

SAMPLER LIBRARIES ON CD-ROM

# KEYBOARD

AUGUST 1993

MULTIMEDIA EXPLOSION

CD-ROM

THE HOWS, WHYS & WHATS

SAMPLER-COMPATIBLE CD-ROM DRIVES

TODD RUNDGREN  
ON INTERACTIVE RECORDINGS

LAST CHANCE!  
\$43,906 DIGITAL STUDIO GIVEAWAY

REVIEWS

PEAVEY DPM si  
YAMAHA QY20  
YAMAHA TG500 • VOCE MICRO B  
YAMAHA CLAVINOVA & MORE

THE SECOND COMING OF

DONALD FAGEN  
AND STEELY DAN

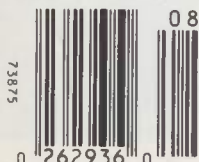
ON CD-ROM

PETER GABRIEL

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project in the  
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## Program boosts music industry with tremendous upsurge in new musical careers.

In a unique move designed to make its highly popular 0 Series instruments more accessible to everyone, Korg USA of Westbury, New York has announced a new Economic Opportunity Act that promises to have a significant impact on the high-tech world of music-making.

Recognizing that musicians often have more talent than disposable

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## Korg supports plan with 10% down and no interest for 90 days.

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## Program to cover 5 workstations.

Detailing the plan in an exclusive interview, our source added: "We've made it easy. Musicians go to their participating Korg dealer and audition the 0 Series. They can choose the great sounds of the original 01/W, the 01/Wfd with enhanced disk drive power, the top-line 01/Wpro

## customers mob Korg dealers in music industry resurgence.

Rumor has it that keyboardist Chaz Longo of Terre Haute, Indiana plans to complete an entire four disc set of complex orchestral rock in less than three months — for nothing more than 10% down and the price of electricity.

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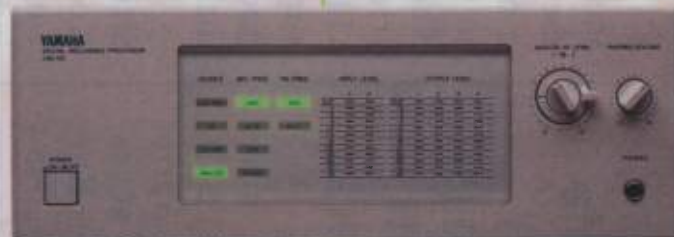
digital

**FIRSTS**

audio

The only program chosen by Yamaha for digital recording on the CBX-D5

Macintosh





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### 80 DIGIDESIGN DREAM GIVEAWAY

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GABRIEL CD-ROM 59



Bamboo and bicycle brake cables, the mellow tone. Try strumming the instrument on the album *Us*—can you

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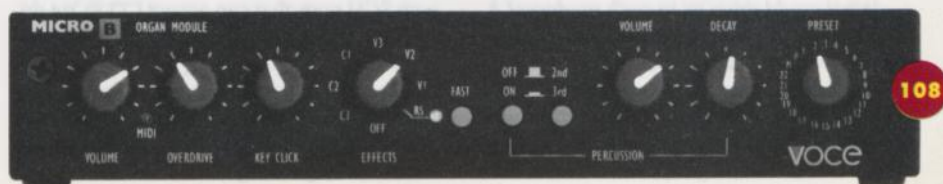
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DOMINIC MILANO



## THE GREAT WHITE HOLE

**O**KAY, SO I'VE BEEN STARING AT A blank computer screen all day. Every attempt I've made at getting this column written ends up being aborted as various disasters take place just outside my door. As deadline days go, this one's been a nightmare. We're supposed to ship the issue files off to be output to film (the first step in getting out of our Macintosh system and onto the printed page), yet a veritable ton of stuff keeps getting in the way.

Someone from E-mu stops in for lunch and points out that our catalog of CD-ROM sample libraries is missing a couple of CDs, which sends editorial assistant Debbie Greenberg and intern Mark Grey scrambling for the phones. Michael Marans has been up for three days and nights trying to figure out what's wrong with our \$20,000 AudioPrecision test gear, when E-mu calls to tell us that the glitch was in the EIlxs, not the AP — spec testing the day you go to press is not, well, not *normal*. I call out to Rich Leeds to see if he can give me a copy of the final Sounds column, and he responds that no one's turned it in to him yet. . . .

Just as I am convinced the end of life as we know it is upon us, Aikin and Darter wander in and glance at the blank screen of my computer. "Oh, it's a review of the Beatles' white album." "No, no, no. It's obviously an exegesis of the perfect Mallarmé poem." "Ahem, I believe we must be looking at a negative image of one of those Rauschenberg black paintings."

"No, you goons, it's the Great White Hole," I growl, realizing that this must be the payback for turning this perfectly normal music magazine into a magazine that puts — *say what?! —* CD-ROMs on its cover.

What could drive us to such madness? A whole bunch of seemingly disconnected events starting with last year's CyberArts conference, where Todd Rundgren demonstrated how his upcoming album was interactive in that each piece on it could be rearranged by the listener so that no two listening experiences would be

the same. It was amazing stuff, made possible by CD-ROM technology. It was also the most compelling new application of what I'd always thought of as a medium that offered as much excitement as a phone book. I made a note that we had to get Todd in the magazine when the CD became available.

The real impetus for the issue you hold in your hands came a few months later, when I helped judge the first annual Invision Multimedia Awards sponsored by *NewMedia* magazine. For two solid weekends, some of the brightest minds in the industry got together in the NM offices to pore over hundreds of entries in dozens of categories ranging from interactive adult enrichment products to interactive job retraining systems to interactive point-of-purchase products to games. Ninety-nine percent of the entries were designed to be delivered on CD-ROM, and had been put together by everyone from megacompanies with zillion dollar budgets (Apple, Microsoft, Philips, Warner/New Media) to homebrew artistic types with nil dollar budgets.

It was one major educational experience for me. Clearly a new industry was on the verge of coming of age (never mind all the inside jokes about CD-ROM publishing being a zero-billion dollar industry). And one thing painfully obvious: With the better CD-ROMs that weren't reference works like medical encyclopedias, one of the essential ingredients was music and sound.

At the awards presentation, I ran into Nancie Martin, a friend who proudly announced that she'd just landed a gig working on Peter Gabriel's CD-ROM. . . . Then there were all the CD-ROM-based sample libraries we were getting for review to consider. . . . Samplers with SCSI ports that can accept CD-ROM drives and questions of compatibility to be answered. . . . We're talking the stuff of cover stories. Check it out starting on page 34. 'Nuff said. That is, if we ever get the issue done. (Well, if you're reading this, something must have finally gone right.)

# KEYBOARD

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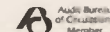
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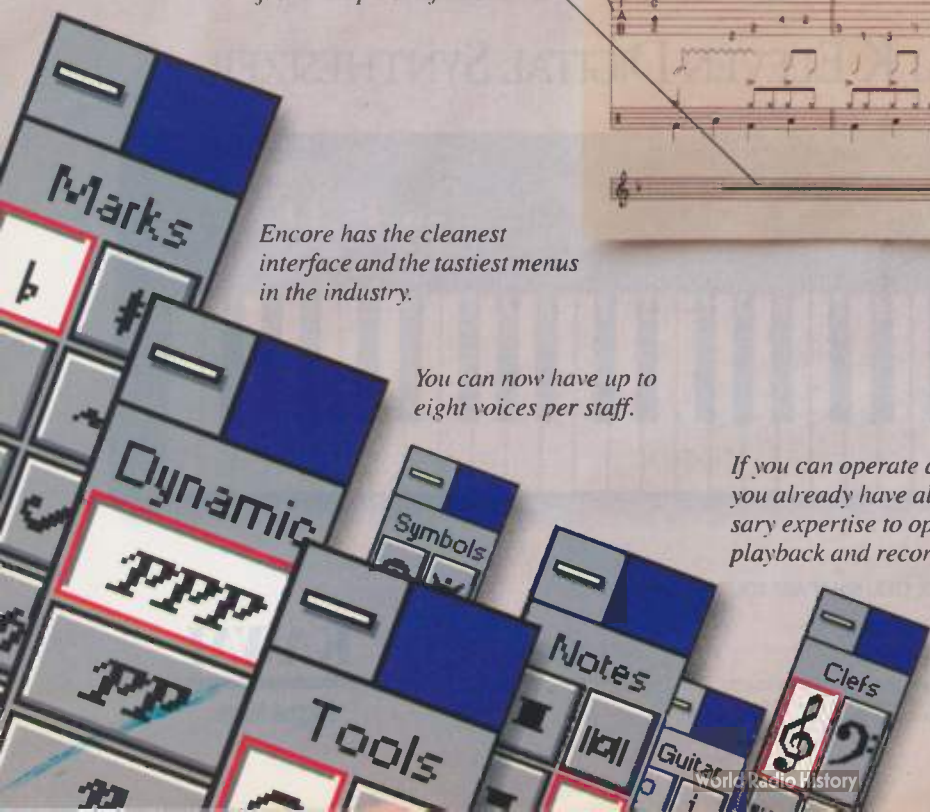
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SAMSON 1992



## Combo Organ Cavalcade

As a former owner of a big, red Farfisa Combo Compact, I enjoyed Barry Carson's article on combo organs [June '93]. One of the design features I remember about the Combo Compact was that both the optional bass pedals and the volume pedal could be attached to the organ's legs, thereby eliminating pedal travel. The Kustom Kombo organ and the Rhodes suitcase electric piano, among others, dealt with the problem by integrating their pedals into the supporting speaker cabinet. The Yamaha CP-70 and -80 electric grands put a chain on the sustain pedal and attached it to the front legs.

Sadly, this concept is lacking in most other keyboards. Some effects pedal manufacturers offer a floor box in which several pedals can be mounted together, but I'll bet even that moves around under pressure. Even the weighty combination pedal board/power module on my Roland RD-1000 digital piano tends to move forward, especially on smooth surfaces.

Today, stands are generally optional equipment, with companies like Ultimate Support Systems and Quik Lok offering support systems. There are even cable management systems to handle AC, audio, and MIDI connections. Wouldn't it be fairly simple to design a device or system that would connect to these stands and hold all types of pedals in place? Any enterprising industrial designers out there listening?

Joe Pobiner  
Grapevine, TX

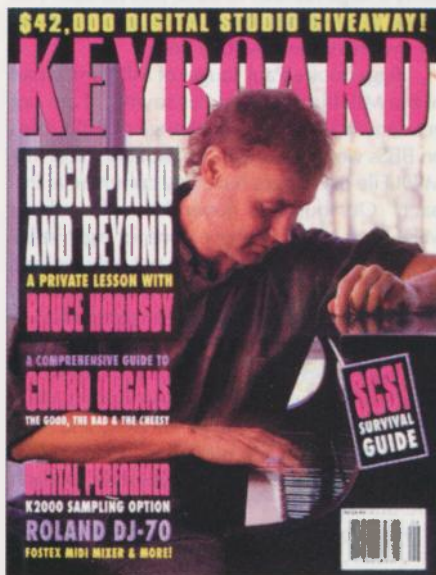
*[Grab an old piece of carpet, lay it out so your keyboard stand sits on it, and glue the hook side of a Velcro fastener to the bottom of each pedal. They'll never get away from you again.]*

I'm a 20-year-old organ player in a surfin' rock and roll band. I play a 1967 Farfisa Compact and a 1966 Mini Compact, and they sound fantastic along with the vintage guitars and amplifiers we use. The information you gave on the history of these organs was really helpful in furthering our knowledge of these great instruments.

Nick Contento  
Fairbanks, AK

In 1968 I was 15, and my good buddy across the street, Sonny, was an impressive 17. Both of us were suffering with the same piano teacher, so of course we both became serious Garage Key Warriors. Instead of doing new math homework, we spent laborious hours deciphering the music of the Doors and Iron Butterfly. I remember it all clearly: the Korvettes stereo, the worn-out copy of *Strange Days*, Sonny standing behind a beat-up Lowrey console, and me, so very cool with my Fender Starmaster. . . .

Barry Carson states that a "Fender combo organ, the Starmaker, apparently never made it into production." Well, I'm here to tell you



it did, because I had one, but it was called the Fender Starmaster. It was housed in a sickly green shell, not unlike a long turtle. There were four small holes on the bottom of this shell, two on either side. A very precarious wooden board with four "wings" fit into these holes via small rubber inserts. This was the instrument's stand. The top of the Starmaster was cheap ersatz wood and highly breakable plastic. I believe it had a five-octave keyboard with one reverse-color octave for bass.

The Starmaster's sound came from the fairly standard 16' and 8' String, Reed, Trumpet, and Flute stops, if memory serves. This instrument had a slight overdriven "kick" to it, which allowed it to cut through a considerable amount of noise. The only problem was that it kept breaking and falling off its stand.

I'm not exactly sure what Sonny's up to these days. As for myself, I'm currently looking at the K2000, the TS-10, and a Wersi piano.

Jeff Rhoads  
Chambersburg, PA

I really learned a lot from Barry Carson's article on combo organs. But there was one minor technical inaccuracy. Carson notes that the vibrato speed on the Vox was not adjustable. It is true that it can't be adjusted from the control panel, but there is an unmarked knob just above the power supply inside the organ; this knob

controls vibrato speed. Apparently players were supposed to decide on the speed they liked, and then leave it alone.

I was interested to discover that my Vox organ is one of the "legendary" American Continentals. According to the metal plate on the bottom, it was manufactured by Thomas Organ Co. in Sepulveda, California, under license from Jennings Musical Industries, Ltd., Dartford, Kent, England. It does have wooden keys, and like the British Continental it has a single hole in the back for the music stand. The 1966 date on the inside of the organ (which agrees with the American start-up date given in Mark Vail's Feb. '91 Vintage Synths column) indicates that the American Continentals were made considerably earlier than the '70s date given in Carson's article, which could mean that they are perhaps not as rare as he suggests.

One Vox rarity I have not been able to find is the circuit schematic for the organ. If anyone can help me find one, I would be grateful.

David A. Anderson  
3545 Keystone Ave., #7  
Los Angeles, CA 90034-5559

## Copyright Abuse

It's bad enough to suffer through Robert Coleman's diatribes each month: Now I have to read Simon Higgs's bullshit about "copyright abuse" [June '93]. The *only* people hurt by posting MIDI Files to BBSs around the world are the very same people who went on a crusade not long ago to enforce copyright licensing on small club owners. These people are *not* the artists responsible for creating the music. They are the "suits" trying to leech even more money from the creative talent's endeavors. How many of today's truly creative and famous talent really give a flying fuck if some poor slob in Omaha acquires some other poor slob's rendition of their "hit"? How many *really* care if some weekend warriors are rearranging their "hit" as they perform it at some dive in Cleveland? Probably not one. The last time Bruce Springsteen was here in Pittsburgh, he actually went out to see a local act that was known for covering his tunes. He even went onstage and jammed with them! Do you think he wanted to be paid? Do you think he was worried about royalties?

If I'm ever lucky enough to record a hit, I'll want it to be covered. I'll want it to be put into MIDI File format. I don't want some self-serving, two-faced "licensing" organization to harass hard-working, talented people who like my song and are just trying to have some fun. Remember, fun is what it's all about.

Barry R. Guzik  
Pittsburgh, PA

Continued

*Send correspondence to: Letters, Keyboard, 20085 Stevens Creek, Cupertino, CA 95014.*



## LETTERS

There is a secret alcove where I keep a bunch of disks. With the right hardware and software, I can produce custom sheet music, new arrangements, and MIDI sequences. These I can perform, record, or erase as I please.

My disks are CDs, the hardware is my ears, and the software is my imagination.

Are those of us who painstakingly transcribe solos off our favorite artists' records guilty of infringing on their publishing rights? Is it any better than the hours someone spends quantizing and editing that MIDI File they imported into transcription software? Both formats, audio and MIDI, contain the same notes.

If I go to the local music store, sit down at a piano, and sight-read a few songs out of a book I'm thinking of buying, do I owe performance royalties? If not, then why is it a problem if somebody downloads a sequence to demo as a possible addition to their live repertoire? In either case, the royalty is presumably being paid at the point of performance.

I'm reminded of a month I spent studying rare manuscripts at London's Warburg Institute. Photocopying was expressly forbidden, although acceptable alternatives included taking notes, dictating into a tape recorder, and transcribing into a laptop computer. In the end, I wound up with the same information I would have acquired by photocopying, though it took longer to get. Then, as now,

I ask: What's the difference?

Richard Kaczynski  
Royal Oak, MI

Higgs not only never mentions that MIDI sequence companies exist — he implies that all MIDI File distribution is being done illegally. He goes into great depth about songwriters being ripped off, but never mentions the musician-programmer who creates the MIDI File. The computer arrangement created by a programmer is copyrighted, yet bulletin boards give away a large number of these files for free. This results in enormous loss of revenue for the rightful owner of these MIDI Files.

Higgs quotes Paul Tauger of MIDlum, a part of the MIDlink network, as saying, "I am not yet convinced that the exchange of MIDI Files on BBSs violates Copyright Law. I don't feel that MIDI File exchanges have any commercial impact." Our business depends on the sale of MIDI Files; it is all we have done for eight years. Giving away our files illegally not only violates our rights but undermines our entire industry. The financial impact is not only substantial — it is devastating.

Higgs writes about mechanical and synchronization licenses but never mentions a MIDI license. MIDI licenses do in fact exist, and have for five years. Tran Tracks operates under a MIDI license and pays royalties to publishers for each sale of a song.

Higgs questions whether a MIDI File needs

clearance for print rights. He claims that a MIDI File "stores sheet music information and performance data at the same time." I invite Higgs to attempt to print one of our performance files. He would get the strangest-looking sheet music he has ever seen. Extensive and fundamental changes to the file are necessary before any kind of printing takes place, [changes which make] the MIDI File unusable in performance. A performance MIDI File is a separate product from a scoring MIDI File.

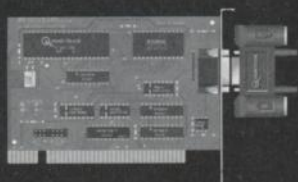
I am surprised that a magazine of your caliber would publish such a poorly researched and incomplete article, especially since you accept advertisements from MIDI sequence companies.

Suzanne Marshall  
Tran Tracks  
New York, NY

[Simon Higgs replies: "While the rest of the world waits for Barry R. Guzik's mega-hit (which he seems quite happy to put immediately into public domain), many of my friends who are truly rich, truly talented, and truly famous are pissed off because their licensing rights, from which they earn most of their living, are being undermined, if not stolen, right in front of their eyes. Barry, keep your McJob, as you obviously can't deal with the realities of the music industry.

[Richard Kaczynski can transcribe all he wants and he'll not be infringing anyone. But

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if he makes copies of his transcriptions and distributes them without the permission of the copyright owner, even for his students, then he's breaking the law.

"Jeez, Suzanne, it's a good thing we're friends! You make a living from selling MIDI sequences legally, and you're from one of the few companies that makes sure all its products are correctly licensed. That's no mean feat, considering the archaic state of the music publishing industry. The article was focused on illegal distribution (without licensing) via BBSs, and definitely did not imply that all MIDI sequence sellers are pirates. But, as you are well aware, some of them are. The current MIDI license is woefully inadequate to deal with the future of electronic music publishing. Unless a MIDI File license covers all that a MIDI File can do (which includes print, sync, and mechanical), then this industry is going to remain at a stalemate. You, the sequence makers, the songwriters, and the publishers are going to lose money until an agreement is reached and the sequences are correctly licensed and distributed. Lastly, you damn well know that Dominic Milano did the industry a service by covering this topic and starting a dialog that should have begun long ago. The article was read and discussed by most of the major publishers in Hollywood before publication, and all of the organizations listed in the article provided input. If the article was incomplete, it's because it never intended to wave the flag for any particular

MIDI sequence manufacturer."

The article entitled "Copyright Abuse" attributes to me a quote which was taken out of context and which misrepresents my views regarding the issue of copyright protection of MIDI sequences. I have always maintained that MIDI sequences are subject to copyright protection. It does not matter whether a MIDI sequence is ultimately determined to be a "sound recording" or a "publication"; creating a MIDI sequence and exchanging it via modem without permission is a violation of the rights held by the owner of the copyright of the underlying musical work. The statements Mr. Higgs attributes to me were *not* made in regard to whether the exchange of MIDI Files violated the Copyright Act. They addressed whether I believed a computer bulletin board system operator was legally liable for such violations.

As a responsible bulletin board operator I (and all the other participating bulletin boards on the MIDLink Network) abhor software piracy and absolutely forbid the uploading of copyrighted material without the permission of the copyright owner. This policy is strictly enforced. If copyright-protected material has been uploaded it is immediately removed; callers who violate copyright law and bulletin board policy are barred.

Computer programs and text files which are subject to copyright protection and restrictive license, i.e., not in the public domain or share-

ware, generally have copyright notices embedded within them. MIDI Files do not. Whereas programs and text files can be screened for potential infringement simply by reading them or running them, the only way a system operator can determine whether a MIDI File is infringing is to conduct a copyright search for [the musical material in] each uploaded MIDI File (which is prohibitively expensive) or to have an encyclopedic knowledge of twentieth-century music. It is neither practical, possible, nor, in my opinion, legally required that a system operator investigate each and every MIDI File uploaded by callers to determine whether or not it is protected by copyright. It is the *caller* who misuses bulletin boards by uploading copyrighted material in violation of bulletin board policy and federal law and who is therefore liable for copyright infringement, not the operator of the system, who did not consent to and in fact explicitly forbade such misuse.

Mr. Higgs's article incorrectly assumes that system operators have a legal responsibility to determine the copyright status of all material uploaded to their bulletin boards. What little law exists on this issue is to the contrary. For example, in *Cubby, Inc. v. CompuServe*, a 1991 libel case tried in Federal Court in New York, the court described CompuServe as "... in essence an electronic, for-profit library that carries a vast number of publications and collects usage and membership fees from its subscribers in return for access to publications ... a com-

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## LETTERS

puterized database is the functional equivalent of a more traditional news vendor." CompuServe was held not liable for libelous statements contained in one of its SIGs (Special Interest Groups) because the court found that it was a *distributor* rather than a *publisher* of the material it carried.

The "publisher vs. distributor" distinction is crucial: Courts have held that the First Amendment forbids holding distributors liable for the contents of the material they carry. Nor do distributors have a responsibility for evaluating this material. However, at present, no court has looked at this issue from the standpoint of copyright liability for bulletin board operators.

The correct statement of my views is this: I am not yet convinced that a system operator is liable for the non-permitted and non-knowing presence of copyright-infringing MIDI Files on his or her system. If it is ever held otherwise, MIDlum (and all the other participating MIDI bulletin boards on the MIDlink Network) will comply with the law. Most likely, system operators will simply elect not to carry MIDI Files, particularly if Mr. Higgs's suggestions are implemented. This would be unfortunate, as it would eliminate the availability of music that is in the public domain, as well as music by new composers seeking a national audience for their work.

You should be aware that Mr. Higgs asked my permission to quote selected portions of messages I posted on the MIDlink Network for his article. I told him, expressly and unambiguously, that I did *not* want to be quoted because I didn't want my views presented out of context, misstated, or distorted. Mr. Higgs's misrepresentation of my position was irresponsible; *Keyboard's* publication of that misrepresentation was even more irresponsible. Beyond the misquotes attributed to me, Mr. Higgs's article contains numerous errors regarding the law of copyright.

It is true that intellectual property law has not kept pace with the explosive growth of computer technology. Sane, consistent, fair law *must* be created to remedy this. Public discussion of these issues so vital to musicians is crucial, and publications like *Keyboard* should be in the vanguard of that discussion. However, publication of misinformation, half-truths, and distortion will not further this end.

Paul N. Tauger  
System Operator  
MIDlum BBS

[Simon Higgs replies: "Firstly, Paul did give his permission (implicitly) by responding to my request for a comment. He gave me specific instructions on what material he didn't want me to use — an unpublished college paper he had written. I followed his instructions, and I did not quote him out of context. Also, he did not object when the article was first published

in a slightly different form in a Los Angeles songwriters' magazine, so when *Keyboard* ran the article I saw no need to change anything.

"Paul and I essentially agree on the situation. Where we differ is mainly in the question of what the responsibilities of the sys-ops of the BBSs are. Obviously, a sys-op has no control over what is uploaded, but he or she does have total control over what is made available for download. If a MIDI File contains a currently copyrighted work (and by the way, a MIDI File can have a copyright notice embedded at event FF02, though the absence of this notice is not a guarantee that the musical work is not protected by copyright), then it should have the same protection as any other copyrighted piece of software.

"Paul quotes Cubby, Inc. v. CompuServe, which was a libel case. This precedent works fine for message-posting areas on BBSs, where ideas and conversations should be protected by the First Amendment. What Paul doesn't mention is the action already taken by the FBI against BBSs for copyright violations because of software distributed through their databases. On Saturday, Jan. 30, 1993, the FBI raided 'Rusty & Edie's,' a computer bulletin board in Boardman, Ohio, which had allegedly been illegally distributing numerous copyrighted business and entertainment programs. This action was a direct response to the allegation that sys-ops were allowing copyrighted software to be

Continued on page 142

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*Craig Anderton, EQ magazine*

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Assembled by Robert L. Joerethuk.

Overseas correspondents: Matthias Becker,

Ken Hunt, Mark Jenkins, Amir Khan,

Wojciech Kubiak, Con Ukyvik, Peter Machajdik,

Vladimir Pervoshin/Novosti Press,

Charly Pralong, Lesley Sly, Daniel Sofer,

Arnaldo de Souto, Richard Trynall.

Joe Chmelik of San Diego, CA, who won the Kurzweil K2000 offered in our May '92 contest; Gary Miller of Murrieta, CA, now the proud owner of our July/Aug. '92 trio of Ensoniq products; and Ed Lowry of Rapid City, SD, and Bill Cattlett of Wilmington, DE, first- and second-prize winners, respectively, of our Nov./Dec. '92 Bag End, Mackie, and Stewart sound systems.

## KEYBOARD GIVEAWAY WINNERS

**O**ps. It's a good opening word, with a nice round "O" that works well as an initial cap, don't you think? More

than that, it's a clear synopsis of that classic admission: We screwed up. Somehow we failed to publish the names of the winners of several recent *Keyboard* Giveaways. So, without further adieu or confessions of negligence, here they are: **Ryan Gilbert** of Rochester Hills, MI, and **Bill Biersach** of La Canada, CA,

winners of the two Hammond XB-2 organs made available in our Nov. '91 Giveaway; **Steven Fortner** of Broken Arrow, OK, **Steven Dargis** of Saco, ME, **Jim Salamone** of Philadelphia, PA, and **Ian Loggins** of Lynnwood, WA, each the winner of an Atari-based computer music system put up for grabs in Jan. '92;

## CAREER UPDATE

Session legend **Richard Tee** was honored on June 6 at Club Tatou in Beverly Hills. Known for his landmark keyboard work with everyone from **Jimi Hendrix** through **Mariah Carey**, Tee was diagnosed with

## SYNTHS & SENTIMENT

SUZANNE CIANI FINDS ROMANCE  
AMONG THE PATCH CORDS

**H**ER EYES WIDE, FACE FIXED IN AN ECSTATIC half-smile, Suzanne Ciani drinks in the music that moves her most deeply. Her new age synthesizer recordings are the epitome of technological sophistication — but what, we had asked, does she listen to at home for pleasure? So that we could share the experience, she put on her current favorite: a pop CD released in Italy by Luciano Pavarotti.

Is this an essential contradiction in Ciani's artistry, or has she successfully bridged the chasm between two worlds? As a composer, she is an unabashed romantic. From her first release, 1982's *Seven Waves*, through a string of successes that includes *Neverland*, *Hotel Luna*, and last year's best-of package *The Private Music of Suzanne Ciani*, the warm textures, gentle rhythms, and catchy melodies appeal more to the heart and the senses than to the intellect. "Even in my craziest days of graduate school," she admits, "where everybody was making noise, I always liked notes."

The other Suzanne Ciani is a high-tech perfectionist, driven to do whatever it takes to achieve her musical vision using the best available tools. In the living room of her rented house in Bolinas, California, beneath the picture window overlooking the long curve of Stinson Beach, stand her racks of gear, including three Yamaha DMP7 automated mixers, the inevitable synth modules, a Macintosh IIcx, and a Yamaha Disklavier. The cat sleeps on one of the DMP7s, because the panel is warm from the afternoon sun. Suzanne composes on the Disklavier, because it lets her play a real grand piano and still catch the moment of inspiration in a computer. A pure acoustic music experience? Hardly. The Disklavier is MIDled to a Korg M1R and an old Yamaha TX7,

which add a subtle touch of warmth and sparkle to every phrase. Her *Pianissimo* CD was recorded using just such a system.

And those mandolin tremolos on *History of My Heart*? Again, she was aiming at a listening experience, not at some vision of acoustic virtue. We had already guessed that the mandolin part was composed using an M1 factory patch, but she admitted that in the studio she doubled the real mandolinist with the M1 to make the track richer.

Ciani's next project is slated to be an orchestral album. For inspiration, she has turned to beloved piano pieces from childhood, and to the Bach *D Minor Clavier Concerto*. Of her compositional style, she says, "I'm a minimalist. I like to go to the essence of an idea. It's kind of like Schenkerian analysis. You look at this huge, complex piece of music and reduce it to eight whole-notes. In my writing, there has to be some little nugget of melody that can't be reduced any further."

Ciani started out sequencing with Magnetic Music's *Texture* on an IBM, and later switched to Mark Of The Unicorn's *Performer* on the Macintosh. Now she's switching again, to Opcode's *Vision*. To get her hands on some esoteric features? "I think it's just a rapport with the outlook of the company," she confesses. "I do like in *Performer* the fact that the notation scrolls during playback. *Vision* doesn't have that. There are good things about both programs." But while her approach to choosing software may sound intuitive, it would be a mistake to conclude that she's not down in the trenches. She can tell war stories about too-hot SMPTE code frying a Roland SBX-80 during a concert, about MIDI and printer problems with her Powerbook, about IBM software that started crashing just before a tour when she switched from an XT to an AT. "Everybody told me, 'Oh, you're going to love the AT. It's so much faster!' And we set up for the concert, and nothing worked."

In a 1979 interview in *Keyboard*, Ciani was envisioning a "digital Mellotron," essentially today's sample playback synthesizer. Yet today she feels something has been lost in the rush toward slick technology.



prostate cancer while on the road with Paul Simon's *Rhythm of the Saints* tour. The fund-raising event included dinner, dancing, a retrospective on Tee's career, and performances by an all-star assembly of guests. . . . Before leaving for his European tour, Bruce Hornsby gave Philadelphia fans a treat by sitting in with the Grateful Dead at RFK Stadium in late June. Other jammers included Sting and Branford Marsalis. Look for Hornsby on the American concert circuit this fall. . . . Starr Parodi is shopping demos for her new solo album. Since she recently acquired a 1928 Steinway B formerly owned by MGM, expect a lot of piano on this one. . . . Look for a strong American debut from Ozric Tentacles at the Wetlands in

New York on July 24. Known for its spectacular light show, the British neo-psychedelic band features Joie Hinton on keys. Hinton has been known to follow his band's set with his own more techno-oriented act, Beat Static. . . . Danny Elfman is taking a break from scoring movie blockbusters to work on the next

Oingo Boingo album, due this fall on the Giant label. . . . Gregg Allman is leading the Allman Brothers Band on a non-promotional summer tour. In other words, there's no new album to push; they're just playing for the hell of it, and hoping to get some good live tapes out of the deal. August fun spots include

Darien, Wantagh, and Montauk in New York, and Waterloo and Holmdel in New Jersey.

