



UPSTAIRS

Quad 989 Loudspeaker: Updating a Classic

“**Q**uad: The Closest Approach to the Original Sound.” This blurb next to a photograph of a speaker in a shape I had never seen before was my introduction to Quad electrostatic loudspeakers 30-some years ago. I was a junior in college, just getting interested in audio; but all I could afford, let alone fit into a tiny apartment, was a three-piece Harman Kardon compact that I thought offered good sound. I can’t remember how many systems I’ve had through the years – including the original Quad ESL (bought and sold three times over) and the ESL-63 (twice, before it settled in as my personal reference these last seven years) – but I’ve never forgotten that blurb, still the best one-liner I’ve read for an audio component, not just because it’s memorable, but because it is a succinct statement of design philosophy.

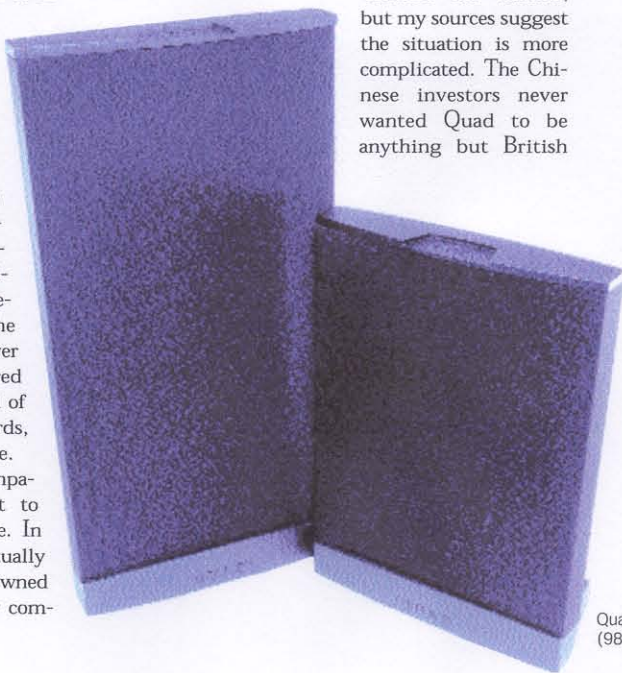
One of the big differences between the great British audio designers and their American counterparts is that the former seem never to have harbored the illusion that it was possible or desirable to bring musical events into one’s listening room. For Peter Walker, the founder of Quad, the applicable metaphor was that of a window onto the concert hall – the purpose of a good high-fidelity system to transport the listener to the orchestra. To that end, Walker concentrated on transparency, linearity, low coloration, and low distortion, rather than loudness capability, dynamic range, and low-frequency extension. It is a tribute to the longevity of his two models that, whatever their limitations, they not only have acquired classic status but remain among the handful of speakers actively used as reference standards, unsurpassed in certain aspects of performance.

But like many small, privately held companies, Quad found it increasingly difficult to remain competitive in a global marketplace. In the Nineties, the company foundered, eventually purchased by the Verity Group, which also owned

pany. When Verity proved unable to rejuvenate Quad, and the Wharfedale line was also in trouble, Stan Curtis, then chairman of Wharfedale, decided to buy them himself. But no one was interested in investing in either company – if Verity couldn’t resuscitate them, who could? When things look bleakest, Curtis managed to raise the money from a group of Chinese venture capitalists called Jetop, Ltd. Thus was born the International Audio Group.

Curtis did a brilliant job of turning Quad around. He oversaw the updating of the 63 to the 988 (not yet available for review), the development of the larger 989, and the completion of the 99 Series electronics. But owing to internal disputes that have not been made fully public, the Quad design team and management were recently let go, then Curtis himself resigned. A story initially circulated in the British press seemed to make the

Chinese the villains, but my sources suggest the situation is more complicated. The Chinese investors never wanted Quad to be anything but British



Quad 989 and 988
(988 not reviewed)

designed, run, and produced, to which end the entire production and service staff, some of whom go back three decades with Quad, were left in place throughout the Curtis affair, while many of the design and management personnel have since been reinstated. Though Curtis is gone, for the nonce Quad is in good health, with several new products planned, including a home-theater preamp/processor and the long-awaited updatings of the original Quad II all-tube power amps and preamp.

