FRED KAPLAN

Simaudio Moon Evolution 860A

POWER AMPLIFIER

In the May 2015 issue, I fairly raved about Simaudio's Moon Evolution 740P line-stage preamplifier,[1] and now here I am confronting its Moon Evolution 860A power amp. The two are companion models of sorts, with prices of $9500 for the 740P, $15,000 for the 860A—and for much of the time I spent listening to the 740P it was hooked up to the 860A, so some of the descriptions of sound in this review will seem familiar. The two components are both products of the same design shop—Simaudio, Ltd., of Quebec, which has been a prominent brand in high-end audio for 35 years—and are often marketed as a pair, so it should be no surprise if they have a common sound. However, I did try the 740P with other power amps and the 860A with other preamps, to the point where I could make some distinctions between the two, parsing which component contributed what to their sound together. It turned out there were differences in shade and emphasis, if not so much in color or character.

Description and Design

The Moon Evolution 860A is a solid-state amplifier with a dual-mono design and balanced differential circuitry. It pumps 200Wpc into 8 ohms or 400Wpc into 4 ohms, running in class-A up to 5W, then in class-A/B for the rest. The output stages are powered by 12 bipolar transistors per channel, each matched to extremely high standards, resulting in a

1 See www.stereophile.com/content/simaudio-moon-evolution-740p-line-preamplifier.

SPECIFICATIONS

Description Solid-state, dual-mono power amplifier. Inputs: 1 unbalanced (RCA), 1 balanced (XLR). Outputs: 2 pairs binding posts with biwiring option. Power output: 200Wpc into 8 ohms (23dBW), 400Wpc into 4 ohms (23dBW). Frequency response: 10Hz–200kHz, +0/–3dB. Voltage gain: 31dB. THD: <0.015% (20Hz–20kHz, 1W), <0.04% (20Hz–20kHz, 200W). Signal/noise: >106dB (full power). Input impedance: 47.5k ohms. Power consumption: 55W at idle. **Dimensions** 18.6" (476mm) W by 7.5" (191mm) H by 17.4" (445mm) D. Weight: 84 lbs (38kg) net, 88 lbs (40kg) shipping. **Finishes** Black, silver, two-tone. **Serial number of unit reviewed** 4524200. **Price** $15,000. Approximate number of dealers: 75. Warranty: 10 years.

Manufacturer
Simaudio Ltd., 1345 Newton Road, Boucherville, Quebec J4B 5H2, Canada.
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2002 Ridge Road,
Champlain, NY 12919.
Web: www.simaudio.com.

One pair each of balanced and unbalanced inputs and a pair of speaker binding posts.

This wasn't mere "audiophile" detail for its own sake; it was the sort of detail that enriched the rhythm and flow.

wide bandwidth, minuscule distortion, and a low noise floor (or so claims the owner's manual). Circuits are DC-coupled, reducing phase shift and deepening the bass response. Two custom-built, 500VA toroidal transformers, made of high-quality, slow-rolled Japanese steel, are tightly regulated so that, as the demand for current swells, the supply of voltage dips by no more than 3%, allowing—again, according to the owner's manual—"effortless" dynamic peaks through the most complex musical passages. The output section's high damping factor (specified as 800 for frequencies below 400Hz) "ensures an excellent 'grip' on woofer cone motions." Signal paths are shortened and impedance lowered through use of a four-layer circuit board—two layers for each audio signal, one for the ground, one for the power supply—etched with copper tracings.

Simaudio's Zero Global Feedback, a standard feature in all of its amps since 1998, is claimed to lead to "more accurate" musical tones, "elimination" of phase errors, and improved dynamic range. The 860A also uses Simaudio's proprietary Lynx Circuitry (introduced in 2005), which efficiently distributes power to each active device in the amplification circuit, resulting in greater speed and dynamics.

Finally, the 860A physically resembles other Moon Evolution products, with a sleek, ultrarigid aluminum chassis with curved edges, and thumbscrew cones protruding from its four pillar feet to minimize spurious vibrations.

The Setup

The owner's manual says that the Moon Evolution 860A needs 300 hours of break-in before it sounds as good as it's going to get, and my experience supports that claim. Simaudio also suggests leaving the amp on all the time; I found that any time I turned it off for a few days or longer, it took a few days (but no longer) to warm back up.

