

mics quickly found favor as an ideal medium — more natural-sounding than dynamic mics, but without the need for the bulky, noisy power supplies required by condensers. In fact, the ribbon mics of the 1930s and '40s vastly outperformed even their condenser counterparts, becoming a staple of leading radio (and later TV) broadcast facilities worldwide. And though these new ribbons were a bit lacking in high-frequency performance, the limited bandwidth delivered by the rest of the signal chain made those shortcomings somewhat moot.

Ribbon mics were not without their problems, though, the most notable of which was fragility. The ribbon elements were extremely delicate, and a loud, booming voice at a range of less than two or three feet would most certainly do damage by stretching and distorting the ribbon; a drum or loud percussive sound at close range would spell certain death. The transducer's low-output voltages and low-output impedance also required a transformer, which inevitably added noise and coloration.

Ribbon mics were also cumbersome to assemble, making mass production somewhat problematic. Even the most shallow breathing or trembling fingers during the assembly process could derail a unit, and finding and training steady-handed factory workers became an ongoing challenge. In the years following the second World War, many of the original ribbon manufacturers, including RCA, simply discontinued their offerings. Others, like Shure Brothers, began to phase out their product lines in favor of dynamic microphones, which were improving in quality and becoming immensely more profitable to manufacture. Although a few companies continued to produce ribbon mics (most notably beyerdynamic, with their M-series offerings), for the most part ribbons became increasingly scarce throughout much of the 1960s, '70s, and '80s, with older models in good condition commanding ever-higher prices on the used market.

THEY'RE BAAAACK...

Today, thanks to improved manufacturing materials and techniques, more powerful magnets, and ever more efficient transformers, the ribbon microphone has experienced a renaissance. Modern ribbon mics are robust enough even for stage use, and can easily compete with dynamics in handling the SPLs of a speaker cabinet or drum kit. And their vastly improved high-frequency articulation makes them an ideal choice for applications formerly reserved for high-end condensers.

The bidirectional (or figure-eight) pickup pattern of a ribbon mic also makes it a good choice for room miking of small ensembles, or for stereo recording in an X-Y or Blumlein array.

Older ribbon mics were also quite sensitive to phantom power, with many a classic ribbon fried by an inadvertent button press. Thankfully, modern ribbons are mostly immune to those problems as well.

HEROES OF THE RENAISSANCE

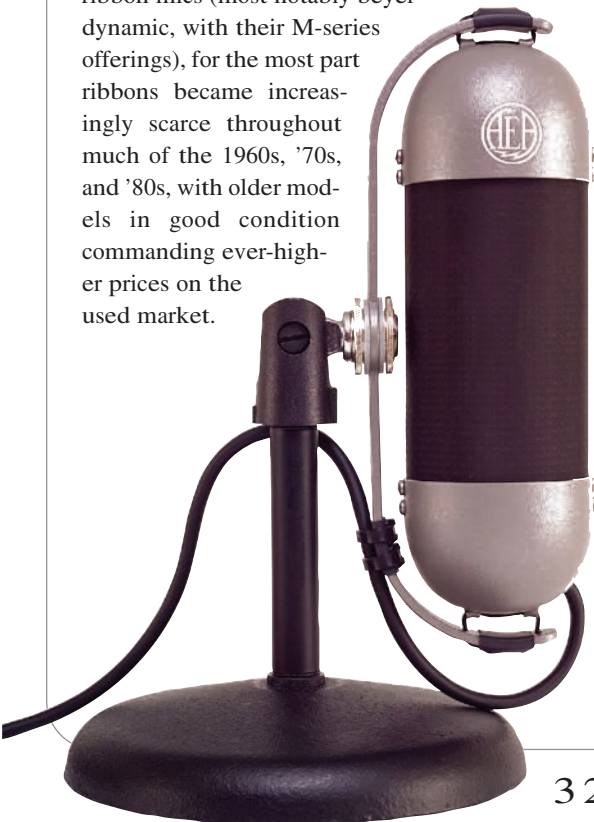
A sampling of ribbon mic makers and their offerings can also serve to highlight the innovations and technologies modern ribbon mics bring to the table. One of the first companies to champion the resurgence of the ribbon mic was Wes Dooley's **Audio Engineering Associates**. AEA's painstaking attention to detail, first in restoring and then replicating many of the original vintage RCA ribbon models, brought Dooley and the company respect and recognition within the tight-knit pro audio community, and qualified Dooley and company as experts in designing their own ribbon mics. Today AEA continues to specialize in ribbon technology, and their highly regarded line of ribbon mics and preamps can be found in studios worldwide, as well as showing up in movies and TV thanks to their oversized classic styling.

AEA (along with Portland Maine's Independent Audio) also distributes the equally well-respected **ST&C**



Coles line of ribbon mics, manufactured in the U.K. Originally designed in the 1960s by engineers of the British Broadcasting Corporation, Coles mics continue to be a staple of the BBC and other broadcast facilities to this day.