Conceptually, the new models remain in their basics the same speaker as before: a diaphragm of Mylar panels driven by a delay line of concentric annular electrodes designed to imitate the theoretical ideal of a "pulsating sphere" point source. The new speakers are also physically similar, except for some cosmetic details and the 989's standing about 15 inches taller to accommodate the extra pair of bass panels.¹ The principal philosophical difference between Walker and Curtis, et al., is that Curtis et al. were willing to pay more attention to what has since become widespread audiophile thinking (wire effects, rigid mounting, parts quality as opposed merely to their specs, etc.).² Curtis also evidently considered every criticism of the 63; not that he acted upon them all, only that he listened. Throughout the process, all changes were referenced against the 63.

Even in its beefed-up US version, the 63's housing never inspired the greatest confidence. The entire frame is now considerably sturdier, the metal grille both more transparent and much stronger, extrusions in the grille itself replacing the spindly uprights that can't have been a good thing. The bottom plate now comes tapped for spikes (supplied). Other significant changes include better transformers and power supplies, oxygen-free copper wire of great purity throughout the delay lines (for Walker, wire was wire), and a higher-quality Mylar with superior batch-to-batch consistency. The ingenious circuit that protects the panels from being overdriven remains identical, except that the 989 has a higher-rated polyswitch in keeping with its greater power-handling.

So how does the 989 sound? Is it really just a 63 with better bass and dynamics? Does it need a subwoofer? Can it play really loudly? Let me say right off that the 989 is a Quad right straight through, with all the virtues of its classic heritage: peerless coherence; openness; transparency; holographic imaging; low coloration; and quite low (i.e., essentially amplifier-level) distortion. It can still pass a virtually perfect square-wave and still sounds as if there's next to nothing between listener and program. The absence of all the usual spurious cabinet resonances and response and phase anomalies of drivers and crossovers still results in reproduction of such clarity and purity that it can seem eerie; but come to them from live music and you appreciate the essential rightness of the sound.

But while the 989 and the 63 are recognizably of the same lineage and sound similar, they do not sound identical, particularly in tonal balance. Robert Greene, who has taken measurements on both speakers, will comment on these differences in more technical detail; what follows are my subjective impressions.

Starting at the bottom, the 989s play deeper, louder, and much cleaner than the 63, which, despite its many virtues, never had real bass authority. The 989 does. Its performance on most organ music, large-scale Nineteenth Century symphonic material, and chamber, jazz, folk, and popular music with low-lying percussion and string-bass is now on par with the upper range. For the first time, Quad lovers can enjoy deep bass cut from the same sonic cloth as the rest of the speaker. Symphonic music is especially impressive in its weight, foundation, and dynamic range. Bass drums approach that combination of power and definition familiar from the concert hall, with none of the showy "tightness" that cries "audiophile," nor any of the overhang familiar from woofers that prize quantity over quality. You'll also hear all the air, dimensionality, and hall ambience the source permits (on the St. John's Christmas CD [Chandos CHAN 8485], traffic coming and going outside the building is clearly audible).

Does the 989 need a subwoofer? Let me put it this way: With -6dB spec'd at 30 Hz, the 989 will play right down to the bottom octave at any natural level. In this sense it is a full-range speaker that no more needs a subwoofer than any similarly extended full-range speaker. Like all but a few, however, it will not reproduce, at much amplitude, the bottom half- to two-thirds octave: 20-35 Hz. For that you will need a subwoofer.

One of the raps against the 63 is that it had no high end. This is, of course, untrue. By design, the 63 was a directional loudspeaker with a narrow response window that mandated on-axis listening. There it exhibited a perfectly natural high end that appeared, subjectively, slightly down in top-octave level and extension. Curtis and company addressed this "deficiency" by giving the 989 what sounds like slightly elevated high-frequency energy on-axis, in order, I am guessing, to increase the top-end power response. This is a perfectly acceptable design decision. Not only do you not have to position yourself dead on axis with the 989s, it's probably better if you don't. Graphs supplied by Quad suggest that 10-20 degrees off axis yield the flattest response up top, which also has the advantage of letting both you and a friend occupy the sweet zone. Mind you, the 989 is still a directional speaker, nor should anyone infer that the 989 sounds bright. It merely has a slightly brighter profile than its predecessor (the tilt-control on the Quad 99 preamplifier can be used to address this rather effectively).