MEASUREMENTS

I performed a full set of measurements on the Moon Evolution 860A (serial no. 4524200) using my Audio Precision SYS2722 system (see www.ap.com and the January 2008 "As We See It," www.stereophile.com/content/measurements-maps-precision). As the amplifier is specified as having a maximum power output of 200Wpc into 8 ohms, I preconditioned it before the measurements by running it at one-third that power, 67W, into 8 ohms for an hour. Following that period, the heatsinks were warm, at 110.2°F (43.4°C). The THD+noise percentage at this power level was 0.0126% with the amplifier cold, 0.0115% with it fully warm.

The voltage gain at 1kHz into 8 ohms was higher than the norm, at 31.3dB with both balanced and unbalanced input signals, and the 860A preserved absolute polarity (*ie*, was non-inverting) for both inputs. (Its XLR jacks are wired with pin 2 hot.) The unbalanced input impedance was to specification at 46.3k ohms at 20Hz and 1kHz, dropping slightly to 34k ohms at 20kHz. The balanced input impedances were twice these values, as expected. The output impedance, including 6' of speaker cable, was very low, at 0.09 ohm at low and middle frequencies, rising to 0.11 ohm at the top of the audioband. As a result, the variation in response due to the interaction between this source impedance and the impedance of our standard simulated loudspeaker (see www.stereophile.com/content/real-life-measurements-page-2) was just ±0.075dB (fig.1, gray trace).

The frequency response was perfectly flat in the audioband, and down by 3dB at 120kHz into 8 ohms (fig.1, blue trace). As a result, the M28's reproduction of a 10kHz squarewave was

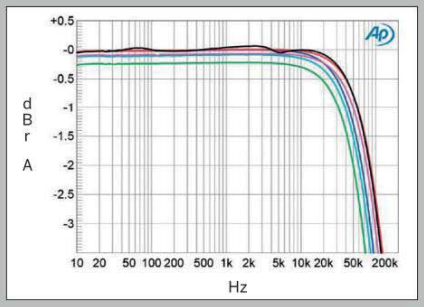

Fig.1 Simaudio Moon Evolution 860A, balanced frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right, red), 4 ohms (left cyan, right magenta), 2 ohms (red) (0.5dB/vertical div.).

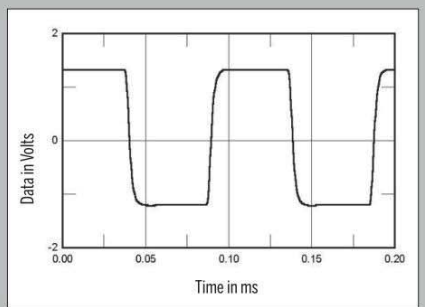

Fig.2 Simaudio Moon Evolution 860A, small-signal, 10kHz squarewave into 8 ohms.

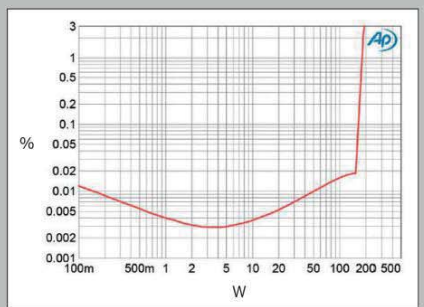

Fig.3 Simaudio Moon Evolution 860A, distortion (%) *vs* 1kHz continuous output power into 8 ohms.

I did all of my listening through Revel's Ultima Studio2 loudspeakers. For line-stage preamplification, I used the Moon Evolution 740P most of the time, though I occasionally swapped it out for the preamp section of the Moon Evolution 700i integrated amp and the Pass Laboratories XP-30 line-stage preamp.

To compare the 860A with other power amps, I briefly hooked up the 740P to the Pass Labs XA60.5 monoblock amps and to the amplifier section of the 700i, reconfiguring the latter's software to bypass its preamp section and volume knob. I've had the 700i in my system, off and on, for almost five years. I borrowed the Pass electronics from *Stereophile*'s editor, John Atkinson. And I was so smitten with the sound of the Moon Evolution 740P preamp that, soon after writing up my appraisal, I bought the review sample.

Dual-mono construction and two massive, custom-built transformers provide the grunt.

