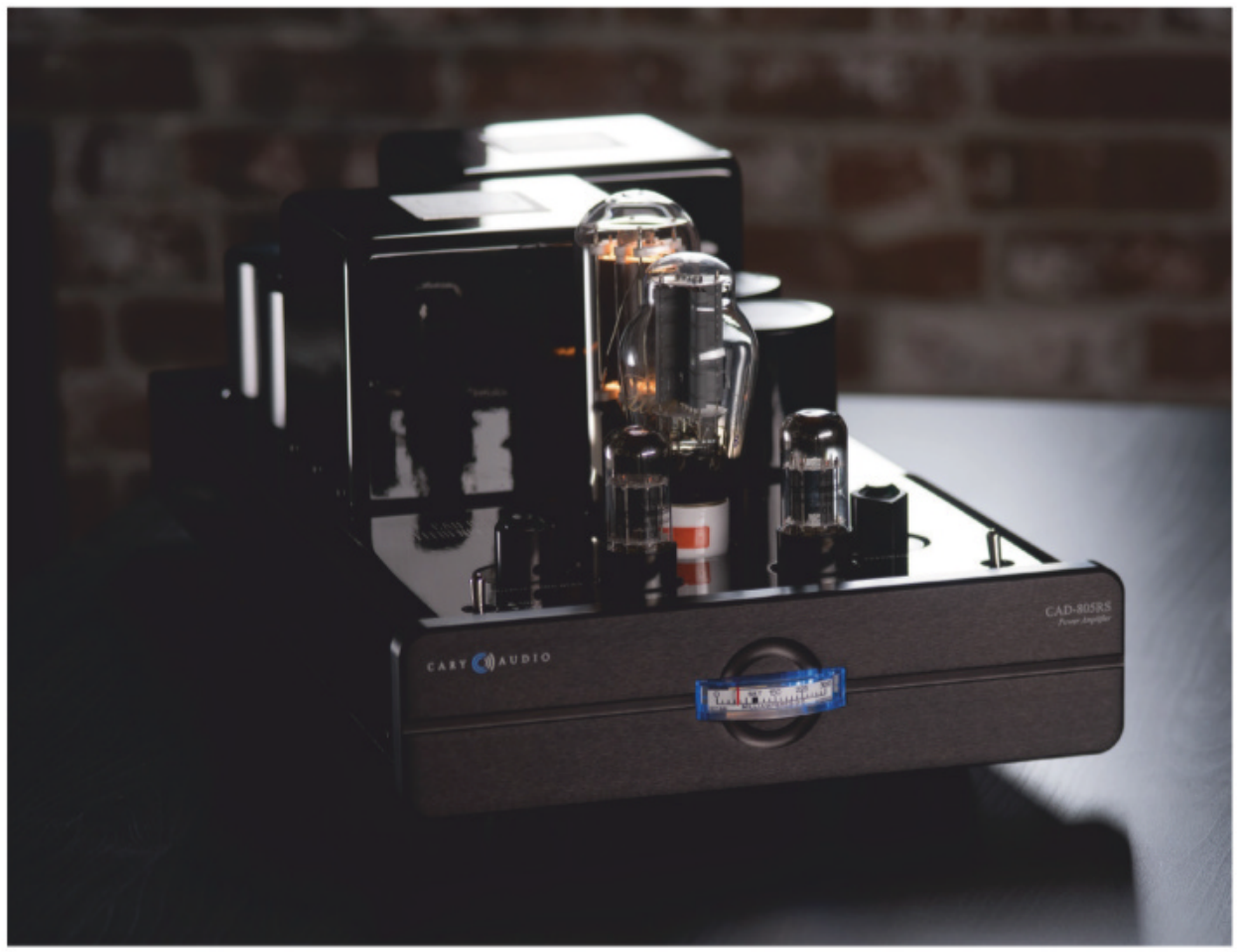


Fig.1 Cary CAD-805RS, 211 tube, 10dB feedback, frequency response from 4 ohm tap at 2.83V into: simulated loudspeaker load (gray), 8 ohms (blue), 4 ohms (magenta), 2 ohms (red) (1dB/vertical div.).



at their word and put the amps on the floor, next to my Box Furniture rack. The manual also suggests that the bias current for each amp's 300B driver tube has been set at the factory, but advises that the user check that amp's meter after 15 minutes of warmup and to adjust, if needed. Only once did I find that necessary: when I corrected a small dip in the bias current of the CAD-805RS assigned to my system's left channel (serial no. 180218).

