THE FIFTH ELEMENT by JOHN MARKS

THIS ISSUE: ATC updates its loudspeakers; analog master tapes made better than new.

Middle Child Syndrome

In 1974, in England, Australian Reverse-Pommy pianist and recording engineer Billy Woodman founded the Acoustic Transducer Co. (ATC) as a maker of loudspeaker drive-units. That makes ATC a few years younger than Spendor (1969) and a few years older than Harbeth (1977). When I mentioned all that to a quick-witted audio buddy, he immediately came back with "Middle Child Syndrome!"

It does seem that ATC has gotten less attention in the US than its older and younger British siblings. In an effort to rectify that, ATC is updating their loudspeaker designs and changing their US distribution arrangements.

ATC developed the first soft-dome midrange driver, and pioneered self-contained active (*ie*, powered) speakers. The company remains independently owned, and their products—which include preamplifiers, power and integrated amplifiers, a CD player–DAC, and a new CD receiver with USB input—are made in England. Celebrity owners of ATC speakers include T Bone Burnett, Coldplay, Enya, Diana Krall, Lenny Kravitz, Ziggy Marley, Tom Petty, Pink Floyd, the late Lou Reed, the Rolling Stones, Paul Reed Smith, Sting, and Roger Waters. The last pair of loudspeakers *Stereophile* founder J. Gordon Holt purchased were ATCs.

ATC offers both Professional and Consumer lines of speakers, the latter in wood veneers and, usually, in both passive and active versions. The four models in their Consumer Entry Series, including the entry-level Entry SCM7, are passive only. All of ATC's Professional speakers are active, with some also available in passive form. With two exceptions, the pro models are offered in a finish of semigloss black paint.

In many instances, ATC constructs pretty much identical speaker designs for both markets. One such pair of twins is the SCM50, with ATC's 1" soft-dome tweeter, 3" dome midrange, and 9" woofer. The Consumer SCM50 is available (as active or passive) in a choice of Black Ash, Cherry, Maple, Oak, Pippy Oak, Rosewood, and Walnut, or (by special order) in a veneer of any legally available hardwood. The Professional SCM50 is available (as active or passive) in black paint, and has a blanked-off cutout on the front panel to enable relocation of the tweeter above the midrange driver if the cabinet is to be positioned horizontally rather than vertically. The passive pro model uses a Speakon connector for its amplifier input.

However, such design twinship is not always the case. The entry-level SCM16A Pro and SCM20ASL Pro active monitors (both about to be replaced, though old stock may still be available) have distinctive aluminum cabinets with curved sidewalls and radiused front panels and edges, built-in front-panel tilt-back, and no grilles. Those two aluminum cabinets are unique to the Pro line. There are also Pro models with double woofers that lack exact Consumer twins, in that the Pro versions are stand-mounted while the Consumer versions are towers.

ATC's SCM7 v.3 costs $1499/pair.

One Consumer speaker appears to be in a class of its own. The EL150 is ATC's "statement" model, at $47,770/pair passive and $84,999/pair active, in the standard veneer of burr magnolia. Its very wide and shallow cabinet is reminiscent of Sonus Faber's Stradivari or Elipsa. (An ATC speaker's model number indicates its internal volume, in liters; *eg*, the SCM19 has a volume of 19 liters.)

Perhaps one reason ATC's profile in the US has always been lower than Harbeth's or Spendor's is because US audiophiles historically have resisted the idea of active speakers. Although powered speakers offer advantages in implementing crossover slopes and in amplifier efficiency, over the years, I've been told many times that US audiophiles absolutely insist on choosing their own power amplifiers and speaker cables.

I wonder whether that conventional wisdom might be crumbling. What makes me think that US audiophiles might be getting ready to seriously consider ambitious active speakers is the market success of such models as Audioengine's 5+ ($399/pair). I don't think that all of Audioengine's customers are using their 5+s on desktops with computers; I suspect that many use them as the main speakers of a stereo system. Time will tell.

I wrote about ATC's SCM11, a two-way stand-mounted speaker, in my December 2009 column (http://tinyurl.com/l6sxfge) and about the SCM40, a three-way tower with ATC's famous dome midrange, in April 2010 (www.stereophile.com/content/fifth-element-59-page-2). John Atkinson concluded his measurement report on the SCM11 with this: "The ATC SCM11 is a well-engineered little speaker. I am not surprised John Marks liked it as much as he did, though I would point out that its measured behavior suggests it will work better when listened to fairly close."