The owner's manual says that the Moon Evolution 860A needs 300 hours of break-in before it sounds as good as it's going to get.

The Sound

In my review of the Simaudio 740P preamplifier, I waxed about its get-out-of-the-way transparency, and the way all the music in a recording was "breathing forth at the same time." That might have struck me as a banal observation until I heard the way it reproduced the *wholeness* of a piano—the percussiveness of the hammers, the dynamic contrasts in the pressure and release of the pedals, the bouquet of overtones wafting in the air, the resonant vibrations of the piano itself—all of these sounds mingling at once in the same place. Ditto for the coherence of drums, and the synchronicity of a band's interplay—all were testimony to the 740P's low-level detail and distortion-free linearity.

I heard this same seamlessness with the 860A power amp; that is, the 860A amplified these details without adding colorations of its own. But I also heard other things that hadn't quite been picked up by the other amps I'd hooked up to the 740P—and that I hadn't heard, to such a degree, with other Simaudio amps. Most noticeable was the bass: subterranean, articulate, complex—and musical, not just a mush of bass tones. From Dave Douglas's *Charms of the Night Sky* (CD, Winter & Winter 910 015-2) I could

measurements, continued

essentially perfect, with no overshoot or ringing (fig.2). Channel separation (not shown) was >100dB in both directions at and below 1kHz, and was still 80dB L–R and 87dB R–L at 20kHz. Though some spuriae were present in the 860A's output at the mains frequency of 60Hz and its harmonics, these were all at or below –130dB ref. 2.83V into 8 ohms. The wide, unweighted signal/noise ratio with the input shorted to ground was 85.7dB (average of both channels), improving to 92.7dB with the measurement bandwidth restricted to the audioband, and to 95.1dB when A-weighted. Despite its higher-than-usual gain, the 860A is a quiet amplifier.

Figs. 3, 4, and 5 show how the percentage of THD+N in the Moon Evolution 860A's output varied with output power into, respectively, 8, 4, and 2 ohms. The downward slope of the traces in these graphs below 10W or so indicates that the actual distortion lies below the already low noise floor at low powers. The gentle rise in THD+N above 10W suggests that the circuit uses only a modest amount of negative feedback, though there is a sharp knee when actual waveform clipping starts to occur.

The Moon Evolution 860A is specified as being able to deliver 200Wpc into 8 ohms or 400Wpc into 4 ohms,

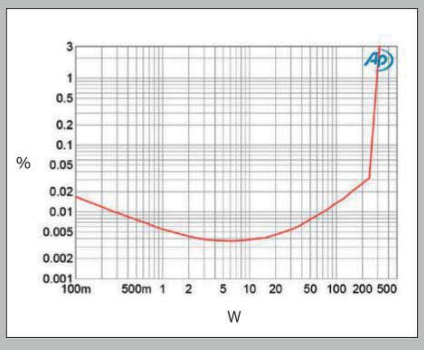

Fig.4 Simaudio Moon Evolution 860A, distortion (%) *vs* 1kHz continuous output power into 4 ohms.

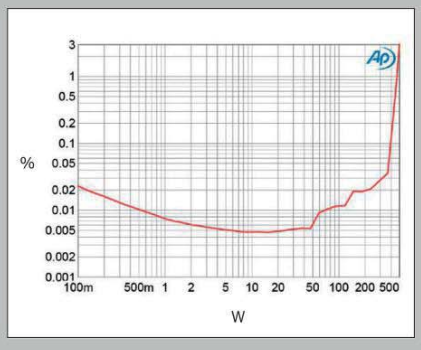

Fig.5 Simaudio Moon Evolution 860A, distortion (%) *vs* 1kHz continuous output power into 2 ohms.

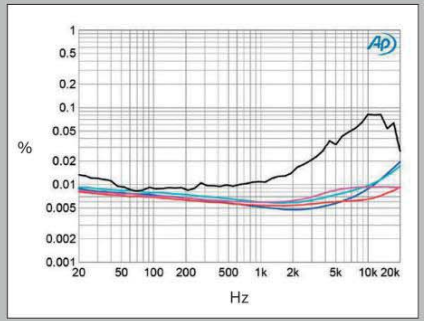

Fig.6 Simaudio Moon Evolution 860A, THD+N (%) *vs* frequency at 12.67V into: 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (gray).

clearly hear not just which notes but which strings of his double bass Greg Cohen was plucking: the tautness of the high strings, the thickness of the low ones, and how loosely or tightly he was clamping them on the neck. This wasn't mere "audiophile" detail for its own sake; it was the sort of detail that enriched the rhythm and flow, and that fleshed out the presence of a human musician.