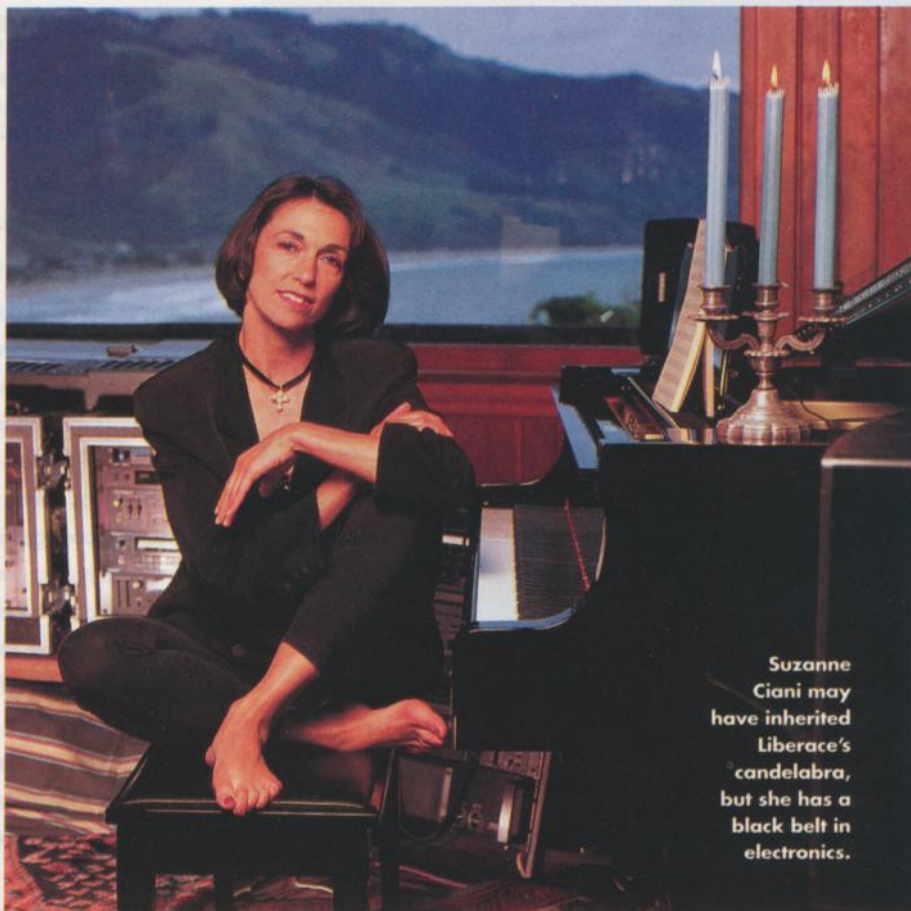
## ONSTAGE

**STRIDIN' THE BLUES.** If you're anywhere near New York on July

"The technology back then lent itself to an expression that we're missing today. It was wide open. You could have a timbre that changed in midstream. You could shape the notes, process them, add a spatial element. The Buchla modular system was great at that. It had a lot of variable parameters, variable waveforms and filters. Things could move and have a shape and a sensuality.

"Synthesizers are just machines. If you picked up a violin and a bow, and you didn't know how to play it. . . . 'Oh, my God, can you get music out of this thing? Listen to this horrible scratching.' For me, *Seven Waves* was showing that you could use this machine to make a sensual expression. My music was all based on this kind of feminine mystique of sensuality. My original love affair with the electronics was based on pioneering this, exploring what could be done. And now it's come down to, 'Don't we have some nice sounds?' We're back in the domain of notes again, purely, and I'm not sure why. I have ambivalent feelings about it. I could say that the promise of electronics was never fulfilled, because the way the instruments were marketed short-circuited the potential. But I could also say that a lot of what was done in those early days of electronics you wouldn't want to hear now anyway."

Some people might question whether Ciani's brand of laid-back new age could ever energize concert audiences. But she has performed successfully without resorting to rock-band gymnastics. For one European tour her ensemble consisted of a percussionist, a woodwind player who doubled on electronics, herself on MIDléd piano, and a



Suzanne Ciani may have inherited Liberace's candelabra, but she has a black belt in electronics.

few backing parts on sequencer. Her set list does include some crowd-pleasers, though. "One has the sense that you need some high-energy pieces, so I always put some of those in. I think a lot of my best pieces are not the high-energy pieces. The high-energy pieces are not my favorites, let's put it that way, but they do get a big response.

"Playing in front of an audience is a very personal thing. I do it for myself. I mean, I'm doing it for them, but I don't think of myself as an entertainer. I'm there to share something of myself with them." She is adamant that quieter music can be presented effectively in a live setting. "Maybe it depends on the audience, but my experiences in concert have been extremely positive. I've had some tough audiences. Once I opened for [fusion violinist] Jean-Luc Ponty, and I was just playing solo piano. That was a challenge. But I think it's all relative. Even solo piano can work, if you just be yourself. What else can you do?"

—Jim Aikin





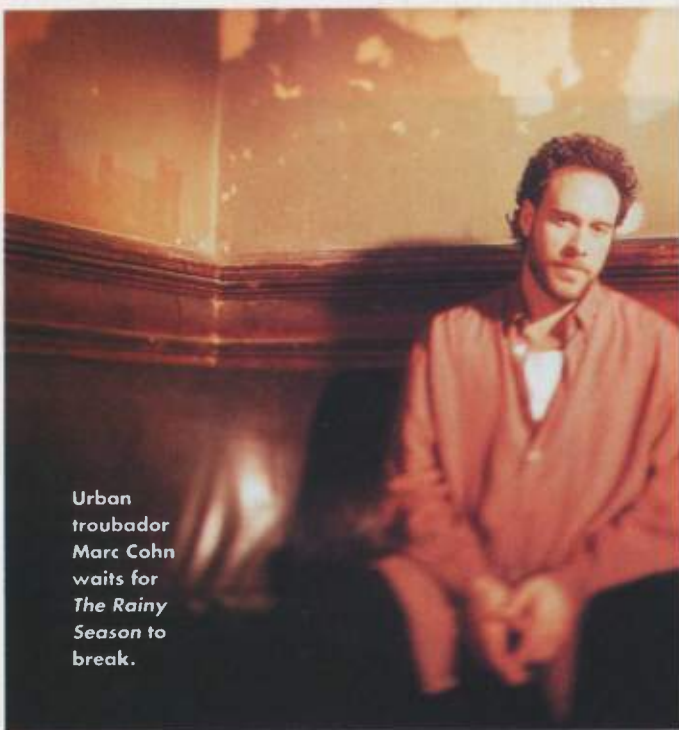
29, try to make it to the 92nd Street Y at 1394 Lexington Ave. That night, some of the tastiest stride, blues, and down-home jazz pianists in anyone's neighborhood will join forces for an evening of sol-

id blowing. Guests include **Ralph Sutton**, **Jay McShann**, **Dick Hyman**, **Ann Rabson** with **Saffire: The Uppity Blues Women**, venerable bass master **Milt Hinton**, and a host of other hot stylists. Call (212) 415-5450 for directions and additional information.

Lemberg, Poland, he displayed prodigious talent as a child; by age five, he was playing Bach *Inventions* by memory and composing original music. He was ten years old when he made his debut, playing Beethoven's *First Piano Concerto* with the Warsaw Philharmonic. Horowitz was the last surviving student of Theodor Leschetizky, the great pedagogue whose students included Paderewski and Anton Rubinstein. Highlights of his lengthy career included performances before Pope Pius X and John F. Kennedy. He had been a member of the Curtis Institute faculty since 1942.

### R.I.P.

**MIECZYSLAW HORSZOWSKI, 1892-1993.** The last link to the grand traditions of nineteenth-century classical piano died in Philadelphia on May 22. Born in



Urban troubador Marc Cohn waits for *The Rainy Season* to break.

## MARC COHN

A TIMELESS TREK THROUGH *THE RAINY SEASON*

**F**ROM THE ARPEGGIATED INTRO TO HIS HIT OF two years back, "Walking in Memphis," to the ethereal chording on "The Things We've Handled Down," the last cut on his new album, Marc Cohn builds much of his sound on the piano. But as recently as the early '80s, he had never laid a finger on the ivories. It took a creative dead end to bring this singer/songwriter face to face with his first keyboard.

"I was at Oberlin College in Ohio, studying psychobiology," he recalls. "I was writing a song on guitar, and I couldn't figure out where it was supposed to go. I knew there was a big building down the street at the Oberlin Conservatory that had a hundred pianos in it, so I went there, found a piano, played chords on the guitar, and figured out their counterparts on the piano — just very basic triads. For the most part, the way I was playing by the end of that afternoon is how I play now."

Either Cohn is excessively modest or he had an unusually enlightening experience that day at Oberlin. Like his eponymous debut album, *The Rainy Season* (Atlantic) reverberates with piano parts. On the upbeat opening cut, "Walk Through the World," he grabs onto

the groove laid down by drummer Jim Keltner and the rest of the ace rhythm section and doesn't let go. Elsewhere, he plays with a hushed delicacy, fills freely around the beat, and, especially on "She's Becoming Gold," explores rich down-home voicings on piano or electric piano. What's missing from *The Rainy Season* is synths and any other sound that might date the album as a product of the '90s.

"There was a time when I was curious about electronic stuff," he admits. "Before I got signed, I was hanging out with a guy in New York who is now a pretty famous drum programmer. We did lots of demos with drum machines and sequences. From the first week of recording that way, I knew it was wrong for me."

What put Cohn off was the sameness of sound that the technology seemed to encourage. "The minute I started hearing the same DX7 sound on every AC [adult contemporary] ballad, it sounded dated," he explains. "There's something more organic about the sound of the piano or the Hammond organ. That's one thing that most of the records I love have in common: They're not of a time. The instruments you choose, especially the keyboards, define a song's sense of time."

On *The Rainy Season*, Cohn cultivates an earthy, folk-based sound. With no synth sounds in the mix, this album could easily have been buried in an early-'70s time capsule. Cohn, Tom Petty sideman Benmont Tench, and producer John Leventhal play all the keyboard parts on Hammond C-3, Wurlitzer electric piano, and Korg SG-1D. Okay, so the piano parts are digital reproductions. But it is a piano sound. In fact, it's not a terribly imposing piano sound, and that's just fine with this artist.

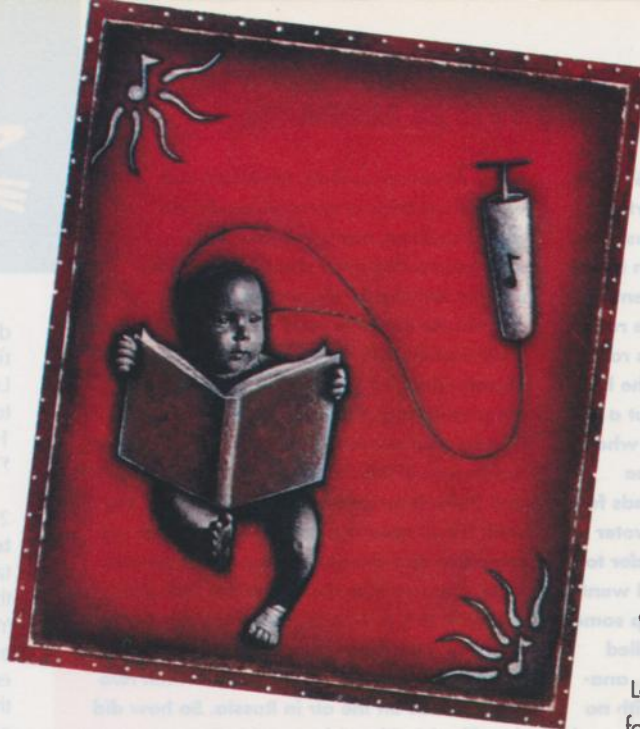
"I write my songs at an upright," he says. "I can't write at a great, big-sounding grand. That would take me away from the focus I need to write a song. I do love playing a big piano onstage, but there's a disadvantage too. Most of my shows have this arc: I play two or three songs that have to be on a real piano alone at an acoustic baby grand. Then I play almost every other piano part on the SG-1D, because I feel physically restricted at the acoustic piano: I'm looking at



## BULLETIN BOARD

### CELEBRATING ELLINGTON.

The International Ellington Conference, slated for Aug. 11-15 at the Holiday Inn Crowne Plaza Manhattan, honors the legacy of Duke Ellington on the 50th anniversary of his band's first Carnegie Hall concert. Scheduled activities include panel discussions, recordings, films, a dance, a bus tour of Ellington landmarks in New York, and performances by the Ellington '93 Festival Orchestra, which features several veterans of Duke's various groups. One entire day will also be



the other side of the stage, not the audience. It's gotten to where I

actually prefer the Korg; at many shows, I don't even have an acoustic piano onstage anymore."

The only problem with not blending into the panorama of pop hitmakers is the risk of being pigeonholed, especially if you have to share your space with an artist whose style begs comparison with yours. So it is with Cohn and Bruce Hornsby, another piano-based troubador and songwriter. Though differences between them are clear, there are overlaps in the piano department; some of the chords on Cohn's "She's Becoming Gold" are textbook Hornsby harmonies.

"That's funny," Cohn acknowledges, not quite laughing, "because when I started writing 'She's Becoming Gold' I was thinking about Jimmy Webb, who was using some of those chords before Bruce. I can certainly understand why people think there's something Hornsby-like about my piano playing. But that's where the similarity between us ends. The main difference from the musical standpoint is in the rhythm. There's an incessant two and four on a lot of Hornsby records. It seems to be done to click, and I will fight against click tooth and nail on almost every track I do. Anyway, most of the time I actively dislike snare hits on two and four."

So who is Cohn's model as a rhythm arranger? "Well, I'll tell you," he reveals. "There's this sage-like character on cable TV every so often, in a long flowing robe. He's constantly talking about listening to the gaps between the words, as opposed to the words themselves. That's where I'm at with drumming. I like to hear everything that goes in between the stuff that everybody else hears."

We scanned the channels for Cohn's inspiration. We also peered between the lines he fed us in our interview. Our conclusion: Let *The Rainy Season* speak for itself. And give the guy some space; there's room for two piano balladeers in modern pop's Americana niche.

—Robert L. Doerschuk

## BREAKTHROUGH RESEARCH EXPLORES HIDDEN BENEFITS OF MUSIC EDUCATION

**T**HERE MAY BE FAR more to music education than meets the ear. In fact, according to psychologist Frances Rauscher and physicist Gordon Shaw, the discipline of studying music may enhance the broader reasoning skills of children.

Working at the Neural Network Laboratory at the University of California's Irvine campus, Rauscher and Shaw are teaching music fundamen-

als to a group of three-year-old kids. By using puzzles and games to measure the spatial skills of this group against those of a control group of children who aren't given music lessons, they hope to confirm earlier research that suggests that music training — in this case, studying Mozart and other Western classics, then practicing on an instrument — can enhance abstract skills such as those crucial to mathematical reasoning.

Their research is based on a neuronal model of the brain that can gauge certain aspects of musical composition and perception. "We use three-year-olds since their brains are flexible, but they're old enough to absorb the training and execute the testing," says Rauscher. "Their brains are still developing very quickly, so the rate of change in the coordination of different regions of the brain can vary dramatically between the experimental group and the control group."

Music, the scientists note, is an effective discipline to study at this stage of mental development for several reasons. Pattern recognition comes into play, for instance. Keeping track of events in time is also critical, especially in terms of understanding where you are and where your actions may lead you. These aspects of music study demand a mobilization of higher reasoning skills. In effect, music exercises the youngsters' mental networks. Once that's done, executing higher brain function tasks should be easier to do.

If it confirms their hypotheses, Rauscher's and Shaw's study could provide ammunition to defenders of music education as a vital part of every child's curriculum, especially since music as a catalyst toward learning cuts across social, economic, and even linguistic barriers. We'll keep you filled in on developments. In the meantime, keep practicing.

—Titus Levi





## ROCKIN' THE VOTE IN RUSSIA

Roger S. Craig is no expert in Russian music. He was born in Ireland, he spent years on the road with various rock bands, and he lives in Malibu. But a gig is a gig, and when

Ben Goddard of Goddard-Clausen, the American agency hired to create TV ads for Boris Yeltsin's campaign for Russian voter backing, called with a last-minute order to score those spots, Craig said "Da." "I went down to my local store and picked up some CDs," he says, "one of which was called *Russian Themes*. I brought 'em home, analyzed them, and started to write." With no access to the video, Craig composed several snippets based on Goddard's descriptions, including a minor-key theme, played with a combination of the Korg M1 "koto trem" patch, Roland D-70 voices, and a Korg

Wavestation accordion, for black-and-white depictions of the anti-Yeltsin old-guard baddies, and a rousing Queen-style groove for shots showing Russian rockers rallying to the beat of political reform. He fired the results off to Goddard in Washington, and was just catching his breath when, at 11 P.M. one Saturday night, the phone rang. "It was Ben," Craig recalls. "He said he needed another 17.5 seconds of 'contemporary Russian music.' I said, 'I'll try and finish it for you over the weekend.' He said, 'No, I need it now!' So I booted up my computer and started writing." Two hours later, a messenger picked up the disk and rushed it to L.A. International Airport. That morning, Goddard edited it, then fed it by satellite to his clients in Moscow. Within two days, it was on the air in Russia. So how did they like it? "The only reaction Ben got was from Yeltsin's opposition," Craig laughs, "who insinuated that the Western political tactics were not appreciated." It figures: Yeltsin won.

—Robert L. Doerschuk



devoted to the late composer's longtime collaborator, Billy Strayhorn. Learn how to attend by writing Ellington '93, Box 253, New York, NY 10116-0253, or calling (800) 988-7473 or (212) 556-3865.

**JAZZ PIANO JOUSTS.** On Nov. 21 and 22, the *Thelonious Monk International Jazz Piano Competition* takes place at the Kennedy Center for the Performing Arts in Washington, DC. Young jazz pianists will vie for scholarship awards, with \$10,000 and several concert appearances reserved for the winner, \$5,000 for the runner-up, and \$3,000 to the third-place finisher; winners will be selected by an all-star panel of judges, whose members include Hank Jones, Herbie Hancock, Dave Brubeck, Muhal Richard Abrams, Marian McPartland, and Marcus Roberts. In addition, a \$5,000

## PIANO CIRCUS

GRAND DESIGNS & ANTIPHONAL ADVENTURES

**SIX PIANOS, ARRANGED ONSTAGE IN A HEXAGON.** Behind each one a pianist sits, waits, watches. Slowly, audience noises subside, until silence blankets the room. Then, imperceptibly, a nod, a single sound erupts — a basso explosion from all six instruments as if they were one — and another performance of Graham Fitkin's *Log*, written for and played tonight by Piano Circus, is underway.

Kirsteen Davidson Kelly, Richard Harris, Kate Heath, Max Richter, Ginny Strawson, and Mike Haslam — Piano Circus — are a collective ensemble based in London. Their concerts and recordings are revelations to those who think they know the limitations of piano sound. On their most recent album, a set of three long works commissioned from Fitkin and released on the Argo label, they unleash starbursts of sounds, from prickly staccato passages that uncannily approximate electronic sequences to delicate tinkles, from solemn and spacious homophony to extreme polyrhythmic complexity.

The roots of Piano Circus trace back to 1989, when the group assembled to perform Steve Reich's *Six Pianos*. From the start, the participants knew they were onto something new. "We were all frustrated with the kinds of performances we had been involved in," recalls Max Richter. "They lacked immediacy. It was all dry and academic.

But when we did the Steve Reich piece, we found that we had something people could really enjoy listening to. It's real chamber music, and very human."

It also challenged the members to explore unfamiliar paths in developing a unified identity. "The first rehearsals were very intense," Richter says. "We went up a lot of blind alleys. But we discovered early on that we had to develop very good rhythmic coordination. In fact, the group had to have a kind of unanimous rhythmic feeling. The other necessary aspect for participation in Piano Circus is a willingness to work cooperatively, to listen as much as possible. Rather than being right, we have to be aware of what's going on in the group and try to serve the piece. It's quite a contrast to the heroic soloist idea."

For this reason, the ensemble has no leader. Rehearsals are cooperative, often prefaced by lengthy discussion. Their hexagonal setup, with all points equal and none in a predominant position, makes the point visually as well. Though this configuration makes it harder to see all of the players onstage, Richter insists that audiences benefit from the energy that it helps generate. "You have these six people facing each other, and something really intense and exciting is going on between them. It's an almost voyeuristic spectacle, as if the audience were eavesdropping on something special."

The spirit of experimentation continues to drive Piano Circus. Their next album, scheduled for release in the U.K. during October



award will be given to the winner of a separate competition for jazz composers. Applications to the composition contest are due Aug. 20; the deadline for the piano contest is Aug. 27. For details, contact the Thelonious Monk Institute of Jazz, 5000 Klinger St., N.W., Washington, DC 20016-2672, call (202) 364-7272, or fax (202) 364-0176. . . . The other giant of jazz piano tourneys, the **Great American Jazz Piano Competition**, takes place on Oct. 14 in Jacksonville, FL. There, five finalists will trade licks in hopes of winning a \$2,000 grand prize, a \$1,000 award for the runner-up, and other awards for third- and fourth-place finishes. The five finalists will be chosen by review of cassette tape auditions, which must include at least one standard tune. All tapes and completed application materials must be postmarked by Aug. 6. Forms and further information are available from the Jacksonville Jazz Festival, 100 Festival Park Ave., Jacksonville, FL 32202-1397; the phone number is (904) 353-7770. ■



## FULL MOON MANIA WITH RICHARD BAND



When these guys say "Keep in touch," they mean it. Doctor Mordrid (L, played by Jeffrey Combs) and Kabal (the Dominic Milano lookalike at R, played by Brian Thompson) exchange greetings throughout *Doctor Mordrid*, another spine-tingler from Full Moon Productions. The soundtrack is piggy-backed to another Full Moon score, for *Demonic Toys*, both written by Richard Band and released last April on a single CD by Moonstone Records. With some 50 films to his credit, most of them arranged for full orchestra and his own electronic tracks, the composer is one of Hollywood's hottest horror-flick commodities. "I like to watch a film two, three, four, five times before I even think about [writ-



ing] music," he notes.

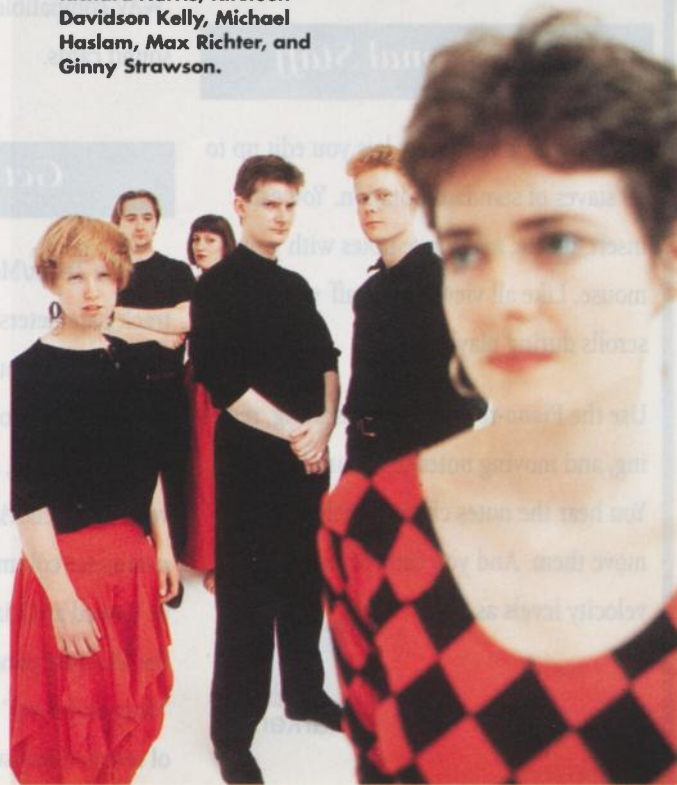
"That way I'll get a real feel for the film, for what's important dramatically, for what has to be brought out thematically. Usually, the film ends up speaking to me." Band talks back with a Synclavier- and Vision-based system, buttressed by E-mu Emulator Three and Proteus, Roland D-50, Korg M1R, and plenty of additional gear. As soundtrack Svengali for *Re-Animator*, *Crash and Burn*, and *Ghost Rider*, Band maintains an appropriately combative stance: "Everybody wants to be a film scorer — the guy who has a DX7 in his garage, and he's written two songs, and he thinks he can score a film. It's always a battle."  
—Allen Foster

and possibly as early as August in the U.S., may include two pieces for six MIDled grand pianos: Steve Reich's *Four Organs*, which utilizes straight Hammond-type sounds, and Robert Moran's *Three Dances*, a broader bouquet of electronic sounds triggered from the piano keyboards. It will also feature *Kneeling Dance*, by Kevin Volans, in which the interlocking techniques of some African musics blends with elements of plainsong. There's talk of an American tour following in the fall.

Not surprisingly, four years with Piano Circus has left an indelible imprint on each member of the ensemble. "But, for me, it's more psychological than technical," Richter says. "For example, I do quite a bit of teaching, and this experience has made me emphasize things to my students that I wouldn't have thought about before — things like, why does somebody want to play the piano? And what's it for? Instead of thinking in terms of getting some stylistic ornament for Scarlatti absolutely perfect, I'm thinking more about getting it right for me rather than for Scarlatti, to play it in a way that makes sense for me rather than in a way that's academically correct.

"And playing with Piano Circus has altered my sound, because my attack has become more precise. Some years ago I might have thought of this as a loss: 'Oh, dear. I used to have this wonderful soft, rich sound. Now I've got this *attack*.' But as it is, I don't have a problem with that, because it does come down to making a choice. And I'm having a great time."  
—Robert L. Doerschuk

Piano Circus, without a net (L to R): Kate Heath, Richard Harris, Kirsteen Davidson Kelly, Michael Haslam, Max Richter, and Ginny Strawson.





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Staff view

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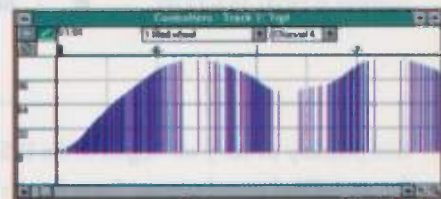
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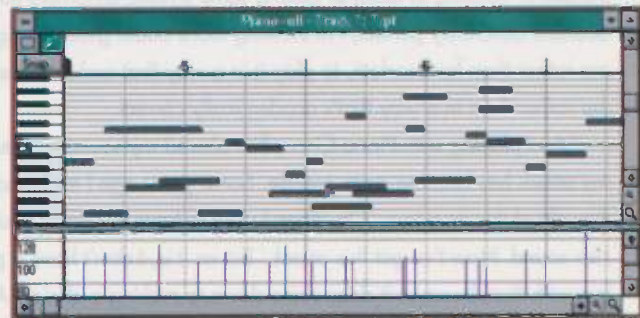
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Controller view

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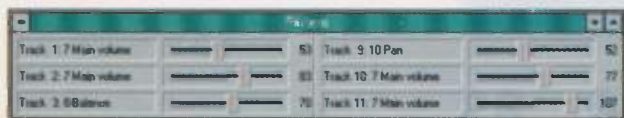


Piano-roll view



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5	00:00:03:01	5:4:001	10	Control	7 123
7	00:00:03:01	5:4:082	10	Note	D 7 127 32
7	00:00:03:01	5:4:082	n/a	Test	scream WAV on Multisound card
5	00:00:03:04	6:1:001	n/a	Wave	1.25 sec @ 22kHz 8-bit Mono, 27K
1	00:00:03:05	6:1:012	1	Note	D 5 100 1:000

**Event-list view**

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# OTHER WINDOWS



JIM AIKIN

## SLINGS & ARROWS

**S**OONER OR LATER IT'S BOUND TO happen — and probably sooner. The scenario unfolds something like this: You work hard on your music. You practice and polish, probe and perfect. By the time you're finished, you're exhausted but happy. You've said exactly what you wanted to say. You've put your skills and emotions on the line, put them out there for the world to appreciate.

And you get dumped on. If you're lucky, you get yawns. People stop listening, their gaze wanders, they turn to talk to their friends, they get up and leave. Or you send out a demo or play an audition, and you don't get called back. You leave phone messages, and still you don't get called back.

It can get worse than that. Somebody may say something unflattering. Critical. Downright insulting. If it's to your face, they'll usually sugar-coat it a little. "Well, Dave, I liked your stuff a lot. Um, I just didn't think it was really, you know . . . it was kind of not quite what we're looking for right now, that's all." With published criticism, though, the critic usually feels no need to pull punches. When you reach the point in your career where your work is being reviewed in newspapers and magazines, you can count on reviewers to show off their cleverness with the well-turned phrase by being as stinging as they know how. The gloves are off, and devil take the hindmost.

It hurts. Let's not pretend otherwise. I personally am hurt more by rejection than by criticism. Rejection has overtones of childhood fears of abandonment. Criticism I can at least argue with; rejection is a blank wall. Still, the two are closely linked in an emotional sense.

The question is, how best to deal with criticism and rejection? For the artist, they're a fact of life. Or almost. Eventually, if you make enough money, you may reach the point where a phalanx of flunkies and toadies will shield you from negative comments. With their help, you may be able to bask in the lovely warm illusion that everything you do is radiantly wonderful, that everybody in the world loves you more than a plate of fresh baklava. And that illusion may indeed help nurture your creative flow — although it's just as likely, after a few years, to make you lazy and sloppy. If everybody loves whatever dribble passes forth from your fingers, where's the incentive to push yourself harder, to dig deeper, to excel?

Most of us have the opposite problem — how to handle the negative feedback. Several strategies are available. The simplest is to go directly into angry denial. "I'm wonderful and



my work is wonderful! This critic is an idiot!" This may even be a correct assessment — or it may be a way of hiding your head in the sand. Either way, as a strategy for handling criticism it has two shortcomings. First, you won't learn anything. Comments that are potentially useful will never make it past the barrier. Second, it's an ego-based defense. The unconscious subtext is, "My ego is so fragile that if I let this negative comment in, it will destroy me." Whenever possible, I prefer to stay in touch with my inner strength rather than fear my weakness. Besides, if my ego takes a few whacks now and then, that's probably good for me.

A healthy response to criticism has to start from a healthy understanding of your own artis-

tic process. We all have strengths, and we all have weaknesses and limitations. My own music is fairly sophisticated with respect to certain parameters, but in other areas I still have a heck of a lot to learn. When I write and play music, I have certain goals in mind; other goals I never even consider aiming at. My music can't be all things to all people. If I aim at such a lofty target, I'll certainly fall far short, while if I set my sights on a more modest objective I have a better chance of hitting it.

So I'm human. And so is the critic. The critic (we're speaking now of the real live critic who's writing for the local paper, not of the internal "critic" lurking in the artist's subconscious) has certain tastes and life experiences, and not others — areas of expertise lying right alongside glaring blind spots. Not surprising, then, if the critic never even notices the areas where you worked hardest to achieve your most astonishing effects. As Bernard Shaw observed, a picture gallery is a dull place for a blind man. If your music is mainly about aggressive energy, a review by a critic whose background is in the melodic and harmonic subtleties of jazz is likely to be a complete irrelevance. Even if it's a positive review.

Also, don't forget: Most critics are frustrated musicians. What they're really saying, more often than not, amounts to this: "If I were playing this music, I would have done it very, very differently." To which my response is, "Fine. When they put your name in big letters on the front cover, you can do it however you like. Until then, I'm in charge of the aesthetic decisions, thank you."

