SCINTILLA • LOUDSPEAKER • APOGEE • USA

Apogee Scintilla

It was a loudspeaker that did things no other could at the time, and which few can manage even today. It also kick-started the market for killer amps and paved the way for the hefty designs we now take for granted. **Ken Kessler** celebrates the Scintilla

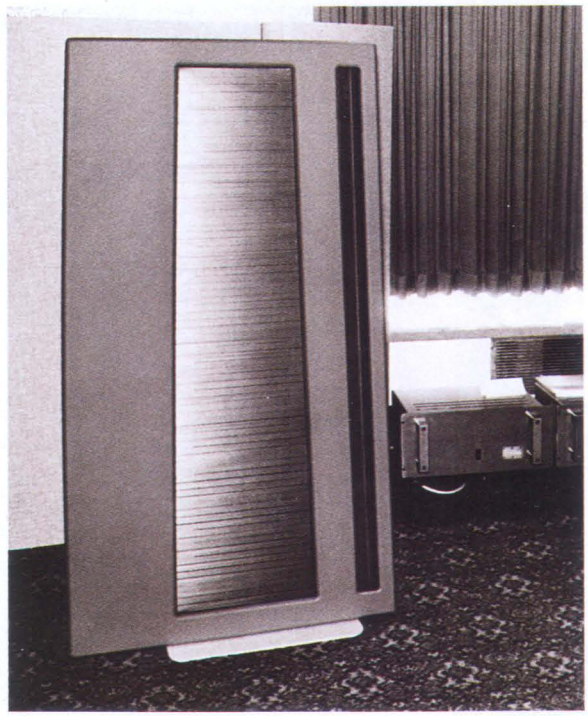
They haunt me to this day. I use them only rarely, because they spoiled me for all other loudspeakers. More than any audio component I've ever used, the Apogee Scintilla remains a massive what-if. As a speaker manufacturer, the brand is gone, as is one of its founders, Jason Bloom. As the veteran of countless of his hi-fi show demonstrations, I owe him more for creating an understanding of high-end sound than any individual I've ever met.

OHM ALONE

It's still hard to believe that the company was only active for 16 years – from 1981/2 to 1998 – when one considers the impact that it had. Yes, we owe Apogee thanks for forcing high-end amplifier producers to make powerhouses that would not die when faced with an ornery load, and 'Driving 1ohm loads' remains a clarion-call for high-end producers, though I can't think of any speakers on the market today that dip that low.

Every speaker manufacturer, too, owes Apogee a great big 'thanks', because the company's rapid success and the establishment of a 1ohm 'standard' means that speaker designers need never worry about impedance. If a manufacturer's design happens to drop to a couple of ohms, there are plenty of amplifiers that will handle it, from brands like Krell – who fashioned the first that would drive Apogees – to pretty much every solid-state producer with 200W-plus beasts in their catalogues. It may seem an obscure achievement, but I'm sure that there are both speaker and amplifier builders who would sigh with relief.

LEFT: The late Jason Bloom, co-founder of Apogee and co-designer of the Scintilla, pictured here with an Apogee Stage



ABOVE: The Apogee Scintilla from 1985 seen here driven by original Krell Class A power amps. The first 40 pairs of speakers were made with 4ohm transformers but were quickly recalled...

PERFECT TEAM

Jason Bloom and his father-in-law, Leo Spiegel, formed a perfect team, a recipe every high-end company can recognise: Jason was pure audiophile, Leo pure scientist. Only the latter could rein in the former, for Bloom was a dreamer first and foremost. These days we take 7ft-tall, 400kg speakers for granted. Twenty-five years ago, speakers of such ambitious weight and dimensions were quixotic at best, even after the acceptance of Infinity's huge IRS.

Jason was a hard-core audiophile and record collector. His career prior to Apogee was as a dealer in fine art. Leo was a recently retired engineer who spent his life in the aerospace industry, and had worked with high precision engineering projects such as the inertial navigation system for the B52 and devices for the calibration of Sidewinder missiles. The company was able to exploit his experience with high intensity magnetic circuits.

Along with a friend, Gary Walker, who parted from Apogee early on, they launched Apogee, Leo suggesting that they produce speakers with true ribbons covering the entire frequency spectrum.

Their first design, which I heard during a blizzard in a shop in Framingham, Massachusetts, was called the Full Range, a 7ft-tall slab as impractical as a speaker could be – allegedly dropping down to 0.3ohms. A young company called Krell, based in Connecticut and thus not a million miles from Apogee's factory near Boston, rose to the challenge of driving the Full Range. The two companies would become virtually inseparable during their early years, demonstrating in tandem at hi-fi shows à la Linn/Naim.