Although I can't put a number to it—that will have to await John Atkinson's measurements—it was apparent from the start that the Carys produced a great deal of gain: Used with my Shindo Laboratory Monbrison preamp, itself a voltage-gain champ, the Carys were almost too much for my system, forcing me to keep the Shindo's volume setting near the bottom of its range. (Like all Shindo power amps, my Haut-Brion has individual left- and right-channel level controls, thus preventing such difficulties and also serving as a balance control.) Since most stereo volume pots exhibit poor channel tracking at the extreme low end of their range, I disregarded apparent anomalies in image location; that said, if there was a difference in gain between the two Carys, it might have gone unnoticed.

With the Carys powered up and the preamp's volume control turned down, a faint hum was audible from both speakers, but only when I placed an ear within inches of a woofer—never from my listening seat. Early in the listen-

measurements, continued

0dB setting increased these further, to 0.85 and 1.1 ohms. The impedance with 5dB of feedback from the 8 ohm tap at 1kHz was 1.4 ohms with the 845 tube, 1.86 ohms with the 211. The impedances from the 16 ohm tap with 5dB of feedback were 2.8 and 3.7 ohms. The highest output impedance with the 845 tube was 3.3 ohms at 20Hz from the 16 ohm tap with 10dB of feedback—still relatively low for a single-ended triode amplifier.

The modulation of the Cary's frequency response with the 4 ohm tap driving our standard simulated loudspeaker,[2] with the 211 tube and 10dB of feedback, was a fairly low ±0.5dB (fig.1, gray trace). The output rolled off rapidly above 20kHz, and a boost of up to 3dB, depending on the load impedance, can be seen in the low bass. The behavior was very similar with the 845 tube (fig.2), again measured from the 4 ohm tap with 10dB of negative feedback, but the low-bass boost is smaller. The same ultrasonic peak from the output transformer can still be seen, however, more fully developed into higher im-

2 See www.stereophile.com/content/real-life-measurements-page-2.

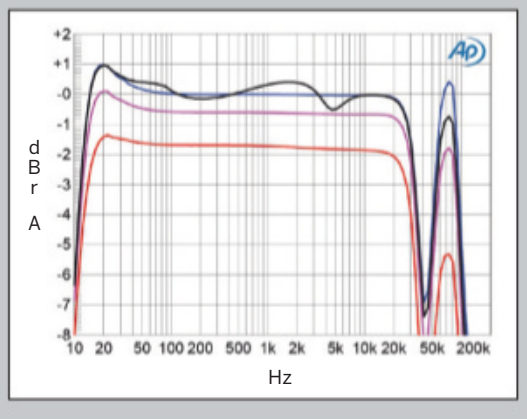


Fig.2 Cary CAD-805RS, 845 tube, 10dB feedback, frequency response from 4 ohm tap at 2.83V into: simulated loudspeaker load (gray), 8 ohms (blue), 4 ohms (magenta), 2 ohms (red) (1dB/vertical div.).

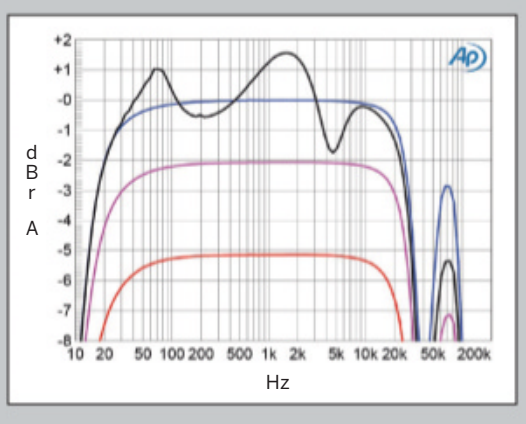


Fig.3 Cary CAD-805RS, 845 tube, 0dB feedback, frequency response from 16 ohm tap at 2.83V into: simulated loudspeaker load (gray), 8 ohms (blue), 4 ohms (magenta), 2 ohms (red) (1dB/vertical div.).