In fairness to critics, however, they can only evaluate what they actually hear. Naturally, we'd prefer to be judged on our noble intentions, not on those fluffed notes or the 60-cycle hum that runs through the demo tape. The titanic surge of emotion that you personally experience when listening to your latest opus won't necessarily be felt by your listeners. It takes years of hard work to learn the many-

*Jim Aikin's very mediocre CD, Light's Broken Speech Revived, veers dangerously close to those hokey albums of synthesizer pop hits from the '60s, according to a recent review in the Fairfield County Advocate.*



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### OTHER WINDOWS

faceted craft of creating music that will actually appeal to and communicate fully with an audience. Untold thousands of musicians have devoted their lives to the craft, and they've raised the ante pretty high. As a result, many listeners these days are jaded. They expect to be spoon-fed. If your effects take a while to develop, or demand specialized knowledge, you can count on being misunderstood.

Criticism hurts the most when it resonates with what our internal critic is already whispering to us. This internal critic is a sneaky little gremlin who feeds on shame. Its message inflates rapidly from, "You did a bad thing, you made a mistake," to, "You're a bad person — you are a mistake." Once this garbage starts churning, it can be very difficult to pull back and take a more objective view, to see that the thorns have roses attached to them.

Many of us go into artistic pursuits in the first place because we want to be loved, admired, and appreciated. If we didn't have that need, that hole in our innards yearning to be filled, we'd probably follow careers where we'd get paid better for a lot less work. So it's not surprising that harsh criticism stirs up the emotional waters.

One antidote is a healthy dose of self-esteem. It's useful to like yourself and feel comfortable about what you're doing no matter what path you're on. Given the huge uncertainties of a career in the arts, self-esteem may be the only thing that will pull you through. If you can't manage self-esteem, an inflated ego may work as an effective substitute, for a while anyhow. It can get you over some rough spots, but it can also play havoc with your judgment.

What I'm practicing, while I wait for my next rejection or bad review, is the attitude that I'm in charge of my own happiness. If I'm relying on some guy behind a desk in L.A., some guy that I've never even met, to make me happy, then I'm in big trouble before I even get out of the gate. I've given that person the power to make me happy or make me miserable. And I refuse to do that. I refuse to give away my power.

Each of us has, natively, the power to define for ourselves what will make us happy. And it's useful to define happiness in such a way that the necessary resources are actually within reach. The bozos who develop romantic obsessions with women who reject them are a useful lesson in the opposite tactic. In order to be happy, they're convinced, they have to get the universe aligned in a certain way. The trouble is, the alignment — that is, other people's feelings and behavior — is absolutely outside their control. So they pound on the universe in a futile and tragic effort to force it to comply with their warped vision.

Are you obsessively stalking a record deal, or are you nurturing a personal musical vision and enjoying the process? There's joy to be found on both roads, and pain on both. The inevitable criticism will be easier to bear, though, if you don't need the strokes in order to feel okay about what you're doing. ■



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ROBERT L. DOERSCHUK



## RECORDINGS

**Jimmy Smith, *Sum Serious Blues*** (Milestone).

**Barbara Dennerlein, *Solo*** (Bebab).

Smith, of course, is the Bach of the B-3, and *Sum Serious Blues* shows why. These performances are exactly what we've learned to expect from him: scampering licks, emphatic tremolos, subtly propulsive comps, and deep dollops of *fonk*, spooned out here within Johnny Pate's arrangements for six horns and rhythm section. No one would argue that Smith doesn't swing, but neither would anyone suggest he's doing anything new. Indeed, *SSB* could easily have been cut 30 years ago. For all his undiminished prowess, Smith gives the impression of coasting; at no point does he take risks, or stretch beyond borders he set for himself — and, effectively, for his many imitators — back in the '50s. By covering his first big hit, "The Sermon," here, Smith seems to confirm

that he hit his stride back in the Eisenhower era, and has been keeping time ever since. At least his time still grooves.

For innovation in jazz organ, we've learned to look toward Barbara Dennerlein. But two vital ingredients are missing from her latest album: the address for her label, and sidemen. *Solo* is just what it says: an unaccompanied performance, with nary a drum nor tenor sax in sight. In their absence, Dennerlein attempts a dialog between sounds, trading fours with herself on bass pedals, piano sample, and variations on milky, cool organ settings. Her voicings, melodic inventiveness, and technique set standards that even Smith can't match, but all this doesn't quite make up for the absence of interaction with the kinds of accompanists that have always buoyed Smith. And, frankly, astounding as Dennerlein is on organ, her synth and piano solos feel awkward and unnatural.

What can we conclude from these

## FAST FORWARD



**Ryuichi Sakamoto, *Wild Palms*** (Capitol). Sakamoto's music for ABC's bizarre mini-series, *Wild Palms*, is heavy on minor keys and spare voicings. Much of it — the "Classical Cyber-space" cue, for instance — sounds as if it were improvised on an M1, with lots of breath and fluttery noises and no rhythm track. Not his strongest score.

**Peter Kater, *How the West Was Lost*** (Silver Wave, Box 7943, Boulder, CO 80306). This miniseries soundtrack is a beautiful tapestry, with echoes of native American music enhancing Kater's compositions for small chamber ensemble, piano, and synth. Where *Wild Palms* fades quickly from memory, Kater's score lingers, like a ghost haunting the shadows of our imagination.

**Yanni, *In My Time*** (Private Music). Parallel sixths and somnambulant left-hand arpeggios on the piano, wispy synth strings, and . . . that's it. At least he could have fixed the abysmal piano tuning on "Before I Go."

Paris Treantafeles & Robert Christopher

**Martinez, *Voltage Controlled*** (1755 Fort Stockton Dr., San Diego, CA 92103). Energetic, if eccentric, workouts on Buchla and Moog modules, triggered randomly by sample-and-hold and other analog-age techniques. No samples, no keys; just amiable grooves and great old sounds.

**Pigpen, *Halftrack*** (Tim/Kerr Records, Box 42423, Portland, OR 97242). In five hard-core performances that total just 19 minutes, band-member Wayne Horvitz, a New York refugee in Seattle, proves that being a jazz keyboardist doesn't guarantee grunge immunity. Dirty, loud, and invigorating.

**Jeff Greinke, *Lost Terrain*** (Silent Records, 540 Alabama St., Ste. 315, San Francisco, CA 94110). Sensitive and slightly ominous ambient studies, evocative of Harold Budd. Unlike Budd and Brian Eno, who made an art of leaving empty space, Greinke sprinkles his landscape with lustrous, glistening gems — a different approach leading to similarly beautiful ends.

**Stanley Taub, *Pianistic Streams of Consciousness*** (STAT Music Works, 465 W. Broadway, New York, NY 10012). In these extemporizations, Taub rejects Jarrett-like catharsis and draws instead from European sources. He even pulls off a Schoenbergian dissection of "Yankee Doodle" and subjects "Happy Birthday to You" to *sturm und drang* pounding. A humbling listening experience for self-styled improvisers.

Isolrubin BK, *Crash Injury Trauma* (Soleil-

moon, Box 83296, Portland, OR 97283). Unbearable sound montages and spoken word nightmares based on car crash samples. If Freddy Krueger ran Disneyland, this is how "Pirates of the Caribbean" would sound.

**Heldon, *Stand By*** (Cuneiform, Box 8427, Silver Spring, MD 20907-8427). Guitarist/electronic innovator Richard Pinhas and keyboardist Patrick Gauthier play what sounds like a mix of jazz fusion and slow-mo techno on this reissue of a pivotal French electronic rock album. Still compelling, still disturbing.



**Sheep On Drugs, *Greatest Hits*** (Smash). Infectious, cocky techno, studded with hooks, driven by migraine-inducing drum patterns, goosed by wanky analog bass lines, and shot through with sly references to classic rock — that is, if you consider Johnny Rotten classic.

**Steve Allen, *Plays Jazz Tonight*** (Concord Jazz). Not bad for a Biblical scholar, but Dave McKenna doesn't have anything to worry about.



## IN REVIEW

two outings? First, there's still plenty of steamin' organ jazz out there for those who want their umpteenth helping of it. Second, those who tread too far past the boundaries of the idiom do so at their own peril.

**Klaus Schulze, *The Dome Event*** (Virgin, dist. by Caroline).

Recorded live at the Cologne Cathedral, this hour-long opus is a monument to electronic virtuosity and sheer endurance. In the tradition of his former band, Tangerine Dream, Schulze weaves crystalline samples and brisk solos against an electronic background that shifts through textures and rhythms while never disrupting the generally grim overall mood. Though divided into three sections (*Andante*, *Allegro*, and *Presto*), which are chopped into tinier titled episodes, *The Dome Event* moves along more like a river than like a traditionally composed piece. Vocal samples, stirred into a cross-cultural stew along with simulated shakuhachi, tabla, guitar, and more abstract synth sounds, lead the way from the intro into a long string of improvised lines, free-meter percussion

patterns, and drones. We float through all this like Martin Sheen going upriver in *Apocalypse Now*: Brilliant sounds sparkle, then dim into the passing scenery. Though we seem to drift along the free flow of Schulze's improvisation, a method to his meandering clarifies as he sweeps us into a rush of escalating momentum. By the time Schulze hits the last section, which he calls "Finale: Tutti Synthi," a galloping *accelerando* is sweeping us toward a genuinely exciting finish. *The Dome Event* rewards those with the patience to be led through a vivid listening experience.

**Fear Factory, *Fear is the Mind-killer*** (Roadrunner Records, 225 Lafayette St., Ste. 407, New York, NY 10012).

This brain-pummeling set leaves us concerned for the state of Burton C. Bell's vocal chords and impressed with the band as a whole. Members of Front Line Assembly get credit for the mixes, but keyboardist Raynor Diego and drummer Raymond Herrera deserve most of the performance kudos. Their rhythms and textures are brutally intense. Diego's industrial samples, slashed by Dino

Cazares's buzzsaw guitar, cast a gray pallor over the skeleton of Herrera's busy beats. Fear Factory's style is, essentially, a commentary on the soullessness of modern life. But where, say, Charlie Chaplin reduced the visual iconography of his times to ridicule, this band takes parallel sonic references to unbearable extremes. In effect, they celebrate precisely those reflections of ugliness they abhor. Their noise pastiches create a context that allows no reference to more redeeming aspects of life; locked onto a runaway beat, the power of their sound sweeps us into a black tide bound for oblivion. The question is not whether one agrees with Fear Factory's method or vision; it is, rather, whether they achieve their goal as artists. The answer is that they do, with a discipline and an urgency that cannot be denied.

**Jim Aikin, *Light's Broken Speech Revived*** (Linden Music, Box 520, Linden, VA 22642).

I didn't want to write this review. Why? Jim Aikin is a colleague at Keyboard. Which means that anything positive I say about his debut album may be dismissed as in-house back-slapping. So let's start

with the negative stuff. The name, for instance. Why can't Jim spell his last name "Aiken," like most of the people who write in to complain about Other Windows? And why doesn't he like Indian food? Every time we have lunch together, we wind up at this Chinese place. Do we have to do Szechuan every time? What? The music? Well, it's pure Aikin — electronic instrumentals whose melodies, structures, and meters are accessible (Jim's singing lessons are forcing him to consider hummability) and quirky (Jim is... Jim). Textures are antiseptic: no fuzzy Moog bass here. *Light's Broken Speech* is neither meditative nor groove-like. Instead, it's an exercise in musical syllogism. The premise behind Aikin's arrangement of "Sgt. Pepper's Lonely Hearts Club Band," for example, is: What if we open with the chorus motif, but shrink it to three bars? What if we set those bars in a sequence of 4/4, 3/4, and 3/4? And disguise the theme in ambiguous harmonies? From this beginning, Aikin concocts remarkable variations, though the results, as on his covers of "White Rabbit" and "The Sound of Silence," intrigue rather than enrapture. The rest of the

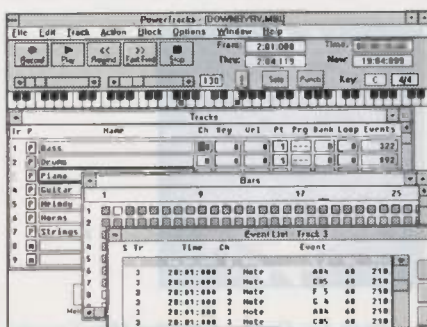
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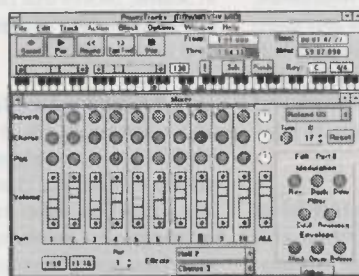
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album, composed by Jim, more fully integrates spirit into quizzical frameworks. As Robert Bork said of the Supreme Court, *Light's Broken Speech* is a feast for the intellect. The next effort will surely satisfy on even more levels. (Maybe some chicken tikka would help.)

**Pete Bardens, *Further Than You Know*** (Miramar).

With roots in progressive rock and blues-oriented British pop, Bardens strikes a middle ground on this collection of vocal and instrumental tunes. Synths and piano predominate, with drums, bass, and guitar playing subsidiary roles. The rich timbral blends developed on previous Bardens instrumental albums slip nicely into tighter song structures on *Further*, whose textures run deep yet never grow excessively lush. Backup harmonies follow the pseudo-gospel style pioneered years ago by Van Morrison, for whom Bardens once worked. A credible lead singer, with a pleasing if somewhat detached style, Bardens makes a stronger impression on keys. Solos and fills are nimbly executed on tinkly synth or piano patches designed to contrast against these dark timbral backdrops.

Bardens breaks no new ground on *Further*, but he does present solid tunes in sleek sonic packages.



**P.M. Dawn, *The Bliss Album*** (Gee Street, dist. by Island).

Once we get past the apparently sedated woman babbling about Prince on the opening cut, we are in for a delightful experience. Dance grooves drive the music of P.M. Dawn; beyond that, resemblances to mainstream hip-hop are tenuous. Occasionally, the band teases us with cliché rap patterns, only to pull the plug on our perceptions with impish impunity: "Plastic," for example, is textbook hip-hop, right down to the tired trick of stopping the beat every eighth bar. But then, midway through the song, someone

says, "I don't know hip-hop? What's this?" A series of furious turntable scratch breaks begins, followed by "See what I mean?" and . . . some unexpected Beatlesque crooning. Elsewhere, soft synth washes and raindropy piano fills, mainly credited to Tyrell, soften the sharp edges; on "To Love Me More," orchestral strings pull the feel even further from the street and into the salon. Tyrell contributes a few solid synth solos, most notably on "About Nothing," but his most crucial role involves adding Brit-rock references, as in the *Abbey Road*-type chorded piano on their reworking of "Norwegian Wood." *The Bliss Album* blends elements of '60s freshness and '90s energy without crashing and burning on the moonscape of the '70s. The result: the most musical hip-hop we've heard since Me Phi Me.

## BOOKS

**Rebeca Mauleón, *Salsa Guidebook for Piano & Ensemble*** (Sher Music, Box 445, Petaluma, CA 94953).

This 259-page folio is a lifesaver. Mauleón outlines general principles of Afro-Cuban rhythm, then applies

them to specific instruments with a clarity that's rare in instructional books. Her lengthy chapter on the piano is particularly enlightening. Though jazz exerts an obvious influence on salsa, the basic assumptions underlying the piano's role in salsa are unique; "comping," for example, is foreign to it. Here, too, Mauleón begins with basic tenets, the most important being that the pianist's linear pattern (the *montuno*) must not violate the pulse articulated by the *clave*, or rhythmic motif. Once the pianist grasps his or her role within this framework, tantalizing possibilities in rhythmic variation and line structure open up. Montuno exercises in a variety of chord movements and rhythm frameworks make this chapter alone invaluable. Unfortunately, Mauleón restricts herself to analyzing the piano's role as a rhythm instrument; questions about soloing — the roles of the right and left hand, single lines vs. octaves or chorded passages, idiomatic chord voicings, playing out of tempo — are left unanswered. Still, her understanding of ensemble playing is so thorough that all musicians, even those who already play the style, can benefit from it. ■

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# CD-ROM EXPLOSION

WILL IT EXPAND YOUR HORIZONS  
OR JUST TIE UP ANOTHER SCSI NUMBER?

BY MICHAEL MARANS



When you think of Prince, you likely think of hot funky music, innovative production, and dazzling performances all wrapped up and delivered to your door (or TV screen) in a smoldering blanket of steamy sex. Soon, thanks to yet another technology coming of age, you'll be able to add one more descriptive item to your list of Princely images: *computer nerd*. True enough, the mighty purple one recently announced that he's giving up his recording career to pursue "alternative media," a.k.a. CD-ROM — the same media used

ILLUSTRATION: ROBERT MAYO



# CD-ROM EXPLOSION

for clip art, type fonts, operating system utilities, children's books, and assorted games. Hmm. CD-ROM. Somehow the thought of Prince grabbing a mouse instead of his crotch just doesn't quite fit the mold.

But his royal badness isn't exactly a trendsetter. Already, two of his peers, Todd Rundgren and Peter Gabriel, have created interactive CD titles (see accompanying stories on pages 50 and 59). While their efforts could be considered preliminary investigations — entertaining diversions, if you will, rather than foundation-

shattering leaps — they do offer a portent of things to come. And it's not just pop stars who are getting into the act. At the other end of the musical spectrum, noted electro-acoustic composer Morton Subotnick has given more than a passing acknowledgment to the medium with his interactive CD creation *All My Hummingbirds Have Alibis*, which combines graphics and music with commentary from Subotnick and the musicians.

Then there's that other use for the technology: data storage. CD-ROM is fast becoming

the storage darling of professional musicians, as it has a very appealing megabyte-to-dollar ratio (more on that later). Plus, huge libraries of sampled sounds are on the market for a variety of SCSI-equipped samplers, with more sounds on the way from both sampler manufacturers and third-party developers.

What's that? You say you're interested in multimedia? Once again, it's CD-ROM emerging as the delivery platform of choice. Yes, friends, it looks as though it's time to jump on the CD-ROM bandwagon — or risk getting left in the laser dust.

Now, how is it that a technology that has ostensibly been around since about 1986 is suddenly getting so much attention? Simple: It's better now than it was back then. Drives are faster and more reliable, more companies are publishing more software titles (around 3,700 titles to date, including everything from encyclopedias to annotated Beatles movies to interactive games), and prices are falling. Couple that with the advent of sophisticated data-compression techniques, which allow large video files to be included on a CD-ROM disc, and you've got a medium that can't help but be the darling of the multimedia set. It makes a pretty darn good musician's friend too. After all, what else can hold over 600Mb of sample data and double as a Frisbee?

## WHAT IS CD-ROM?

For an acronym, CD-ROM couldn't be much clearer: Compact Disc, Read-Only Memory. In other words, it's a compact disc chock-full of data (memory) that can be played (read) into a computer or other SCSI device, such as a sampler. You can't write to a CD-ROM — that's where the "read-only" part comes in. Actually, you can write to a blank CD once, provided you have the necessary equipment (see sidebar on facing page). After it's written, though, it's strictly for playback.

If being limited to read-only operations sounds like somewhat of a drawback, you're right, it is. First off, one of the more enticing types of data (for musicians, anyway) that can be stored on a CD-ROM is sample and program data. The good news is that a single disc could easily hold 75 8Mb banks of samples, all processed, looped, mapped, and ready to load into your favorite instrument at the touch of a button. But let's say you want to tweak the orchestral strings preset — you know, add a little more velocity response, lengthen the envelope attack time, and so on. Now you've got this wonderfully responsive string patch that you save . . . to your hard disk. Where's CD-ROM when you need it?

Since you can write over and over again to other storage media — hard disk, magneto-op-

## CD-ROM DATA FORMATS

### WHEN YOU START CHECKING OUT THE SPECS ON A CD-ROM

drive, you'll see a list of the various data formats that the drive supports. This will give you a good idea of what kinds of tasks the drive will be able to handle, and the range of discs you'll be able to use. Here's the breakdown:

**ISO-9660:** An internationally recognized standard that defines the file system for CD-ROMs. There are two levels. Level one is somewhat like a restricted version of the MS-DOS file system: eight-character names with three-character extensions, no upper-case letters, no hyphens, etc. Level two supports 32-character names, but is not compatible with all systems, notably those that are MS-DOS based.

**High Sierra:** The original incarnation of the ISO-9660 format.

**HFS:** An acronym for Hierarchical File System. This format is designed for use with Macintosh computers (only), and contains Mac objects such as resource and data forks. 32-character names are supported.

**Red Book:** The name commonly given to the Compact Disc Digital Audio Standard, the format used for music CDs.

**Yellow Book:** The standard used for CD-ROMs, indicating that data rather than music is stored on the disc.

**XA:** An extension to the Yellow Book standard that provides support for multimedia functions. An XA disc can store audio, video, picture, and computer data. The name XA comes from eXtended Architecture.

**Orange Book:** The standard used for recordable CDs. Part one of the standard addresses magneto-optical discs, which can be written to repeatedly. Part two is for write-once CDs. Part two also describes a write-once disc that can be written to in multiple sessions. See Multisession Photo CD.

**Blue Book:** The standard used for laser discs.

**Green Book:** The standard used for CD-I.

**CD-I:** An acronym for Compact Disc-Interactive, a multimedia CD-ROM system designed for the consumer market.

**Photo CD:** A format that allows digitized photographs to be stored on CD.

**Multisession Photo CD:** Same as Photo CD, but with the ability to add photos to the disc in subsequent sessions, until the disc is filled to capacity (about 100 photos). ■



tical disc, Syquest cartridge, and so on — CD-ROM is somewhat the odd person out in the world of SCSI-based storage. But comparisons between writeable media and CD-ROM aren't that easy to make. They can all store data, to be sure, but the catch is how much data, and at what price? Which brings us to CD-ROM's undeniable strengths: Massive storage, low price. A single CD-ROM can hold over 600Mb of data. Typically, you'd pay around \$1,200 for a 600Mb hard drive. CD-ROM titles range from \$10 (in a bundle) to around \$400 for customized sample libraries. Of course, you do have to make the initial investment in a CD-ROM drive, but with all the package deals available these days, that could be as low as a few hundred dollars — and that price could include discs.

And that brings us to CD-ROM's third strong point: They come chock-full of data. When was the last time you found a hard disk that came loaded to the gills with great software? Oh yeah, you're supposed to fill up a hard disk with your own data. But once that drive is full, you've got to off-load it to another medium in order to free up room for new data. Now here's a good idea: Why not off-load your hard disk data to CD-ROM for archiving? You can, right on your desktop. The CD media is relatively cheap: about \$25 per blank disc. The device that allows you to record the CD is a bit more expensive: Prices start at just under \$6,000, though lower-priced units are sure to appear in time. You can also have your CD pressed by a CD service company, which acts as a middleman between you and a pressing plant. A single disc currently costs \$200 to \$300; multiple discs go for between \$2 and \$3.50 per disc (depending on the number ordered), but there are additional expenses, such as pre-mastering and the creation of a glass master — all of which add up quickly.

Now, about the data itself. CD-ROM technology supports a variety of formats (see sidebar on facing page), which means that many different types of information can be stored and retrieved. Among the more common items: compressed video, audio, computer files, text, and graphics. Translated into real-world applications, this means that a CD-ROM disc can hold movies (complete with soundtracks), photographs, encyclopedias, novels, world atlases, games, music clips, digital samples, and just about anything else you can think of — pornography, for example. In fact, one of the reasons that CD-ROM technology is becoming so popular is the proliferation of adult material. And because the technology is interactive, that is, you control the moves, you get to, well, control the moves. Yep, seedy-ROM is here.

The other reason the technology is finally taking off is that the drives are much faster than they used to be. The first-generation drives were slow because they were modeled after standard audio CD players. To understand why that cre-



# YOU WANNA MAKE A CD-ROM?

## NOW THAT THE COST OF CD

recording systems has come down from the stratosphere, it's not at all unrealistic to consider making your own CD-ROM discs in the comfort of your home. With a CD recorder (available from Philips, Sony, Marantz, Yamaha, and a few others), publishing software (such as Optical Media International's Quick-Topix), and a bit of preparation, you can do a one-off backup of your hard drive, create a specialized data disc for business clients, make a test pressing of your newest album, or even generate a master disc that can be sent to a pressing plant for a full-blown production run.

This is all very appealing stuff, especially if you plan on creating CD-ROM titles as a profession. Of course, not everyone is going to have a CD recorder sitting on his or her desktop (for now, anyway). But the have-nots can still take part in the fun, as there are companies (see below) that offer CD publishing services for small-quantity runs — even a single disc.

Regardless of how few or how many discs you plan to make, accurate and thorough preparation is the key to creating a CD-ROM that works. Much of the preparation is simple, common sense: Make sure you provide the CD service company with thorough documentation, including notes, diagrams, etc., allow adequate time for testing and debugging your CD-ROM, verify that your artwork is to CD specification, and so on. The other preparations are more technical in nature. For example, the data that will eventually become your CD-ROM should be contiguous on the hard disk you give to the CD service company. This will allow you to obtain maximum performance — i.e., minimize access time — from the CD-ROM.

We contacted OMI for some guidelines. They sent us a complete package that included order forms, track sheets, specifications for label artwork and documentation, and most important, thorough instructions on how data should be prepared, including a special section on using Digidesign's Master List software for preparing audio CDs. Follow their instructions, and you should have a good jump on the process.

One final suggestion: If you're going to be publishing a CD-ROM for the mass market, make sure you get a one-off copy prior to the production run, and test it thoroughly. The extra expense of a check disc (a few hundred dollars) is nothing compared to the thousands of dollars you could lose if you had to do a second production run. ■



The Topix system from OMI puts CD-ROM recording on your desktop.

## FOR LIMITED PRODUCTION RUNS OF CD-ROMS CONTACT:

Compact Disc Services, 14567 Big Basin Way, Saratoga, CA 95070. (408) 741-4770. Fax (408) 867-0518.

Northeast Digital Recording, 2 Hidden Meadow Ln., Southborough, MA 01772-1700. (508) 481-9322. Fax (508) 624-6437.

Optical Media International, 180 Knowles Dr., Los Gatos, CA 95030. (408) 376-3511. Fax (408) 376-3519.

Walnut Creek CD-ROM, 1547 Palos Verdes Mall, Ste. 260, Walnut Creek, CA 94596. (800) 786-9907. (510) 947-5996. Fax (510) 947-1644.



# CD-ROM EXPLOSION

ates a problem, we need to look at the way data is stored and accessed on a CD.

Although a CD may contain thousands of individual pieces of information, it has only a

single data track: a spiral reaching from the center of the disc to its outer edge. The speed at which the disc turns is governed by what portion of the disc is being read — slower at the outside edge, faster in the center. This is so the data will play out at a constant speed. The read head mechanism, which contains a laser and a lens, moves back and forth across the disc

*Text continued on page 44*



## SAMPLER LIBRARIES ON CD-ROM

**WHEN IT COMES TO PURCHASING A PROFESSIONAL sampler, most people are concerned with technical specs, performance features, expandability, and so on. But sound library support is often the number one item on the "must have" list. Thanks to CD-ROM technology, end-users have access to huge sound libraries for just about every major sampler. Another thing to be thankful for: Third-party de-**

velopers frequently make the same sounds available for a number of different instruments.

The following list includes all the CD-ROM titles we could find that are currently being published by sound developers and sampler manufacturers. Note that some titles are distributed by more than one company, so check with the distributors before buying two similarly titled discs.