Which do I like better? Can't answer that until I spend more time with the 989. The 63 has been a live-in for seven years now, and it takes a lot to make me change partners. Though I really like the high-end balance of the earlier speaker, feeling that most

¹ The black polymer top-trims replacing the wood of yore have already garnered complaints. "Plastic in speakers selling for eight grand a pair?" someone harrumphed. Theoretical sonic advantages notwithstanding, Quad made an executive decision à la Henry Ford that until production has stabilized, the consumer can have any color so long as it's black. The next 18 months, however, will see wooden caps in several finishes and different colored grille stockings, both field-retrofitable. (I find the black-on-black cuts an elegant figure.)

² Given the almost unparalleled sample-to-sample uniformity of the 63, it is not easy to dismiss Walker's dismissal of these concerns.

speakers and recordings are altogether too topky. I also know that for many the 63 didn't sound flat, either. Just know that recordings on the verge of edginess through the old speaker now cross the line through the new – that may be greater accuracy for you – and recordings with smooth, extended highs (try some recent Cheskys) display their wares more felicitously – that may also be greater accuracy. Audiophiles who felt the 63 was a little dim are likely to be delirious over the 989, while everyone else can rest assured that the *quality* of the highs is as fine as ever, revealing even more detail with no glare, glassiness, or hardness, with telltale signs of ambience immediately available (compare the Emerson Quartet playing the Beethoven and the Shostakovich quartets and you'll have no trouble discerning the differences in recording technique and locale).

Another reason for the altered high-frequency balance is the addition of the two bass panels themselves, which would certainly alter polar-response patterns and impact the midrange. About the midrange, 989 literature is quite forthcoming, if nonspecific, speaking of "enhanced performance in the mid-band." This worried me; how do you "enhance" a midrange that was already practically flawless? It is rumored that Peter Walker put in a tiny peak around 4 kHz, which the 989 retains, only it appears to have shifted down an octave or so. Otherwise, what I hear is a richer lower-midrange and more brilliance in the upper. Voices sound as if they have more body and, when appropriate, more

size. Indeed, overall the 989 is capable of projecting a much bigger, more spacious and authoritative presentation than the 63.

Best of all, the 989 retains all the matchless *presence* of the 63. I've become tired of speakers that recess the midrange to cater to the fashionable craving for more "depth." Voices on the 989 emerge in all their glorious, palpable presence: front and center, if they're recorded that way, set back if they're not. Hint: most recordings, especially popular ones, place singers *well* forward; likewise featured instrumentalists. Quads bring Jacintha so close it's almost indecent [*Here's to Ben*; Groove Note GRV2001-2]; when the incomparable Ben Webster plays "How Long Has This Been Going?" [Columbia CS 8691, Classic Records reissue], his sax is right out front in all its throbbing, shamelessly voluptuous glory; and in Harmonia Mundi's Anonymous Four recordings, the singers, though set somewhat back to capture more of the acoustics, are still present within the perspective. Here's the main problem with recessed midranges: When there is real recorded depth, the presence of those placed at a distance is diminished and true perspectives are compromised. This never happens with the 989s.

What about dynamics and loudness, and such mundane matters as placement and power requirements? About the former, let me make the point by way of exaggeration: If you want to play at clean levels loud enough to damage your hearing, the 989s will do the job nicely, even in large rooms; but if you want to play so loud as to destroy your hear-

ing, the speakers will have sense enough to shut themselves down. This new loudness capability plus the unsurpassed ability of Quads to play really quietly without tonal drop-out should answer the macrodynamic question. As for microdynamics, since this Mylar diaphragm is as low-mass as diaphragms get, pick an instrument as common as a lute or guitar or as *recherché* as the psaltery on Harmonia Mundi's *Bitter Ballads* [HMU 907204] or the rainstick on Christy Baron's "Mercy Street" [Steppin'; Chesky JD201], and you'll hear dynamic gradations of such ravishing delicacy they make most other speakers sound coarse.