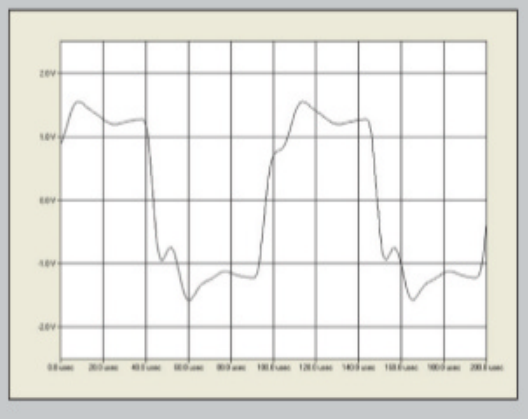
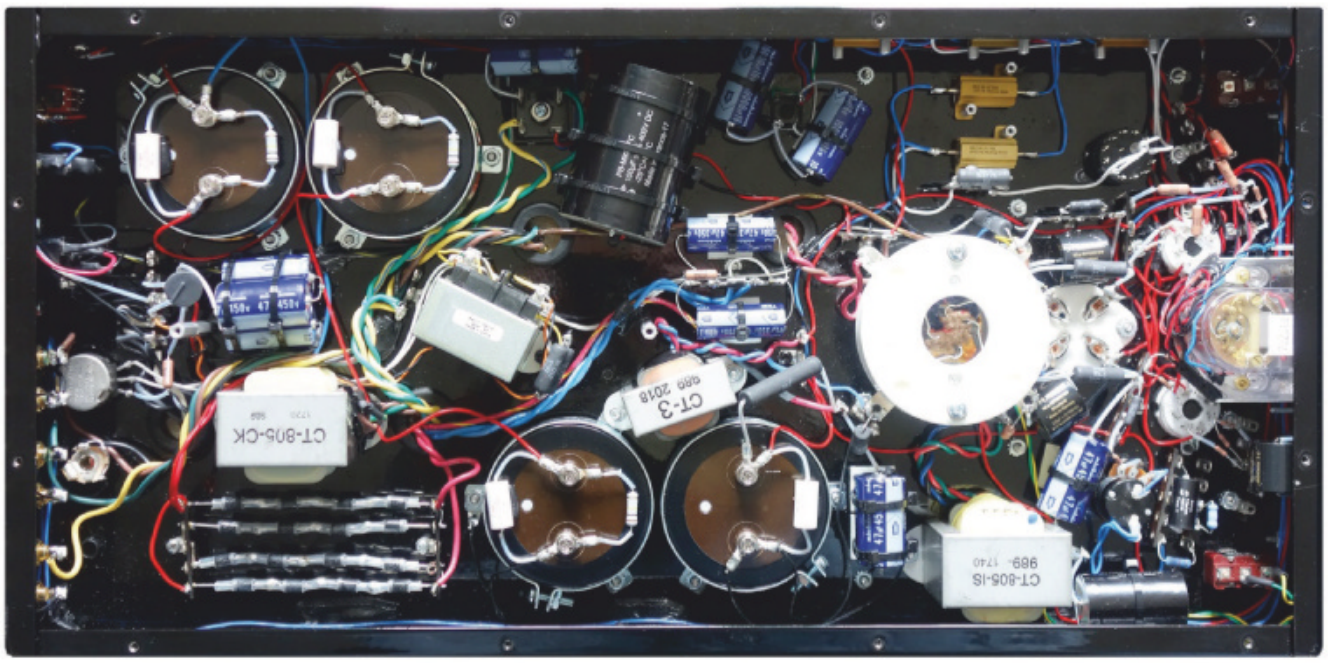


Fig.4 Cary CAD-805RS, 845 tube, 10dB feedback, 16 ohm tap, small-signal 10kHz squarewave into 8 ohms.



Single-ended output stages were common in the early days of consumer electronics.

ing period I played around with all the variables that came to mind, and discovered that while this hum wasn't present when I briefly swapped my push-pull Shindo Haut-Brion back into the system, it also wasn't affected by my choices of speaker cables, interconnects, or output tubes, or by the physical location of my phono step-up transformer. Plugging the Carys into my Shindo Mr. T isolation transformer also had no effect, although the noise was *slightly* louder—a difference at the very edge of audibility—when I switched the speaker cables from the Carys' 8 ohm to 16 ohm outputs, and was occasionally more audible during daylight hours than after dark. In the end, I attributed the faint hum not to a malfunction of any sort but to AC on the tube heaters—that it diminished in the evening, when noise pollution in my semi-urban neighborhood is presumably lower, seemed to support that guess.

A glimpse inside of one of Art's review samples. Just look at the size of those diodes (lower left)!

In any event, for most of the Carys' time in my system, I left their power cords plugged straight into my household AC, without power conditioning of any sort, and connected my DeVore Fidelity Orangutan O/93 speakers, which have a specified nominal impedance of 10 ohms, into the amps' 8 ohm outputs. With exceptions noted below, the CAD-805RSes were perfectly well behaved: They turned on and off without making *thumps* through the speakers, and my adjustments of the feedback and bias settings were equally silent.

Listening with 211 output tubes

Before the end of my first day with the Cary CAD-

measurements, continued

pedances. The peak was lowest in level from the 16 ohm tap with no feedback (fig.3), but the audioband response modulation was now a very audible ±1.7dB. The ultrasonic peak gave rise to some critically damped overshoot with a 10kHz squarewave (fig.4). A 1kHz squarewave (not shown) was superbly square, a tribute to the output transformer.