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I'd been lent the SCM11 and SCM40 by ATC's then importer and distributor for its Consumer models, Flat Earth Audio, of Connecticut. In mid-2013, ATC decided to consolidate its US presence by reassigning the responsibility for consumer speakers to Transaudio Group, which had represented ATC's professional products in the US for many years. To emphasize its expansion into the consumer market, Transaudio has established a subsidiary, Lone Mountain Audio. At present, Lone Mountain Audio represents only ATC.

Because I was revisiting the broader subject of professional equipment that audiophiles should know about (such as the Lindell AMPX class-A power amplifier I wrote about last December), or at least consumer equipment with professional roots, I requested the loan of ATC's Consumer SCM19, the next size up from the SCM11. The SCM19 is also ATC's least-expensive loudspeaker whose woofer incorporates their Super Linear magnet technology. I was then told that ATC was updating all its models, starting with the smallest, the SCM7, and that the updated SCM19 would not be available for several months.

I agreed to review the SCM7 because I was curious what ATC's updated entry (this is v.3) in the evergreen British Shoebox Monitor sweepstakes would sound like—that despite Lone Mountain Audio's Brad Lunde hastening to point out that the SCM7 contains no more BBC LS3/5A DNA than any other British-made shoebox-sized two-way. ATC's design goals for the SCM7 are to offer a minimonitor with excellent dynamics and best-in-class bass. For the first time, the tweeter has been designed and built in-house by ATC.

The cabinet of the previous-generation SCM7 had square corners and flat sides—definitely a 1980s–90s look. Its drivers were mounted on a black-painted baffle board with radiused edges and grille-attachment grommets. This board covered most of the front panel, the rest of which was veneered.

The SCM7 v.3 measures 11.8" H by 7.9" W by 9" D and weighs 15.4 lbs.

It's a solid, hefty little speaker that looks quite different from and far more up-to-date than its predecessors. The footprint is no longer square. The sides curve out and back in toward the rear, in the modern-speaker lute, canoe, or truncated Coke-bottle look wherein the rear panel is narrower than the front. The SCM7's drivers are now flush-mounted in a fully veneered front panel. The precision of the driver cutouts is impressive. The veneers are, as before, grain-matched across the left and right speakers.

The stylish, all-metal, hex-mesh grille is a neutral, medium-light brown just a little darker than café au lait, and attaches by means of concealed magnet pairs. With these updates, the speaker's front looks far less cluttered when the grille is removed to reveal the 5" woofer and 1" tweeter. On the rear panel are two pairs of non-insulated binding posts for biwiring; jumpers are provided; and the speaker comes with a six-year warranty. In 2009, when I reviewed the SCM11, the SCM7 cost $1050/pair; the SCM7 v.3 costs $1499/pair in Cherry or Black Ash veneer.

ATC states that the SCM7 v.3's frequency response is 60Hz–22kHz, ±6dB; its sensitivity is a lowish 84dB/W/m, its nominal impedance 8 ohms. They claim that the SCM7 v.3's flat impedance curve presents an easy load to amplifiers (they recommend 50–200Wpc), that the woofer's motor assembly weighs nearly 7 lbs, and that the drivers are pair-matched to within 0.5dB.

Listening to the ATC SCM 7 v.3

I did most of my listening with Lindell's AMPX class-A power amplifier. However, while the Lindell was going forth and back to John Atkinson for measuring (see January 2014, p.155), a friend dropped off a Miniwatt 2.5Wpc tubed integrated amplifier. To my surprise, the Miniwatt was able to drive the ATCs well enough to completely involve me in the music.

The most notable such experience was with Mark Hollis's sparse and moody *Mark Hollis*—the album with the rather unsettling (at least to me) cover image of a malformed loaf of Sardinian Easter Bread (CD, Hip-O 5376882)—another loan from the friend who'd lent me the Miniwatt. Perhaps he suspected that I needed a break from working my way through all of Deutsche Grammophon's *Archiv Produktion 1947–2013* (55 CDs, Archiv Produktion 001833572). Which, by the way, is a phenomenal bargain. Thanks, Jorge.

Hollis's solo work was new to me, and I found it more engaging than what I'd heard from Talk Talk. That said, his music, which strikes me as a blend of Tom Waits and Brian Eno, is something I think I'll return to only infrequently. Background music for Campari and chitchat it is not.