A three-way design, it employed direct-radiating ribbons for the midrange and treble and a 'quasi-ribbon' for the bass, housed in two panels: a trapezoidal woofer section and a mid/treble enclosure.

The woofer and the 80in tweeter could be directly driven thanks to a high-enough impedance. However, the 0.1ohm, 2in-wide midrange ribbon had to be matched by the use of a transformer.

THE SCINTILLA

Although this speaker called attention to the fledgling company, it was the second Apogee product, the smaller and less-expensive Scintilla, that would attract sufficient clients. Size and price, though, would be the only reasons, because the Scintilla was just as mean to amplifiers. I seem to recall, too, that more people commented about the Scintilla's low impedance than they did of the Full Range, probably because, at just under $3780 in the USA at launch, they were under half the price of the $8000 Full Range. To put that into context, Scintillas cost only £5325 in today's money.

People were certainly taking notice, with the now-defunct US magazine *Audio* putting the Scintillas on the cover of what was then the most important issue of any hi-fi magazine anywhere: its October 1986 edition of the Annual Equipment Directory, the US equivalent of the UK'S *Hi-Fi Yearbook*.

> 'It created a look as radical as Sonus faber's curvy boxes'

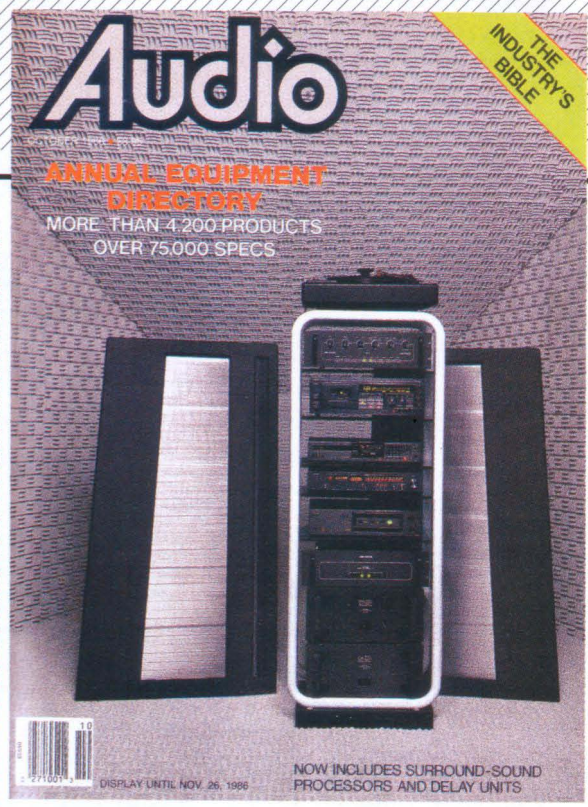
It looked like no other panel on the market – Magnepan and Martin Logan, as well as Acoustat, Sound Labs and Quad were already familiar designs – creating a look as radical, if not as influential, as Sonus faber's curvy boxes.

Unlike the Full Range, it bore no transformer, the root-cause of the speaker's reputation as an 'amp killer'. But the scary impedance meant little to those who heard them, usually with big Krells. Nevertheless, Krell couldn't have the market to itself, so the Scintilla's near-impossible performance demands drove other producers toward creating amps that would not be challenged in such a way. Regardless of the rarity – and Apogee sold less than 2000 pairs – driving a genuine 1ohm impedance remains a litmus test for every amp purporting to be worthy of the best.

MEET THE PANEL

A single panel rather than two co-joined sections, the Scintilla used a smaller version of the Full Range's woofer and a five-ribbon array for frequencies above 500Hz, in a panel 3.5in thick top-to-bottom. It looked tiny next to a Full Range, at 4ft 10in tall by 2ft 9in wide at the bottom, tapering to 2ft 5in at the top. Its base was a rectangular aluminium plate measuring 15.5x19in.