Power requirements? That Neil Gader and I used the 989 for our integrated amplifier survey is testimony enough to its resolving capabilities (differences *instantly* audible) and to its compatibility with most good amplifiers of 70/70 watts, though you'd want more for large rooms and high volumes. In my 22' x 15' x 8' room, clean levels loud enough to force me to cover my ears were obtained with

Marsh's MSD A400S and Sunfire's Signature.

The subject of placement is always vexing with dipoles, Quads being no exception. Or are they? Here's where I'm supposed to warn that you'll have to spend hours moving the speakers inch by inch to get good sound. Well, much as I hate to disappoint the proactive contingent out there, my experience with these new Quads goes like this: (1) Place them several feet into room. (2) Establish a listening triangle. (3) Enjoy music.

The 989s are much more flexible about orientation than their predecessor. Begin on axis and toe them out by degrees until you achieve a musically satisfying combination of tonal balance and imaging; I predict you'll find 10-20 degrees off axis about right. They can also be placed within 18 inches or so of the side walls, which means you can spread them quite wide (adjusting the toe-in accordingly) without incurring the dreaded hole in the middle. You can even put them pretty close to the back wall. Years ago, Peter Walker suggested that a meter out

Peter Walker & the Original Quads: A Valentine

Leonardo da Vinci observed that an arch is comprised of two weaknesses that, leaning upon each other, combine to give an enormous strength.

This concept was exploited by Peter Walker and Theo Williamson in developing their amplifier; they contrived to have the weaknesses of previous designs oppose each other, thus yielding the improvement in performance. Of course there were no computers then, so all calculations had to be performed using pencil, paper, and slide rule. This brings us to another general concept: The more restricted the means, the greater the likelihood of achieving an elegantly simple design solution.

Peter Walker had become accustomed to the elegant symmetries of the opposing, balanced forces of the push-pull circuit, and an adept at spotting the complex terms that, in push-pull working, would appear on both sides of the equations and could be dropped out. He notes that a simple expression governs the far-field axis pressure of an electrostatic speaker, eliminating many terms required to model dynamic-coil performance, such as the driver mass that must be accelerated to speed and then stopped. He writes: "The result, dependent on only two simple electrical measurements and two simple dimensional measurements, independent of frequency, area, or shape of the loudspeaker element, is in marked contrast with our usual experience in the field of loudspeakers!" (*JAES*, November 1980, Vol. 28, No. 11)

In 1954 Walker and Williamson filed a patent describing the means of controlling charge migration on the diaphragm, the Achilles heel of previous attempts in this field, and in 1955 published a series of articles in *Wireless World*, "Wide-Range Electrostatic Loudspeakers" (Vol. 61, Nos. 5, 6, 8). Walker and Peter Baxandall met regularly with

Williamson, and the three often talked far into the night about the right way to approach both amplifier and loudspeaker design. After one strenuous weekend in the garage, a working prototype electrostatic loudspeaker appeared.

By 1957, the design had been completed, and it shows Peter Walker's thoughts clearly. The polar pattern was made to resemble a cardioid, when fitted with a felt blanket behind the diaphragm. The factory now wanted to put the design in production, but Walker was reluctant. New thoughts were stirring in his mind.

Meanwhile, the design had met with strong criticism from hi-fi folk conditioned by years of listening to big dynamic cones in massive enclosures. As time passed, though, people recognized that these speakers had to be positioned well into the room, and their reputation and sales grew. Still there was no new model Quad electrostatic to build on that success.