The associated equipment consisted of Parasound's Halo CD 1, used as both CD player and transport; Nordost's Silver Shadow digital cable; Bricasti's M1 DAC (since sent back); and Grace Design's full-size m905 studio Monitor Controller (the m903's larger sibling, so to speak; report in preparation); and Cardas Clear Rev.2 interconnects and Clear speaker cables.

When first set up, the ATC SCM7 v.3s sounded to me like promising speakers that definitely needed breaking in. Between lots of listening to the

Archiv boxed set, sifting through a treasure trove of Mobile Fidelity Sound Lab SACD reissues, and keeping up with new releases, as well as daily thwackings with Ayre Acoustics' *Irrational! But Efficacious System Enhancement CD Version 1.2*, over the course of weeks, the SCM7's treble blended better with the midrange, and the sound as a whole opened up and calmed down. All of my substantive comments refer to the end state the SCM7 reached.

It was immediately apparent from the first application (at a moderately but not insanely high volume) of the *Irrational! But Efficacious* disc's "Full Glide Tone," which begins at 5Hz (!), that the SCM7 was, for its size, bombproof. The woofer's excursions at subsonic frequencies were just plain huge. And while no sound emerged, the lack of sounds of distress or mechanical noises was most impressive.

The woofer behaved as you might hope a 5" woofer with a magnet structure the size of its cone and a motor weighing 7 lbs would. A DIY speaker-designer friend witnessed one administration of the "Full Glide Tone" and spontaneously exclaimed his amazement at the robustness of the woofer's excursion, and at how low (especially for a sealed-box design), the woofer began to actually make sound.

The SCM7 deftly handled the "Channel Identification" and "Channel Phasing" tracks of *Stereophile's Test CD 2* (Stereophile STPH004-2). Image specificity was excellent, and the difference between the in- and out-of-phase segments was as great as I've ever heard. I do have to call the SCM7's reproduction of JA's low electric-bass notes "respectable" rather than "convincing," and nowhere near flat at 41Hz, the frequency of the instrument's low open-E string. On the bass guitar tracks, the larger woofer, larger cabinet, and ported design of the Opera Callas I reviewed in August 2013 carried the day. (I relied on aural memory; the Callases were shipped to JA before the SCM7s arrived.) However, the higher-frequency reaches of the "Full Glide Tone" indicated that the SCM7 had a noticeably more extended top end than the Callas.

The SCM7 offered pinpoint imaging. "Easy to Love," from Ella Fitzgerald's *The Cole Porter Songbook, Volume Two* (CD, Verve 821 990-2), was a prime example—and if you think that judging imaging with a monaural recording is cheating,

The SCM7 v.3 uses a 5" woofer with a hefty 7-lb magnet.

then Esa-Pekka Salonen and the Philharmonia Orchestra's live recording of Schoenberg's *Gurrelieder* was just as impressive (SACD/CD, Signum SIGCD173). There were also excellent retrieval of detail in the frequency and time domains (the acoustic guitar in the title track of Joni Mitchell's *Court and Spark* [gold CD, DCC GZS 1025]); low distortion (the mechanical noises made by the ancient pipe organ played by Helmut Walcha in the Archiv set were quite apparent), and, overall a naturally musical sound. I listened to Roxy Music's *Avalon* (CD, Virgin 8 47460 2) straight through, three times in a row.

Especially rewarding was track 1 of Stile Antico's *The Phoenix Rising* (SACD/CD, Harmonia Mundi 807572), William Byrd's *Ave verum corpus*, precisely because the SCM7's lack of extension below the midbass was a nonissue with this recording of a cappella choral singing, allowing the ATCs to "romp like the mind of God."

When he measured the ATC SCM11, JA mentioned that "its measured behavior suggests it will work better when listened to fairly close," by which he was specifically referring to the SCM11's non-aggressive treble response and its lack of high-treble dispersion. As chancy a proposition as it may be to judge a new speaker against memories of the sound of a different speaker of the same family, I did get the impression that ATC's new, in-house–made tweeter was more extended and more linear in response than the tweeter I'd heard in the SCM11—or that the SCM11's crossover voicing had made it sound that way.