Royer is one of the names most identified with the modern resurgence of the ribbon mic. Noting the dearth of new ribbon mics in the late 1990s, David Royer began creating a new line of ribbon mics, introducing the addition of active electronics to boost the ribbon's traditionally low output to a level comparable to that of dynamic mics. Despite the initial trepidation of some pro audio veterans to employ ribbons outside the



safe haven of the studio, Royer quickly established itself as a new standard for ribbon mics, with their early offerings soon finding their way into nearly every studio's arsenal. More recently, Royer has begun offering a new line of ribbon mics that utilize a thicker, more durable ribbon and active electronics, making them ideally suitable for use in live performance.

Shure was one of the original ribbon mic manufacturers, keeping production of models like the 313, 330, and 333 alive until the early 1980s. Recently the company acquired the assets of Crowley and Tripp, a division of Soundwave Research Labs and the manufacturer of the El Diablo and Naked Eye ribbon mics. Rebranded as the Shure KSM353 and KSM313, these mics feature a patented ribbon material known as Roswellite, which offers a far higher tensile strength and more resilient shape memory than the traditional aluminum ribbons of years past. Both models also incorporate custom-wound, shielded transformers for quiet operation. The KSM353 features a static figure-eight pattern, while the KSM313 utilizes dual-ribbon assemblies to enable the front and back of the mic to offer two different sets of sound characteristics. The KSM ribbon mics have been quickly gaining popularity with live sound engineers, speaking well for their durability and focused coverage patterns.

Despite a long history as a microphone manufacturer, **Audio-Technica** is a relatively new entry into the ribbon mic category. A-T has 18 patents pending for aspects of their ribbon microphone designs, including the "MicroLinear" pattern imprinting of the ribbon element, said to reduce ribbon distortion, improve durability, and extend high-frequency performance. Utilizing the imprinted ribbon technology now popular with many manufacturers, the company's AT4080 is a bidirectional active ribbon mic targeted for vocals that features dual ribbons

for increased sensitivity and extended SPL handling. Audio-Technica also offers the AT4081, a slimmer version designed mainly for instruments. Both mics are equally suited to studio and live applications.

beyerdynamic is perhaps one of the few, if not the only, company that has never actually ceased production of ribbon microphones. Their M-130 and M-160 double ribbon offerings (figure-eight and hypercardioid coverage patterns, respectively) have been a staple of European broadcast and recording studios for many years, and although they have never achieved the mass saturation of some of their competitors, the beyerdynamic name continues to be a favorite among many engineers.

Sound Engineering, the makers of **SE Microphones**, is another relatively new player in the ribbon mic field. But the company's association with

Rupert Neve has led to the creation of the RNR1, billed as the world's first high-frequency ribbon mic. The RNR1 boasts a frequency range of 16 to 25 kHz, well beyond that of the typical human ear, and considerably higher than most vintage ribbon mics, with active electronics designed by Sir Rupert.

Blue Microphones is another company that has quickly established a reputation for quality. Blue's Woodpecker ribbon mic has received praise and great reviews from a wide range of studio engineers and publications citing its open characteristic and superior high-frequency performance.

Aspen Pittman's **Groove Tubes** made their mark as the place to locate hard-to-find replacement tubes for vintage amplifiers and other analog gear. But the company also introduced a line of highly regarded microphones, including the VELO 8 ribbon mic. The VELO 8 uses a Neodymium magnet for maximum sensitivity, and holds something of a cult status among recording engineers. The company was acquired by Fender Corporation in 2008, and although the mics have been somewhat hard to locate during the transition, plans are to reintroduce the full line of GT mics in the near future.

With more than 10 different models currently in production, Olympia, WA-based **Cascade** offers arguably the widest selection of ribbon mics of any single manufacturer. From retro styles reminiscent of the original RCA Victor offerings to a wide range of more futuristic designs, the company's single-output and stereo microphones have garnered praise in both the recording and live performance arenas.

Samson Technologies has grown from a budget-based upstart into a full-fledged technology provider. The company's Samson Audio division offers a range of studio monitors, signal processors, mixers, and microphones, including the VR88 ribbon mic. The VR88 is a hand-built, limited production mic that delivers the smooth, warm sound of a ribbon mic, but handles surprisingly loud SPLs — up to nearly 140 dB. Reviews of the VR88 have been quite favorable, making it a good choice for the budget conscious studio or live engineer.

Sontronics is a British mic manufacturer that began business in 2005 and quickly found a fan base in the crowded microphone marketplace. In 2006 the company introduced their Sigma ribbon mic, followed a year later by the Apollo stereo ribbon mic. A combination of endorsements from high-profile engineers and musicians, good reviews in the press, and an unprecedented lifetime warranty have led to high visibility for the company, and their ribbon mics have been finding their way into stage and studio at a rapidly growing pace.

Whatever the application, from studio to stage, from voice to percussion, ribbon microphones are now available that offer legitimate options for extending an engineer's sonic palette.