### AKAI S1000/1100/2800/3000/CD3000/3200

#### East-West

DJ-001	Denny Jaeger Master Violins	\$495.00
EW-014	Bob Clearmountain Drums 1	\$399.00
EW-017	Bob Clearmountain Percussion+Bass Guitar	\$399.00
EW-030	Dance/Industrial Frangioni/Mendelson	\$399.00
EW-060	Dance/Industrial (limited ver. 3000 series only)	\$199.00
EW-061	Drums & Percussion (3000 series compilation)	\$199.00
TAS-41	Zero-G Datafile 1/2/3 (Dance)	\$399.00
MASAK	Orchestral (Full Orchestra)	\$495.00
BSHYDA	Hyperdance	\$399.00
BSHYSP	Hyperspace	\$399.00

#### Greysounds

S1000/S1100 CD-ROM	\$299.99
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#### InVision Interactive

Lightware Vol. 1 (Stratus Sampler)	\$249.00
Lightware Vol. 2 (Pop & Electric)	\$249.00
Lightware Vol. 3 (Classical & Acoustic)	\$249.00
<i>S1000/1100 only:</i>	
Lightware Vol. 1 (Instruments & Percussion)	\$249.00
Lightware Vol. 2 (Pop Instruments I)	\$249.00
Lightware Vol. 3 (Classical Instruments I)	\$249.00
Lightware Vol. 4 (Pop Instruments II)	\$249.00
Lightware Vol. 5 (Classical Instruments II)	\$249.00
Lightware Vol. 6 (Ethnic, Guitar, Synth, & Percussion)	\$249.00
Lightware Vol. 7 (Special Edition, Hot New Sounds)	\$249.00

#### Northstar

NewGold 1 (Music)	\$595.00
NewGold 2 (Music)	\$595.00
NewGold 3 (Ethnic/FX)	\$595.00

#### Prosonus

AK1 Akai S1000 CD-ROM Vol. 1	\$499.95
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#### Q Up Arts

QUA-51-501	Heavy Hitters Greatest Hits Akai S1000 Vol. 1	\$399.00
OMI-51-201	OMI Akai S1000 Master Studio Collection Vol. 1	\$399.00
OMI-51-202	OMI Akai S1000 Master Studio Collection Vol. 2	\$399.00
OMI-51-301	OMI Akai S1000 Sonic Images Vol. 1	\$399.00
OMI-51-302	OMI Akai S1000 Sonic Images Vol. 2	\$399.00
OMI-51-401	OMI Akai S1000 Denny Jaeger Master Violin Library Original 3-Disc Set	\$1,200.00

#### Valhala

Überschall "World Party" Dance Essentials	\$349.00
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### DIGIDESIGN SAMPLECELL/SOUND DESIGNER II

#### East-West

ADA-01	Rock It	\$199.00
DJ-003	Denny Jaeger Master Violins	\$495.00
EW-013	Bob Clearmountain Drums 1	\$399.00
EW-016	Bob Clearmountain Percussion+Bass Guitar	\$399.00
EW-032	Dance/Industrial Frangioni/Mendelson	\$399.00
MASAM	Orchestral (Full Orchestra)	\$495.00
OSC-01	A Poke in the Ear with a Sharp Stick 1	\$149.00
OSC-02	A Poke in the Ear with a Sharp Stick 2	\$199.00
HESC	Hollywood Edge SFX (2 CD-ROM Set)	\$795.00

#### Greysounds

SampleCell CD-ROM	\$299.99
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#### Hollywood Edge

Premiere Edition (2-disc set)	\$795.00
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#### InVision Interactive

Lightware Vol. 1 (Percussion, Synthesizer, Orchestral)	\$199.00
Lightware Vol. 2 (Pop, Electric, & Orchestral)	\$199.00

#### Northstar

SampleCell Vol. 1 (Music)	\$595.00
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#### Prosonus

SC02	SampleCell Vol. II	\$399.95
SC03	ProFX (2 CD-ROM Sound FX set)	\$499.95
SC04	SampleCell Vol. III Ross Garfield Drums	\$299.95

#### Q Up Arts

OMI-71-301	OMI SampleCell Sonic Images Vol. 1	\$399.00
OMI-71-302	OMI SampleCell Sonic Images Vol. 2	\$399.00
QUA-71-501	Heavy Hitters Greatest Hits SampleCell/II Vol. 1	\$399.00
OMI-74-101	OMI Digital Sound Series Vol. 1 SFX	\$299.00
OMI-74-102	OMI Digital Sound Series Vol. 2 Instruments/Perc.	\$299.00

### E-MU EMAX/EII

#### Q Up Arts

OMI-53-101	OMI Emax Universe of Sounds Vol. 1	\$299.00
OMI-53-102	OMI Emax Universe of Sounds Vol. 2	\$249.00
OMI-55-101	OMI EII Universe of Sounds Vol. 1	\$299.00
OMI-55-102	OMI EII Universe of Sounds Vol. 2	\$329.00
OMI-55-103	OMI EII Universe of Sounds Vol. 3 Northstar-Gold	\$399.00



## E-MU EMAX II

### E-mu Systems

Elements of Sound Vol. 1	\$199.00
Elements of Sound Vol. 2	\$199.00
Elements of Sound Vol. 3	\$199.00
Elements of Sound Vol. 4	\$199.00

### Greysounds

Emax II CD-ROM	\$299.99
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### InVision Interactive

Lightware Vol. 1 (Pop Instruments)	\$175.00
Lightware Vol. 2 (Classical Instruments)	\$175.00

### Northstar

Max 1 (Pop Music)	\$495.00
Max 2 (Classic/Ethnic Music)	\$495.00
Max 3 (Synthesized Music)	\$495.00

### Q Up Arts

OMI-54-101 OMI Emax II Universe of Sounds Vol. 1 SFX	\$179.00
OMI-54-102 OMI Emax II Universe of Sounds Vol. 2 SFX	\$179.00
OMI-54-103 OMI Emax II Universe of Sounds Vol. 3	
Percussion, Rock, Ethnic	\$179.00
OMI-54-104 OMI Emax II Universe of Sounds Vol. 4 Orchestral	\$179.00
OMI-54-301 OMI Emax II Sonic Images Vol. 1	\$399.00
OMI-54-302 OMI Emax II Sonic Images Vol. 2	\$399.00

## E-MU EIII/EIII/XP

### Creative Sound Design

The Synthesizer Collection	\$695.00
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### East-West

EW-015 Bob Clearmountain Drums 1	\$399.00
EW-018 Bob Clearmountain Percussion+Bass Guitar	\$399.00
MASEM Orchestral (Full Orchestra)	\$495.00

### E-mu Systems

Sound Ideas Vol. 1	\$199.00
Sound Ideas Vol. 2	\$199.00
Sound Ideas Vol. 3	\$199.00

### InVision Interactive

Lightware Vol. 1 (Symphonic Instruments I)	\$249.00
Lightware Vol. 2 (Modern & Classical Instruments)	\$249.00
Lightware Vol. 3 (Exotic Percussion & Synthesizer)	\$249.00
Lightware Vol. 4 (Symphonic Instruments II)	\$249.00

### Northstar

Phase 2 (Music/FX)	\$695.00
Phase 3 (Music/FX)	\$695.00
Phase 4 (World Music)	\$695.00
Drumscape (Drums/Loops)	\$695.00
Sample It Loops (Dance Drum Loops)	\$395.00
The Wizard (Music Ambience/FX)	\$695.00
EFX 1/Hollywood Edge (Sound Effects)	\$695.00
EFX 2/Hollywood Edge (Sound Effects)	\$695.00
VFX 1/Valentino (Sound Effects)	\$395.00
VFX 2/Valentino (Sound Effects)	\$395.00
VFX 3/Valentino (Sound Effects)	\$395.00
VFX 4/Valentino (Sound Effects)	\$395.00

### Q Up Arts

QUA-57-501 Heavy Hitters Greatest Hits EIII/XP Drum Library Vol. 1	\$399.00
QUA-57-301 EIII/XP Sonic Images Vol. 1	\$399.00
QUA-57-302 EIII/XP Sonic Images Vol. 2	\$399.00
OMI-56-201 OMI EIII/XP Master Studio Collection Vol. 1	\$399.00

OMI-56-202 OMI EIII/XP Master Studio Collection Vol. 2	\$399.00
OMI-56-601 E-mu EIII/XP Factory Sounds 1-44 Vol. 1	\$299.00
OMI-56-602 E-mu EIII/XP Factory Sounds 45-88 Vol. 2	\$299.00
OMI-56-401 Denny Jaeger Master Violin Library EIII/XP	
Original 3-Disc Set	\$1,200.00
QUA-57-401 Denny Jaeger Master Violin Library EIII/XP	
Condensed Version	\$495.00

## ENSONIQ EPS-16 PLUS/ASR-10

### Ensoniq

CDR-1	\$199.95
CDR-2	\$199.95
CDR-3	\$199.95

### Greysounds

EPS/EPS-16 Plus CD-ROM	\$299.99
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### Q Up Arts

OMI-61-301 OMI EPS-16 Plus Sonic Images Vol. 1	\$349.00
OMI-61-302 OMI EPS-16 Plus Sonic Images Vol. 2	\$349.00
OMI-61-201 OMI EPS-16 Plus Master Studio Collection Vol. 1	\$299.00
OMI-61-401 EPS-16 Plus Denny Jaeger Master Violin Library	
Original Version	\$349.00

## KURZWEIL K2000s

Most Akai & Roland CD-ROMs can be read by the K2000 with 2.0 upgrade.

### InVision Interactive

Lightware Vol. 1 (Instruments & Percussion)	\$249.00
Lightware Vol. 2 (Pop Instruments I)	\$249.00
Lightware Vol. 3 (Classical Instruments I)	\$249.00
Lightware Vol. 4 (Pop Instruments II)	\$249.00
Lightware Vol. 5 (Classical Instruments II)	\$249.00
Lightware Vol. 6 (Ethnic, Guitar, Synth, & Percussion)	\$249.00
Lightware Vol. 7 (Special Edition, Hot New Sounds)	\$249.00

## ROLAND S-SERIES

Most Akai CD-ROMs can be read by the S-700.

### East-West

DJ-004 Denny Jaeger Master Violins	\$495.00
EW-035 Bob Clearmountain Drums I	\$399.00
EW-037 Dance/Industrial Frangioni/Mendelson	\$399.00

### Northstar

Drumscape S-770/750 (Drums/Loops)	\$395.00
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### Prosonus

RS1 Roland S-700 Series Vol. 1 Orchestral Strings	\$499.95
RS2 Roland S-700 Series Vol. 1 Pianos	\$499.95

### Q Up Arts

OMI-65-101 OMI Roland Universe of Sounds USV-1 Vol. 1	\$199.00
QUA-65-951 Club 50 Master Performance Series Vol. 1	\$299.00
QUA-66-301 OMI S-770 Sonic Images USV-3 Vol. 1	\$399.00
QUA-66-952 Club 50 Foundations Vol. 1	\$550.00
QUA-66-501 Heavy Hitters Greatest Hits Drum Library S-770	\$399.00

### Roland

L-CD701 Rhythm Section 1	\$495.00
L-CD702 Orchestral Family 1 & 2 (2-disc set)	\$695.00
L-CD703 World Music 1	\$495.00
L-CD704 Modern Sonics 1	\$495.00
L-CD705 Rhythm Section 2	\$495.00
L-CD706 Orchestral Family 3	\$495.00

## SAMPLER LIBRARY MANUFACTURER ADDRESSES

Creative Sound Design, 300 Lenora St., Ste. P-319, Seattle, WA 98121. (206) 441-7421.

East-West Soundwarehouse, 1631 Woods Dr., Los Angeles, CA 90069. (800) 833-8339. Fax (213) 848-8436. Fax (213) 848-3034.

E-mu Systems, Box 660015, Scotts Valley, CA 95067-0015. (408) 438-1921. Fax (408) 438-8612.

Ensoniq, 155 Great Valley Pkwy., Malvern, PA 19335. (215) 647-3930. Fax (215) 647-8908.

Greysounds, 8700 Reseda Blvd., Ste. 101, Northridge, CA 91324. (818) 773-7327. Fax (818) 773-9203.

Hollywood Edge, 7060 Hollywood Blvd., Ste. 1120, Hollywood, CA 90028. (213) 466-6723. Fax (213) 466-5861.

InVision Interactive, 269 Mount Hermon Rd., Ste. 105, Scotts Valley, CA 95066. (800) 468-5530. (408) 438-5530. Fax (408) 438-6784.

Northstar, 13716 S.E. Ramona, Portland, OR 97236. (503) 760-7777. Fax (503) 760-4342.

Prosonus, 11126 Weddington St., North Hollywood, CA 91601-9942. (818) 766-5221. Fax (818) 766-6098.

Q Up Arts, Box 1078, Aptos, CA 95001. (408) 688-9524. Fax (408) 662-8172.

Roland, 7200 Dominion Circle, Los Angeles, CA 90040. (213) 685-5141. Fax (213) 722-0911.

Valhalla, Box 20157-KB, Ferndale, MI 48220. (313) 548-9360. Fax (313) 547-5949.





# SAMPLER-COMPATIBLE CD-ROM DRIVES

MANUFACTURER	Apple	CD Technology	DynaTek	Mac Products USA	NEC
MODEL #	AppleCD 300	CD Porta-Drive-Model T3401	CDS600SR-MI	Magic CD-ROM 3401	74-1
PRICE	\$599.00	\$850.00	\$949.00	\$549.00	no retail price; est. \$650 street price.
STYLE	stand-alone	stand-alone	rack-mount	stand-alone	stand-alone
DRIVE MECHANISM	Sony CDU 546	Toshiba XM-3401B	Sony CDU 541	Toshiba XM-3401B	NEC
FORMATS	audio, HS, ISO-9660, HFS, XA, multisession photo	audio, HS, ISO-9660, XA, multisession photo	audio, ISO-9660, XA, multisession photo	audio, HS, ISO-9660, HFS, XA, multisession photo	audio, HS, ISO 9660, HFS, XA, multisession photo
ACCESS TIME	295ms	200ms	380ms	200ms	280ms
TRANSFER RATE	300Kb/150Kb/sec	330Kb/150Kb/sec	150Kb/sec	330Kb/150Kb/sec	300Kb/150Kb/sec
BUFFER SIZE	256K	256K	64K	256K	256K
INTERFACE	SCSI/SCSI-2 two 50-pin connectors	SCSI/SCSI-2 two 50-pin connectors	SCSI/SCSI-2 two 50-pin connectors	SCSI/SCSI-2 two 50-pin connectors	SCSI/SCSI-2 switch selectable, two 50-pin connectors
TERMINATION	external	external	external	external	internal, switch selectable
FREQUENCY RESPONSE	5Hz-20kHz, $\pm 3$ dB	20Hz-20kHz, $\pm 3$ dB	100Hz-20kHz, $\pm 0.5$ dB	20Hz-20kHz, $\pm 3$ dB	20Hz-20kHz, (dB variation info not avail.)
SIGNAL-TO-NOISE RATIO	75dB	84dB	83dB	84dB	80dB
AUDIO OUTPUT	stereo RCA line level, headphone	stereo RCA line level, headphone	stereo RCA line level	stereo RCA line level, headphone	stereo RCA line level, headphone
VOLUME CONTROL	front panel	front panel	none	front panel, line level via software	front panel
MISC.	auto/manual eject, emergency eject, disc caddy, disc binders, CD-ROM Setup software driver, and QuickTime extension included.	auto/manual eject, emergency eject, dust-proof door, sealed drive mechanism, auto lens cleaning, external power supply, reported 50,000 hrs. MTBF.	manual eject only, auto lens cleaning, disc caddy included, designed for use with samplers.	manual eject only, single dust door, disc caddy, Nubus software driver included, reported 50,000 hrs. MTBF. 6-CD-ROM bundle \$50.00. 1-CD-ROM multimedia encyclopedia bundle \$50.00. Drive plus both bundles \$649.00.	auto/manual eject, emergency eject, double dust doors, auto lens cleaning, disc caddy included.



**FLIP THROUGH THE PAGES OF ANY RESPECTABLE COMPUTER magazine, and you'll see ads from dozens of companies that make CD-ROM drives. Take a closer look, however, and you'll find they all use drive mechanisms made by one of only a handful of companies — Sony,**

**Toshiba, Hitachi, NEC, Pioneer, Texel, and Chinon. Our poll of the major sampler manufacturers showed support for CD-ROM drives that use either Sony or Toshiba internal drive mechanisms; only one synth company, Roland, reported compatibility with an NEC drive. Preliminary reports**

Optical Access International, Inc.	Peripheral Land, Inc.	Procom Technology	PS Systems	Ramtek	Sony	Toshiba
Access CD/Quartet model A	PLI CD-ROM	macCD/MX	CD-ROM	CDR	CDU-7211	XM-3401E
\$3,195.00	\$794.00	\$795.00	to be determined	\$1,095.00	\$919.95	\$800.00
stand-alone four-drive server	stand-alone	stand-alone	rack-mount	rack-mount	stand-alone	stand-alone
Toshiba XM-3401B	Sony CDU 541	Toshiba XM-3401B	Sony CDU 541	Toshiba XM-3401B	Sony CDU 541	Toshiba XM-3401B
audio, HS, ISO-9660, HFS, XA, multisession photo	audio, HS, ISO-9660, XA, single session photo	audio, HS, ISO-9660, HFS, XA, multisession photo	audio, HS, ISO-9660, HFS, XA	audio, HS, ISO-9660, HFS, XA, multisession photo	audio, HS, ISO-9660, HFS, XA, multisession photo	audio, HS, ISO-9660, XA, multisession photo
190ms	380ms	200ms	380ms	380ms	380ms	200ms
330Kb/150Kb/sec	150Kb/sec	330Kb/150Kb/sec	150Kb/sec	330Kb/150Kb/sec	150Kb/sec	330Kb/sec
256K each	64K	256K	64K	256K	64K	256K
SCSI/SCSI-2 two 50-pin connectors	SCSI, 50-pin connector	SCSI/SCSI-2 two 50-pin connectors	SCSI/SCSI-2 two 50-pin connectors	SCSI/SCSI-2 two 50-pin connectors	SCSI/SCSI-2 two 50-pin connectors	SCSI/SCSI-2 two 50-pin connectors
external	external	external	external	external	external	external
20Hz-20kHz, $\pm 3$ dB	100Hz-20kHz, $\pm 0.5$ dB	20Hz-20kHz, $\pm 3$ dB	100Hz-20kHz, $\pm 0.5$ dB	20Hz-20kHz, $\pm 3$ dB	100Hz-20kHz, $\pm 0.5$ dB	20Hz-20kHz, $\pm 3$ dB
84dB	83dB	84dB	83dB	84dB	83dB	84 dB
headphone	stereo RCA line level, headphone	stereo RCA line level, headphone	L/R 4-pin connector, headphone	optional stereo RCA line level, headphone	stereo RCA line level, headphone	stereo RCA line level, headphone
front panel, independent per drive	front panel	front panel	front panel	front panel	front panel	front panel
AppleShare, FileShare, TOPS, Token Ring, Lantastic, and Novell support, all discs can be accessed simultaneously, reported 50,000 hrs. MTBF.	manual eject only, auto lens cleaning, dust protection, CD-ROM demo disc, Apple drivers, and connection cables included.	auto/manual eject, auto lens cleaning, dust-proof door, QuickTime and Apple PhotoCD Access software included, Multimedia Station Pro bundle includes seven CD-ROMs, headphones, and speakers for \$995.00, reported 50,000 hrs. MTBF.	designed for use with samplers only, shock mounted, lightweight aluminum case, auto lens cleaning, manual and emergency eject, disc caddy and extra grounded SCSI cable included.	auto/manual eject, self-cleaning lens, shock mounted.	auto/manual eject, emergency eject, auto lens cleaning, dust protection, drive can be used in either a vertical or horizontal position.	manual eject only, dust protection, auto lens cleaning, reported 50,000 hrs. MTBF.





# SAMPLER-COMPATIBLE CD-ROM DRIVES

indicate that NEC's new Multispin drives (the company's name for their dual-speed drives) will likely be supported by most sampler manufacturers, as these drives use a software driver that is more in keeping with the SCSI driver used by the Sony and Toshiba drives. As we were going to press, NEC was going to be sending these drives to various companies for compatibility testing; check with the manufacturer of your sampler for the results.

The guide presented here is limited to those drives that reportedly will work with SCSI-equipped samplers — emphasis on the word *reportedly*. We have not checked out these drives ourselves; drives listed in the chart simply meet the requirements for compatibility reported by various sampler manufacturers. But even then, we're not sure. With a few notable exceptions, CD-ROM drive manufacturer representatives generally knew incredibly little about their products. If you think you've had trouble getting technical support from a synthesizer manufacturer, try dealing with a maker of CD-ROM drives. Our advice: Check out the drive before you buy, or make sure that the store you're purchasing from offers a flexible exchange policy. (And, by the way, special thanks to Debbie Greenberg, Mark Grey, and Steve Santana for making all the phone calls and organizing the data for these charts.)

## CHART CATEGORIES

**Manufacturer.** As we said, there are dozens of 'em. Don't be put off by an unfamiliar name; remember, all of these units feature internal drive mechanisms made by Sony or Toshiba (or NEC in the case of the Multispin 74-I). Since many manufacturers only add the case, power supply, and RCA jacks to an otherwise complete drive, you can find nearly identical products at widely varying prices.

**Model Number.** Many manufacturers make models that differ only in that they are configured for a specific computer platform, i.e., Mac or IBM-PC. Carefully check the model number when ordering, or you could easily end up with the wrong drive.

**Price.** This category will give you a good idea how much money you'll have to give the cashier in order to be able to take the unit out of the store without being arrested for shoplifting.

**Style.** Shows whether the unit is table-top or rack-mount. No internally mounted drives (for use in a computer) are listed in the chart, though some of the models shown may be available in internal-mount configurations.

**Drive Mechanism.** This is what determines whether a particular drive will work with a given sampler. So far, most manufacturers claim compatibility with drives that use either Sony or Toshiba drive mechanisms. Newer NEC drives may also be compatible with some samplers, though test results were not available at press time. Roland samplers are currently compatible with certain NEC drives. (Contact Roland for specific models.)

**Formats.** In order to insure that the drive you're purchasing is up for the tasks you plan to perform, you must make sure that the drive supports

the associated data formats. Multimedia creators need XA; photo opportunists need photo CD (multisession is far preferable to single session). Mac users, look for HFS; PC users want ISO 9660 (and MPC, if you're doing multimedia). All drives will play audio (Red Book Standard).

**Access Time.** How long does it take the read head to find the piece of data you're looking for? Too long, at least when compared to hard drives. For loading sampler banks, which involves simply finding a single large piece of data, access time isn't of much concern. But if you plan on looking up lots of different pieces of information, you'll want the fastest drive possible.

**Transfer Rate.** For sampler owners, this figure is the key to a drive's performance, as it tells you just how quickly your sample data can be loaded into your instrument. It's also important for multimedia applications, as a fast transfer rate can go a long way toward eliminating jerky video playback. If either of these things concern you, go with a double speed drive, indicated in the chart by two figures, the first for data transfer and the second for audio playback.

**Buffer Size.** Also known as a RAM cache, a data buffer can help ease bottlenecks in the data stream and enhance access time by storing frequently accessed information. Bigger is better.

**Interface.** All of the drives in this chart are SCSI-based; some also support the SCSI-2 standard.

**Termination.** When you're dealing with SCSI, you have to use proper termination. This category tells you just how much aggravation you may be in for when you add a particular drive to your system. Internal jumpers are the most bogus to deal with; external plugs are the easiest.

**Frequency Response.** The digital audio capabilities of a CD-ROM player are subject to the same rules and regulations as a regular audio CD player. Frequency response should ideally be 20Hz–20kHz, so you can experience those sparkling highs and rumbling lows.

**Signal-to-Noise Ratio.** This spec lets you know how much background noise you'll hear during quiet passages; look for figures greater than 80dB.

**Audio Output.** All drives have a headphone output so that you can monitor the audio signal. But some also have an internal preamp that allows

the drive to be plugged into a stereo system; these drives will have RCA jacks on the back. Some drives have no internal preamp, but rely on plug-in computer sound cards for their audio playback. These drives have a cable that plugs directly into the soundcard.

**Volume Control.** The hip drives allow you to adjust volume via a front-panel knob and software. Less hip drives only offer one means or the other.

**Miscellaneous.** The items you'll find in this category are many and varied. Look for things such as dust-cover doors and automatic lens-cleaning (dust and dirt are a CD-ROM player's biggest enemies), software drivers, etc. We'll also alert you to anomalies such as manual-only disc ejection, which would be a problem for Mac users who wish to mount the drive internally (Mac drives must have motorized ejectors).

## MANUFACTURER ADDRESSES

Apple Computer, 20525 Mariani Ave.,  
Cupertino, CA 95014. (800) 538-9696.  
(408) 996-1010. Fax (408) 974-9974.

CD Technology, 766 San Aleso Ave.,  
Sunnyvale, CA 94086.  
(408) 752-8500. Fax (408) 752-8501.

Dynatek, 15 Tangiers Rd., Toronto,  
ON M3J 2B1. (416) 636-3000.  
Fax (416) 636-3011.

MacProducts USA, 608 W. 22nd St.,  
Austin, TX 78705. (800) 622-3475.  
(512) 496-8295. Fax (512) 499-0888.

NEC Technologies, 1255 Michael Dr.,  
Wood Dale, IL 60191. (800) 388-8888.  
(708) 860-9500. Fax (800) 366-0476.

Optical Access International, 800 W.  
Cummings Park Ste. 2050, Woburn,  
MA 01801. (800) 433-5133. (617)  
937-3910. Fax (617) 937-3950.

Peripheral Land, Inc., 47421 Bayside Pkwy.,  
Fremont, CA 94538. (800) 288-8754.  
(510) 657-2211. Fax (510) 683-9713.

Procom Technology, 2181 Dupont Dr.,  
Irvine, CA 92715. (800) 800-8600.  
(714) 852-1000. Fax (714) 852-1221.


PS Systems, 8451-A Miralani Dr., San  
Diego, CA 92126. (800) 446-8404.  
(619) 578-1118. Fax (619) 578-8851.

Ramtek, Inc., 30057 Orchard Lake Rd.,  
Ste. 225, Farmington Hills, MI 48334.  
(313) 462-4181. Fax (313) 855-3033.

Sony Corporation, 15 Essex Rd., Box 919,  
Paramus, NJ 07652. (201) 368-5000.  
Fax (201) 368-3514.

Toshiba America, 9740 Irvine Blvd.,  
Irvine, CA 92713. (714) 583-3000.  
Fax (714) 583-3133.





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**TS-10**



# CD-ROM EXPLOSION

*Continued from page 38*

according to the location of the data it is accessing. Now, this works fine for audio, but with CD-ROM data, the mechanical limitations imposed by the mechanism that guides the head, plus the need to continually adjust the rotational speed of the disc, make CD-ROM drives painfully slow when it comes to accessing a new chunk of data. Times of 500ms, 700ms, or even 1,500ms are not uncommon. (Access time on a typical hard drive is usually under 20ms, with most newer drives being around 11ms.) And the throughput of the CD-ROM drives — how much data can be output, measured in kilobytes per second — is also a ridiculously slow 150Kbyte/sec. (Hard disk throughput can be upwards of 1Mb/sec.)

But now we have a new generation of drives, called *double-speed* drives, that are considerably faster than their forerunners. These new drives actually operate at two speeds, "normal" for playing audio data (the same speed used by the older drives), and double speed for all other data types. The drives offer significantly improved data transfer rates (300Kbytes/sec or more), faster access times (around 300ms, some as low as 180ms), and better overall performance. Many feature a RAM cache, which can be used as a buffer for easing bottlenecks in the data transfer stream, or as a place to temporarily store frequently accessed information, thus speeding up access time to certain pieces of data. Of course, the new drives are more expensive too. But with them, your sample banks will load a lot faster (good news for those of you with 32Mb systems), your video playback

will be smooth instead of jerky, and perhaps most importantly, when you play a CD-ROM game, you can have uninterrupted action. That alone is worth the price of admission.

## DO YOU NEED CD-ROM?

Here's a simple test: Do you have stacks and stacks of sample data on floppy disk? Are you setting up a post-production studio based around a SCSI-equipped sampler? Do you frequently have need to access reference materials? Do you want to get in on the ground floor of an industry in which you could use your creative talents to become filthy rich, after which you could use your wealth and power to overtake a small nation and subjugate its people?

If you answered "yes" to any of these questions, you're a prime candidate for CD-ROM technology. Those of you who answered "yes" to the last question may also be interested in the CD-ROM disc, "A Megalomaniac's Guide to Easily Conquerable Nations" (\$99.95, dist. by Squashem Technologies).

For sampler owners, CD-ROM offers a cost-effective way to build a huge library. Sampler manufacturers are releasing their libraries on CD-ROM, and a variety of third-party titles are on the market (see the list starting on page 38). Most of the third-party discs are available for a variety of instruments. A manufacturer may, for example, offer an *Orchestral Strings* disc for the Akai S3000, the E-mu E111xs, and the Roland S-770; all three discs contain identical audio data, but the programs on each disc would be

## FOR FURTHER READING

The following publications regularly feature articles on CD-ROM:

*CD-ROM Professional*, Pemberton Press, 462 Danbury Rd., Wilton CT 06897-2126. (800) 248-8466. (203) 761-1466. Fax (203) 761-1444.

*CD-ROM World*, Meckler Corp., 11 Ferry Lane West, Westport, CT 06880. (203) 226-6967.

*MacUser*, Ziff-Davis, Box 56986 Boulder, CO 80322-6986. U.S. & Canada: (800) 627-2247. International: (303) 447-9330.

*Macworld*, Macworld Communications, 501 2nd St., San Francisco, CA 94107. (415) 243-0505.

*NewMedia*, Hypermedia Communications, 901 Mariner's Island Blvd., Ste. 365, San Mateo, CA 94404. (415) 573-5170. Fax (415) 573-5131.

*PC Magazine*, Ziff-Davis, Box 54093, Boulder, CO 80322-4093. U.S. & Canada (800) 289-0429. International: (Ireland) 353-61411466.

geared for the specific instrument. Having the same sounds available for a variety of samplers helps relieve some of the pressure when making a buying decision based on a given instrument's library. And with the rise in popularity of CD-ROM, sampler manufacturers are incorporating file catalog and search routines into their instruments that make it easy to deal with the enormous amount of information a disc might contain. Akai has taken the next step and put a CD-ROM drive in two of its high-end instruments.

You need only look at the CD-ROM titles guide to see that CD-ROM sample libraries are becoming big business. The opportunities are there for qualified sound designers, and you can actually make a dinar or two in the process. Remember, too, that fad sounds come and go, so this is a great opportunity to be creative. People love, for example, Denny Jaeger's string library, to be sure, but the polar opposite, "A Poke in the Ear with a Sharp Stick," is a favorite too.

Budding multimedia moguls will want to get up and running as soon as possible. Those of you who wish to create business or promotional presentations can take advantage of the libraries of clip art, music clips, and applications that are available on CD-ROM. Those interested in a multimedia-based music career have a terrific opportunity to supply the raw materials the first group needs. (There are worse jobs than creating music and sound effects libraries.) CD-ROM-based games are also becoming more popular; since CD-ROM can store so much



The wave of the future — instruments with built-in CD-ROM drives, such as the Akai CD3000 shown here.



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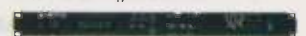
SQ-2 32 Voice Personal Music Studio



KS-32 Weighted Action MIDI Studio



DP/4 Parallel Effects Processor



SQ-R PLUS 32 Voice Synthesizer Module

World Radio History



data, these games will feature full music scores. And we're talking high-quality (albeit compressed) audio, folks, not tweezy bleeps and blurps, so your music will have half a chance of sounding the way you intended it to.

As the medium becomes more popular and the installed user base grows, more and more companies will use CD-ROM for "industrial" films — much the same as promotional video tapes are now used. Someone, presumably a talented, ambitious person such as yourself, will be creating those scores or, at the very least (or worst), the music clips used to create the scores.

If you're still not convinced that CD-ROM could be the opportunity you've been waiting for, consider this: Conservative predictions place the total sales of CD-ROM titles and drives for the year 1995 at \$10 billion. Not exactly chump change. It also happens to be five times more than the musical instrument business will generate.

## BUYING INTO THE TECHNOLOGY

This is so easy. You go down to your local computer emporium, tell them you want the most reasonably priced CD-ROM drive they have, then fork over the cash. Now take it home, plug it in, hook it up to your SCSI sampler, pop in a sci-fi sound effects CD-ROM disc, and sit back and watch. And watch. And wait.

# CD-ROM EXPLOSION

Forever. Because nothing is going to happen unless by sheer stroke of luck you happened to get a drive that is compatible with your instrument. Wait a minute, aren't all drives created equal? No, not by a long shot. Some are "regular" speed, some are dual speed. Some have RAM caches, some don't. Some support a variety of data formats, some only a few. Some have line-level audio outputs, others only headphone outputs. And then there's the driver.

As with any SCSI device, a CD-ROM drive must have a driver — a piece of software that instructs the computer how to communicate with this particular device. When you buy a drive for a computer, the driver software will be included; simply install the driver into your system, and away you go. But with samplers, there's no way to install a driver, as the user doesn't have access to the inner workings of the operating system. Consequently, synth manufacturers ship their instruments with one or more drivers already installed. As a rule, these drivers have been tested with a number of drives, and as long as you have one of the

drives recommended by the manufacturer, everything should work just fine. Our chart on page 40 lists some of the drives that should be sampler-compatible, but as always, try before you buy.

While searching for a compatible drive, you also need to consider what features you need, and what kind of speed you'll settle for. For samplers, you'll most likely be concerned with throughput (sustained data transfer rate), as it's not so important how long it takes to locate the data, but rather how long it takes to load it into your instrument. You should also consider whether the drive will be used strictly for musical instruments, or whether you're going to hook it up to your computer as well. In the latter case, fast access times become more important, as most computer-oriented CD-ROM applications — reference materials, databases, interactive games and books, etc. — require repeated searches and downloading of small files.

The final thing you need to consider is the data formats (see sidebar, page 36) that the drive

*Continued on page 94*

\*We measure the power output of every amplifier that leaves the factory, and the certified results are shown on the box.

**S** 145 watts per channel<sup>1</sup>

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For the one nearest you call 1-800-553-5151. Or to order a set for yourself, mail a check or money order for \$5.00 to ENSONIQ. And then kick back and listen to what the DP/4 can do for your next recording. Who knows, maybe we'll be featuring you on our next CD...

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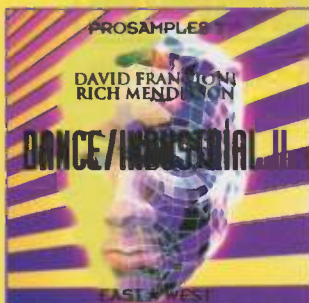


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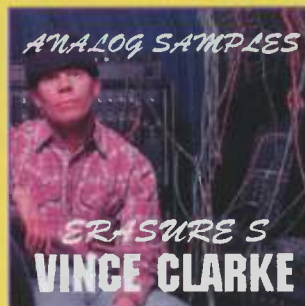


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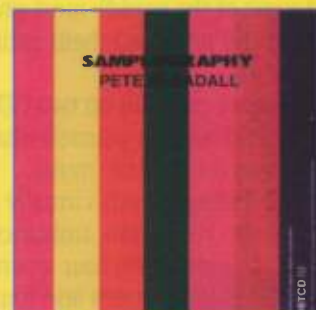


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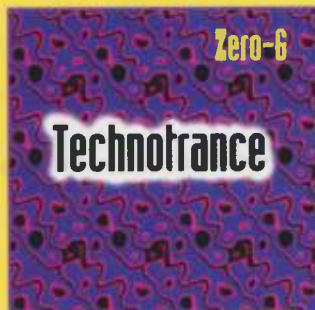


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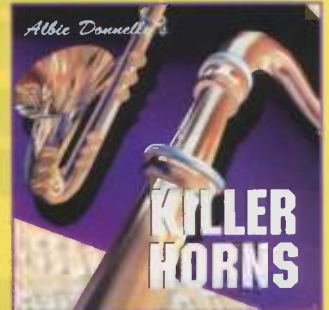
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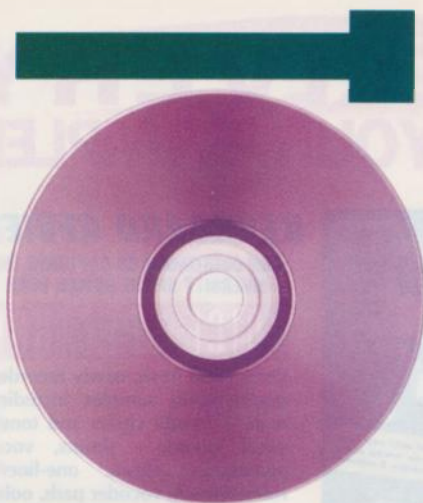
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## AWAKENING THE INTERACTIVE MUSE

BY MICHAEL GOSNEY



The Runt, they used to call him. Nazzy was his first band. "Hello, It's Me" evolved into Utopia in the '70s, and the budding hacker pioneered the use of electronics for rock and roll, both in the studio and on the road. His technical wonderment drew him to the earliest

PCs — Altair, Apple, and more obscure machines — and (as many musicians do) he pursued his knack for programming with increasing enthusiasm as things got more advanced.