AD mentioned hearing a slight amount of hum; spectral analysis of the low-frequency noise floor (fig.5) showed that a power-supply–related spurious tone at 60Hz lay at –70dB ref. 1W from the 8 ohm tap into 8 ohms, and though higher-order supply harmonics are present, these are all much lower in level. The unweighted, wideband signal/noise ratio, taken with the 845 tube, the inputs shorted to ground, and no negative feedback, was a good 66dB from the 4 ohm tap, decreasing to 62.1dB from the 16 ohm tap. Applying 10dB of negative feedback increased these S/N ratios by 2dB, while an A-weighting filter in circuit gave a further improvement of up to 20dB.

Cary specifies the CAD-805RS as offering a maximum power of 27W in class-A (14.3dBW into 8 ohms) and 50W in class-A2 (17dBW into 8

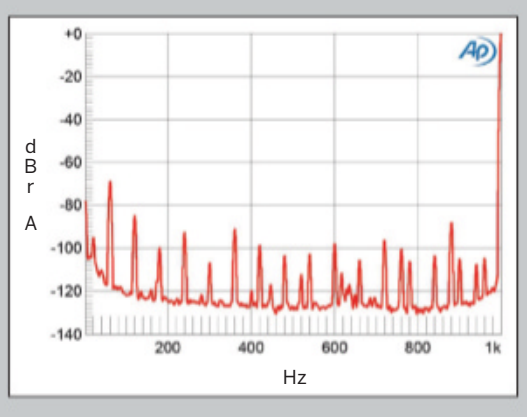


Fig.5 Cary CAD-805RS, 845 tube, 10dB feedback, 8 ohm tap, spectrum of 1kHz sinewave, DC–1kHz, at 1W into 8 ohms (linear frequency scale).

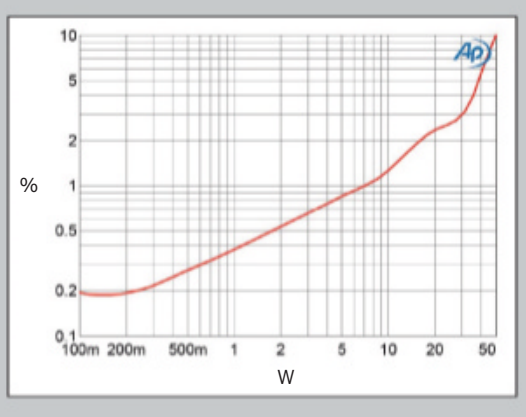


Fig.6 Cary CAD-805RS, 845 tube, 10dB feedback, distortion (%) *vs* 1kHz continuous output power from 4 ohm tap into 8 ohms.

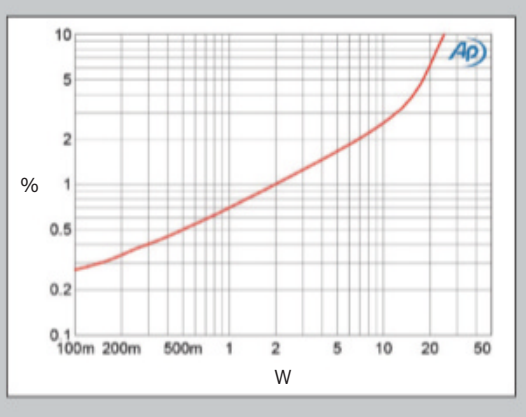


Fig.7 Cary CAD-805RS, 845 tube, 10dB feedback, distortion (%) *vs* 1kHz continuous output power from 4 ohm tap into 4 ohms.

805RSes—with the 211 output tubes in place, the speakers connected to the 8 ohm outputs, and the feedback turned off—I'd noted four characteristics that were consistent with every recording I played: The amps allowed music to sound physically bigger—in particular, *wider*—than did my Shindo amp; with stereo records, centrally positioned voices and solo instruments popped forward from the mix in a manner described in my notes as "pure, not-unexpected single-ended magic"; tones below, say, 100Hz were elevated in level relative to everything else; and the very highest tones, though not harsh, seemed strangely disconnected from the tones lower in frequency, in a manner I associate with the effects of a supertweeter whose crossover network has not been correctly dialed in (ask how I know). That disconnectedness went away in a couple of days, leaving the Carys' top end pleasantly extended and otherwise unremarkable; as for the excessive bass, I'll come back to that in a moment or two.

