

For Single Print Only

# stereophile

ONLINE AUTHORITY:  
WWW.STEREOPHILE.COM

ELECTRONICALLY REPRINTED FROM AUGUST 2017

ART DUDLEY

## Bryston BCD-3

CD PLAYER



The English saying “putting the cat among the pigeons” has an obvious meaning in a general sense, but when applied to commerce it conveys something more specific: bringing to market a product that will make mincemeat of the competition, presumed complacent by comparison.

The phrase winked at me from the margins of an e-mail I received last year from Gary Dayton, Bryston Audio's VP of sales and marketing, whom I know from my visits to the Montreal Audio Fest. Referring to my ongoing series of reviews of *ca.*\$10,000 CD players—the best of which one might consider for the title *The Last CD Player You'll Ever*

**Some of the playback products I most love are those that work in mysterious ways.**

Buy—Dayton suggested I have a listen to his company's new BCD-3, which retails for the comparatively low price of \$3495. I accepted almost at once, and set about adjusting an English saying

for a Canadian product: With the BCD-3, has Bryston succeeded in putting the wolverine among the loons?

### Description

I've never visited Bryston's Peterborough, Ontario factory—just 5 hours and 43 minutes from my home in central

### SPECIFICATIONS

**Description** CD player.  
Formats: CD, CD-R, CD-RW.  
Analog outputs: 1 balanced (XLR), 1 single-ended (RCA). Digital outputs: 1 AES/EBU (XLR), 1 S/PDIF (RCA). Output voltage: 4V balanced, 2V single-ended. Frequency response: 20Hz–20kHz,  $\pm 0.1$ dB. Noise:

–140dB. Intermodulation distortion: <0.0003%. THD+noise, 20Hz–20kHz: <0.001%.

**Dimensions** 19" (483mm) W by 3.325" (85mm) H by 11.53" (293mm) D. Weight: 8.8 lbs (4kg).

**Finishes** Black, silver.

**Serial number of unit**

**reviewed** 00140.

**Price** \$3495; BR2 remote control, \$375 (\$150 when purchased with BCD-3).

Approximate numbers of dealers: 295. Warranty: 5 years, parts & labor.

**Manufacturer** Bryston Limited, PO Box 2170, 677 Neal Drive, Peterborough,

Ontario K9J 6X7, Canada.

Tel: (800) 632-8217,

(705) 742-5325.

Fax: (705) 742-0882.

US: Bryston Service USA,

30 Coventry Street,

Newport, VT 05855.

Tel: (802) 334-1201.

Fax: (802) 334-6658.

Web: [www.bryston.com](http://www.bryston.com).

upstate New York, according to MapQuest—nor have I written about a Bryston product before now.<sup>1</sup> Notwithstanding a tendency for introspection that borders on the unhealthy, I have no idea why this should be, though at times I wonder if my Bryston apathy might have been a reaction to the Bryston look, which is utilitarian in the extreme. For instance, in their line of electronics, products abound that are exactly 19" wide—the industrial rack width established in the 1920s by AT&T and ultimately codified by the Electronic Industries Alliance (EIA).<sup>2</sup> That size and that look are a little less domestically adaptable than I prefer.

So it is with the BCD-3, which adds to that dimension<sup>3</sup> a depth of 11.53" and a height of 3.325". Its satin-finish aluminum faceplate, available in silver or black, is engraved with Bryston's distinctive fat-letter logo, and has at its center a CD drawer, flanked on one side by a digital readout and an open/close button switch, and on the other by a button switch for power, plus another 10 buttons for the usual CD playback controls. (Unless a flamethrower and an ejector seat are included, I think left-to-right descriptions of every button on a dashboard are as tedious to write as they are to read, so I'm sparing both of us.)