Through the '80s, along with recording and producing, he was a regular at Apple's annual Developer Conference, formed Utopia Grokware to publish software, and held infamous parties during the January Macworld Expo (the Todd Party began as a modest late-night gathering in his original San Francisco flat, and

**PHOTOGRAPH:**  
**DANNY O'CONNOR/  
JEAN LANNEN**







# TODD RUNDGREN

grew over five years to unmanageable proportions).

In the '90s, a mature but ever-evolving Todd Rundgren is crafting cutting-edge digital media with Nutopia, the Sausalito-based video production firm he founded with the participation of Newtek (the manufacturer of the Video Toaster, the revolutionary video effects/animation system for the Amiga).

Not to forget the music side of things: Rundgren was one of the more acclaimed performers featured in the 1992 Ringo Tour ("good money," he says) and he has continued to produce, the latest project being a double album with Paul Shaffer. [Ed. Note: For more background on Rundgren, see Keyboard's Nov. '87 cover story.]

And now, a new album. In fact, a new kind of album. Fittingly, Todd also has a new record company. Two, actually: Forward (a division of Rhino Records) and Philips Interactive Media of America (PIMA). Forward has just released *No World Order*, but this is just the linear edition. The really exciting version is the interactive edition, due out shortly in the CD-I format. (Philips' Compact Disc Interactive is a device that plugs into the television set and plays both regular CDs and CD-I discs that users "interact" with via remote control.)

Todd and I previewed *No World Order* on his Macintosh at the Sausalito home he inhabits with wife Michelle Gray and three sons. During our discussion, we were frequently visited by Rebop, a curiously intense 15-month-old who seemed to delight at climbing over the piles of computer and MIDI toys crammed into the studio space.

• • • •

*I understand you have two versions of a new album coming out, as both a standard CD and an interactive recording.*

First comes the standard linear-version CD, which is non-interactive and always plays the same. It's only interactive if you push the shuffle button, interactive in the way that CDs are always interactive. The CD-I version is more fully interactive in that it gives you a continuum of interactivity. At the lowest level, you can give it some simple preferences and it will build a record according to what you've told it to do. If you want to be more interactive, you simply tell it more often what you want. It will always act on whatever the latest state of the controls is, and the music continues to play constantly. So if you want to be minimally interactive, then you just change whatever you want and then you don't do any playing with it.

*So you can go from the completely linear non-interactive listening experience to a highly customized listening experience.*

Even to the extent that you can in effect drive around the musical space.

*You can navigate around the musical space?*

Yeah, but you're doing it in a subjective way. You aren't doing it in an objective way. You don't say, "Go to the third verse of this song." You're doing it in a way that specifies things in very subjective terms, like for instance sparse or thick, or a thoughtful or dark mood as opposed to a bright mood. Tempo, of course, is very specific. You also have the standard CD controls: pause, continue, back to the top, fast-forward, reverse, scan, and seek.

*The title of the album is interesting: No World Order. Who's putting out the linear version?*

Forward Records, a new company. It's a partnership between Rhino and Atlantic. The new album comes out in late June, and Philips Interactive Media of America in Los Angeles is bringing out the CD-I within 30 days after that. What's interesting about it is that there are no graphics. It's not interactive

multimedia, but there are a couple of video modes.

*So there's video animation?*

There's minor interactive video for you to look at, if you have to have something to look at while you're moving around in the musical space.

*You've created a library of musical clips.*

In this particular version of *No World Order*, there's a database with 933 four- to eight-second pieces of music and sound that can be constructed together to resemble songs, instrumental dance music, or any number of things.

*You've given the user the ability to experience a plethora of different variations.*

A theoretically infinite number of verses.

*Can they mix their own from scratch?*

Well, it isn't mixing your own from scratch. You don't really have name-by-name access to these musical events. You're actually talking to an agent who has intimate knowledge of all of the musical bits, and the agent will make the selections for you. The agent is somewhat of an artificial intelligence that tries to make an intelligent choice based on the parameters that you've specified.

*So, the "program" or "script" of the album gives us a basic version that we can modify or customize further.*

Yes, there are several versions of the album on the CD-I release, including scripts by a number of guest artists — including Don Was, Bob Clearmountain, Jerry Harrison from Talking Heads, and the former music director and producer of *Saturday Night Live*, Hal Wilner — in addition to those that I did.

*Tell us about the development environment used for the album. You did it all on the Mac?*

Yes. I used Digidesign Sound Tools to cut everything up into pieces. For the linear versions, we used Master List, which is not a commercially available product, but it comes from Digidesign as well. It allows us to build a list of these little segments, play them, and hear what they sound like. To do the interactive versions, we built our own software tools, our own system for playing back the sound, both in the CD-I version and the Macintosh version, because there are no built-in methods for doing what we're doing, which is managing a continuous montage of sounds, a sound that never stops.

*Was the programming done on the Mac?*

Yeah. We have an emulation environment for the CD-I that runs on the Macintosh.

*Is that a third-party product?*

There's an emulation card for the Mac from this company called ISG, and then some software tools from Optimage [1900 NW 114th St., Des Moines, IA 50325-7077]. In addition, the new Sound Manager from Apple will

## ABOUT THE AUTHOR

*Michael Gosney is the editor/publisher of San Diego-based Verbum Magazine and Verbum Interactive CD-ROM magazine, producer of the Digital Art Be-In held annually in San Francisco during the January Macworld Expo, and producer/co-author of the forthcoming book/CD-ROM package, Multimedia Power Tools (Random House), a 600-page book with a Macintosh CD-ROM of software, tools, and sample projects by top producers.*



make sound play back on the Macintosh comparable to CD-I playback.

*Since you developed No World Order on the Mac, will you put out a Macintosh version?*

Yeah. We don't really have to do much to do a Mac version, because we've written the code in a way that we can compile a Mac version or a CD-I version almost simultaneously.

*What's the concept behind No World Order?*

You mean "the lyric beyond the technical innovation"? It isn't an easy thing to describe because the material is supposed to explain itself. Generally, it isn't too much different than my usual approach to things, which is I pick out a topic and I reflect on it in a very personal way, in a way that is not meant to be construed as political or even necessarily philosophical. It's what I think about some things. I pick things that require me to clarify my thoughts about them, and that I have an attitude or a feeling about. But I've never gone through the process of examining that attitude to see if it's portable or to refine it where necessary. That's usually why I write songs. I externalize these things that concern me and then I try to essentially shape the whole process into something that's at least interesting to listen to.

*Your music often seems to contain observations about the human condition.*

I suppose my religious tendencies are Buddhist, in some sense. It has this Zen quality. A lot of people approach these things looking to affix some blame somewhere. I don't. I see a lot of what goes on as being completely unavoidable, as being just a factor of the evolution of a species. There really isn't any blame to be affixed. Things are the way they are because it's the only way that they can be. It's possible if you're a pro-active person to condition the future. But the way things are now is more often not necessarily a product of people's design, but of people's lack of design. So if there's any blame, it's usually the fact that people just weren't paying attention when the shit was happening. But from my standpoint, I very rarely politicize these things even though people may cast them in that way. I don't look at myself as being a political person at all. Even though I'm talking about the same kind of subjects that Ice-T might be talking

about, he will take them and politicize them. I see all human problems as originating inside individuals and not being some external phenomenon that's imposed on us.

If I have a crusade, it's to constantly remind people about the essentiality of their individualness. People become politicized and align themselves with others mostly out of fear and a desire to empower themselves against the

Somebody will get the power, but it isn't possible for all the people to get power. So some people in that group that you've aligned yourself with will get the power and you will have sacrificed yourself to get it for them, and you won't be any better off at the end of the day than you were before. So I am an anti-alignment person, and any alignment and alliances that I have are for specific things that I recognize that are more or less inevitable. Like if you're going to raise children, you have an alliance with other people in the family. Essentially, it's a level of politicization in that everyone has to work for the good of the family, and often individuals will be shafted in the process. It's something you wouldn't have to deal with if you were a hermit. But since the essential prerogative of nature is reproduction, there's a certain morality in that alignment, and you accept the occasional loss of your personal autonomy. But people often do make these alignments where the goals are less clear, and the likelihood of them getting a high paycheck out of it is even lower.

*Do these ideas of individualization versus alignment have anything to do with the idea of creating an interactive album that allows each listener to have a unique listening experience?*

I would say that that's just a natural by-product of the process. That's probably accurate to the extent that I want to participate in that experience and therefore I've done it for myself and not done it necessarily because I have specific goals for any other person. First of all, I have to confront the reality that I make the stuff and put it out there, but once that's done, I can't have any expectations on how it's going to impact on somebody else. So I've created the ability for people to highly individualize the experience, but there's no guarantee that they'll take advantage of it. Most people experience entertainment and art in a passive manner, and they will continue to do so even though there may be points in the experience where they have the option of making choices and altering the outcome, or creating a unique outcome. They will still experience that outcome mostly with passivity. So I can't go into it with the expectation that suddenly everyone will change their habits, and that listening to records will be like driving a car, where you have to steer it all the time

**MOST PEOPLE  
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OF MAKING CHOICES.**

things that they fear. Very rarely do people use their own uniqueness as a way to gain empowerment. They essentially dilute their uniqueness by aligning themselves with someone else to achieve some common goal, which will never be 100% what you need. It will be partially what you need.

Let's take an example: You and your friends are starving, so you align yourselves into a unit that steals potatoes from a competing gang of hungry people. So you and your other nine compatriots go out and beat the shit out of this other group — whom you happen to outnumber by one — and steal all their potatoes. Now you're ten people with nine potatoes. Somebody in that group is going to get the shaft. Somebody in that group aligned themselves with the group for the purpose of empowering themselves, but as it turned out, it's never all-power to everybody.



# TODD RUNDGREN

or else it careens off the road. I'm not particularly interested in an experience like that.

*What do you think of the CD-I platform?*

I'm not really a partisan for a particular platform. I try to be objective about it, and I try to address all of the platforms on their specific merits. I settled on the CD-I because

it played sound better than any computer does, or any video game machine does. It's a consumer item that sits in the home entertainment section of the house where you normally listen to music. You don't normally install your best sound-reproduction equipment so that it flanks your computer screen and stare

at the computer screen while you're listening to music. Most people don't. There are gear-heads who probably do, but for the most part people do their serious music listening in the family room or wherever, and they do their taxes at the computer. But CD-I is a consumer device. It has superior sound to any computer or video game, and it's out there. Philips is selling them.

We've also evaluated the 3DO system, and that has a lot to recommend it. [Ed. Note: 3DO is a digital interactive multimedia player developed in San Mateo, California, by Trip Hawkins. Designed to work with a normal television, it has yet to be made available to the consumer. In spite of its absence from the public market, 3DO has garnered praise from people like Steven Spielberg and companies like AT&T, Time Warner, MCA, and Panasonic.] 3DO can do a lot in terms of mixing the sound inside the machine. The problem is that, in order to mix the sound, you have to have the sound there in memory, which means you've got to get it off the disc faster. So there are always these conflicts between bandwidth with built-in hardware support for sound, overall CPU load time, and general management of resources. For instance, on the CD-I, we have all of our graphics in memory. We never hit the disc for graphics, and we don't keep much more sound in memory than the time it takes for the head to reach any other part of the disc. In other words, to find the next piece of sound. It could be anywhere on the disc. So, somewhere between two and three seconds before the end of any particular piece of music, the head has to move, or has to be prepared to move. And since we've cut things that close, there's no time for the head to also go somewhere and get some graphics. Where the head goes is at the total behest of the sound driver at this point. And if we were to do it any other way, we still wouldn't be able to get the graphics off fast enough to really do what we like to do. We'd still have to be interweaving it between the sounds somehow. Perhaps some of the new compression algorithms, when they're standard, would enable us to do more with graphics.

*What are you planning in a performance environment? You're going to do a tour for the new album?*

There will be a tour starting in September. It will be several weeks before I decide what I'm going to attempt to do, and then I have to see whether it's possible to do it. I will make use of interactive tools, and there will be some degree of audience input, but it will be input through me. In other words, I may elicit something from the audience, but it will be up to me whether to act on it or not. Some people theorize that you can just toss the processor



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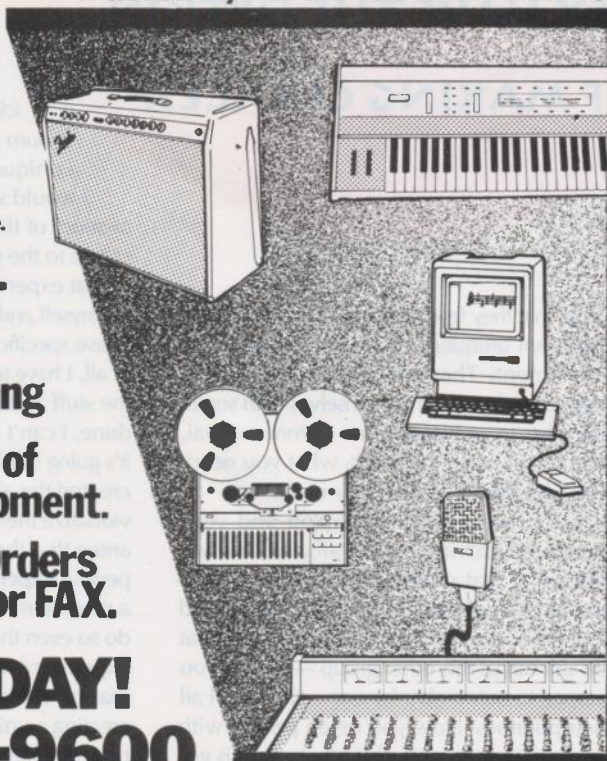
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# TODD RUNDGREN

over to the audience, but I'm not interested in finding out whether that will work.

*Not interested in that much slack?*

Not that much slack. In addition, I think my audience is more interested in watching me do it to a certain degree than having the responsibility of doing it themselves. I think

they would occasionally like to participate in the same way that I used to call people up on stage when I would do "Bang on the Drum All Day," so that they could mush around and play the percussion instruments in front of their friends. But that's not the way to run a whole show. Just the chaos that ensued in that one

song sometimes required a whole song to recover.

*I remember seeing you in a tour where the performance was just you alone.*

This will be substantially me. Actually, in some ways, it will be a return to that. All through the '80s, I did a solo multimedia show, which was me, computers, projection screens, tape machines, and sequencers — the whole deal.

*And you were just conducting all of these components?*

I was performing. It was mixed in with a lot of regular piano-playing and guitar-playing, with acoustic yodeling and things like that. But it did involve integration of a lot of technology into a different kind of presentation. This is going to be a level beyond that, because even though that had a so-called multimedia aspect to it, it was minimally interactive. There were a couple of instances in the show where I would do some improvisation that could, I suppose, be considered interactive. But basically, it was the same show every night. The next time I go out, it's going to be a different show every night.

*Will you have some other bandmembers?*

I'm not sure whether there will be any other players. There may be or there may not be. Part of the problem is truly logistical in terms of where to put them.

*You've been involved in the programming world since the early days.*

I was an Apple II programmer in the very early days, and I had an Altair computer. I've been buying computers since they were first available. I've gone through one of just about every personal computer. I got into the Apple because it was one of the first computers you could do serious programming on. It also had color, and I was very interested in color. I learned how to program by emulating the Paint Box program that Alvy Ray Smith wrote at the New York Institute of Technology. It used a piece of hardware that Apple made, the Apple graphics tablet. Apple supported me in that effort and marketed the software, but they weren't very good at marketing software. The thing that killed it was the graphics tablet failed its FCC admissions test. So Apple withdrew it from the market and never re-released it.

*What was the name of the program?*

The Utopia Graphics Tablet System. Apple put it out in 1981 or so, and I actually collected some royalties on it. I probably made about \$10,000 in royalties.

*About three years ago, you started Utopia Grokware.*

That was when I met David Levine and he showed me Flow-Fazer. He was at a loss about what to do with it. I said, "Without too much effort, we can probably turn this into

*Continued on page 117*

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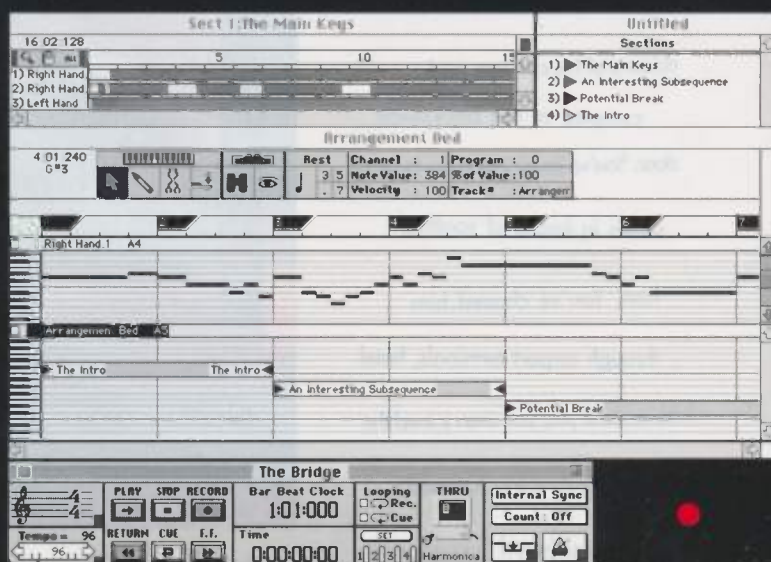
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outstretched arms time and time again. Well fans, here's some good news: Mr. Gabriel would now like to welcome you into his life.

Sort of.

Steve Nelson and his creative team at Brilliant Media, along with the folks at Real World Studios in England, are putting the finishing touches on an exciting new concept in entertainment: a CD-ROM that gets you up close and personal with the artist in question. Nelson explains, "It's called *Explora*, and it's an interactive CD-ROM that contains information about Peter Gabriel, his new album, Real World Studios, Real World Records, and the WOMAD (World of Music, Arts, and Dance) Festival, which he's helped support over the years. The common thread here is that you as the viewer get to take a journey through these different things. You'll not only see and hear his videos and music, you'll also go behind the scenes and watch how a video gets made, or go backstage at a world music festival and see what it's like to be a performer getting ready to go onstage. Peter pops up here and there as a sort of interactive guide to help you along the way.

"We're keeping away from the use of lots of text and computery things," Nelson continues. "We're using a very rich, textural interface where the objects are the things you use to move around, rather than having lots of words and buttons. Instead, we have really nice full-color pictures of nature photography, scenes from his videos, and things like that. You use those to navigate your way through."

Gabriel and the staff at Real World supplied Brilliant Media with hours of music and videotape from their archives — and then some. Nelson explains, "We shot some special footage just for this project. There's a walk-through in one part where you can actually take a tour of his recording studio under your own control. That required a special kind of video shoot. Mostly, though, it's material from his archives and video they shot during the making of his album and during the preparations for his tour. We're filling up the disc; there's roughly 90 minutes of video, sound, and full-color still images, which turns out to be about 600Mb of data."

Editing and assembling the material required a multitude of hardware and software products. "We used the Digital Film Board from SuperMac to actually capture a lot of the video," reports Nelson. "It's a full-motion/full-frame video board. We also used

Adobe Premiere to edit the digital video and process it, we used AfterEffects from CoSA and VideoFusion from VideoLake (both digital video effects processors), we used QuickTime and MovieShop from Apple, we used Adobe PhotoShop for processing the pictures, we used Sound Designer from Digidesign for the audio, and we used our proprietary authoring system based on HyperCard called Digital Montage to assemble everything and create the interactivity, sort of a PageMaker for multimedia." To run *Explora*, you'll need a color-capable Macintosh and, of course, a CD-ROM drive. Plans are also underway for a PC version.

So who exactly are Steve Nelson and Brilliant Media? "The company has been around for about a year in this form," he says. "I started off doing database programming and technical writing for computers, then I got involved with Claris's interactive help systems.

That's what really got me into the interactive arena. From there I worked on a series of projects for Apple: a CNN interactive news weekly, an airline maintenance system for an interactive hand-held multimedia player, and things like that. So I decided a year and a half ago to go off on my own and make titles; I saw this big opportunity for making entertainment products with this new medium." Right off the bat, Nelson produced a prototype Peter Gabriel title, "a sort of MTV-on-disc" and starting shopping it around — which is how he met Gabriel.

That initial contact took place a little over a year ago, but the *Explora* project has actu-





# PETER GABRIEL

ally only been in production for a few months. If all goes according to plan, it should be available in the fall of '93. Buyers can look for it in the traditional CD-ROM channels, but Nelson is hoping to see it in a variety of other places (record and video stores) as well. The estimated cost to the end-user should be about \$50.

Nelson feels that the CD-ROM market is still in its infancy. "One of the main problems is that there's not a big installed base and there's no standard. It's difficult as a content developer to pick the right platform. Where do I see it going in the future? I see this becoming a mainstream entertainment medium. You'll see more record labels and studios getting involved in this. In fact, we're doing projects right now for Warner Bros. and Disney. This is definitely going to be a big thing. Where it goes in terms of creativity is kind of wide open. It's really like being around during the advent of television or the printing press. At first, there will probably be a lot of repackaging of old stuff into

interactive form, and it'll be more useful that way. But where it's really going to go is you'll see truly interactive stuff that was made specifically for this medium. Just as musicians caught onto music videos and made it a big part of what they do, I think a lot of musicians are going to catch onto this and become multimedia artists."

As for the state of technology, he concludes, "I think it's happening. Our compa-

ny's goal is to be an entertainment company. We're not a computer or technology company. Every new technological development is nice, it gives you more capabilities. But the bottom line is that it's gotta be great entertainment. And that's our goal: to make great entertainment." ■



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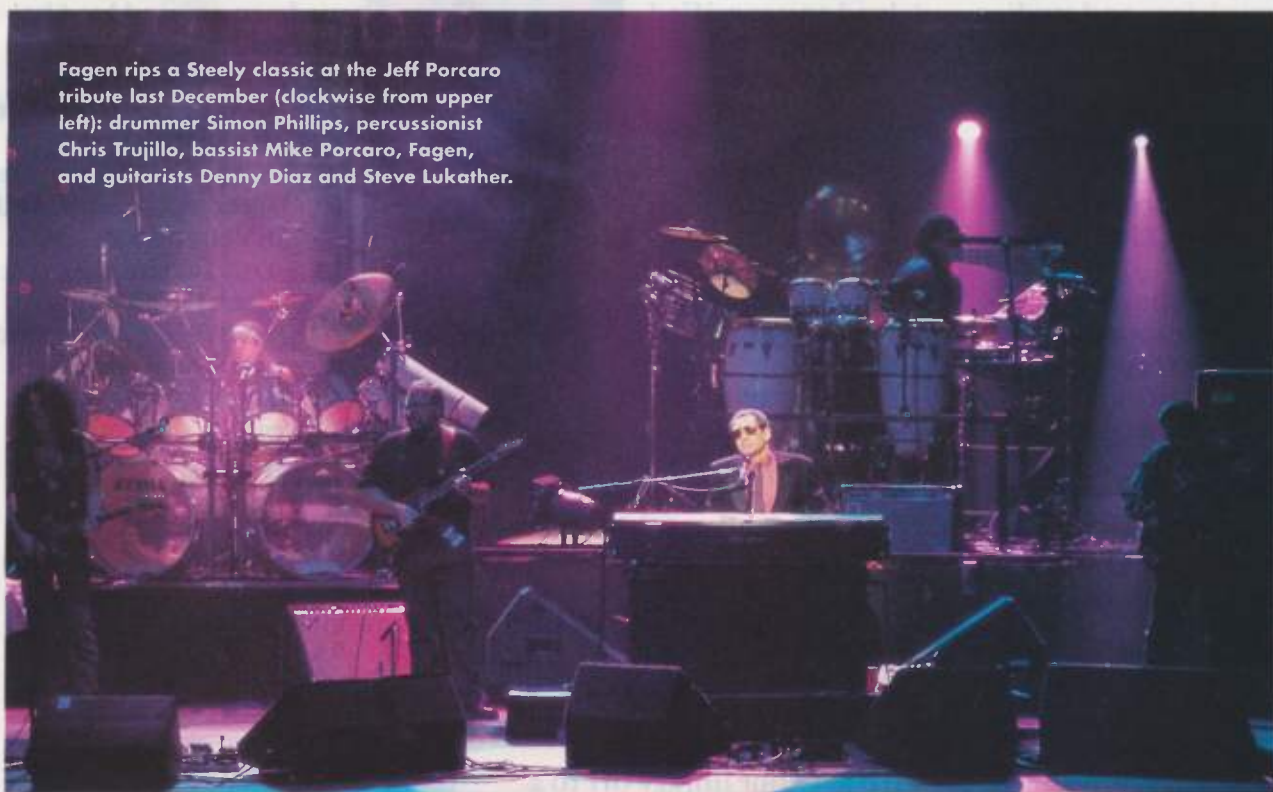
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# DONALD FAGEN

Fagen rips a Steely classic at the Jeff Porcaro tribute last December (clockwise from upper left): drummer Simon Phillips, percussionist Chris Trujillo, bassist Mike Porcaro, Fagen, and guitarists Denny Diaz and Steve Lukather.



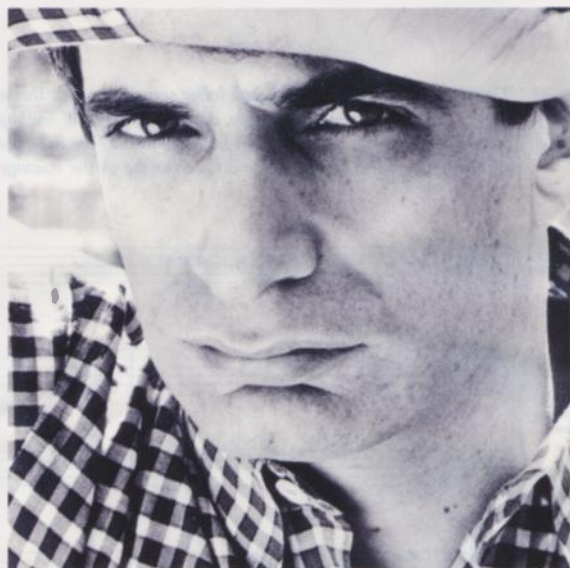


# THE SECOND COMING OF STEELY DAN



BY ROBERT L. DOERSCHUK

**W**aiting for Donald Fagen is like waiting for Halley's Comet, or the next total eclipse, with one important difference: Comets and eclipses are always on schedule. Other than that, for Steely Dan fans and astronomers, it's the same game. They scan a vast vacuum — for some, the universe; for others, the pop music charts. Now and then a falling star plummets into the oblivion of Earth's atmosphere or Peter Noone's VH-1 show. Other than that, nothing changes. ■ Nothing, that is, until the Event finally happens. Or, more accurately, until its portents begin appearing in the press. Scientists suddenly turn up in *USA Today*, solemnly warning



# & THE MILLENNIAL GROOVE OF KAMAKIRIAD



# DONALD FAGEN

kids not to look directly at the sun. And, in the offices of *Keyboard*, a phone rings. On the other end, a publicist heralds the imminent phenomenon — the release of a new Donald Fagen album.

Unbelievably, a few days later, an advance copy of *Kamakiriad* arrives in the mail. Like Smithsonian geologists examining their moon rocks, we cradle the generic white cassette, turn it over, check its weight. Then, carefully sidestepping magnetic fields, we tiptoe it across the room, slip it into the Sony, and — watch out for that erase button! —

## DONALD FAGEN A SELECTED DISCOGRAPHY

### Solo Albums

*Kamakiriad*, Reprise.  
*The Nightfly*, Warner Bros.

### With Steely Dan

*Aja*, MCA.  
*Can't Buy a Thrill*, MCA.  
*Countdown to Ecstasy*, MCA.  
*Gaucho*, MCA.  
*Katy Lied*, MCA.  
*Pretzel Logic*, MCA.  
*Royal Scam*, MCA.

With New York Rock And Soul Revue  
*Live at the Beacon*, Giant (dist. by Warner Bros.)

### Soundtrack

*Bright Lights, Big City*, Warner Bros.

### With Other Artists

*Eye To Eye* (w/ Eye To Eye), Warner Bros.  
*Indian Summer* (w/ Poco), ABC.  
*Pirates* (w/ Rickie Lee Jones), Warner Bros.

have our first listen.

"Trans-Island Skyway" kicks off the album with a percolating synth riff; a saucy drum strut snaps us to full attention; and then that

adenoidal voice — earnest and detached, pinched and slippery, all at the same time — insinuates itself into the groove. No doubt about it: *Kamakiriad* is the genuine item:

"Countermoon" instrumental break (after second chorus): This excerpt features the only solo Fagen plays on *Kamakiriad* — significantly, a jazzy sax sample. The rhythm section is meticulous, almost metronomic, but with tiny variations from bar to bar. The horn section build-up that starts with the uni-son line in bar 3 is a Fagen trademark, as are the cluster voicings in bars 6 through 8.

"Countermoon" written by Donald Fagen. © 1993 Freejunket Music (ASCAP). All Rights Reserved. International Copyright Secured.



unadulterated Fagen, seductive as oleanders in Annandale, cool and sleek as a nightfly arcing against a full countermoon.

For two decades, Fagen has been the odd piece in the pop music puzzle. Working solo and in Steely Dan with his longtime collaborator, guitarist Walter Becker, he has perfected a style that doesn't even remotely resemble that of any other major artist. Its fundamentals include lyrics both evocative and obscure; a rock backbeat lightened and animated by jazzy horn stabs, pads, and unison lines; elastic chords that slither and slide over the body of the blues; and, above it all, Fagen's voice, quavery and thin on the melody, but surprisingly full when it blossoms into overdubbed, close-voiced, impeccably inflected harmonies.

As far back as 1972, when Steely Dan released their debut album, *Can't Buy a Thrill*, the Fagen persona was taking form. In those days, Steely Dan was a band in the traditional sense, a self-contained group whose appearance and instrumentation fit the rock norm. They had their share of hits — "Reelin' in the Years," "Do It Again," "Rikki Don't Lose That Number" — and hot players, including drummer Jeff Porcaro, guitarist Jeff "Skunk" Baxter, whom they rescued from Boston's Ultimate Spinach, and Michael McDonald, who



Fagen with Steely Dan in England, 1974. Jeff "Skunk" Baxter (second from right) plays guitar.

briefly supplemented Fagen on keys. They toured for about two years, mainly opening for other acts.