Although spikes were provided, the 10-stone weight rendered them barely necessary, though they could be used to fine-tune the vertical aspect; the base-plate supported the panel with two struts, which tilted the speaker back by around 5°. ⇨



ABOVE: Apogee begins to be taken seriously as now-defunct US magazine *Audio* features the Scintilla on the cover of its Annual Equipment Directory, dated October/November 1986

LEFT: Apogee brochure from 1989 showing the company's complete series of full-range ribbon loudspeakers. Owners of Apogee speakers should visit *www.apogeespeakers.com* and *www.apogeeacoustics.com* for servicing information, acquiring second-hand pairs or purchasing the Classic, a modern Scintilla update

THE SCINTILLA REMEMBERED

Tony Shuman worked for Apogee throughout its history in a variety of capacities:

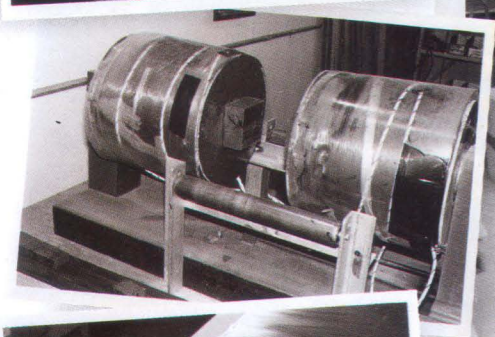
'I do not know the exact total number of Scintillas sold. It went through four iterations.

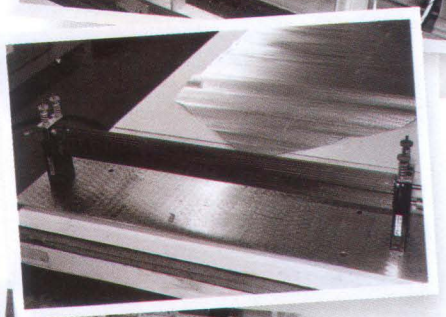
'The first 40 pairs were made with 4ohm transformers. It was a disaster and we took back all of them. At the time, we were using a formed plastic cover which we glued on and had no idea how to remove it. It was not a fun time. I believe that the next 300 pairs were strictly 1ohm. At that point, we changed to the 1ohm/4ohm combination which remained until the end. I think that we produced somewhere between 1500-2000 pairs in total.

'The 4ohm change came from the Duetta design. I will never forget calling Leo one night with "my strange design concept that would increase the resistance." I felt that it should solve the problem but could not back it with facts. Leo looked at my chicken scratches and could not say that it would not work.

At the time, there was another partner (an MIT graduate) who I knew would laugh at it, so I quietly went ahead and built a speaker and let the results speak for themselves.

'It certainly was a heady time for all involved.'





An open-backed bipolar bass radiator, the woofer consisted of a single sheet of aluminium foil 12µm thick, hand-slit, occupying the outer section, while the narrow inner aperture contained the five vertical ribbons. Slightly pleated horizontally, the slots provided the conductor pattern. The rear of diaphragm over the slots was sealed with Kapton tape of high temperature stability as well as good mechanical properties, and it could move up to ±6mm down to a limit of 20Hz.

According to Bloom, each Scintilla enjoyed a radiating roughly surface equal to eight 12in woofers.

'Long vertical ribbons were championed by Stanley Kelly'

RIBBONS IN REVERSE

Above 500Hz was the true ribbon mid/treble section, made up of four 0.5in-wide ribbons and one 1.9in wide. The latter, centrally-located ribbon rolled off above 3.5kHz, while the 0.5in ribbons, two at the front and two at the back, covered the area above that.

According to Martin Colloms in his review for this magazine in September 1985, 'an interesting twist occurs here since the central mid element naturally operates as a dipole, while "in theory" the rear radiation is out of phase with the front. However, while the front flanking treble ribbons are run in-phase with the main ribbon, as one might expect, the rear-facing treble ribbons are wired in reverse. In effect, the HF range is unipolar, representing a pulsating cylinder mounted in the 2.25in wide vertical slot in the baffle. In the overlap region between the mid and upper treble ribbons, the sound is reinforced to the front but decayed to the rear, forcing a cardioid-type response in this range.'

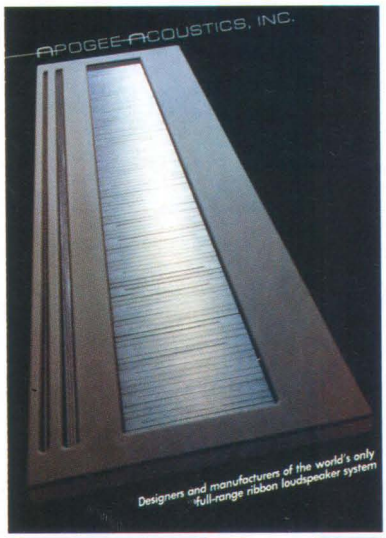
In the same epic review, then-editor John Atkinson justified using three reviewers (I was the third) with, 'I knew that not only was this loudspeaker unconventional in concept, it was also out of the ordinary regarding its sound quality. I had never heard such a breathtakingly natural reproduction of orchestral sound and image in the adverse circumstances of an hotel room in my life.'