I can point to any number of stereo recordings whose spatial details were brought to palpable life by the Cary amps. That rightly praised chestnut, Fritz Reiner and the Chicago Symphony Orchestra's recording of Rimsky-Korsakov's *Scheherazade* (LP, RCA Living Stereo LSC-2446), comes to mind, as does the even-better-engineered recording of Mendelssohn's music for *A Midsummer Night's Dream* by Peter Maag and the London Symphony Orchestra (LP, Decca/Speakers Corner SXL 2060). But what sealed the deal for me was the way the CAD-805RSes made *less*-spectacular stereo recordings spatially compelling by separating featured performers from their audible surroundings—again, something I associate with good single-ended amplification. I recall no better example than the way Jerry Donahue's electric-guitar solos in Bob Dylan's "Too Much of Nothing," from Fotheringay's eponymous debut album (LP, Island ILPS 9125), eased their way to the front of the mix. This was also true of drummer Gerry Conway's ride cymbal on the same album's "The Pond and the Stream," and of many of Sandy Denny's lead vocals, even if those vocals sound a mite veiled on a couple of songs.

Fotheringay, the first record I played through the Carys after running them in for six hours or so, sounded colorful and engaging in every way. But it was the *second* record I played that won me over: the Mozart *Requiem*, with Roland Bader conducting the Stuttgart Philharmonic, the Böblingen Choir, and soloists (LP, Vox STPL 512.740). As I'd expected it might, through the Carys, this stereo recording sounded big, but here I had the distinct impression of the extreme left and right sides of the stage being farther forward than usual, as if the entire stage was curved—it was, for lack of better words, inviting and enveloping, even comforting. The timpani sounded sublime: Yes, they were probably too prominent, but they had tone and impact for days—I loved it!

Throughout the days that followed, the CAD-805RSes continued to distinguish themselves. Alfred Deller and the Deller Consort's recording of Purcell's "O Solitude" (LP, Harmonia Mundi HM 247) sounded breathtakingly good. Deller's distinctive countertenor was true of tone and texture, as was the bass continuo, and the sense of the singer's physical presence between my speakers was uncanny. This experience was also notable for the deep, almost chilling nothingness around the voice and the bass viola da gamba—to call it mere silence seems insufficient—that kept me riveted on the musical beauty and sonic color of the performance. Although the bass viol was more prominent through the Carys than through my Shindo, that wasn't bothersome, perhaps because the recording itself is far from bass-heavy.

I moved on to MoFi's recent and great-sounding remas-

measurements, continued

ohms). Defining clipping as when the THD+noise in the output reaches 1%, my measurements of the CAD-805RS's clipping power were lower than this. For example, fig.6 shows how the THD+N increases with power into an 8 ohm load, with the 845 tube and 10dB of feedback. The THD+N rises linearly, reaching 1% at 7.3W (8.6dBW) and 3% at 31W (14.9dBW).

Less power was available from the 4 ohm tap into 4 ohms (fig.7): 2.1W at 1% THD+N (2.1dBW) and 13W at 3% (8.3dBW). As I would expect, without negative feedback the THD+N percentage was higher at low powers (fig.8), with less power available at clipping: 4.2W (6.3dBW) at 1% THD+N and 10W (12.8dBW) at 3%.

The 211 tube gave the highest power from the 4 ohm tap into 8 ohms with 10dB of feedback (fig.9), 4.4W being available at 1% THD+N (6.4dBW) and 26W at 3% THD+N (14.15dBW). In general, the Cary amplifier offers the most power into loads that are higher than the nominal transformer-tap impedance and with the highest amount of feedback.

I then examined how the CAD-

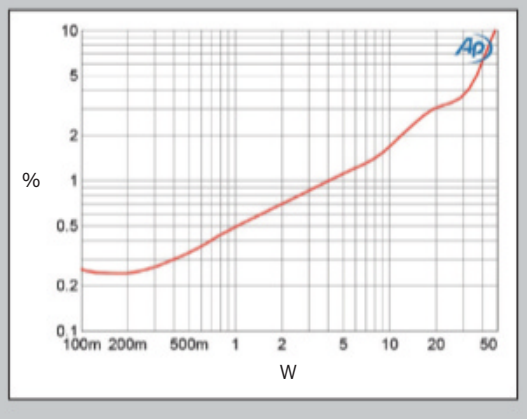


Fig.8 Cary CAD-805RS, 845 tube, 0dB feedback, distortion (%) *vs* 1kHz continuous output power from 4 ohm tap into 8 ohms.

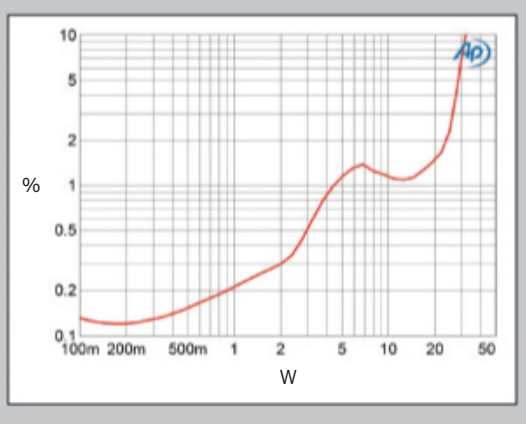


Fig.9 Cary CAD-805RS, 211 tube, 10dB feedback, distortion (%) *vs* 1kHz continuous output power from 4 ohm tap into 8 ohms.