Abruptly, in 1974, Fagen and Becker split up the band and redefined Steely Dan as themselves plus whatever hotshot studio players they needed for particular sessions. On the albums that followed, all the rough edges of their earlier projects vanish in gleams of seamless virtuosity and molecular-level edit-

ing. This approach had its risks: Scores of players followed this same muse into the vortex of MOR jazz; few returned intact. But Becker and Fagen thrived in this antiseptic milieu. Their anal meticulousness quickly became the stuff of legend. Horn players related tales of coming in for a Steely Dan session, cutting their parts, going home, then getting called for another Steely Dan date a year later, coming in again, and finding

The musical score is arranged for a full band. The top staff is for 'synth as tenor sax'. Below it are three staves for 'trumpets trombones saxes'. Then two staves for 'guitar 1' and 'guitar 2'. This is followed by 'keyboards', 'bass guitar', and 'drums' at the bottom. The score shows intricate harmonic and rhythmic textures, with various musical notations including triplets, slurs, and dynamic markings such as 'ff' (fortissimo).



# DONALD FAGEN

themselves recording exactly the same track.

Against all odds, Fagen's and Becker's obsessive tweaking, re-recording, dicing, and splicing produced not a chaos of tiny ideas but complete works, in which diamond-like details illuminated the overall structures. The title cut of *Aja* represents the peak of their artistry, with surging dynamics, abrupt shifts in rhythm, an amazingly thorny set of chordal and rhythmic changes for saxophonist Wayne Shorter to negotiate in his solo, and Steve Gadd's most inspired drumming to date, all

of which somehow enhanced rather than pulverized the integrity of the song. It is, simply, one of the greatest pop records ever made.

Following this sort of accomplishment has proven difficult even for Fagen and Becker. Their follow-up album, *Gaucho*, followed more aerodynamic lines. Most of its songs stayed close to the kernel of the blues. More textural variety came from the keyboards, a bit less from the horns: Where Fagen emphasized piano on earlier releases, he played plenty of electric piano and synth throughout *Gaucho*, and even hazarded a Sequential Prophet-5 solo on "Hey Nineteen." True, he did so mainly because he and Becker didn't like any of the pianos in the studios they were using, and even found a Steinway they hauled in for one date to be less than satisfactory. Even so, the upshot was that *Gaucho* gave Fagen a wider range of expression as a player while also signalling a kind of re-trenchment for the band as a whole.

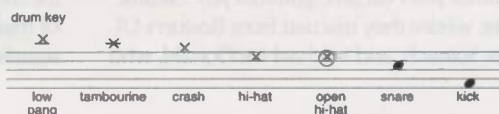
It also marked the band's last album, at least to date. After unveiling it in 1980, Fagen and Becker decided to put their partnership

on ice. While Becker occupied himself producing various jazz artists, Fagen went to work on his first solo album. Titled *The Nightfly* and released in 1982, it has more accessible and autobiographical lyrics than most Fagen/Becker collaborations. Musically, however, it is virtually indistinguishable from what they did together as Steely Dan. Until Becker finishes *his* solo project, one can only conclude that Fagen is the indispensable ingredient to Steely Dan.

This impression is confirmed on *Kamakiriad*. Once again, we hear the breezy horns, the tight ensemble vocals, the disciplined but insistent rhythms, that defined the Steely Dan sound; with Becker's guitar doodles threading most of its songs, the differences between Fagen on his own and Steely Dan as a whole become even more academic. As long as Fagen can rouse himself every decade or so for another outing, the survival of that sound seems guaranteed.

Fagen's first encounter with Becker, a fellow student at Bard College in upstate New York in 1967, marked the moment of his own

"Tomorrow's Girls," end of third verse and beginning of chorus: This excerpt shows how Fagen artfully cuts off an expected eight-bar phrase to begin the song's chorus two bars early. Note the horn line that builds under the vocal, the understated electric piano comping, the single-note fills on guitar, and the tambourine backing up the snare drum when the chorus starts. The key change to E $\flat$  major shows Fagen's harmonic sense of adventure.



The musical score for "Tomorrow's Girls" is presented in a multi-staff format. The top staff is for the voice, with lyrics: "Dream a - bout a laugh - ing an - gel. Then the laugh be - comes a fun - ous whine. \_". Below the voice staff is a staff for chorus vocal. The next staff is for horns, marked "in octaves" and "p". The guitar staff shows single-note fills, marked "pp". The electric piano staff shows understated comping. The bass guitar staff shows a steady bass line. The drums staff shows a complex rhythm with various drum sounds indicated by the drum key.

"Tomorrow's Girls" written by Donald Fagen. © 1993 Freejunket Music (ASCAP). All Rights Reserved. International Copyright Secured.



artistic self-definition. Before that, he was mainly preoccupied with music as an escape from his upbringing in suburban Hell, a.k.a., Passaic, New Jersey. His mother, a former big band singer, raised him on a musical diet of big band jazz. He had a few piano lessons, but wasn't inspired to really work on his chops until he heard a Red Garland disc, "Jazz Junction." "Ever since then," he told *Rolling Stone*, "I've tried to imitate his style, in the privacy of my own home."

By 1958, when he purchased his first album, *Dave Brubeck at Newport*, Fagen was a self-confessed jazz snob. The rock renaissance of the '60s opened his ears further, mainly toward the music of Bob Dylan, Frank Zappa, and other relatively experimental artists. Becker proved a kindred spirit; shortly after their meeting, they began putting bands together and playing college gigs. Their sidemen, at one point, included Chevy Chase on drums; even so, their tastes and plans were already too idiosyncratic to leave them easily satisfied with the quality of musical hired help. By 1970, when they went on the road as part of the backup band to Jay And The Americans, a fascination with enigma and a tendency toward cynicism separated them from the post-hippie dippiness that predominated in rock at that time.

This explains, perhaps, why they insisted on being introduced onstage as Gus Mahler and Tristan Fabriani. It also offers a clue as to why Jay and his boys referred to them off-stage as Manson and Starkweather.

We were mulling all this over in a Manhattan office one day last April while watching the shadows of afternoon stretch across the skyline and wondering where Donald Fagen was. The hour of our appointment came and went. So did the sandwich and coffee delivery guy from downstairs. The coffee cooled, the lettuce on our BLT wilted, and an understanding gradually grew as to why nine years had passed since *The Nightfly*, and nearly two decades since the last Steely Dan tour. With a Steely Dan trek being booked for the summer of '93, and *Kamakiriad* ready to feed the hungry ears of die-hard fans, it would have been too much to expect that Fagen would also be on time for an interview.

Of course, he eventually did show up, a diffident presence in black sweatshirt and jeans. His manner was all shrugs and self-deprecation. His sentences began emphatically, then sank toward mumbled incomprehensibility and petered out in snorts of ironic amusement. He leaned back in his chair, away from the filtered light and toward the shadows behind his desk. And he gave

us the time we needed to explore the long silence of the '80s, and the new spirit of funk and celebration ushered in by *Kamakiriad*.



About five years ago, a record company publicist queried us about doing a story on your upcoming solo album. Why did Kamakiriad take so long to finish?

I had a writer's block for a couple of years after doing *The Nightfly*. Actually, it wasn't exactly a writer's block. I was working, but I didn't like what I was doing. So I took some other jobs. I did a film score [*Bright Lights, Big City*] and a few other things. Then, toward the end of the '80s, I had this idea for a record. I started writing around '88. I was also saving a couple of songs I had written a few years earlier. One of the tunes, "On the Dunes," was written in 1983 or so. That came before I had the idea for the album, although it fit in really well.

You've said in other interviews that you stopped writing in the '80s because the tunes you were doing were beginning to sound repetitious. What is there in *Kamakiriad* that isn't repetitious, that is sufficiently different from your earlier material that you feel okay about



# DONALD FAGEN

releasing it?

It just sounds fresh to me. I started playing with more aggressive rhythms. The subject matter is not strictly autobiographical, but it does reflect a psychological journey that's in some ways based on what I was doing in the '80s in the sense of figuring out a lot of personal stuff.

*Yet it's set in the future.*

Yeah. There's a note on the album that it takes place sometime around the millennium. I did that because I wanted to have some distance from the subject matter, and also it allows me to create certain technologies that don't exist, which are useful to me.

*But there's enough of the present in these songs for the listener to recognize.*

Some songs have no reference to any future time, although in the context they do in a way. I didn't want to do a hard sci-fi thing. I just wanted to get that distance.

*Why did you play almost all of the keyboard parts yourself, rather than bring in some of the session players you've used in the past?*

I guess the method I was working with made it easier to do that. I was starting with pretty detailed models [i.e., demos] of the tunes. I would throw down a keyboard part, and most of the time I ended up keeping the first take. Since I hadn't played the songs that many times, the parts are kind of simple, but I like that. So I just left my parts on.

*So most of the keyboard parts on the album were cut by you playing to a click?*

Right, or to some kind of a simple sequence. Sometimes it was just a drum machine.

*Was this a new way of working for you?*

Yeah. I'd never started with a model. I had done stuff to clicks with a band, but the technology wasn't all that great last time I made a record [laughs]. In fact, at that time, we had our engineer, Roger Nichols, invent sequencing machines for a couple of tunes, because there weren't any out at that time with the fidelity we wanted. On the new album, I would still start writing at the piano, but once I had the song laid out I would use a sequencer to arrange it. Then, once the structure

was there, I'd throw down my keyboard parts.

*Did any of these sequences wind up on the album?*

We left a few in here and there, but most of the sequenced stuff and just about all of the drum stuff that was originally mechanical [i.e., electronic and sequenced] was replaced by live musicians.

*Live drums are almost a trademark of your work.*

Yeah, I don't like the mechanical thing. Drum machines are pretty sophisticated; you can make a drum track that sounds kind of realistic. But the details and subtleties of a live performance give you an excitement you'll never get from something that never changes.

*Even when the drum part is just a backbeat, a steady hi-hat part, and a bass drum kick...*

... it's different when it's played live. In just playing around with this stuff, I've found that the difference between having a groove and not having a groove can be a tenth of a millisecond, or less. That's how detailed a live drummer's rhythmic sensibility can get. It would be very hard to duplicate that with a machine.

*Of course, there are "humanizing" programs now for drum sequences.*

But those are random. Random won't do it for you. You end up with, essentially, a bad mechanical drummer.

*How did you choose which sequencer to use in creating the models for this album?*

I experimented with a few sequencers and computer programs, and I ended up selling the computers [laughs]. The things that sounded best to me were the really cheap machines, something like a Rhythm Ace. The most sophisticated thing I have is an Akai drum sequencer [presumably the MPC-60], which isn't that sophisticated by today's standards. Simpler machines have a more comfortable groove when you just turn them on and play the beats. Computers have that rusty tin man feel. The clocks on the cheaper machines don't always work that well; they slow down and speed up sometimes. But I put everything through a delay anyway, so that doesn't matter so much. Besides, I like to work fast. I can't spend time waiting to punch in delays on a computer. So I just put everything through a digital delay and spin the dial until it all sounds pretty good, and that's it.

*Why do you still write your songs at the piano?*

Because that assures you that the song will have some musical integrity. When you start on a machine, you let the machine write the song. They sound best when they're doing certain things, so you tend to go with things that sound best on the machine. You end up

getting manipulated. But if you work on the piano, that won't happen; you'll get something with really sound musical quality.

*For that same reason, do you write your horn charts without using samples for reference?*

I don't get into that. The basic tracks don't include any horn samples or sequences. I just get a horn section and do the arrangement. I don't even think that much about what the horn part is gonna be until the vocal is done and I see where the horn part would sit. That's one of the last things I do. I look for holes, just like any big band arranger would. We actually had a playback party the other day, and the horn players were having a great time, not only because their very excellent section work was on display, but because they're so used to hearing themselves mixed way back with a lot of reverb. This record has hardly any reverb on it, so they could really hear themselves.

*Do you write all the horn arrangements?*

This was actually the first time I did them completely on my own. Previously, I always had somebody help me, either Rob Mounsey or Tom Scott. I was a little wary about the voicings. But this time I decided I would do it really simply, with a lot of unisons and octaves. When I used someone to help me, they were never able to resist putting in some of their own stuff. Some of it was good, but a lot of it I would have to rewrite at the date because I didn't like it. I'd even rewrite my own stuff at the date. This time, I was pretty careful, so that I would retain my own style and not have anyone else's head in it. It was totally narcissistic [laughs].

*The intro to "Florida Room" includes probably the most distinctive horn parts on Kamakiriad. In fact, their relationship to the song itself in terms of texture, theme, and even key is unclear.*

I wanted to make a transition from the previous tune, "Tomorrow's Girls." That song ends over a B $\flat$  blues thing, and "Florida Room" is a blues in G. Because it was a similar type of blues but in another key, I felt it could use some kind of a minor-key transition. So I took it to a very foreign key, to B minor. I started fooling around with chromatic thirds with a blues melody, then I moved it up a half-step to a C chord, which is the fourth above G. I like the way it sounds. At one point, I was going to connect all the songs in one way or another, but I decided that was pretentious. I like the idea that these are songs rather than parts of a suite.

*Your main instrument still seems to be the real Rhodes electric piano. Why haven't you gotten more into synthesizers and samplers?*

That was very important. If you play a synthesizer using the whole keyboard, you're



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# DONALD FAGEN

really looking for trouble, because the harmonics on the top end tend to be flat, and on the bottom they tend to be sharp. Any piano tuner knows to stretch the top and bottom; that's actually putting the fundamentals a little out of tune, but what you hear is the higher harmonics. Some synthesizers have these pseudo-stretch programs, but they don't work. The intervals only move in cents, and they're not even real cents; they're a little more than a cent. What you really need is a quarter- to a half-cent to stretch the tuning the way you would on a piano. That's why any records that use mainly synthesizers just aren't in tune. I hate listening to that kind of stuff; it's like my head is being squeezed in a vise. Very anxiety-provoking.

*Do you have perfect pitch?*

No, but I'm very sensitive to pitch. And almost all singers complain about this synth tuning. Sometimes they don't even know why. They'll say stuff like, "What is this? Take the flanger out!" Really, it's just that synthesizers are not in tune; it's as simple as that. So I try to use tunable instruments — Rhodes, acoustic piano, guitars. I think they should make a new Grammy for the most in-tune record; I bet I'd win. In fact, I'd venture to say I might have the only in-tune pop record, except for various acoustic band things. Being in tune has a psycho-acoustic effect; the sound is much more relaxed than on electronic stuff.

*Kamakiriad is hardly relaxed from a rhythmic standpoint.*

You'd be surprised how much that has to do with the tuning. If it was all done with synthesizers, it would sound nervous.

*If someone invented a way to tune a synthesized Rhodes sound to your satisfaction, would you still go with the original Rhodes in your own music?*

Sure. Aside from the tuning, there are so many detailed things you can get out of a Rhodes. It has a very musical sound. A lot of little accidents happen because it's not that well-built; sometimes it'll pop and not make

the note that you hit. But that's funky. The Rhodes was a great invention.

*What Rhodes did you play on these sessions?*

There were a couple. The one I mostly like is a 73-key suitcase model. It doesn't have a tremolo switch — just the volume and tone knobs. Then I have an 88-key stage model with stereo tremolo.

*"On the Dunes" is the only song on the album on which a synthesizer plays a major textural role.*

Yeah, I used synth strings. But I didn't really mean to do it. I got this instrument that someone told me about when I needed a keyboard on the road last summer for the Rock And Soul Revue. [Ed. Note: After an 18-year absence from live gigs, Fagen assembled a group of all-stars into an ensemble called the Rock And Soul Revue and led the group in a series of concerts last year, in which a mixture of original tunes and R&B classics were performed. Members of the group included Michael McDonald, Phoebe Snow, Charles Brown, and Boz Scaggs.] I went to a piano store in Boston to look for one of those silent practice keyboards. They didn't have that, but they were selling this Roland FP-8 thing. I especially liked it because it was white; it looked like a refrigerator.

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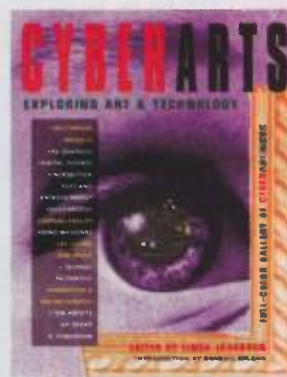
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# DONALD FAGEN

ator. It has only two piano presets, which are no better or worse than any other ones. But the keyboard felt great. Also, it had this string pad sound that somehow sounded in tune. I'd play a high note, and it was pretty much in tune. So I had it in the studio when we cut "On the Dunes," and I just improvised a couple of string pads. Then I picked the best parts and did the rest of it over.

*Could that song have been acceptable to you if you hadn't had the FP-8 on hand?*

I was originally going to write a horn chart, so that's what I would have done. I actually ended up writing a few bars of horns to sweeten it up.

*Was your string pad in any way a substitute for what you would have done with real strings?*

I really don't know. I don't think it mimics strings that well, but it goes well with the song. It's kind of a surfy sound.

*Why haven't you explored MIDI more fully to create sounds that might be more effective within your arrangements?*

Mainly because there's a delay of some three milliseconds or so when you use MIDI, which to me is insupportable. When I play a note, I want it to start where I start, and especially to end where I end it, because it's the space between notes that gives it the real swing. When you don't have exact control of the attack or where you let go of the note, it's constantly varying. MIDI stuff is just too broad. It's not detailed enough for me. It's really just a big pile of shit [laughs]. You're not in control; you're letting the machine control you. That's one way of working, but it's not my way. I want more and more control.

*How did the Rock And Soul Revue affect your work on Kamakiriad?*

More than anything, because I had to listen to a lot of the older records to get ready for the Rock And Soul Revue, I got into an aggressive rhythmic thing. I was conscious of that when we were doing the tracks. As far as the method of working, I don't think it had any influence. Previous to all the high technology, we did live tracks on the Steely Dan records: We'd hire a band, have 'em play a few hours, take a break, maybe do a few

more hours. If we didn't get something good, we'd just hire another band [laughs]. That was part of the reason why our records were getting to be so expensive: We were trying to get a really great performance on every tune. Now we've got a cheaper way of doing it. All you have to do is hire a couple of musicians. If it's not good, you just hire a couple of others. But you don't have to hire a whole band. And you still have your model intact.

*When you do something like the Rock And Soul Revue or the Steely Dan tour, is it difficult to give up the kind of control you enjoy in the studio?*

Not really. To me, live has nothing to do with recording. If I want to record a gig, I get

a guy I trust, put him in the truck, and that's it: I don't have anything else to do with it. I just say, "Get a good shot. Don't make some horrible mistake." I mean, I like to play and not worry about that stuff or making a mistake.

*Producing a record is kind of like doing a painting: The product is what counts. But playing onstage is more about the experience.*

Yeah, there's no connection between the two. I do think visually in the studio — a dab here, a dab there. There's a little hole; maybe I'll put something in it, then I'll decide it's better as a space and open it up again. Playing live is more like a gang bang.

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# DONALD FAGEN

*nuances on each record, do you feel that your albums are never really finished?*

Yeah, in a way. I stop working on something when I'm listening to it and I can't hear anything wrong with it. I look at it negatively: If something is wrong or not complete, then it's not done. As soon as I can't find anything wrong, I stop. I could easily keep going and do other things to it, but I guess that would be too much. Sometimes I think I do too much anyway, because I'll think that maybe I was incorrect in thinking that something was wrong. It was okay then, but it sounds wrong today. There are parts during mixdown where I decide not to use stuff that I've recorded because it just sounds stupid. Basically, I try to simplify as much as possible.

*Did you punch in a lot of parts on this album?*

Not really. There was one line in a solo I did with a saxophone sample, on "Countermoon."

*Which sampler did you use?*

I don't even remember. I rented it, you know? I don't own any stuff, so I just fish. I told this guy, "I want to do a solo on a keyboard with something that sounds not too horrible." So he came in with something and played it, and there was a saxophone thing that sounded pretty good. But it was hard to handle, because there was a lot of air on the attack. I like the air, but everything I would play was late because of the delay. I had to play ahead of the track to compensate. Because of that, it was like, this bar is good but the next bar isn't quite right rhythmically. So I did a lot of punches on that one. That was the only place where that happened, though.

*That was the first sample-based solo I've ever heard you play.*

Yeah. I never did that before.

*And you definitely wanted a sax sound for that part?*

Originally, but I would have picked anything that sounded good to me. The only sound I liked on whatever it was that guy brought over was this sax thing, because it was fairly expressive.

*Why didn't you just bring in a sax player? Because that tune had a very stretched*

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feel. I actually tried it with a sax player after we had finished this horn date. The guy is good at this kind of stuff, but I couldn't get him close to what I had in mind. I wanted it to be way behind the beat, to really lay back while keeping the rhythmic integrity of the groove. That's what's most important to me. The kind of groove I like is very '40s or '50s, almost like a swing band. A lot of guys can't get into that because they're so used to playing on top [of the beat]. You have to get a really old guy to come in and do it, but then they don't understand this area of R&B. So often I'd rather just do it myself. Walter has exactly the same feel that I do. That's why he plays all the guitar stuff on the album.

*You didn't have to punch in his solos?*

For Walter's solos, we'd just take two or three performances and combine them. It would be hard to find a guy who can backphrase as naturally as he does. I was thinking of using a few guys who play Django Reinhardt style, but Walter was standing right there, so... [laughs].

*During your "Countermoon" solo, were you trying to phrase like a saxophonist?*

I play a little saxophone, so I know what's comfortable. I did a few things that are impossible on sax, but not *that* impossible. The sample itself is kind of a Texas R&B sound, but for some reason, within the harmonic context of the song, it ended up sounding kind of like Hawk [Coleman Hawkins] or Don Byas. Pretty weird.

*Have any big band arrangers had a strong impact on your own writing for horns?*

I'm listening a lot to Duke Ellington. I'm not afraid to use a lot of triads over a chord to sound good, especially in a blues, which is what he did a lot. I also like Oliver Nelson quite a bit, mainly on the records he did with Eric Dolphy — a lot of seconds, weird extensions, stuff like that. Quincy Jones's early arrangements were great. Thad Jones was also a great arranger, and a great player too. I can't think of another trumpet player I'd rather see live than Thad Jones. I used to love to see his band; they played every Monday night at the Vanguard [the Village Vanguard in New York]. It wasn't that the band was so great, because they had a lot of young guys. But it was worth it just to hear those Thad Jones solos.

*Did you learn much about arranging during your stint at the Berklee School of Music?*

I was only there for a summer, when I took an intensive course in arranging. One funny thing happened: This guy was teaching piano. He played in a kind of Bill Evans style, so he was sort of their modernist. He was supposed to give me private lessons in keyboard harmony and improvisation. So I walked in on the first day, and he said, "Lis-

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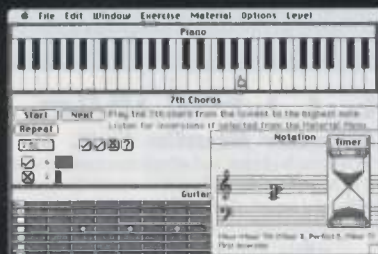


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# DONALD FACEN

ten, I got this gig for the summer, and I just gotta take it. I'm really sorry, but here's what I'm gonna do: I'm gonna give it *all* to you today. Take out your notebook." He gave me an entire course in advanced harmony and improvisation, and I'm writing all this stuff down, not having a clue as to what he's talking about. Then he said, "I'll be back at the end of the summer to see how you did. Good luck." That's the last I saw of him. It was like, should I sue these guys? Very strange.

*So you didn't get much out of Berklee?*

Not that much. I ended up skipping a lot of classes. It was 1966, and it was wild. Most of the time I was just smoking pot and goofing around on the street with my friends. I was a regular weekend hippie. I got a lot more out of some harmony courses I took at Bard College.

*What about orchestration?*

I learned about that on my own, with Persichetti's book, *Orchestration*. At the time, Jacob Druckman, an excellent composer and teacher at Juilliard, would come up two days a week and teach a few students. I took composition from him for a term, and that was extremely useful to me.

*Were there classical composers who affected your work with Steely Dan?*

Probably the same guys that other jazz musicians talk about. I like Debussy and Poulenc, more or less light French music from the turn of the century or a little later. Also Stravinsky, and I liked Richard Strauss quite a bit.

*What do you look for in a horn player for the kinds of charts you write?*

Mainly they have to have really great technique, so they can play quickly and in tune. They have to have great intonation. That's why I use guys who play in jazz sections. I'll get Randy Brecker to play trumpet, Bob Metzger for tenor and clarinet, Lou Marini and Metzger to play flutes on a couple of things. These guys are great. They can read fly shit [i.e., densely written parts], so no problem.

*Have you ever thought about exploring jazz rhythms as fully as you've explored jazz harmony?*

*Continued on page 83*

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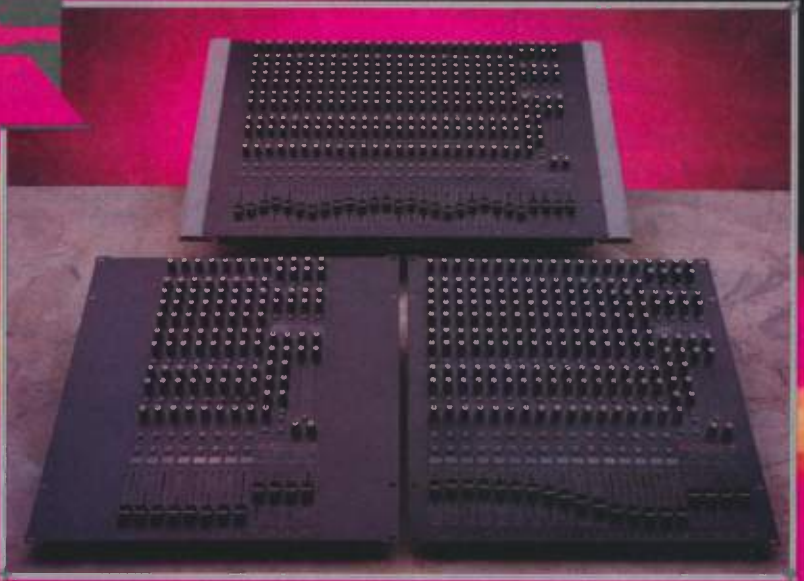
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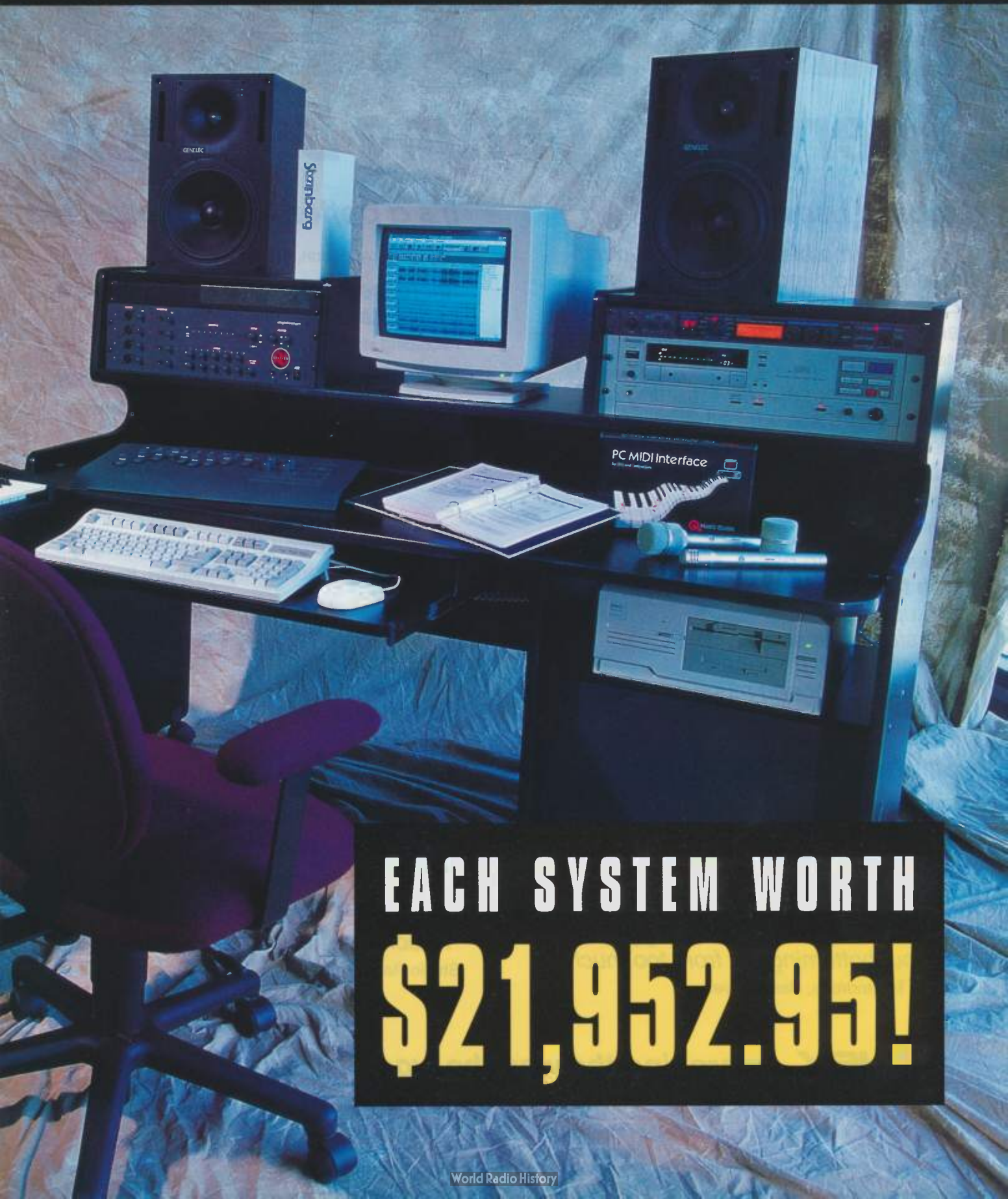
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# DONALD FAGEN

Continued from page 78

Nah, I really like the R&B thing. Rhythmically, I'm sort of dumb. I never assimilated the move to a sixteenth-note feel, like that funk thing that Sly started. Real funk is mainly a sixteenth-note shuffle, and the horn parts push the sixteenth-notes. I love Sly. He's a genius. But it's not a comfortable style for me. That kind of thing feels extremely nervous. I like to stay within an eighth-note shuffle — very relaxed, kind of a [drummer] Philly Joe Jones feel, but with a heavy backbeat, like Chicago blues. Those guys who played drums with Muddy Waters had such a great feel — very laid-back. That's what I like.

But it's easy to imagine a tune like "The Dunes" being done with a quiet, Connie Kay-style brush drum backup.

Sure. But I want to keep it simple. I mean, already not too many people want to cover my stuff, because the lyrics are too weird. The publishing guy we have is always saying, "Listen, I know we can get a great cover for that tune!" He doesn't understand that when people do our songs, it has kind of a parody effect, like when Bill Murray does a Beatles song. What is interesting is when some jazz arranger does an instrumental version around the basic composition [of a Steely Dan tune]. That's a much more successful approach than just doing a straight cover, because these songs do lend themselves well to expanding harmonically, and they've got good solo changes.

How do you write a good blowing section?

Well, the song's got to be swinging. You've got to get a soloist who sees the changes coming and plays smoothly through them.

Probably the toughest solo section you ever wrote was for the Wayne Shorter improvisation on "Aja."

Right. He started out just winging it with a chord chart, but then he decided to write out the changes. In fact, we went to the piano together, and he wrote out some scales that he felt worked well over those changes. He was very serious. It took maybe four hours to get that solo, because he rehearsed it, then

he'd write out some stuff, then he'd do a take, then he'd write out some other stuff. Finally he did, like, three performances, and we took the last one.

The music world has changed dramatically since *The Nightfly* was released. Is there anything in contemporary music that gives you fresh input and somehow distinguishes Kamakiriad from your earlier work?