On the rear panel, in addition to an IEC power socket, are balanced and single-ended analog output jacks (XLRs for the former, RCA's for the latter), plus AES/EBU and S/PDIF digital outputs (ditto), as well as another four jacks in a group marked Control: 3.5mm mini-jacks labeled RS232 and Trigger In, plus Ethernet and USB (type B) sockets. The Ethernet socket is provided for connection to the user's home network, and makes possible firmware updates without having to ship the unit back to Bryston. (Either a NetBIOS name or the unit's own numerical IP addresses can be used; the latter is displayed on the digital readout

by pressing the Stop button when a network-connected BCD-3 is not playing.) The USB socket is for control and diagnostics only: The BCD-3 has no digital input of any sort. As Bryston states on their website (I'm paraphrasing), the idea behind the BCD-3 was to make the best possible product for enjoying music from 16-bit/44.1kHz "Red Book" CDs, to the exclusion of all other digital formats, physical and virtual.

Inside the BCD-3's enclosure, which is covered with a texture-finished aluminum wrap, are a chunky toroidal transformer, an array of solidly neat-looking circuit boards, and a metal-encased (as opposed to plastic) disc transport from the Austrian manufacturer StreamUnlimited. Regarding the latter, CEO James Tanner told me via e-mail that Bryston buys these transports "in bulk, so, barring the unforeseen, we always have enough for repair." The BCD-3 was designed by engineer Dan Marynissen, who also designed Bryston's BDA-3 DAC, which Larry Greenhill reviewed in the November 2016 *Stereophile*.<sup>4</sup> Like the BDA-3, the BCD-3 uses as its DAC chip the AK4490 from Asahi Kasei Microdevices (AKM)—two per channel, in differential mode. In that regard, this Bryston CD player differs from its predecessor, the BCD-1, which had only one DAC chip per channel (and which also had a plastic disc transport). In the BCD-3's analog output section, which operates in class-A, all gain and buffering devices are discrete.

1 Nor have I ever visited McIntosh Laboratory, in Binghamton, New York, despite my having spent much of my life in a town just one hour from there—a puzzle for another day.

2 Then again, given the symbiosis between AT&T and Western Electric, perhaps I should reconsider?

3 Like other 19"-wide Bryston models, the BCD-3 is also available in a non-rack-mount version with a 17"-wide faceplate.

4 See [www.stereophile.com/content/bryston-bda-3-da-processor](http://www.stereophile.com/content/bryston-bda-3-da-processor).

## MEASUREMENTS

As with the Hegel Music Systems Mohican, which we reviewed in the May issue, the Bryston BCD-3 has no digital inputs of any kind. This limited my measurement of its technical behavior to using 16-bit test files burned to a CD-R. (I sometimes had to eject and reload a CD-R several times before the BCD-3 would play it.) I tested the Bryston with my Audio Precision SYS2722 system (see the January 2008 "As We See It," <http://tinyurl.com/4ffpve4>).

The Bryston's error correction was excellent—no glitches were apparent in the player's output until the single gaps in the data spiral on the Pierre Verany Digital Test CD reached 2mm in length, or the closely spaced double gaps reached 1.5mm. (The Compact Disc standard, the so-called "Red Book," requires only that a player cope with gaps of up to 0.2mm.) The maximum output level from the unbalanced outputs was 2.02V; as expected, it was

twice that value from the balanced outputs, at 4.05V. Both outputs preserved absolute polarity (ie, were non-inverting). The balanced output impedance was a low 143 ohms at 20kHz and 1kHz, rising inconsequentially to 160 ohms at 20Hz; the unbalanced impedance was 72 ohms at 20kHz and 1kHz, 77 ohms at 20Hz.

Fig.1 shows the BCD-3's impulse response; it's typical of a minimum-

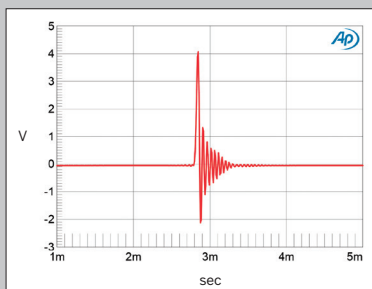


Fig.1 Bryston BCD-3, impulse response (one sample at OdBFS, 4ms time window).

phase reconstruction filter, with all the ringing occurring after the single sample at OdBFS. Tested with white noise sampled at 44.1kHz, the BCD-3's output rolled off quickly above 20kHz (fig.2, red and magenta traces), but hadn't reached full attenuation by the Nyquist frequency, 22.05kHz (fig.2, vertical green line). Nevertheless, the aliased image at 25kHz of a full-scale 19.1kHz tone (blue, cyan) is suppressed