The second big improvement was in the percussive edge of instruments' sounds: the strum of a guitar, the whack of a bass drum, the *sss* of a sibilant. Another example from that Dave Douglas album: In the March 2011 issue, when I compared the Simaudio 700i with the Krell FBI—both high-powered, high-priced integrated amps[2]—I noted that when Douglas's trumpet and Mark Feldman's violin played in unison, both amps allowed me to distinguish the two, each in a different way. The FBI let me hear the transient attack of Douglas's mouthpiece and Feldman's bowing; the 700i let me hear their distinct harmonic overtones and the way that brass vibrations sounded different from vibrating wood and string. I didn't hear those vibrations so clearly through the FBI, nor did I hear those transient attacks so clearly through the 700i. The 860A power amp let me hear both. The overtones were still clearer than the transients, but those transients were clearly, cleanly there.

There was a similarly revealing detail in "My Funny Valentine," from Miles Davis's *Cookin'* (SACD/CD, Prestige/Analogue Productions LAPJ 7094 SA). When the quintet breaks into a faster tempo, the FBI revealed Philly Joe Jones *letting up* on the hi-hat cymbal after tapping it with his stick, an effect that adds an extra layer of rhythm and cool that I hadn't noticed with the 700i (or with many other amps I'd sampled). I could hear this extra layer with the 860A as well. Ditto for "Nu-ages," the first track of *Chasin' the Gypsy*, saxophonist James Carter's inventive tribute to Django Reinhardt (CD, Atlantic 83304-2). In the comparison with the Krell, I wrote that the 700i didn't let me hear all the subtle rhythms and counter-rhythms tapped out by the triangles, bells, woodblocks, and other percussive bric-a-brac in Carter's ensemble. Again, the 860A did show and tell all, in full flair.

What most impressed me, as it had with the 740P, was my sheer pleasure in listening to music.

I don't mean, by any of this, to compare the Simaudio 860A with any current Krell power amps (which, in any case, I haven't heard). I'm only saying that certain trade-offs that came with past Simaudio amps have—at least with the 860A—largely evaporated.

However, one comparison that I noted back in 2011—between the percussive touch and the gorgeous overtones of Frank Kimbrough's piano on the Maria Schneider Jazz Orchestra's *Sky Blue* (CD, ArtistShare AS0065)—still held true: the 860A still didn't let me hear quite the full body contact with those keys. But, at the same time, the harmonic bloom was fuller still, and the horn sections were more palpable. A minute into the first track, "The 'Pretty' Road," when the woodwinds come in under the blaring brass, I could hear the saxes *blowing*—not just the value of the notes they were

2 See www.stereophile.com/content/simaudio-moon-evolution-700i-integrated-amplifier.

measurements, continued

both powers equivalent to 23dBW. However, figs.3–5 indicate that, with our usual definition of clipping as the power when the THD+N reaches 1%, the Simaudio delivers 180Wpc into 8 ohms (22.55dBW) or 290W into 4 ohms (18.6dBW), both figures taken with both channels driven; or 465W into 2 ohms (20.65dBW), one channel driven. The wall AC voltage was 122.6V with no signal being amplified, and 121.3V at the clipping point into 4 or 2 ohms, so that doesn't explain the slight shortfall in maximum output power. Even so, the Moon Evolution 860A is still a very powerful amplifier.

Measured at 12.67V—equivalent to 20Wpc into 8 ohms, 40Wpc into 4 ohms, or 80W into 2 ohms—the THD+N percentage remained very low into higher impedances, and the rise of THD in the top two octaves was mild (fig.6). The amplifier was clearly less comfortable driving high frequencies at this power level into 2 ohms, though the THD+N remains below 0.1%. The distortion signature, primarily a mix of the second and third harmonics (fig.7), remains low in level even at very high powers into 4 ohms (fig.8). Intermodulation distortion at a level just below visible clipping on the oscilloscope screen was also low (fig.9), the difference component at 1kHz resulting from an equal mix of 19 and 20kHz tones at 200W peak into 4 ohms lying at -86dB (0.006%).