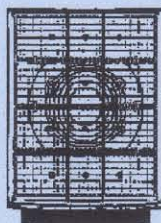
Walker had been sketching ideas for development for some years (his attitude was always that new solutions would be ready when they were ready), and in 1963 he resolved the principal drawbacks that had prevented any electrostatic loudspeaker from realizing the full theoretical potential. This came in two parts that depend upon each other to succeed. First, he could approximate the acoustician's dream, the infinitely small point source

that radiates sound equally over an expanding sphere. From the diagram below, you can see that if you make the diaphragm ripple like the surface of water when an object is dropped into it, you have recreated an expanding spherical wavefront. Second, by controlling the patterns of charge influencing the movement of a virtually massless diaphragm operating in a linear system, it was possible to model any wavefront and dispersion pattern. Furthermore, you could measure this by monitoring the charge flowing at any point, through any of the sectors of the stator panels, and adjust it with the same components used to delay the signal and shape the wavefront. Acoustic distortions will also be revealed by the patterns of charge flow, and are adjustable by the same means!

In 1963, however, Walker only had an idea, and work commenced on the Dartboard, as it was affectionately known in the family, for its annular rings of conductive wire. That work continued for the next 17 years until, in 1980, the product was finally ready for release as the full-range electrostatic doublet (or Fred). Ross Walker remembers Peter staying up night after night, making vector calculations, inching his way toward a product that ordinary customers could use in untreated rooms. This led him finally to modify the directivity as a function of frequency so that, at the higher frequencies reflected by plastered and wallpapered walls, the stereo image would not be confused by multiple ghosts. As he once said, "With electrostatics, it is easy to get it 95 percent right — the other 5 percent is murder!"

I remember digging out Walker's papers from the stacks of the Science library in London, and laughing at the audacity of the first one I examined, which proposed replacing the entire back wall of the listening room with one huge electrostatic diaphragm. The dispersion characteristics would provide complete coverage of any conceivable listening position!

BARRY RAWLINSON



Stator rings of a Quad 63

is adequate. I tried this, and be damned if the designer didn't know what he was talking about (heresy to many audiophiles, I know, but true). The presentation remained open and clear, with good depth, the principal penalties a very slight nasality (probably correctable with back-wall treatment, such as Echobusters) and heavier bass (not unpleasant), offset by greater overall warmth (very pleasing). And yes, I'll come clean, whether they're a meter, two, or three out, you'll have to work a little to get the bass optimized. But being true dipoles and thus exciting fewer room modes than normal speakers, the 989s retain far more of their essential sound from spot to spot.

The only aspect of the 989's imaging that's likely to cause concern is height. Vertical image-position is determined mostly by tweeter height; since the acoustic center of the 989, where the highs emerge, is only a little over two feet off the floor, some audiophiles may find that performers don't stand tall enough. Though much less of a problem with the 989 than the 63, I already see a cottage industry of stands to "correct" it. It will, but at the expense of introducing floor reflections that'll put

holes in the mid- and upper-bass response. Use them as they are intended: Peter Walker and his successors knew what they were doing.³

One of the silliest spectacles that audio reviewing affords is watching reviewers pronounce this, that, or another component the best, as if the very idea of a "best" were even conceivable, without mediating among a component's strengths and weaknesses. If I have seemed circumspect about the 989, it is partly because I've tried to balance some objectivity with an enthusiasm for a product I find, for the most part, absolutely fabulous. Yet much more time, not to mention the perspective of the 988, is necessary to gain anything like the full measure of this extraordinary speaker.

Until then, I shall take my respite wrapped in a nice, cozy subjectivism. Those characteristics that Quads possess in abundance are for me those most essential to the convincing reproduction of music in the home, whereas those few things they do not do well are unimportant to me or irrelevant to my domestic situation. Which is a roundabout way of saying that Peter Walker's 20-year-old design remains for me the closest approach to the original sound. This latest iteration preserves most of its virtues, extends them into areas where it was not previously strong, and augments those with still others. If the path is not quite identical, the approach, on balance, is perhaps even closer.

PAUL SEYDOR

³ I've heard all the famous after-market Quad modifications and to my ears they serve merely to turn one of the most musically satisfying speakers ever made into an "audiophile" speaker in the worst sense. The only "modification" I recommend, if your aesthetic sensibilities aren't offended, is pulling the grille sock down for improved transparency. However, you should never, ever let anyone talk you into bypassing the protection circuit or removing the protective metal screens and cellophane dust covers. The manufacturer has made this product safe and essentially bullet-proof. Respect that.