Well, I like some of the grooves and bass lines on rap records. But I haven't heard anything else that I like that much. I'm not particularly innovative. This stuff that I do is built on a lot of traditional things, although I hope that I transform what I know into something new. I wouldn't feel that comfortable doing

some radical thing. It would be pretentious. The only change is that I'm losing my interest in melody. I'm more interested in simplifying things in order to get more of a rhythmic effect, more forward motion.

There's certainly no shortage of melody on Kamakiriad.

Yeah, but it used to bother me if something didn't have an interesting melody. Now I don't care that much about it. So if there is any influence from modern music, it's that I'm getting less melodic. But that's it. A lot of what I do has always derived from my piano style, which is what it is, and the sound of my voice, which is also what it is. Really, I just have old-fashioned musical values. ■

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## YAMAHA QY20

MICRO-SYNTHESIZER/SEQUENCER

By Greg Rule

**S** EVEN OR EIGHT YEARS AGO, A major electronics manufacturer asked a panel of music retail folk (yours truly included) to visualize the ultimate MIDI production studio. Most responses were heavy: "We want sampling engines, computer control, automation, synchronization, blah blah," and so on.

When my turn came to prognosticate, well, I offered a less serious vision: "My dream studio will fit in my mouth."

Look who's eating his words now. Yamaha's new QY20 is almost small enough to wrap lips around, yet big enough, feature-wise, to make serious music with. It's the successor to their popular QY10 (see our *Keyboard Report* in the July '91 issue).

What does the QY20 have over its older brother? A two-octave polyphonic mini-keyboard, a vastly improved user interface, a much larger LCD, over three times more sounds, a higher sequencer clock resolution, and (surprise, surprise) a higher price tag. And that's only a few of the advantages. Let's dig in.

**Overview.** The QY20 couples an eight-track sequencer with a multitimbral sample-playback synthesizer, and it provides a whopping assortment of accompaniment patterns and drum tracks. As with the QY10, portability is a key feature. This little guy can be used by itself (with headphones), anywhere, anytime; in other words, you could be 30,000 feet above Iceland in the lavatory of a 747 actually composing and recording music. What an image!

One look at the QY20 and you'll realize that the front-panel keyboard is little more than a toy. The 25 rubber buttons (non-velocity-sen-

sitive) are handy for auditioning sounds or entering rough tracks into the sequencer, but plan on using an external MIDI controller when it's time to get expressive. Thankfully, the QY20 will respond to incoming velocity data (among other things) from a MIDI device. Novation's MM10 two-octave MIDI keyboard, in particular, is designed mainly for the QY10 and QY20. (See our Short Take in the Feb. '93 issue.)

Although the QY20's miniature keyboard is only two octaves long, it can be transposed over an eight-octave range via the octave-up and -down buttons. Yamaha didn't restrict the pitched voices to a narrow key range, so plenty of aberrant timbres can be achieved by playing a sound above or below its "natural" limits. Sometimes the results can be cool, sometimes not.

Compared to the QY10, the QY20 is a snap to operate thanks to a large LCD and a well-designed user interface. Without so much as a glance at the manual, we learned to navigate through the operating system in minutes. There are three main modes in which all of the QY20's functions reside: Voice, Pattern, and Song. Pushing the mode button will cycle you through these three selections. Once you land at the appropriate one, simply press the menu button and four choices will appear in a pop-up window. Each choice has its own corresponding front-panel "soft" button. From there, additional functions (or "jobs") can be selected. A four-button up/down/left/right cursor diamond on the QY20's front panel makes moving around in the various

screens a quick process.

A bit less friendly, though, is the lack of a data-entry slider or dial. From the front panel, the only way to enter values is by pressing the increment or decrement buttons. This otherwise slow task can be sped up by first pressing and holding the button of choice, and then pressing and holding the other one. Doing so will kick the scrolling function into high gear. (Keep in mind, you can choose new voices instantly via MIDI program changes.)

In addition to its synth and sequencing abilities, the QY20 can be used as a drum machine — either stand-alone or in conjunction with other sequenced tracks. Recording drum and percussion parts sure would be easier, though, if the QY20 had velocity-sensitive buttons. At least this shortcoming can be bypassed by using an external, velocity-sensitive MIDI controller.

**Synthesizer.** Pop the QY20's hood and you'll find an AWM (Advanced Wave Memory) sample playback engine. Is its resolution 8 bits, 12 bits, or 16 bits? Good question. As with the QY10, Yamaha chooses not to reveal that specification. They're happy to describe the sounds as "top quality" or "outstanding," but that's about it. Specs or no specs, we'll say that the samples are on par considering the QY20's price. Unfortunately, the voice playback parameters can't be edited. Too bad. We expected, at the very least, to find an envelope generator.

The internal samples are configured into 100 factory patch locations and eight multi-instrument drum kits. Here's the breakdown: piano (9), chromatic percussion (5), organ (5), guitar (15), bass (11), strings (3), string and voice ensembles (8), brass (8), reed (4), pipe (3), synth lead (7), synth pad (10), synth effects (6), ethnic (3), percussive (3), and drums (8 kits). Some presets — such as the first four pianos — are edited variations of the same multi-sample.

Our favorite patches include the acoustic 12-string guitar (a nice mixture of clean, steely attack and wooden "thunk"), a couple of the fat analog-ish synth basses, and the lush string pads. It's a shame, though, that many of the sounds don't perform all that impressively over a multi-octave range. The acoustic pianos, in particular, sound decent in the mid- to high-registers, but are disappointingly lackluster (not to mention noisy) in the low. Their multi-sample split points are also very obvious.

Let's put things into perspective, though: Such offensive critters aren't always so noticeable when two or more voices are played back simultaneously within a sequence. Take that for what it is. If you're planning to record a solo MIDI piano piece, then the QY20 probably won't be your best bet. For many types of pop, rock, or jazz demos, however, it can deliver some surprisingly pro-sounding results.

As for the 100-plus drum and percussion sounds, we'll rate them as average. Noisy artifacts can be heard in some of the samples, and lots of the instruments (such as the toms) are detuned or edited variations of a single in-



### YAMAHA QY20

**Description:** Micro-synthesizer/sequencer.

**Synthesizer:** Sample playback synthesis engine with 28 oscillators, 16 multitimbral parts, dynamic voice allocation, 100 preset pitched voices, 100 preset drum voices (configured into eight kits), General MIDI compatibility.

**Sequencer:** Four linear tracks and four pattern-based tracks, 96 ppq resolution, 28,000 notes, 20 songs, 100 user patterns, 100 preset patterns (each with six variations: intro, normal, variation, fill 1, fill 2, ending), Auto Bass Chord feature for creating custom arrangements, 25 preset chord types, MIDI clock synchronization, note list editor, track mix, measure copy, measure insert, quantize, measure delete, track clear, transpose, shift specified measures by clocks, remove event, scale velocity, scale gate time.

**Interfacing:** MIDI in and out, mini stereo output jack, mini stereo headphone jack. Runs off six AA batteries or optional AC power supply.

**Dimensions:** 7-3/8" x 1-1/2" x 4-1/8". 1 lb.

**Suggested Retail Price:** \$599.00.

**Contact:** Yamaha, 6600 Orangethorpe Ave., Buena Park, CA 90620. (714) 522-9011. Fax (714) 522-9832.





Yamaha's QY20 might be the biggest little box in the business. It has three times as many sounds as its predecessor, the QY10, plus an extended (now polyphonic) micro-keyboard, a vastly improved user interface, and a higher sequencer clock resolution.

strument. But don't get us wrong, there are plenty of fat, punchy sounds in the batch. Here's how the kits are grouped: standard, pop, power, processed, analog 1 and 2, jazz, and brush. Standout instruments include the gorgeous jazz tom, a few of the analog kicks and snares, and the obnoxiously trashy "China" cymbal. The booby prize goes to Ride Cymbal 2 (white noise meets cheesy pie pan).

When used as a MIDI tone module, the QY20 can respond to such things as velocity data, aftertouch, modulation, volume, pitch-bend, sustain, pan, expression, and fine/coarse tuning changes on up to 16 MIDI channels.

**Patterns & Songs.** The QY20 offers an impressive amount of flexibility when it comes to recording and playing back sequences. Its eight-track sequencer is half linear and half pattern-based (linear meaning that data can be recorded continuously from the beginning of a song to the end). Tracks 1 to 4 are designated as the linear tracks; tracks 5 to 8 are the pattern (or "accompaniment") tracks. Each pattern, as it turns out, contains four discrete tracks. So tracks 5 to 8, in effect, belong to a single pattern. Makes sense. If you had four separate patterns with conflicting tempos and time signatures, things could get pretty nasty.

The pre-programmed factory patterns on the QY20 cover a variety of musical styles: dance, ballad, pop, R&B, hard rock, rock, jazz, Latin, reggae, and "world music." Each pattern comes complete with an intro, a variation, two fills, and an ending. Add it up and you've got a grand total of 600 patterns. Six front-panel buttons let you

PROS & CONS	
<b>Pros:</b>	Super-portable. Easy to use. Large LCD. Excellent selection of pre-programmed tracks. Auto Bass Chord feature for creating custom patterns.
<b>Cons:</b>	No voice editing. Noise and multi-sample split points detectable in some sounds. No power adapter shipped with unit.

switch instantly between pattern categories.

How do they sound? Quite good. Only a few of the "loungier" patterns made us pinch our noses. The QY20's improved clock resolution (96 ppq compared to the QY10's 24) really shines here. Many of the tracks (not counting the techno or dance grooves) feel far less stiff and mechanical.

In addition to the preset patterns, there are 100 user-programmable pattern locations. You can copy a preset pattern to one of these slots and edit it, or you can create your own from scratch. New patterns can be recorded in both real time and step time and can contain their own tempo (30 to 250 bpm) and time signature (1/4 to 8/4, 1/8 to 16/8, or 1/16 to 16/16).

The step-entry mode is a standout. No hieroglyphics here: This editor actually shows the notes and the bar lines graphically. There's also a numeric info bar that provides the exact location of the cursor, the time signature, the current note value (half-note to 32nd-note), velocity, and gate time. On the far right of the screen are four other options: delete, backward delete, rest, and tie.

If you want to get microscopic, you can open the "edit change" window:

SONG		TR=1	Del
03-00	G 3	00-86	088
04-00	C 4	00-86	088
===	Meas	002	===
01-00	G 3	00-86	088
02-00	E 3	00-86	088

This looks like a typical event list editor, but it displays only note data. When scrolling up or down the list, each note plays back as you cursor past it. Here you'll see the note's location (measure, beat, and clock), pitch (note and octave), gate time (in clocks), and velocity. If you want to move a note by one clock, or tweak its velocity ever so slightly, simply cue it up, cursor to the appropriate spot, and enter the new value.

The QY20 provides plenty of other editing tools, such as track mix, measure copy, measure insert, quantize, measure delete, track clear, trans-



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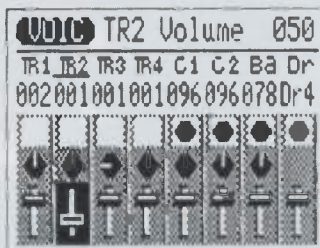
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## YAMAHA QY20

pose, shift specified measures by clocks, remove event, scale velocity, and scale gate time. Three cheers for Yamaha — these editing windows are super easy to access and very elegantly designed.

Speaking of slick windows, the mixer window is a knockout:



Here you can designate which patch or drum kit you want assigned to each pattern or sequencer track, and you can set each track's master volume, pan, and mute assignments. These settings are then stored with each pattern and sequence.

So what doesn't the sequencer do? Well, we could rattle off plenty of items — you can't undo a destructive editing function (quantization, for example) — but let's be fair. For its price, the QY20 offers an impressive amount of control. Our only real cautionary note is this: If you plan to use nothing but the QY20 to

record your tunes, be warned, what would usually take 15 minutes or so on a full-size workstation synth wound up taking well over an hour. Why? Nearly everything we played on the tiny keyboard had to be massively re-edited or step-recorded. That's the price you pay for ultimate portability.

Two final notes about the sequencer: It can be synced to incoming MIDI clocks as an option, and its data can be transmitted over MIDI as a sys-ex dump or in real time.

**Accompany Me.** If you don't feel like recording your own tunes from scratch, or if you just need some quick backing tracks to jam along with, you'll no doubt appreciate the accompaniment features built into the QY20.

The first such feature is called ABC (Auto Bass Chord). It's a quick way to modify patterns based on chord changes that you specify. With ABC, simply pick one of the pre-programmed musical patterns, select a chord root from the specially marked front panel buttons, pick a chord type (25 choices), press the enter button, and repeat until finished. The QY20 will reharmonize the patterns according to your specified chord progressions. This feature can be controlled from an external MIDI controller. Specify a zone on your controller keyboard, and play the chords into the QY20 yourself. This minimizes the button-pushing process.

You can apply this concept at the song level, as well. In song record mode, a custom accom-

*Continued on page 143*

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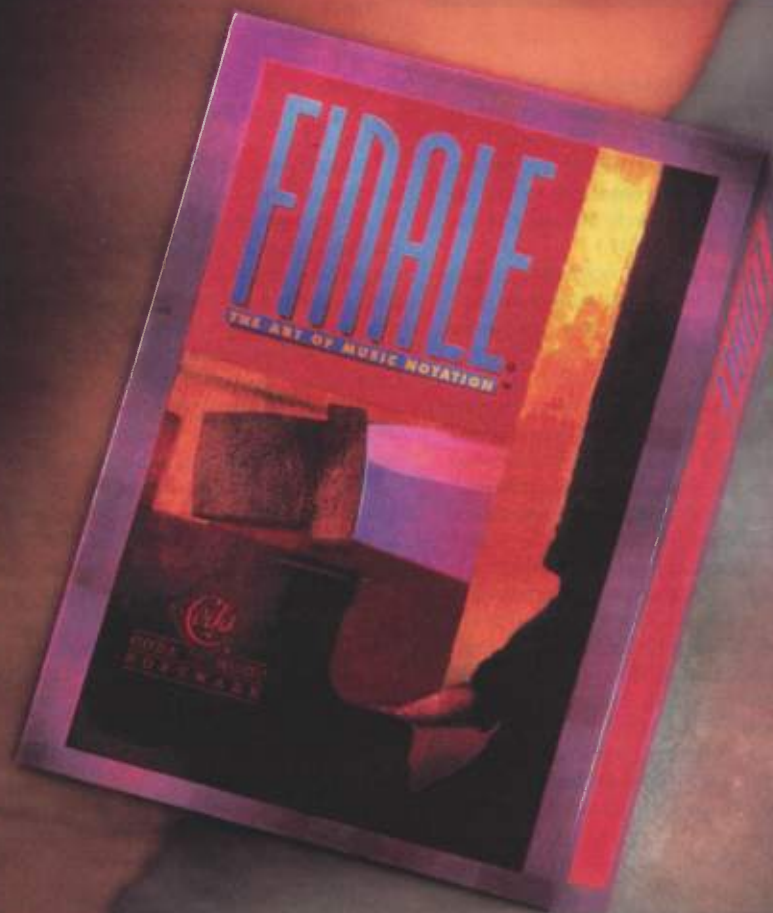
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## PEAVEY DPM si

### SAMPLE PLAYBACK SYNTHESIZER

By Greg Rule

**W**HAT'S AS THICK AS A PHONE book and heavy as a bag of bowling balls? Peavey's 1993 catalog, of course. Mixers, mikes, speakers, synths — we're having a hard time keeping track.

And the new instruments just keep on coming.

The DPM line, in particular, has boomed from a sole synthesizer (the DPM 3, introduced in 1990) to a nine-piece family of products bearing the same prefix. The latest in the genealogy is the DPM si — the subject of this review. It offers such features as an extended keyboard, a hefty bank of 16-bit waveforms, and 32-voice polyphony. Let's dig in.

**Overview.** If you shrunk the si's 76-note keyboard to five octaves, it would look suspiciously similar to a Peavey DPM 2; the two machines share near-identical front-panel layouts. But compare their spec sheets and you'll discover a world of differences between the two. The si, for starters, has 32 oscillators (compared to 16), an additional DSP chip, 10Mb of 16-bit waveform ROM (the DPM 2 has 4Mb), expansion slots for an additional 6Mb, and a 16-track sequencer with event-level editing (the DPM 2's sequencer is optional). It also has four audio outputs (as opposed to two) that can be configured as two stereo pairs, as four individual outs, or as one

stereo pair and two individual outs. Holdovers from the DPM 2 include a programmable dual effects processor and a healthy menu of sound-editing provisions. (For more info on the DPM product line, refer back to our review of the DPM 3 in March '90, and the updated DPM 3SE in Sept. '91.)

Take a look at the si's motherboard and you'll find, among other things, three multi-purpose DSP chips. Like Peavey's other DPM-series synthesizers, the si comes packaged with this enticing message: "Because the DPM si doesn't take the traditional approach of using custom chips dedicated to a particular type of sound generation, it can be reprogrammed via software updates to provide alternate types of synthesis." Peavey has delivered a variety of upgrades for DPM synths, but not the FM synthesis engine that many of us are still anxiously awaiting.

For its size, the si is one of the heaviest units on the market (41 lbs). It's not much fun to lug, but we'll take a heavy, solidly-built instrument over a cheap, flimsy one any day. Part of the extra weight comes, obviously, from the extended keyboard. So, in an effort to keep the unit's size to a minimum, Peavey positioned the pitch-bend and mod wheels *above* the keyboard rather than to the left. De-

pending on your playing style, this may or may not be an issue.

Learning to operate the si is pretty simple. Six "soft" buttons located directly below the LCD correspond to various functions and parameters onscreen. To the right are 20 buttons that access a variety of menu items and sequencer controls. The Exit and Compare buttons are especially handy, as are the lower ten buttons, which can serve as a numeric keypad (essential for jumping from, say, patch 001 to 399).

**Waveforms.** Many of the si's waveforms are derived from third-party sound developers McGill University, Northstar, and ProSonus. The selection is pleasantly well-rounded. Among the group are several analog waves, a nice batch of organs (including a few B-3s), a couple of EPs, and plenty of acoustic and electric guitars, orchestral instruments, and drum/percussion goodies.

How do they sound? After playing the instrument extensively through both JBL 4410 studio monitors and headphones, we found that most of the raw waveforms met or exceeded our expectations. The acoustic piano is a marked improvement over the DPM 2's; the loop points are much less obvious thanks to generous multi-sample lengths. However, the multi-sample split points become obvious when you play slowly up and down the keyboard. The Rhodes waveforms are a welcome addition to the lineup; there are also a couple of DX-type EPs in the group, but we're pleased to see the "real deal" onboard, as well. We also like the "clicky" B-3.

Not too many major negatives to point out in terms of the factory presets, other than a few too many cliché (albeit in-demand) patches for our taste. We're also disappointed that the programmers didn't use aftertouch more often. With the exception of such gems as "Eleven" (a squealing, buzzy guitar with pressure-controllable harmonics), very little creative aftertouch programming is evident in the factory group.

Included in the waveforms are ten drum kits. Each kit contains up to 32 instruments. Just don't be misled into thinking there are 320 instruments; there are actually about 65 or so — many of the same samples are used repeatedly throughout the kits. Nonetheless, we salute Peavey for allowing each sound to be independently tuned, panned, mixed, bussed, and assigned its own key range; you can also tweak individual decay and release parameters.

For the most part, we like the selection of drums and percussion. We would have appreciated more ride cymbal variations and a China cymbal, but still, Peavey covers a lot of ground with the current lineup — including the requisite 808 dance samples (hum kick, snappy snare, and synthetic bell).

**Programs, Performances, & MIDI.** Peavey



## PEAVEY DPM si

### Peavey DPM si

**Description:** Sample playback synthesizer.

**Keyboard:** 76-note velocity- and channel-aftertouch-sensitive keyboard.

**Memory:** 10Mb of 16-bit waveforms, slots for an additional 6Mb of waveform ROM, 400 internal programs (200 RAM, 200 ROM), 100 additional programs via card, 100 internal performance setups, 50 multitimbral setups.

**Features:** 16-part multitimbral, 24-bit dual effects processor, alternate tuning tables, data cartridge slot, 80-character backlit display.

**Voice Architecture:** 32 dynamically allocated oscillators, lowpass filter, DCA, five-stage amp envelope, five-stage aux envelope, LFO. Matrix modulation, two mod sources per destination.

**Sequencer:** 16 tracks, 80,000 events, 10 songs, 50 sequences, 96 ppq resolution, individual track loops, multi-channel record, event editing, step record, Q-Play for live performance. Track editing parameters: transpose, scale velocity, quantize (up to 64th-note triplets), merge, insert measure, delete measure, slide (move forward or backward by clocks), copy, erase.

**Interfacing:** MIDI in, out, thru. Audio outputs (all 1/4"): left/stereo, right/mono, sub left, sub right. Programmable dual footswitch input.

**Dimensions:** 44-1/2" x 14-1/2" x 4". 41 lbs.

**Suggested Retail Price:** \$1,799.99.

**Contact:** Peavey Electronics Corp., 711 A St., Meridian, MS 39301. (601) 483-5365. Fax (601) 484-4278.





*The latest addition to Peavey's DPM synth family, the DPM si features a 76-note keyboard, 10Mb of waveform ROM, and a 16-track sequencer. Hope you have a strong back — this is one heavy synth.*

uses a hierarchical system comprised of "programs" and "performances." There are 400 programs (or patches) available internally, 200 factory and 200 user. Each program can be either a "single" or a "combi." A single is, simply enough, one sound (a trumpet multi-sample, for example). A combi is a combination of up to four sounds. Here you can create a variety of layers, splits, and velocity cross-switches. All four sounds (or "links") within a combi can be given their own volume level, velocity range, key range, start time, transposition amount, detune value, and volume modulation source. Links 2, 3, and 4 are merely pointers to other programs, which means that only link 1's sound parameters can be edited in any given combi.

Take one step up the ladder and you'll enter the performance mode. Here, the keyboard can be assigned four overlappable zones. Each zone can contain its own single or combi program. Performances are useful for controlling not only the si's internal programs, but external MIDI devices as well. Each time a performance is selected, the si can transmit MIDI channel assignments, bank select/program change commands, and volume messages for each of the four zones.

Peavey did their homework in terms of the unit's MIDI functionality. Numerous options make the si a viable multitimbral sound module

or MIDI controller, one being the aforementioned performance setups. As an option, the volume slider and footswitch can transmit MIDI data. Also, a variety of outgoing or incoming MIDI messages can be selectively filtered. Too bad there aren't three more volume sliders, though; that way you could easily control all four zoned instruments.

The si can receive data on all 16 MIDI channels simultaneously. There are 50 "multi" setups that designate which programs will be assigned to which MIDI channels. In this mode, each program can be given its own volume, audio output, and pan assignments. A multi setup can then be transmitted to an external sequencer as a sys-ex file, if desired, and read back into the si at the beginning of its appropriate sequence. This type of message is sent and received on a master (or "base") channel that you assign.

Other goodies: The overflow mode allows multiple si's to be cascaded together (thus in-

creasing polyphony). A program change map lets you specify which MIDI program change number is assigned to which internal program or performance. Up to four MIDI control sources (continuous controllers) can be used as real-time modulation sources. And there's a transposition option that lets you offset Middle C to any MIDI note number between 36 and 84.

**Slice & Dice.** Peavey equates the si's sound editing abilities to those of a "top-of-the-line analog synthesizer." We won't go quite that far (it's no Oberheim Matrix-12), but it does provide a decent amount of power for its price. As to be expected, a resonant lowpass filter, an LFO, and two envelopes (amplitude and aux) per voice are offered. But the real editing muscle is found in its modulation routings (see diagram on page 91). Pitch, filter cutoff, volume, pan, selected effects parameters, and combi link volumes can be modulated by a variety of sources (such as keyboard velocity, aftertouch, mod wheel, pitch-bend wheel, or ex-

## PROS & CONS

**Pros:** Very good selection of waveforms. Easy to use. Programmable effects.

**Cons:** Sub-par reverb algorithm. Weak headphone output.



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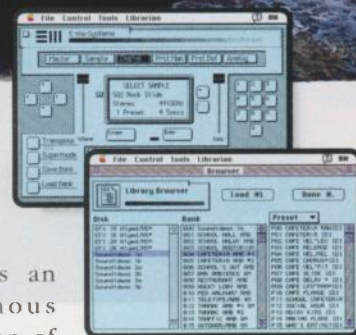
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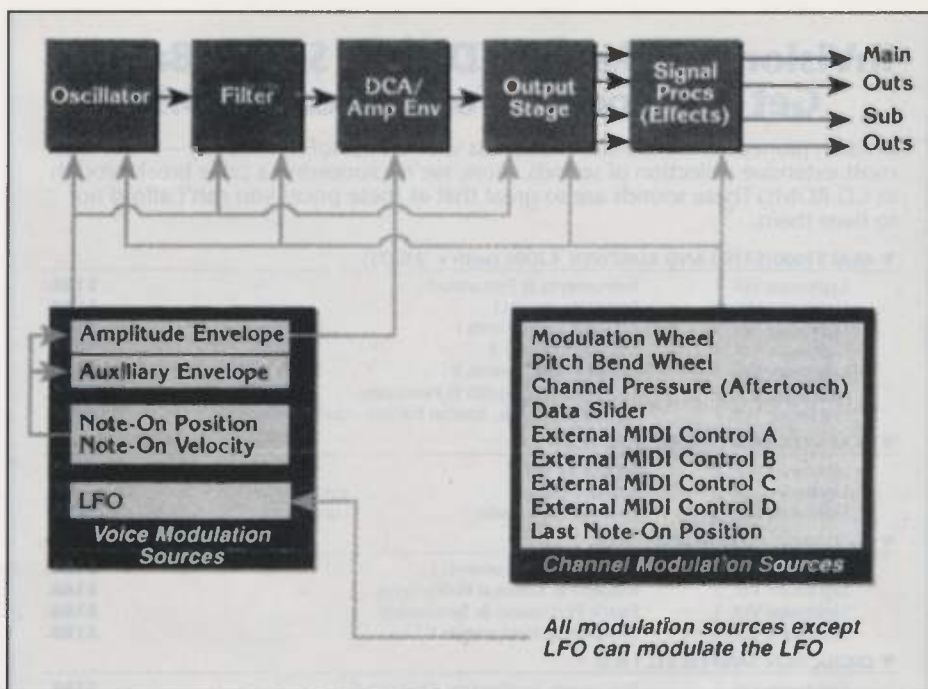
## PEAVEY DPM si

ternal MIDI controllers). With this you can do things like change pitch based on how soft or hard you play the keyboard, or alter the filter cutoff frequency from the mod wheel. In many instances, modulation values can be either positive or negative.

Some, but not all, of the effects parameters can be modulated in real time. Using the delay as an example, you can only modulate the wet/dry mix and feedback. We sure wish we could control delay time; maybe that's asking too much for a machine in this price range. But you can control the mix, low speed, high speed, and acceleration parameters of the rotating speaker effect. Thank you.

We applaud the useful shortcuts sprinkled throughout the editing pages. When entering key assignments or velocity amounts, you can touch the appropriate key(s) on the si's keyboard and the note or velocity value will appear on the screen. Also, you can press the inc and dec buttons simultaneously to zero out a parameter's value. And, while it's not a shortcut *per se*, we wanted to mention the fact that the si will retain an edited (but not yet saved) patch in its memory even after power-down.

A quick mention should go to the si's copy functions. You can copy an entire ROM program to a RAM location, that's standard, but you can also get inside the editing mode and



The si's voice architecture and modulation routings. Note that four user-definable MIDI continuous controllers (A-D) can be used as modulation sources.

copy such things as one oscillator's parameters to another. All of the copy functions are found under one menu. Very convenient.

We could ramble on about the various editing tools, but we think you're getting the picture: The si offers plenty of editing bang for its

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## PEAVEY DPM si

buck. Sure, a couple of corners were cut here and there — the envelope modulation sources are hard-wired, for example — but we're not complaining.

**Effects.** Want effects? The si's got 'em: a 24-bit programmable dual effects processor, to be exact. The processor's two effects modules can be configured in a variety of series and parallel routings. If you want certain programs to bypass the effects altogether, you can send them to a user-definable "dry" audio output. The effect categories include reverb, gated reverb, Qverb (ambience), delay, chorus, flange, shelving filter, five-band graphic EQ, distortion, rotating speaker, and bypass. Two, and only two, effects can be active at a time. In single program mode, this isn't a problem, obviously. But when dealing with combis, performances, sequences, or multi setups, you'll need to specify which effects combination will be used for any or all of the applicable sounds.

As for the effects themselves, each has anywhere from two to ten editable parameters. A reverb, for example, provides type (three choices), size (five choices), damping (22 choices), and time (up to 30 seconds). On another page are controls for level, wet/dry mix, and modulation source/destination/scale. All effects settings are saved with each program.

How do they sound? They're a mixed bag. Short reverbs are okay, but medium or long reverbs are noticeably unnatural — their warbly tails sound as though they're being modulated by an LFO. Unless a reverb-effected note is soloed, though, you might not notice this. But still, we hope Peavey smooths out the reverb in a future upgrade. That's really about it for complaints in this department.

**Sequencing.** The si's 16-track sequencer is, for all intents and purposes, pattern-based; in other words, a song can be made up of a series of short multi-track patterns. However, a single pattern can be up to 999 bars long. So if you prefer to record continuously from beginning to end, simply use one long pattern to capture the whole song.

A nice feature is individual track looping. You can maximize the amount of memory used by looping certain tracks. Each track can be of any length (again, up to 999 bars). The track with the longest length will determine the end of the sequence.

The sequencer is equipped with an impressive set of editing tools. An event list (called "microscope edit") allows you to step through a track and perform editing functions on its contents. But that's not the only way to edit your data. A series of other options are available, such as transpose, scale velocities, quantize (up to 64th-note triplets), merge tracks, insert measure, delete measure, slide (move forward or backward by clocks), copy, and erase notes/controller data. Notes can be recorded in step-time as well.

When transposing, scaling velocities, or erasing data, you can edit the entire track in one fell swoop, or focus on a specific range or group. For example, you could transpose

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the notes that fall between C3 and D4 in a given track, or erase a track's pitch-bend data. Furthermore, you can define a specific editing region (from bar 3/beat 2/clock 80 to bar 10/beat 3/clock 20, for example).

Once you've finished your masterpiece, you can save it to an internal song location, or externally via MIDI sys-ex. If you want to transfer a song to another sequencer, you can do so in real time, and then record it back later into the si. For this purpose, the sequencer can record on all 16 tracks simultaneously. You can select between internal or external MIDI clock sync.

For live performers, a feature called QPlay allows one song or sequence to be cued up and played immediately after the current one stops. It's not quite as cool as a set-list type feature, but it's the next best thing.

Learning to operate the si's sequencer proved to be challenging. After years of computer-based sequencing experience, we always consider it a pain to record and edit MIDI data on a tiny LCD. But, as with any sequencer (computer or otherwise), once you read the manual and spend some time getting to know the ins and outs of it, the frustration factor diminishes.

**Before We Go.** There are several items that deserve a mention. First, a single or dual footswitch can be plugged into the si and programmed to perform a number of tasks. In addition to sustain pedal and patch-change applications, you can trigger up to two drum sounds from it. You can also designate the po-

larity of the footswitch.

Another cool feature is the real-time display of available oscillators. As you play, a series of dots appears in the upper right corner of the display to show exactly how many oscillators are in use. We like it.

One final point (although not a good one) is the si's sickly headphone output. As on the DPM 2, Peavey opted not to give this synth a dedicated headphone jack, but decided instead to use the left/stereo audio output for that purpose. Even with the volume wide open, the output is way too weak to adequately drive our headphones.