You can't have everything in a speaker that costs only $1500/pair. Obviously, a sealed-box speaker with a 5" woofer won't get anywhere near flat response at 41Hz (low E on an electric bass) or 32Hz (low C on a pipe organ) or 27.5Hz (low A on a piano). Furthermore, while the updated SCM7 has impressively low distortion—actually, it had *no* distortion that I could hear, which I attribute to the robustness of its woofer—it didn't match the resolving power of much more expensive two-way loudspeakers such as Vivid's Oval V1.5, which I wrote about in my October 2010 column. The V1.5 similarly lacks audible distortion but also sounds more transparent, with greater resolution of fine detail. At $7600/pair—five times the price of the ATC—it should.

The ATC SMC7 v.3 is an extremely competitive entry in the British Shoebox Monitor sweepstakes. That it's made in the UK by a company known for making professional monitors, and has first-class fit'n'finish and addictively engaging musicality, are strong arguments in its favor. I didn't have on hand a pair of KEF LS50s with which to compare the SCM7s. However, from what I recall of the sound of Harbeth's P3ESR—over which I exclaimed "Gloriosky!" in October 2005—the SCM7 v.3 was as listenable and enjoyable. While the Harbeth retains a bit of the LS3/5A's midrange sweetness, the updated SCM7 seems designed to be a thoroughly modern mini monitor. And the ATC costs $700 less per pair.

Well done, indeed, and highly recommended. I look forward to the arrival of ATC's SCM19.

Plangent Processes

HDtracks.com offered me a review set of their high-resolution downloads of all the studio albums by the Grateful Dead, later chosen as the December 2013 "Recordings of the Month." I downloaded both 24-bit/192kHz Apple Lossless and 24/96 FLAC versions. Played via Amarra, they sound stunning.

The Dead were one of my youthful musical enthusiasms, once I heard their two-LP set, *Live/Dead*, sometime in 1970. I then applauded their move into folk/Americana territory with *Workingman's Dead*. I heard them in concert—including, apparently, their last gig before they finished putting together all the pieces of their legendary PA system, the Wall of Sound.

The Dead were unusual for their time in paying, from 1966 on, great attention to their live sound and, later, to their studio sound; for example,

they're reported to have taken the tape-recorder live feed *before* the PA mixing desk rather than after, by means of a custom-designed splitter (today we would probably call it a distribution amplifier). And at a time when lots of good music was being recorded in sound that ranged from so-so to just plain awful, from overuse of every effects box in the studio (listen to Quicksilver Messenger Service's studio album *Fresh Air*), the Dead's records, especially their studio albums, sounded, in comparison, pristine.

Even so, I was unprepared for the sonic revelation of these remasterings of the Dead's studio albums. The cliché of "a cleaned window" actually describes what I heard. Wanting to learn more, I spent more than an hour on the phone with Jamie Howarth, a principal of Plangent Processes.

Plangent is neither a hardware maker nor a software firm. The Plangent process requires not only proprietary hardware and software; it also requires esoteric expertise, and the intervention of human judgment at the critical stage of recovering the bias tone of the original analog master tape. What follows is a huge oversimplification, but . . .

The AC bias tone used by an analog tape recorder is an inaudible, steady-state, ultrasonic signal that's added to the sound being recorded. The bias tone reduces noise and distortion in part by eliminating the effect of the tape material's magnetic hysteresis.

If one wanted to set out a Grail Quest Problem in the engineering of analog tape recordings, the task of recovering a residual tone that's somewhere between 100 and 400kHz, and at a level lower than –90dB, surely takes the cake.

Plangent accomplishes this via a three-step process. The original master tape is played on a modified tape deck with a custom head stack and electronics, both with bandwidth to 500kHz, then converted to a digital signal at 192kHz. The hard drive containing those digital files is sent to Plangent's laboratory on Nantucket Island. The data are upconverted and the search for the ghost of the bias tone begins.

Once the bias tone is identified, its frequency fluctuations are mapped. Because the bias signal is assumed to be a steady tone at xkHz, any deviations in its frequency—*ie*, the tone's Frequency Modulation Distortion—must be the result of mechanical deviations in the tape's speed—wow and flutter—which consequently alter the pitch of the notes being played.

In reality, it's even more complicated. A fast flutter above 30Hz manifests itself as intermodulation distortion. Some tape transports also exhibit scrape flutter, wherein the tape head acts like a violin bow, the tape "singing" at a frequency proportional to its unsupported transport length and its tension, as does a violin string. None of this process takes place in real time; rendering one song can take an entire day.