KELLY AND DECCA

If any novelty accompanied the speaker, beyond its impedance, it was the use of long vertical ribbons, a technology championed ⇨

ABOVE: A worker planes a Scintilla frame by hand while wearing a mask – and a felt cowboy hat!

LEFT: (Top to bottom) the Scintilla bass panel – fabricated from aluminium foil it has the 83-slit conductor panel cut by hand; the half-million ampere-turn magnetiser used in the production of the speaker. The magnet array is magnetised in one pass; the foil itself, 12µm thick for all drivers, is corrugated here to provide strength and springiness. Completed speakers are placed in lines, awaiting finishing touches. The mid and treble ribbons – these are made as one with the magnetic assembly



ABOVE: Original brochure underlining the fact that the Scintilla is a full-range ribbon and showing the custom finishes

ABOVE: 'It redefines what is possible in terms of high level sound reproduction from high performance loudspeakers' – the *HFN/RR* review, Sept 1985

in the UK by Stanley Kelly, with his still-amazing ribbon tweeter for Decca. Atkinson concurred, saying that, 'It is nothing more than a practical realisation of Fleming's Left Hand Rule: a conductor loosely hangs between the poles of a magnet. When a DC voltage passes down the conductor it moves one way; when the current passes up, it moves the other. Apply an AC voltage and the ribbon oscillates, moving air and producing sound.'

Despite the size and the low impedance, the need for enormous magnets and the attendant weight, the speaker simply did things no other could at the time, and few can manage today. It offered low coloration, negligible resonance, low distortion, high power handling, and the most convincing soundstage this listener has yet experienced.

> 'The Scintilla is still the greatest loudspeaker ever made'

BESPOKE TOOLS

Apogee produced everything in-house, with the exception of the crossover components and the Monster-supplied terminals and internal wiring. I recall visiting the Massachusetts factory, marvelling at the bespoke tools, jigs, precision foil corrugators and a half-million ampere-turn magnetiser for fashioning the complex magnet structures. The Scintilla appeared during the early days of bi-wiring; Monster's binding posts were the only ones up to the job. Although the user could use them single-wired, and (eventually) set the impedance to a safer 4ohms, the best performance came from bi-wiring and 1ohm.

If you did re-wire your Scintillas for 4ohm operation, there was a 6dB loss in voltage-rated sensitivity. At 1ohm, Colloms estimated sensitivity to be 73dB/1W.

To this day, you need to exercise caution with the Scintilla, whatever your amp supplier claims. Faced with an average impedance of 0.9ohms, the preferred Krell KMA-200 provided up to 60V peaks, and the Scintilla could draw peak currents of over 60amps. If a refurbished pair tempts you, keep this in mind.

HEART AND SOUL

Apogee's fortunes suffered because of legal matters, when the brand was sued by a rival that claimed prior use on the elongated ribbon. Meanwhile, certain elements of the US underground became critical, and Jason took it personally. The company disappeared into the recesses of a conglomerate, while the speakers live on thanks to an Australian die-hard who cares about them as much as I do.

A pair of Apogee Scintillas stands in my listening room, framing whatever system I'm using at the time. They remain my most cherished components, and not just because I maintain that the Apogee Scintilla is still the greatest loudspeaker ever made, 25 years after they first appeared. Rather, they have a special place in my heart because, more than any audio component I've ever heard, they reveal the soul of the man who voiced them.

APOGEE TIMELINE

1981	Company founded as Apogee Acoustics
1982	Apogee's first commercial product is the Full-Range ribbon speaker
1984	The Scintilla is shown at CES, Chicago
1985	The Scintilla is released
1986	Launch of the Duetta
1988	Apogee Diva launched, with external crossover
1990	Apogee begins to use Mylar instead of Kapton in certain ribbons
1990	The Apogee Stage – the 'baby' Scintilla – is debuted
1991	Launch of the first ribbon hybrids
1991	Scintilla production ends
1992	Launch of the Apogee Grand
1994-5	Centaur ribbon hybrids launched
1998	Stage production ends
1998	Jason Bloom sells Apogee to a/d/s
2003	Jason Bloom dies after a fall in his NYC apartment