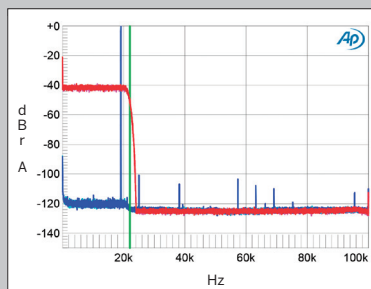


Fig.2 Bryston BCD-3, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at OdBFS (left blue, right cyan), with CD data (20dB/vertical div.).

### Installation and setup

There's only so much one can say about installing a CD player. Heck, *install* seems too pompous a word. I took it out of its carton—Bryston's packaging is *echt* professional, as you'd expect from a company that's been in business more than 35 years—and plunked it on a short, half-width Box Furniture stand that John DeVore loaned me ages ago. I connected it to my household current with its stock AC cord, and to my preamp with my well-loved Audio Note AN-Vx silver interconnect, and that was that.

The only thing I did that was the least bit out of the ordinary for me was to try using the optional BR2 remote handset (\$375 or \$150 when purchased with BCD-3), with which a variety of Bryston products can be controlled, and which duplicates but does not supplement the controls on the BCD-3's front panel. I usually avoid remotes in audio-playback settings, partly because they encourage a superficiality in the relationship between a listener and his or her music—I am an unashamed fan of *ritual*, of regarding the playback of every recording as a special moment—and partly because they're usually cheap, horribly made, nonintuitive, and ugly. At the very least, the BR2 took aim at some of those last descriptors: It's well made, with an aluminum enclosure and aluminum buttons, and it's pleasant to hold and not unpleasant to look at. Also in the BR2's favor is the motion-activated backlight for its control panel, which comes on automatically when the handset is lifted—and only when lights are low.

During its time in my system, the Bryston ran cool to the touch and performed without flaw, save for one isolated incident: The first time I tried to play an SACD/CD, the BCD-3 balked. The disc didn't play, and the word *Reading* remained in its front-panel display for several seconds, until

I ejected the disc and reinserted it. After that, the BCD-3 found all of its tracks; the problem never recurred, with that or with any other hybrid disc.

### Listening

It's early May as I write this, a time when my thoughts turn to bluegrass music and the many good bluegrass festivals that are just around the corner in this part of the US. (The Grey Fox Bluegrass Festival, in Oak Hill, New York, remains my favorite.) So after running in the Bryston player for a few days, I started off with the title track from *Fork in the Road*, by the Infamous Stringdusters (Sugar Hill SUG-CD-4021), a young band that's equally adept at traditional and progressive bluegrass. I was at once impressed by the BCD-3's ability to communicate both detail and a genuinely good sense of physicality—that kind of sonic presence Herb Reichert and I often refer to as flesh and blood. Andy Hall's lead vocal was colorful and present sounding, and Travis Book's double bass had the right balance of rich resonance and pitch certainty. The too-brief guitar solo by Chris Eldridge—now a member of the Punch Brothers, as well as part of a duo with the no-less-amazing Julian Lage—was appropriately snarly, and Chris Pandolfi's banjo was rich with trebly overtones, though not to the point of *clatter*.

That good physicality stayed with the Bryston as I moved on to a few of my favorite piano CDs. Ivo Janssen's recording of J.S. Bach's Prelude in e-flat (BWV 853), from his recording of *The Well-Tempered Clavier* for the Nederlands Bach Collegium (4 CDs, Void 9805 AB/9808 AB), moves along at a more or less steady, gracefully flowing pace—at the other end of the spectrum is Ralph Kirkpatrick's engagingly idiosyncratic phrasing in his 1959 recorded performance on an Arnold Dolmetsch clavichord (2 LPs, Archiv 198

by 100dB. Note also how low the distortion harmonics of that tone are. The blue and red traces in fig.3 show the Bryston's audioband response taken with spot tones; it is flat, and reveals excellent channel matching. The cyan and magenta traces in this graph show the response with preemphasized data. The slight lack of energy in the mid-treble seems to be typical of modern CD players—the Hegel Mohican behaved