Other than the slight shortfall in maximum power output, the Moon Evolution 860A lives up to Simaudio's reputation for excellent audio engineering.—**John Atkinson**

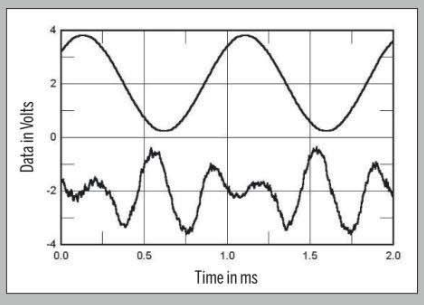

Fig.7 Simaudio Moon Evolution 860A, 1kHz waveform at 15W into 8 ohms, 0.005% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).

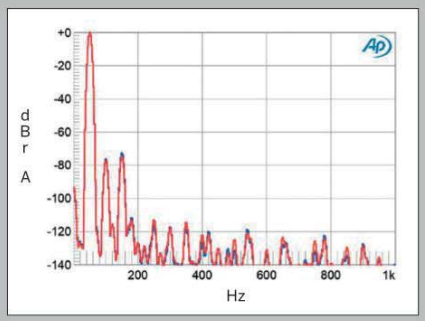

Fig.8 Simaudio Moon Evolution 860A, spectrum of 50Hz sinewave, DC–1kHz, at 200W into 4 ohms (linear frequency scale).

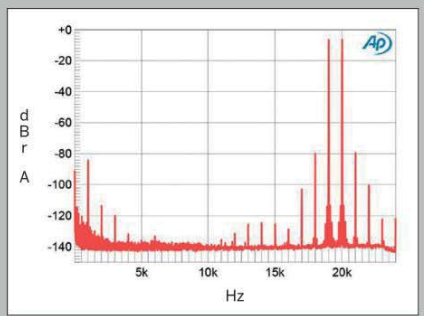

Fig.9 Simaudio Moon Evolution 860A, HF intermodulation spectrum, DC–24kHz, 19+20kHz at 200W peak into 4 ohms (linear frequency scale).

playing, but the sense of air rushing into the reeds and out the bells—more clearly, and with greater dimension, than I had before.

The clear dynamics of percussion instruments also came through in ways much less subtle. I don't know how many times I've listened to the wondrous Music Matters Jazz 45rpm reissue of Eric Dolphy's classic *Out to Lunch* (2 LPs, 45rpm, Blue Note/Music Matters Jazz MMBST-84163), but I'd never before heard the full range of drummer Tony Williams's rhythms, subrhythms, and counter-rhythms—some boisterous, some quiet and subtle. Ditto Elvin Jones's implosive, virtuosic brushwork in "You Are So Beautiful," from a reissue of *John Coltrane and Johnny Hartman* (LP, Impulse!/Speakers Corner AS-40).

But I fear I'm giving the wrong impression of the 860A. What impressed me most wasn't the subterranean clarity of a bass line or the crisp sizzle of a cymbal (which merely filled a shortfall that I'd heard with previous Simaudio amps). What most impressed me, as it had with the 740P, was my sheer pleasure of listening to music. Nothing stood out artificially; everything was clear and distinct and real, but also balanced.

Listening to Duke Ellington's *Masterpieces by Ellington*, in Analogue Productions' reissue of Columbia Records' aptly titled sonic jaw-dropper (LP, APJ4418; SACD/CD, APJ4418-SA), I could more clearly hear the horn players really blow when they played, and take a breath when they paused, and I could hear the pressure of Wendell Marshall's fingers on the neck of his bass. (Yes, this is a 1950 mono recording, but check it out. If you can find a Columbia original pressing in good shape, and g'luck on that, it sounds better still, though I doubt you'll find one that's anywhere near as quiet as this reissue.)