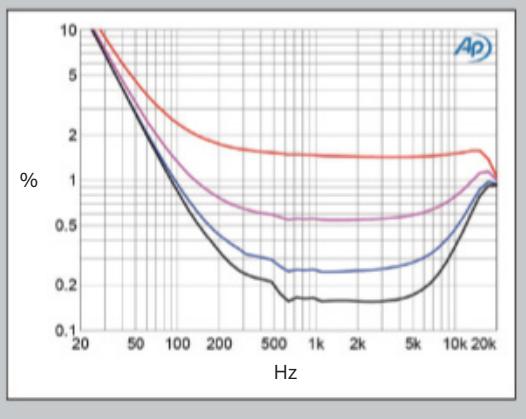


Fig.10 Cary CAD-805RS, 845 tube, 10dB feedback, THD+N (%) *vs* frequency at 2.83V from 8 ohm tap into: 16 ohms (gray), 8 ohms (blue), 4 ohms (magenta), 2 ohms (red).

tering of the Bill Evans Trio's classic *Sunday at the Village Vanguard* (2 45rpm LPs, Riverside/Mobile Fidelity Sound Lab Ultradisc UD1S 2-002). Again I delighted in the Carys' large-scale sound—but here the tendency toward excess bass made Scott LaFaro's double bass sound too prominent, with less-than-optimal pitch definition on some notes in the loose intro to "All of Me." At this point in the review I began to experiment with the CAD-805RS's feedback control, noting that turning that knob above 0dB made the deepest notes sound better controlled, with quicker note decays, even as it made Paul Motian's drumming sound a bit less forceful than with no feedback at all. I eventually hit on a feedback setting of 6dB as a good compromise: now bass notes were tighter and not quite as overpowering, if still more prominent than usual—while Motian's drumming remained appropriately explosive, if not quite as *dangerous* as before.

Caged heat: the Cary amp with its tube cage in place.

Listening with 845 output tubes

After spending another couple of days using the Carys with their 211 output tubes and 6dB of negative feedback, I powered down the system and swapped in the 845 output tubes, at first with the feedback controls set for 0dB. I went back to the Bill Evans album and found that the 845s without feedback sounded almost as tight as the 211s with, and the deepest bass notes, though still too generous, were in better balance with the rest of the audioband. And when I bumped the feedback up to the same 6dB setting that had produced the best sound with the 211 tubes, the lowest octaves became even clearer and more detailed—Scott LaFaro's *slides* became a new delight—without apparent penalty. Evans's piano chords remained richly colorful, and although the application of feedback made the piano clearer in its note decays, its sound remained the antithesis of *mechanical*: those chords bled realistically into the silence of their surroundings, and Evans's senses of touch and sheer strength were evident throughout the album.

measurements, continued

805RS's percentage of THD+N from the 8 ohm tap, with the 845 tube and 10dB of feedback, varied with frequency at 2.83V (equivalent to 0.5W into 16 ohms, 1W into 8 ohms, 2W into 4 ohms, and 4W into 2 ohms). The distortion was lowest in the upper midrange and low mid-treble into 16 ohms (fig.10, gray trace), and remained well below 1% into 8 ohms (blue trace) and 4 ohms (magenta). The THD+N rose a little in the top two octaves but considerably more in the bass, this due to saturation of the output transformer's core. Eliminating negative feedback but otherwise keeping everything the same doubled the level of THD+N in the midrange and treble (fig.11), but not at the extremes of the audioband. Replacing the 845 tube with the 211 gave THD+N *vs* frequency curves with similar shapes, but much higher distortion into low impedances (fig.12).

While in absolute terms the CAD-805RS produced relatively high levels of distortion even at low powers, its distortion signature was predominantly the subjectively benign second harmonic, which is consonant with music,

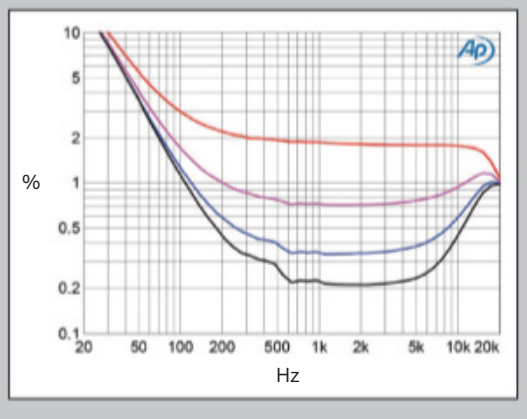


Fig.11 Cary CAD-805RS, 845 tube, 0dB feedback, THD+N (%) *vs* frequency at 2.83V from 8 ohm tap into: 16 ohms (gray), 8 ohms (blue), 4 ohms (magenta), 2 ohms (red).