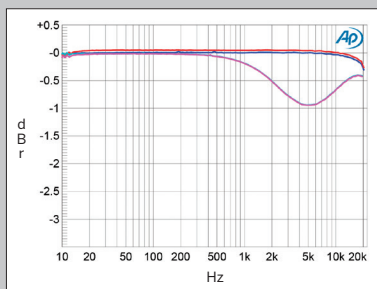
identically,<sup>1</sup> perhaps due to the fact that it uses the same AKM AK4490 DAC chip as the BCD-3.

Channel separation (not shown) was superb, at >120dB above 200Hz, while the analog noise floor (fig.4) was both very low in level and free from any power-supply-related artifacts. In fact, this graph actually shows the low-frequency spectrum of the dither noise used to encode the 16-bit test signal.

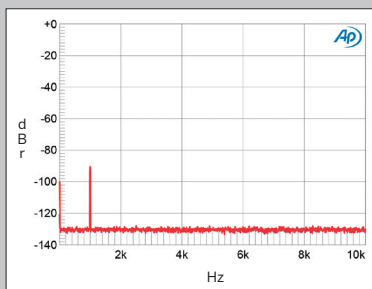
With undithered data representing a 1kHz tone at exactly -90.31dBFS, the Bryston's low self-noise allows the minimum-phase ringing on the waveform transitions to be clearly seen (fig.5). The three DC voltage levels described by the data are well defined.

Confirming the low distortion seen in fig.2, the spectrum of a full-scale

<sup>1</sup> See fig.3 at [www.stereophile.com/content/hegel-music-systems-mohican-cd-player-measurements](http://www.stereophile.com/content/hegel-music-systems-mohican-cd-player-measurements).



**Fig.3** Bryston BCD-3, frequency response at -12dBFS into 100k ohms, without deemphasis (left channel blue, right red) and with deemphasis (left cyan, right magenta) (0.6dB/vertical div.).



**Fig.4** Bryston BCD-3, spectrum with noise and spurs of dithered 16-bit, 1kHz tone at -90dBFS (left channel blue, right red) (20dB/vertical div.).



**Fig.5** Bryston BCD-3, waveform of undithered 16-bit, 1kHz sine wave at -90.31dBFS (left channel blue, right red).





311/12)—and the Bryston found enough nuances in dynamics and touch that Janssen's relatively *subtly* dramatic Bach held me spellbound. (By comparison, my Sony SCD-777 SACD/CD player rendered this somewhat dynamically dull and uninteresting.) When Janssen slightly increases the intensity of his left hand about 1:40 into the piece and again at 3:12, those notes had what seemed the correct, and ultimately believable, sense of force. Additionally, the room sound was perfect, with note decays that were neither too abrupt nor too generous—the very realistic decay of the final E-flat (*ca* 77.8Hz) was a die-away to die for.

Procol Harum's *Something Magic*, the last of the band's albums before a 14-year hiatus and their 1991 reunion, has a troubled history, beginning when producers Ron and

**The very realistic decay of the final E-flat was a die-away to die for.**

Howie Albert (Bee Gees, Eric Clapton, *et al*) rejected most of the songs written for the collection, and ending with scant sales

and a critical savaging that endures to this day ("something quite awful" was how *Mojo's* reviewer put it in 2002). Yet its 2009 CD reissue (Salvo CD029) restores, in demo version, two of the rejected numbers, both very strong; and because the two songs were recorded live in the studio, the recording quality is superb, especially for the stately "You'd Better Wait," which features a very direct-sounding, upfront vocal from Gary Brooker. Compared with my long-in-the-tooth Sony player, which led me to believe that a bit of top-end glare in the vocal's dynamic peaks was endemic to the origi-

## measurements, continued

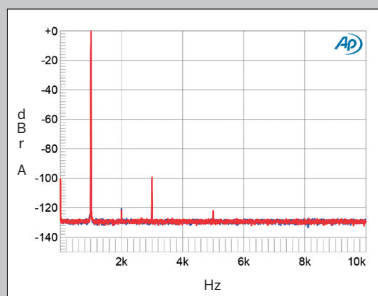
1kHz tone is very clean (fig.6), with just the third harmonic at 2kHz visible—and even then, it lies at -100dB (0.001%). I then tested for intermodulation distortion with an equal mix of 19 and 20kHz tones; the resultant spectrum looks hashy in the audioband (fig.7), but this is an artifact of the 16-

bit encoding. Actual intermodulation products are very low in level even into 600 ohms, as are the aliased images at 24.1 and 25.1kHz.