To put it another way, Plangent's "Eureka!" moment was to use the ghost of the analog tape bias tone as a timing reference to enable their engineers to correct for mechanical and tape-transport problems not only in the playback deck recently used for the digital transfer, but also in the deck used in the original recording. Simply amazing. So Plangent removes two layers of grime, and, to the greatest extent possible, removes *only* grime, and not music—and, just as important, *without* adding any new artifacts. In our chats, Howarth more than once invoked Hippocrates' injunction "to do no harm."

Howarth also shared his fascinating perspective on why Ivor Tiefenbrun's original Linn Sondek turntable was thought by many audiophiles to sound more musical in comparison to the direct-drive, speed-correcting turntables of the 1970s. The Sondek was so heavily damped and its platter so heavy that it didn't introduce new chatter or jitter of its own, as did the constant speed corrections and resulting intermodulation distortions of the typical Japanese hi-tech turntables.

To demonstrate what Plangent Processes can do, when this column is posted on www.stereophile.com, we will include brief excerpts from the soundtrack of the film *East of Sudan* (1964): first, the flat transfer, showing gross speed fluctuations; second, some progress (but also with audible processing artifacts) from software-only processing using a popular digital editing program or DAW; third, Plangent Processes' version. The music, which sounds to me like Alex North, of the other *2001* score, is by Laurie Johnson, who has his own Kubrick connection—he composed the music for *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb.*

Ciao! ■

John Marks (john.marks@sorc.com) loves pausing to listen.

MANUFACTURERS' COMMENTS

THIS ISSUE: Arcam, Thales, Hagerman, ATC, and PrimaLuna respond to our reviews of their products.

ATC SCM7 v.3

Editor:

Firstly, thank you, John Marks, for the great review, and also for some historical and product background on ATC. We're one of the first to admit we're not the industry's best promoters of our achievements, so very nice to read a journalist's summary of our not-so-short history, especially one from the US, where we are perhaps less known in the consumer marketplace than in Europe and Asia.

The SCM7 is the first and smallest loudspeaker to feature our newly designed and built SH25-76 soft-dome tweeter. Up until now, we have produced all our own bass, midbass, and midrange drivers, but relied on the usual Scandinavian sources (SEAS, Vifa) for high-frequency drivers. Hundreds of hours have gone into the design, development, and production engineering of this new part, so everyone at the factory has been eagerly awaiting the feedback from customers, dealers, distributors, and the press. It's a very nice feeling to be produc-

ing all of our own transducers in-house, and we are, we think, one of the very few UK manufacturers in this position.

The tweeter employed in the SCM7 shares technology with the renowned SM75-150 midrange unit in that it has a dual-suspension design, ensuring pistonic motion and suppressing aharmonic rocking modes even at high drive levels. This also enables the use of a narrow magnetic gap and negates the need for ferrofluid. The SH25-76 is therefore free from the detrimental effects of such fluid drying out over time. A short-coil, long-gap configuration ensures unparalleled linearity and very low distortion through its intended operating band. The shape of the soft-dome diaphragm was developed over many prototypes and is based on a complex curve instead of the more common radius. The shape maximizes power transfer from the former, extends the high-frequency response, and gives a smooth off-axis response, the last of which is an important characteristic that ATC pays much attention to. The neodymium motor structure was optimized using finite-element analysis to ensure an even distribution of magnetic energy over its 3mm length, and the profiles of the parts were chosen to extract the highest possible percentage of energy from the magnet into the gap. The motor assembly also performs the secondary function of dissipating heat generated by the voice-coil, ensuring high power handling and low power compression. We have found that an underhung design, very close coil-gap clearance, and black plating on the motor assembly maximize this dissipation.

The observations about the SCM7 bass driver's ability to deal with low-frequency information were very welcome to read. Our background in professional audio has taught us the importance of high dynamic range and power handling. This is often considered to be more important with large loudspeakers, but in many cases it is the smaller drive-units that see higher power levels due to their lower efficiency. With this in mind they have to be constructed with generous voice-coil diameters (in this case, 1.75" or 45mm) and excursion capabilities, if thermal and mechanical compression effects are to be minimized. The quality-control stages of production also play a large part in achieving high performance with recordings containing high dynamics and very low frequencies. Our smallest midbass drive-units are vigorously tested with high-level low-frequency signals: QC rub and buzz tests are performed at 20V/50W (8 ohms) with a manually (very slowly) swept sinewave starting at 10Hz, so that any potential spurious noises are exposed, even those below the low-frequency cutoff point of the driver. John Marks and his friend made particular note of this characteristic.

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