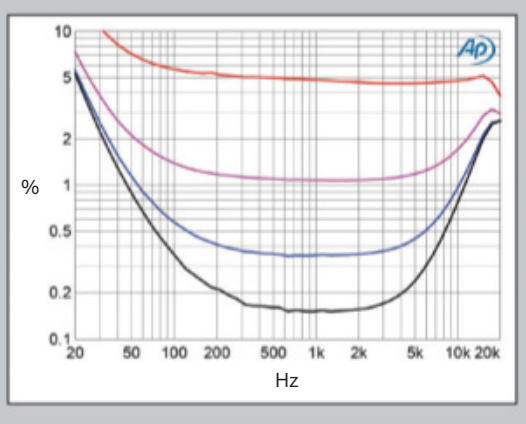


Fig.12 Cary CAD-805RS, 211 tube, 10dB feedback, THD+N (%) *vs* frequency at 2.83V from 8 ohm tap into: 16 ohms (gray), 8 ohms (blue), 4 ohms (magenta), 2 ohms (red).

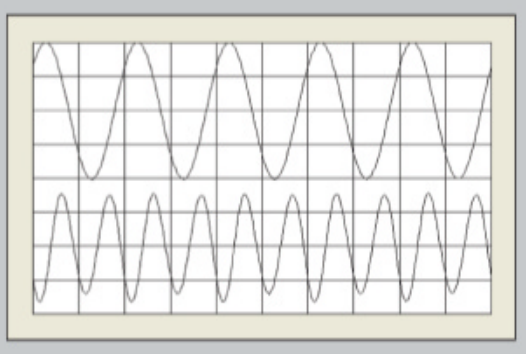


Fig.13 Cary CAD-805RS, 845 tube, 0dB feedback, 4 ohm tap, 1kHz waveform at 1W into 8 ohms, 0.284% THD+N (top); distortion and noise waveform with fundamental notched out (bottom not to scale).

I dipped into a big set whose surfaces I've barely scratched—Maria Callas's *Ses Récitals 1954–1969* (11 LPs, French EMI 26 165-54178-88)—to hear La Divina's performance, with Tullio Serafin and the Philharmonia Orchestra, of "Signor ascolta" and two other arias from Puccini's *Turandot*. Although the Carys weren't as dynamically nuanced as my Shindo stereo amp, they were just as good at honoring Callas's tone, and at conveying the drama behind the big ensemble pizzicati in the strings.

Mott the Hoople's brilliant and sadly underappreciated *Brain Capers* (LP, Atlantic SD-8304), the group's last before ditching longtime producer Guy Stevens in favor of David Bowie, remains one of my favorite Saturday-morning wake-up records; it also proved useful in determining whether the single-ended Carys could rock. In a word, yes. Used with the right speakers, good single-ended tube designs have always impressed me as being freer from timing distortions than many other amps, and with the companionably sensitive DeVore O/93s the Carys sounded very good indeed. Heavy though Peter "Overend" Watts's electric bass sounded, it wasn't sluggish, and the great, galloping drums of Dale "Buffin" Griffin—like Watts, now dead and gone—were a delight.

By the end of the Carys' time in my home, I realized that I clearly preferred the 845 tubes to the 211s.

Conclusions

Through that last day in my listening room, the sound of Cary Audio's CAD-805RS monoblocks was thoroughly engaging: I enjoyed every record I played through them, and though their deep-bass response was too generous, it was never unmusical—and was often decidedly fun.

No less important, evaluated solely on the basis of the quality of parts and the apparent amount of labor that have gone into it, the US-made CAD-805RS offers good value. I have a rough idea of what it costs to make just the transformers in this amp; although [redacted]/pair isn't chicken chow, I find it difficult to imagine how two of these can be sold at retail for that price.