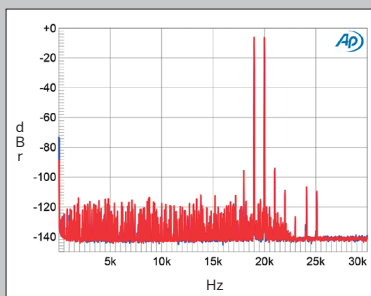
Finally, though there is a slight widening at the base of the spectral spike in fig.8 that represents the high-level tone at exactly one-quarter the sample

rate, all the odd-order harmonics of the LSB-level, low-frequency squarewave lie at the correct levels, shown as the sloping green line. The BCD-3 offers excellent rejection of word-clock jitter.

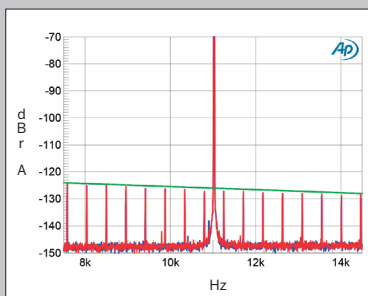
This Bryston CD player's measured performance reveals superb audio engineering. —John Atkinson



**Fig.6** Bryston BCD-3, spectrum of 1kHz sinewave, DC-1kHz, at 0dBFS into 100k ohms (left channel blue, right red; linear frequency scale).



**Fig.7** Bryston BCD-3, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 0dBFS into 600 ohms (left channel blue, right red; linear frequency scale).



**Fig.8** Bryston BCD-3, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: CD data (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range,  $\pm 3.5$ kHz.

nal recording, the BCD-3 presented the whole of it without such distortions, and with fine color and clarity. The Bryston also seemed to increase the recording's dynamic range—through it, the difference in loudness between the vocal and the instrumental backing appeared greater—and rendered more audible guitarist Mick Grabham's subtle volume-knob swells.

Speaking of great records that never saw the light of day, in November of last year producer and Sierra Records CEO John Delgatto released the Gene Clark compilation *The Lost Studio Sessions: 1964–1982*, which mixes solo guitar-and-voice demos with full-band performances. Highlights of the latter include Clark's 1970 recording, with the Flying Burrito Brothers, of the Herb Reichert favorite “She Darked the Sun,” which I enjoyed on the SACD/CD edition (Sierra SACD 7001).<sup>5</sup> The BCD-3 honored the crisp, close-up recording style without letting the sound become harsh or brittle. On the other hand, although the Bryston's pacing and drive were faultless, the BCD-3 did nothing to cover up the grit and grain on the 2009 CD remastering of *With the Beatles* from *The Beatles in Mono* box. Ringo's first hi-hat strike in “All I've Got to Do” was just as painful as it is through my Sony—which, if nothing else, suggests that the Bryston's good sound doesn't come from smoothing over the cracks in standard recordings or remasterings.

Just as my 1990s Bruckner fixation seems, these days, to be resurging, so too is my interest in Mahler's symphonies. Lately, Eliahu Inbal's recording of the *Adagio* of Mahler's Symphony 10 with the Frankfurt Radio Symphony Orchestra (2 CDs, Denon 60CO-1566-67) has found its way back to the top of the pile. The Bryston succeeded in putting across Inbal's really fine grasp of the structure of every line (why isn't he better known?), and played the piece with good tone from the strings and, especially, the horns, which Inbal also controls to great effect. The infamous *big* chord was appropriately unsettling, and the pizzicato cellos that precede and follow it were conveyed with a nice sense of touch, especially considering that this Denon recording isn't among the most vivid ever made. (It's a little pallid, especially for this music.)