In Michael Tilson Thomas's magnificent rendering of Mahler's Symphony 9 (2 SACD/CDs, San Francisco Symphony 821936-0007-2), the subtle hesitations of those silky violins, the clarion trumpets, the chirping flutes and woody reeds, the effortless swelling of the crescendos—this is what high-end audio is all about. Switching gears entirely: In Yes's "I've Seen All Good People: Your Move," from the sonically excellent soundtrack album for *Almost Famous* (CD, DreamWorks 0044-50279-2), I heard more space between instruments, more 3D heft to the background singers, more air in the flutes, harder strums on guitar, more constant rhythmic *oomph* in the bass drum—and all of it stayed rock steady as the organ got real loud.

Let's not neglect how the 860A laid out a soundstage. Those clarion trumpets in Mahler's 9th were way, way back there, yet they carved as sharp an image as the chirping flutes and woody reeds upfront—and I mean *naturally* sharp, not Etch A Sketch artifice. From the recent gatefold reissue of *Blue* (LP, Reprise/Rhino 74842), which sounds better than the original in nearly every way, Joni Mitchell's voice seemed to belt, croon, and breathe right in front of me, and all her musicians were nearly visible, to the left, right, and behind her. Wide width, deep depth, 3D imaging: to the extent a recording and the rest of my equipment could toss up this illusion in my living room, the 860A could too.

The comparison

I do have one caveat. Midway through my listening, John Atkinson let me borrow the Pass Labs XA60.5 monoblocks. When I'd reviewed the Simaudio 740P preamp, JA had lent me the Pass XP-30 line-stage preamplifier (reviewing it in the April 2013 issue, he likened it to the proverbial straight-wire-with-volume-knob), to help me gauge how closely the 740P approached the final word in transparency. In some ways, it was an unfair match—the Pass costs 75% more than the Simaudio—but an illuminating one. Though the 740P was—and, I think, still is—a world-beater in its price range (I did say that I bought one, right?), it turned out not to be quite the last word in the universe of preamps; the XP-30 lit up a slightly deeper soundstage, revealed still more air between instruments, and sported a wider palette of colors.

So I thought it might be interesting to put the Simaudio 860A power amp up against a Pass Labs model as well—this one a more even match, as the XA60.5s (at $11,000/pair) are a *bit* cheaper than the 860A ($15,000). The results this time weren't so clear-cut. The Passes exuded a purer midrange: pianos sounded richer, violins silkier, with more extended highs. However, the Simaudio was the champ for dynamics, bass tautness, inner detail, and rhythmic rightness.

I'm not entirely clear what to make of these observations. I also listened to the Pass amps through the Simaudio 740P preamp—so does this mean that the 740P delivered the midrange richness, but the 860A couldn't amplify it with full fidelity—or was the XA60.5, perhaps by design, embellishing that area of the audioband? I didn't listen to the Passes for long enough to tell.

Another question, at the moment unanswerable: Were the 860A's strengths in bass, dynamics, and so forth intrinsic products of Simaudio's design—or was it simply that the 860A had more watts per channel (200 *vs* 60) and a higher damping factor (up to 800 *vs* 150)? Of course, the latter, too, would be the result of design choices. More probing of this point to come, perhaps.

The Conclusion

Comparisons—especially these tentative, inconclusive ones—aside, my time with the Simaudio Moon Evolution 860A was a deep pleasure. I've now heard several models from this company, and if an audio brand can be characterized by a sound, Simaudio's tends to be neutral, with a slight tilt toward warmth—a sound that appeals to my own taste. The 860A peeled back another thin layer toward neutrality with a warmth that seemed still more natural, and not the side effect of second-order distortion or some other artifact. ■

ASSOCIATED EQUIPMENT

Analog Source VPI Classic turntable & JMW tonearm, Ortofon Cadenza Blue cartridge.
Digital Source Krell Cipher SACD/CD player.
Preamplification Nagra BPS battery-powered phono stage; Simaudio Moon Evolution 740p and Pass Laboratories XP-30 line stages.
Power Amplifiers Pass Laboratories XA60.5 monoblocks. Integrated Amplifier Simaudio Moon Evolution 700i.
Loudspeakers Revel Ultima Studio2.
Cables Interconnect & Speaker: Nirvana. AC: manufacturers' own.
Accessories Bybee Technologies Signature power conditioner (not for power amp, only sometimes for other components); AC power from dedicated 20A circuits; Audiodesksysteme Gläss record cleaner; LAST stylus cleaners. —**Fred Kaplan**