Twenty-five years after we first wrote about Cary Audio's flagship single-ended amp, the product and its genre endure. That the quirks of that genre also endure—the CAD-805RS was scarcely a bride of quietness—will mildly disappoint some, but will prove no obstacle to those adventuresome souls who crave from their playback systems, above all else, beauty. To them, the Carys speak a rare truth. ■

ASSOCIATED EQUIPMENT

Analog Sources Garrard 301 turntable; Audio-Creative GrooveMaster II, EMT 997 tonearms; EMT TSD 15, Ortofon SPU A Wood, Shindo Laboratory SPU pickup heads; Koetsu Onyx Platinum cartridge.
Digital Source Mytek Liberty D/A processor, Sony SCD-777 SACD/CD player.
Preamplification Auditorium 23 Hommage T1 & T2 step-up transformers, Shindo Laboratory Monbrison (2017) preamplifier.
Power Amplifier Shindo Laboratory Haut-Brion.
Loudspeakers DeVore Fidelity Orangutan O/93.
Cables Interconnect: Audio Note AN-Vx, Luna Red, Shindo Laboratory. Speaker: Auditorium 23, Luna Red. AC: manufacturers' stock.
Accessories Box Furniture Company D3S rack (source & amplification components), Audiodesksysteme Gläss Vinyl Cleaner Pro. **—Art Dudley**

measurements, continued

comprising tones an octave higher than every spectral component (fig.13). This remained the case at low frequencies, though the third, fourth, and fifth harmonics made appearances, albeit at lower levels (fig.14). This graph was taken with AD's preferred conditions, the 845 tube and 8 ohm transformer tap with 6dB of negative feedback. Replacing the 845 with the 211 tube gave slightly lower levels of second-harmonic distortion (fig.15). With an equal mix of 19 and 20kHz tones and the signal peaking at 1Wpc into 8 ohms from the 8 ohm tap, with the 845 tube and 6dB of feedback, the second-order difference product at 1kHz was at an audible –40dB (1%) (fig.16), though higher-order products were much lower in level.

The measured performance of Cary Audio's CAD-805RS was pretty much what I'd expected from a tube design using a single-ended triode as its output stage (see "As We See It," p.3). But it does suggest that the big Cary will give of its best with high-impedance, high-sensitivity speakers, such as the DeVore Fidelity Orangutan O/93s AD used for his listening. **—John Atkinson**

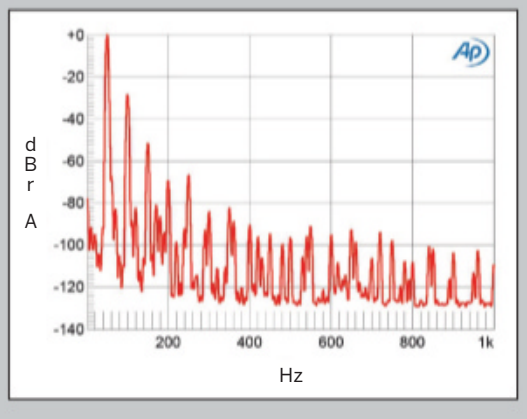


Fig.14 Cary CAD-805RS, 845 tube, 6dB feedback, spectrum of 50Hz sinewave, DC–1kHz, at 1W from 8 ohm tap into 8 ohms (linear frequency scale).

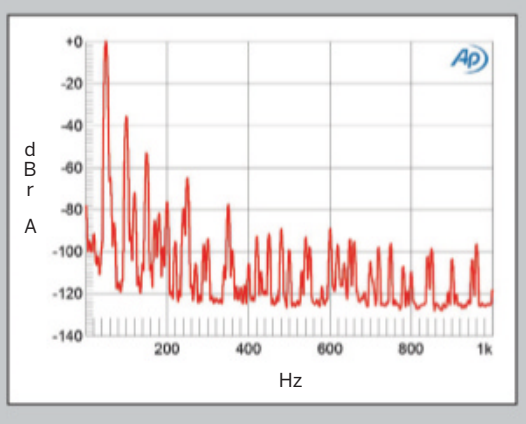


Fig.15 Cary CAD-805RS, 211 tube, 6dB feedback, spectrum of 50Hz sinewave, DC–1kHz, at 1W from 8 ohm tap into 8 ohms (linear frequency scale).

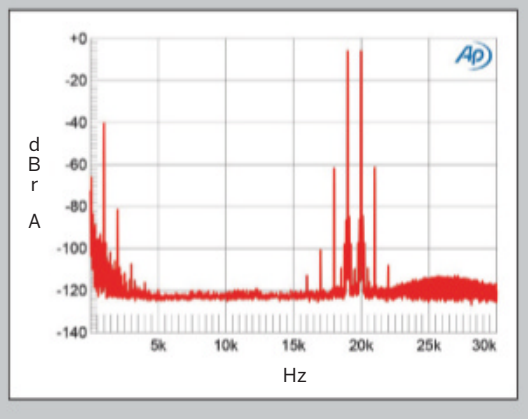


Fig.16 Cary CAD-805RS, 845 tube, 6dB feedback, HF intermodulation spectrum, DC–30kHz, 19+20kHz at 1W peak from 8 ohm tap into 8 ohms (linear frequency scale).