Which begs the question: Given suitable recordings, could the Bryston do color—which is to say, could it do vivid, well-saturated, near-psychedelic, yet believably natural instrumental and vocal color? It could and it did—but only when called for, and always right up to the border that separates real from unreal saturation and “hue” but never beyond. Instrumental and vocal sounds—especially massed voices, horns, woodwinds, and percussion instruments such as bells, gongs, and xylophone—were indeed vivid on the 1960 recording of Puccini's *Turandot* with Birgit Nilsson, Jussi Björling, *et al*, and Erich Leinsdorf leading the Rome Opera Orchestra and Choir (2 CDs, RCA Victor 62687-2). The no-less-remarkable mono recording of Mahler's Symphony 1, by Dimitri Mitropoulos and the Minneapolis Symphony Orchestra (Sony Classical MHK 62342), was no less successful at teasing radiant instrumental sounds from the otherwise dull air between my speakers. And the recording by members of La Gaia Scienza of Brahms's Piano Quartet 3 in c (Winter & Winter 910 052-2)—a CD that I enjoy a little more every time I play it—came across with believably fulsome colors, not to mention the sort of very good stereo imaging in which the performers' positions on stage are described in an unfussy manner, and that entertained me without drawing my attention away from the music itself.

## ASSOCIATED EQUIPMENT

**Analog Sources** Garrard 301 turntable; EMT 997 tonearm; EMT OFD 15 & TSD 15, Ortofon SPU #1S, Shindo Laboratory SPU pickup heads; Denon DL-103 cartridges, with and without MusiKraft body.

**Digital Sources** AudioQuest DragonFly Red, Halide Design DAC HD USB DACs; Apple iMac computer (late 2015) running OS 10.12.1 & Roon v1.2, Build 165; Sony SCD-777 SACD/CD player.

**Preamplification** Auditorium 23 Hommage T1 & T2 step-up transformers; EMIA Phono transformer (copper); Sentec EQ11 phono preamplifier; Shindo Laboratory Masseto & Monbrison preamplifiers.

**Power Amplifier** Shindo Laboratory Haut-Brion.

**Loudspeakers** Altec Flamenco.

**Cables** USB: AudioQuest Carbon. Interconnect: Audio Note AN-Vx, Luna Grey & Red, Shindo Laboratory. Speaker: Auditorium 23. AC: Luna Orange, manufacturers' stock cords.

**Accessories** Box Furniture Company D3S rack (source & amplification components), Audiodesksysteme Gläss Vinyl Cleaner Pro.—Art Dudley

Note attacks, especially from the violin and viola, were believably crisp, as were instrumental textures—and the room sound was, again, convincing.

## Conclusions

Has Bryston indeed succeeded in putting a big wolverine among the somewhat smaller wolverines? Quite possibly. Apart from a lingering disappointment that the BCD-3 lacks the ability of some of its competitors to play music streamed from my computer, I came to regard it as that rarity of rarities: a high-end CD player without apparent flaw. It's not enough to say that the BCD-3's sound was well balanced from bottom to top: Its treble performance, in particular, proved sufficient to let a bright recording sound bright, yet the quality of that treble was such that the player never used brightness as a tool to pry unnatural information from natural-sounding discs. For a listener such as I, who has enjoyed a number of digital source components whose musicality results from discarding or spackling-over treble information, this sort of sound is remarkable.

I'll take that a step further: Now as always, some if not most of the playback products I most love are those that work in mysterious ways: the artisanal, the antique, the natural, the rare, the intuitively rather than the merely logically designed. But sometimes—perhaps especially as an addition to a system comprising such products—there's something to be said for a product whose designer's apparent goal was simply to reduce distortion. As here.

But you could forget all that: In today's parlance, the Bryston BCD-3 simply is what it is—an apparently well-designed and exceptionally well-made CD player that succeeded in connecting me with most of the music I asked it to play, and that offers very good value for the money. I could easily, happily live with it, and can just as easily recommend it. ■

<sup>5</sup> *The Lost Studio Sessions* is also available as a two-LP set (Sierra SHF 1002).