**Conclusions.** We broke a sweat trying to get the monster out of the box and up the stairs — for its size, it's damn heavy — but after a day or so of hands-on testing, we started having fun with it. The operating system is pleasantly clean, the factory samples are very good, the modulation matrix provides some interesting programming options, and the extended-length keyboard will be a welcome addition to any studio filled with five-octave synths.

No, it isn't exactly a *dream* synth, but we don't have any substantial beefs with it either. Sure, we could get picky: its headphone output is way too weak, and we wish a new sample or two could be dumped into a RAM bank via SDS. At \$1,799, though, the DPM si is a well-equipped machine. If you're looking for an extended-length synth with decent programmability and a real-world price tag, be sure to give this one a test drive.

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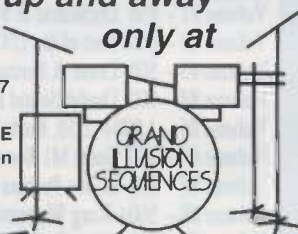


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## CD-ROM EXPLOSION

Continued from page 46

supports. Audio (Red Book) is a given, but you also need to insure compatibility with your computer: The Macintosh requires ISO-9660 and HFS, an IBM-compatible needs ISO-9660 and MPC (for multimedia applications). You may also want to think about Photo CD-compatibility. In that case, go for a drive that can handle multi-session CDs, which allow additional photos to be added to an existing CD and recognized by the drive. If you're going to be doing multimedia stuff, you definitely want an XA-compatible drive (Yellow Book eXtended Architecture), as the XA format offers a number of multimedia hooks not included in the standard Yellow Book (CD data) format.

Whether you buy via mail order or your local computer superstore, we encourage you to shop around. Many drives are bundled with CD-ROM titles, and they can be had for very reasonable prices. Just watch out for the ultra-cheap bundle deals. These are usually centered around older, slower drives that are in all likelihood incompatible with musical instruments.

## PLANNING FOR THE FUTURE

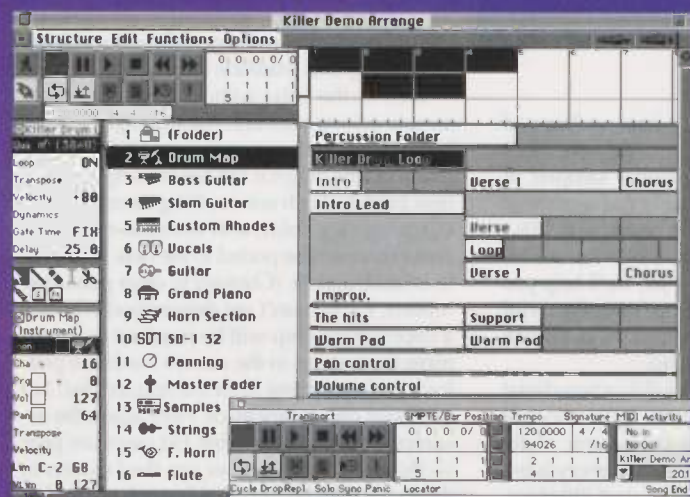
Now that you're fired up and ready to go, consider this: CD-ROM is a temporary, stop-gap technology. In other words, someday, in the not too distant future, it will be obsolete, replaced by something much faster and far more powerful. Many industry pundits place the lifespan of CD-ROM at about ten years, after which we'll see the emergence of a variety of new information storage and delivery systems. But don't get disenchanted just yet. The industry is gearing up for explosive growth, and the decade-long ride could be enriching both creatively and financially. Remember, too, that technologists have predicted the imminent demise of VCRs and videotape, in part because of the arrival of laser discs. But how many people do you know who own laser disc players? It's true, opening a videotape rental store may not be the smartest business move one could make today. But many of those who jumped in early have done mighty well for themselves. And it's not as though video is ready to disappear just yet, despite talk of fiber-optic networks, direct-link satellite systems, and so on. After all, some of us country-dwelling folks can't even get cable.

So if CD-ROM technology intrigues you, by all means, dive in. At the very worst, you'll be able to explore a new avenue for your creative energies. At the very best, you could make enough money to take over that island we mentioned earlier. Our only suggestion: Make it a South Sea island, where computers don't exist, and where CD-ROM stands for Cool Drinks-Relaxin', Oh, Man. . .



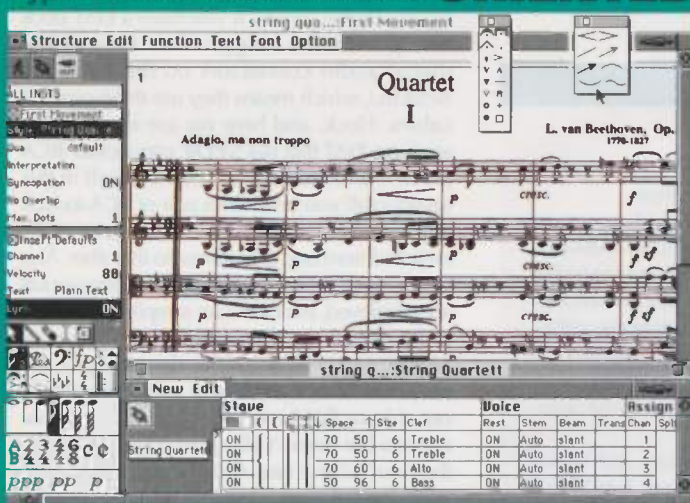
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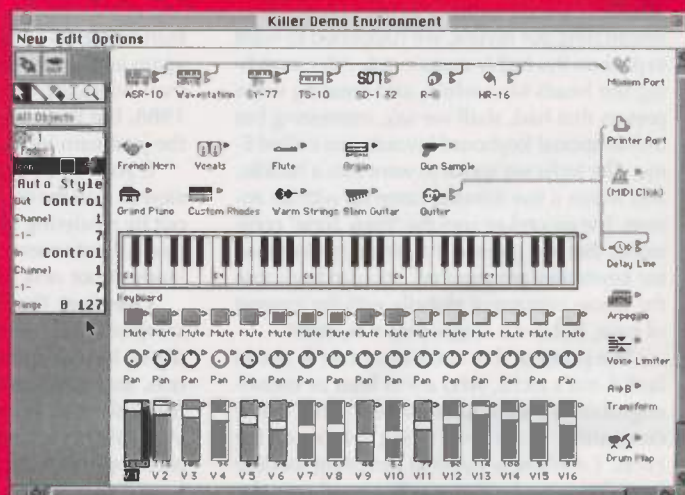
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## E-MU EMULATOR IIIxs

STEREO SAMPLER

By Jim Aikin

**I**T'S TIME TO PLAY "STUMP THE techs." The question: How do you transpose an Emulator IIIxs preset down an octave? In the course of researching our review, we happened to want to perform this highly esoteric task. After scratching our heads for a while, and creating some presets that had, shall we say, interesting but unintentional keyboard layouts, we called E-mu. The techs we spoke to went into a huddle, and within a few minutes came up with an answer. The procedure uses the "copy zone" command. (Bet you guessed that already.) More than ten keystrokes are required. You can transpose the whole instrument globally with the greatest of ease, but not a single preset by itself.

The point of this cautionary tale is not to fault E-mu's techs, who are at least as knowledgeable as their counterparts at other major companies. Nor are we trying to blow off the EIIIxs. E-mu's new flagship sampling module has a lot going for it. It sports a good complement of high-end features, from AES/EBU digital outputs to SCSI network utilities, and its sound quality is extraordinary. Also, the available sample library is huge, making the EIII a heavy hitter in the postproduction world. No, all we're pointing out is that the basic operating system hasn't changed much in the five years since we reviewed the original EIII (see Keyboard Report, July '88). In some ways it's actually gone backward. Heck, even the LCD is no bigger

than before. In writing this review, we bumped again and again into features that were more than adequate in a professional sampler in 1988, but that seem curiously out of date in the jetstream techno-hustle of the mid-'90s.

If you haven't jumped to the end of the review to read the conclusions yet, we'll help you out by rendering a verdict up front: Powerful musical instrument, yes. Leading the pack with loads of hot new features, no.

**Overview.** The EIIIxs is a full-function digital sampler — 32 voice channels with resonant digital lowpass filters, eight polyphonic audio outs, and stereo sampling. RAM memory is expandable to 32Mb using off-the-shelf ZIP chips. While there's a floppy drive in the front panel, all sample storage uses the optional internal hard disk or an external SCSI disk. The floppy drive is strictly for loading software upgrades.

If you're already familiar with the EIII and are wondering what hot new features the latest model offers, here's a quick list: Sounds can now be auditioned directly from hard disk without loading them into RAM — a terrific time-saver. The sampling input can now be monitored at the audio output (what a concept), but only during actual recording, not when you're setting up (urghh). Multiple EIII units can share

the same SCSI network, and can even load separate banks from the same hard disk at the same time. There's room for a lot more samples and presets in memory than before. Some sexy new concepts like resampling, which are becoming more common on other samplers, are not implemented on the EIIIxs.

Basic DSP functions, including cut/copy/paste, gain normalization, volume tapering, and crossfade looping, can be handled by the EIIIxs without need of external sample-editing software. Astonishingly, a number of high-end non-real-time DSP features found on the original EIII are missing from the new module. Such wave-editing items as digital EQ, pingpong delay, and stereo-to-mono file conversion will be ported to the new hardware in a future update. (Contrary to other published reports, E-mu hasn't yet determined whether a coprocessor chip will be required to implement the features in the current hardware platform.) Also missing from the features list: No on-board effects processor. Here again, the assumption seems to be that EIII users are pros — that they would rather use the Lexicon in their rack than be forced to buy a less capable built-in processor. But why should pros willingly do without the non-real-time DSP goodies? Mysterious. Also missing from the new model is the "audition mode" switch, which on the original EIII allowed you to edit samples while hearing them with the parameter settings of a real preset. This may seem like a trivial omission, but we actually use this feature, and we're not sure why they stripped it out of the "updated" unit.

The EIIIxs is functionally identical to the EIIIxp module except that it has analog sampling inputs. The EIIIxp can create new samples only via the digital inputs. If you have a DAT deck handy, this is not a big problem. Or is it? The digital audio connectors on the EIIIxs are AES/EBU, which means they use three-pin XLR cables. Heck, and here we are stuck with a semi-pro DAT that has S/PDIF connectors (RCA jacks). Fortunately, if you find yourself in this situation all you need are a pair of RCA-to-XLR adapter cables, because the EIII can be internally switched from one data format to the other. Also worth noting: When the analog sampling inputs are employed, the EIIIxs can sample at 44.1kHz or 29.4kHz. The digital inputs can record at 48kHz, 44.1kHz, or 32kHz, depending on the rate of the source material. It may seem slightly out of focus that E-mu uses "pro" AES/EBU connectors but doesn't allow analog sampling at the "pro" 48kHz rate. According to E-mu, however, the EIII runs internally at 44.1, so there would be no advantage in offering analog sampling at 48. The sample would be interpolated down to 44.1 on playback in any event; all that the higher rate would do would be to cause the sample to take up more memory.

The EIIIxs can be used on all 16 MIDI channels at once, with individual offsets for volume and panning. If you want to send the music on certain channels to different audio outputs, this

### E-MU EMULATOR IIIxs

**Description:** Rack-mount stereo digital sampler.

**Memory:** 8Mb standard, expandable to 32Mb using off-the-shelf ZIP memory chips.

**Features:** 44.1kHz stereo sampling, 32 voice channels, 16 MIDI channel multimode operation with individual pan and volume control. Resonant digital lowpass filters, three AHDSR envelopes, one LFO per voice. Velocity crossfade and cross-switch, positional and real-time controller crossfade (all two-way). Responds to MIDI velocity, channel pressure, footpedal, two footswitches, pitch and mod wheels, two definable controllers. 18-bit DACs, constant sample rate pitch-shifting. Arpeggiator with latch mode, repeat, and transpose. Shipped with free 480Mb CD-ROM containing excerpts from third-party libraries.

**Sample Editing:** Loop, truncate, crossfade loop, gain normalize, cut/copy/paste, fade-in/out taper. Undo buffer for sample edits.

**Interfacing:** Eight polyphonic 1/4" audio outs (four stereo pairs, +4dB TRS balanced), XLR stereo main outs, L and R 1/4" analog sampling inputs, AES/EBU XLR digital in and out, two 50-pin SCSI connectors, MIDI in, out, and thru, mystery serial connector.

**Options:** 120Mb internal hard disk with sounds, analog sampling inputs.

**Dimensions:** 17-1/4" x 13-3/4" x 5-1/4" (three-space rack-mount). 19 lbs. (not incl. hard disk).

**Suggested Retail Price:** Standard IIIxp (no internal hard drive, 8Mb memory), \$3,995.00. Turbo IIIxp (120Mb hard drive, 32Mb RAM), \$6,495.00. Standard IIIxs, \$4,495.00. Turbo IIIxs, \$6,995.00. Upgrade (IIIxp to IIIxs), \$495.00.

**Contact:** E-mu Systems, Box 660015, Scotts Valley, CA 95067. (408) 438-1921. Fax 438-8612.





The latest incarnation of the E-mu Emulator Three, the EIIIxs, features 32-voice polyphony, digital filters, and audition from hard disk.

must be programmed into the individual preset, not into the multitimbral setup, but this shouldn't pose too many musical difficulties. Likewise, individual channels can't be transposed.

While the original EIII sequencer, which was little more than a scratch pad, has been dropped, the arpeggiator has been retained. This has several modes of operation, including footswitch latching, note echoes with velocity decay, iterations with transposition, and "cruz control," in which the time required for a complete cycle through the held notes remains constant no matter how many notes you play. That is, play one note and you'll get quarter-notes, play two at a time and the arpeggiator will play eighth-notes, hold three and hear triplets, and so on. The arpeggiator can sync to MIDI clocks.

**Memory Architecture.** E-mu's way of setting up their samplers has always been real straightforward. At the lowest level are individual samples (these can be stereo or mono). One or more samples can be spread across the keyboard in a preset. Presets also contain all of the other parameters that you'd expect, from filter cutoff to velocity cross-switch threshold. And the sum total of all the presets in the machine at any given time can be saved to hard disk as a bank. Samples, presets, and banks — that's it. No tones, timbres, patches, maps, whatsits, or thingamajigs.

Keyboard zones can be defined for editing purposes, but they're not rigid structures the way they are in most samplers. You can redefine or create a zone at any time without affecting the underlying layout of the samples on the keyboard. In effect, each key is a separate zone with its own parameter settings, but you're not forced

to deal with the data on a key-by-key basis. If you want to adjust, for example, the filter cutoff for the whole keyboard at once, you define the whole keyboard as a zone and then tweak the appropriate parameter.

As simple as this system is to use, it has one or two kinks in it. For instance, what happens if you've set up a zone with some parameter settings that you like, and you want to copy these settings to a different region of the keyboard without touching the layout of samples in the target region? Well, you can't. The zone copy operation always copies the sample assignment as well as the parameters. After performing the copy, you have to go into the new zone and manually restore your previous sample layout.

From disk, you can load a whole bank, or an individual preset or sample. This makes it very easy to assemble a new bank containing the sounds you'll need for a session. The presets in a disk bank can also be merged into the bank in RAM. However, you can't save an individual preset or sample to disk, only an entire bank. If you should tweak a couple of parameters in one preset and want to save your work frequently on account of an impending thunderstorm, you have to sit there while the whole bank, including up to 32Mb of samples, is written to

disk. Fun? Not.

Speaking of disk banks, the basic model of the EIIIxs has no internal hard drive, so if you're already equipped with something like a removable-media drive, you don't need to spend an extra penny. An off-the-shelf hard drive can be installed internally by any qualified technician, so you can freely shop around. Or you can buy a unit with a factory-installed drive.

The standard IIIxs or IIIxp comes with 8Mb of internal RAM. This can be upgraded to 32Mb in 8Mb increments using ZIPs. (The letters stand for Zigzag Inline Package.) The sampler requires 1x4 megabit ZIP chips, which means that two chips together equal 1 megabyte of memory. E-mu tells us that ZIPs are slightly cheaper than the more commonly used SIMMs, and that may be true, but we phoned several computer specialty stores right here in the heart of Silicon Valley without finding any that stocked 1x4 ZIPs.

**Voice Architecture.** While the circuit boards and chips inside the EIIIxs are completely different from those used five years ago in the original Emulator Three, the design of the voices hasn't changed. So it's not surprising that certain concepts are not exactly groundbreakers. One could argue that they don't need to be; the instrument gets the job done, if you consider that

## PROS & CONS

**Pros:** Huge library of sounds available. Wonderful sound quality. SCSI networking capabilities.

**Cons:** Operating system somewhat outdated. Loud pop when unit is switched on or off.



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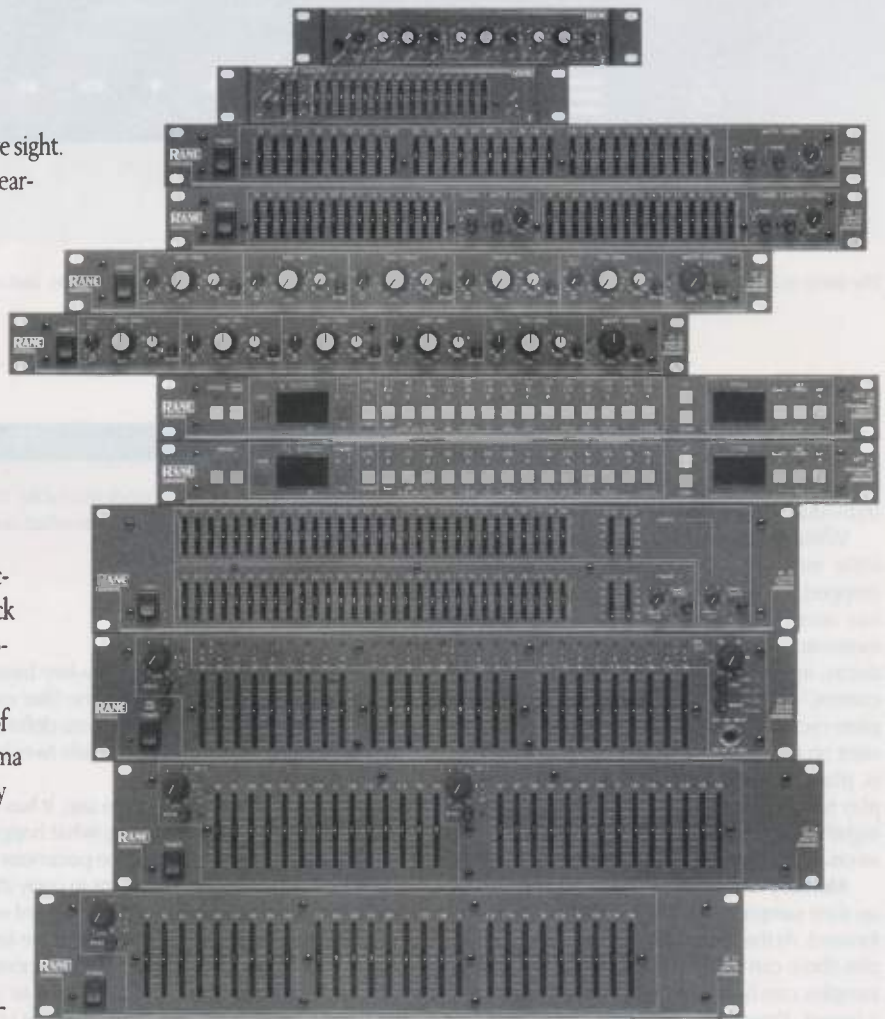
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## E-MU EMULATOR IIIxs

"the job" is playing back high-fidelity samples. If your primary focus as a sound designer is cre-

ating your own samples, massaging them in a computer, and laying them out on the keyboard, the EIIIxs is an ideal tool. On the other hand, if what you want are those big swirling sounds

with oodles of LFOs and multimode filters, then maybe you should buy a Roland JD-990 or a Kurzweil K2000 instead.

The EIII voice has a resonant 24dB-per-octave

## SAMPLER AUDIO SPECIFICATION TESTS: E-MU EMULATOR IIIxs

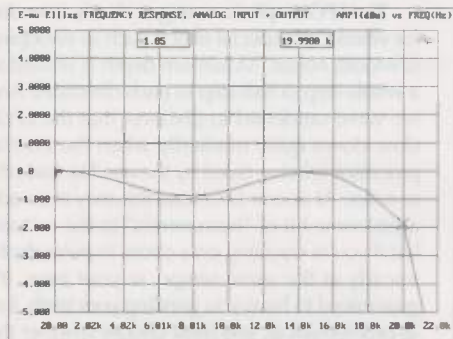


Fig. 1. EIIIxs frequency response.

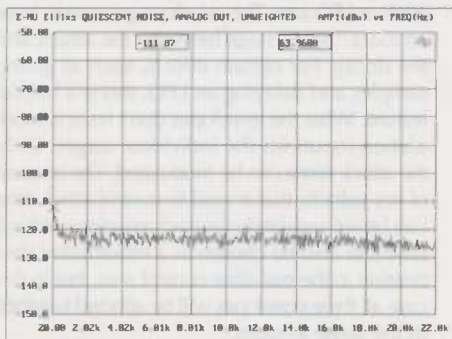


Fig. 2. EIIIxs quiescent noise.

**W**ANT TO KNOW WHAT KEYBOARD EDITORS DO ON SUNDAY afternoons? We hang out in a room full of test equipment with a bunch of engineers, all of us trying to make heads or tails out of test results that are out of context for a professional instrument — or are they? It's that last question that keeps us barricaded in our studios on a beautiful Sunday while the rest of the planet is doing sensible things like going to the beach and having barbecues. The latest weekend in question was devoted to an anomaly in the frequency response of the EIIIxs.

**Frequency Response.** In the course of our testing, we discovered what appeared to be a problem with the EIIIxs's analog output stage that limit-

+0.1dB/-1.85dB. E-mu tells us that all future units will contain the fix. If you own an EIIIxs and suspect that its high-end frequency response is not up to snuff, contact E-mu's service center for update information.

**Dynamic Range.** The EIIIxs offers a control for setting the machine's headroom; you choose low or high headroom according to how many voice channels you intend to fire simultaneously. The instrument's output is hottest when the headroom control is set at 0, but you'd be hard-pressed to play more than a couple of notes at this setting before the output stage electronics would be clipped. We performed our tests at a headroom setting of 5 — a good balance between output level and available headroom. Interestingly enough, the noise floor remained the same — a low -92.72dBu (A-weighted) — regardless of the headroom setting.

Using a headroom setting of 5, we measured the output level of a full-code 1kHz sine at -1dBu, which is rather low for a pro sampler. Regardless, that still works out to 90dB of dynamic range. And since silent sample playback is only 4dB higher than the noise floor, the instrument's effective dynamic range is a healthy 88dB. This means you should have no trouble with soft samples, or samples that fade to silence.

**Distortion.** Distortion tests made at low and mid frequencies placed the EIIIxs right up there with the best of 'em. Measurements made at 10kHz told a very different story: a high 0.91% distortion. Turns out that the high reading was caused by a spike at 34.1kHz — an image of the 10kHz test tone. (In samplers, images are formed at the sample rate plus and minus the frequency being sampled; a 10kHz wave sampled at a 44.1kHz rate would create images at 34.1kHz and 54.1kHz.) The slope of both the EIIIxs's output filters and that of our test equipment's band-limiting filters are too gentle to entirely filter out the 34.1kHz image, so it registers as distortion. But the image is well beyond the range of human hearing, so it has no audible effect. Factor out the image, and 10kHz distortion level is virtually identical to that measured at the low and mid frequencies.

**Pitch-Shift Distortion.** Here's an area where the instrument simply shines. Its pitch-shift distortion is so low that it's practically nonexistent. Since E-mu touts the "distortion-free" pitch-shifting capabilities of their G-chip (around which the EIIIxs is based), we decided to experiment. Five octaves of downward pitch-shifting produced no measurably different results than those we received for our normal pitch-shift test range ( $\pm$ aug 11). We went up three octaves before registering an increase in distortion to 0.06% (A-weighted). Next time you want to create dinosaur voices by stretching baby cries down eight octaves, keep these figures in mind.

—Michael Marans

### E-MU EMULATOR IIIxs

All figures are for 44.1kHz samples, input plus output stages

#### FREQUENCY RESPONSE:

Analog input + Analog output	+0.10/-1.85dB 20Hz-20kHz
Analog input + Digital output	+0.21/-0.86dB 20Hz-20kHz
Digital input + Digital output	+0.12/-0.93dB 20Hz-22kHz

#### DYNAMIC RANGE (ref. to 0dBu, 10Hz-22kHz bandwidth):

##### Quiescent Noise Floor:

-92.72dBu A-weighted
-90.16dBu unweighted

##### Silent Sample Playback

-88.26dBu A-weighted
-86.59dBu unweighted

##### Full-code Output Level

-1.00dBu A-weighted
-1.01dBu unweighted

#### THD+n (ref. to full-code output, 10Hz-22kHz)

97Hz:	0.013% A-weighted; 0.021% unweighted
997Hz:	0.014% A-weighted; 0.020% unweighted
*10,007Hz:	0.129% A-weighted; 0.910% unweighted

#### PITCH-SHIFT DISTORTION (average):

0.014% A-weighted
0.027% unweighted

\*see text



## E-MU EMULATOR IIIxs

lowpass filter, an LFO, and three AHDSR (the H stands for "hold") envelope generators. Several MIDI control inputs are provided. These can be routed to the usual destinations (filter cutoff, panning, pitch, LFO depth, and so on). Their operation is global per preset rather than defined within individual zones, but you can switch any zone on or off for a given controller.

A preset can contain two layers of samples, called the primary and secondary layers. Both samples can be triggered normally by each note-on, or you can set up velocity cross-switching or crossfading, positional (keyboard) crossfading, or crossfading from a real-time controller. Obviously, when a preset uses two layers, polyphony is reduced from 32 notes to 16. Voice parameters can be set separately for the primary and secondary voices in each zone.

If you should need to trigger more than two samples from a single key, you can link one preset to another using a feature called stack mode. For most purposes, this is a very effective setup. It becomes a limitation only if you need to create more than two-way velocity cross-switching, which you might want to do for an especially realistic piano or guitar simulation. The EIII can't handle this musical requirement directly. When you stack presets, what you can set up is velocity *stacking*, in which harder keystrokes pile up more and more voice channels on a single key. If you're careful, you should be able to get the musical results that you need, but you may

have to export some of the high-velocity samples to a computer sample editor in order to EQ out the fundamental or something of the sort. Even then, loud notes will still cut down on the instrument's polyphony.

One envelope generator is hard-wired to the filter, one is hard-wired to amplitude, and the third (called the auxiliary envelope) can be used for modulating some other parameter, such as pitch or LFO rate. The envelope generators have an extra "hold" stage between the attack and the decay. For certain effects, such as gating samples and delaying an LFO, this is a helpful feature. What the envelopes don't have is modulation inputs for the individual stages. Only the attack times can be modulated. The amount of key velocity that is used to control attack time can be set separately for each envelope. Attack time can also be chosen as a modulation destination in the real-time control area, but in this case all three envelopes will be affected together, in the same amount.


EIIIxs presets are defined in such a way that most real-time modulation sources can have only one destination each. For example, a MIDI pitch-bend wheel can be used to bend pitch, or to control pan position, or to alter the filter cutoff frequency. But it can only do one of these tasks in any given preset. If you happen to want to control both pan position and pitch-bend from the same wheel at the same time, you'll need an external MIDI processing device that can turn one MIDI message into two. Such a device would also be useful for scaling the re-

sponse, because the wheel's full throw always has a preset amount of effect, which may or may not give the subtlety of response that you want. When it comes to internal modulation routings, the LFO can modulate a combination of destinations, each with a different depth, but the auxiliary envelope can't. It can be a pitch envelope, or an LFO rate control, or a panning envelope, but not all three at once.

The LFO-to-pitch routing is clearly intended for vibrato, not special effects such as swooping sawtooth noises. Maximum depth is limited to a whole-step (a half-step in each direction). And we were saddened to discover that the LFOs slow down quite markedly when the central processor is being taxed by the need to start other notes. At slower LFO rates this may even add a welcome bit of "humanness" to the texture, but if you're counting on a chord to pulse rhythmically at the same tempo as your tune, it's guaranteed to have you grinding your teeth. Just as problematical, you must choose whether the LFO will affect a destination (vibrato, for example) at a preprogrammed level or whether LFO depth will be added by the mod wheel. That's right, the EIII won't let you program a vibrato level into a preset and then increase this vibrato amount under control of the wheel or pressure. If you want to use real-time control at all, you have to start with zero vibrato and add it *all* using the MIDI control source. We haven't seen this type of design since the heyday of the Casio CZ-1 (i.e., 1986), which forced you to make the same either/or choice.

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## E-MU EMULATOR IIIxs

Certain types of programming that are handled on many instruments with a single parameter must be handled manually on the EIII, by reprogramming individual keyboard zones as needed. The EIII system is far more flexible, but it also takes more effort to program. For example, the EIII has no keyboard amplitude scaling and no keyboard scaling of its envelopes. You can program whatever scaling curve you'd like for a preset, not only linear scaling in which envelope decays get shorter as you go up the keyboard but unusual layouts in which only a specified range has progressively shorter decays, while another range has progressively longer releases. The tradeoff is that you have

to adjust all of the envelope times manually.

The EIII provides a form of voice channel protection, which can be employed to prevent sustaining sounds from being cut off by new note-on messages. Since the instrument has 32 voice channels, you prevent voice-stealing by assigning a given keyboard zone to a range of voice channels (such as channels 1 through 6) and then assigning all of the other zones in any other presets that you may want to play at the same time so that they use the remainder of the voice channels (in this case, channels 7 through 32). This is not as flexible or as easy to set up as schemes that allow a minimum number of voices to be reserved, or that give individual zones a high, medium, or low priority when voice-stealing is about to occur. In

the EIII, once a given zone has been reserved a set of voice channels, the polyphony of the rest of the instrument is reduced, *even if that zone is currently not playing any notes*. In most cases, you should be able to get the musical results you're aiming for, but some forethought will be required.

The EIIIxs offers only forward looping for samples, not back-and-forth loops. Loop-in-release can be switched on or off, however, which is a distinct advantage for certain types of sounds. The sample as a whole can play backwards. When sounds from the original EIII library that used back-and-forth looping are loaded, the new instrument expands the loop data to create a new forward-only loop that is twice as long as the original.

### Remote Controller & Librarian Software.

For those who have a Macintosh in the studio along with their EIII, dealing with multiple banks of sounds on multiple hard disks and CD-ROMs just got a whole lot easier. E-mu's Remote Controller & Librarian software makes it relatively painless to search for presets or individual samples and assemble them into new banks. This software will even support multiple EIII units on the same network at the same time.

The program also provides a front panel emulator for the EIIIxs. They don't call it an editor program, even though you can edit all of the EIII's parameters with it, because other than pop-up menus, it doesn't provide any amenities not already present on the front panel. There are no graphic envelopes with points that you can drag, no keyboard diagrams showing the sample layout, no large screens in which dozens of related parameters are laid out for easy access. As they say in Santa Cruz . . . bummer, dude. The good news is that any changes you make on the computer screen are echoed on the EIII's actual front panel, and vice-versa. The two devices never get out of step with one another.

The software takes a minute or two to scan through the contents of each volume in your library — each CD-ROM disc, each removable cartridge, and so on — and create a catalog. Once the catalog is created, the software can instantly display the names of the banks in any volume, as well as a list of the presets or samples in any bank. What it won't do yet (as of version 1.0) is show you which samples are used in a given preset. Nor is there any crossreferencing capability: You can't click on a sample and get a list of which preset(s) it's used in. New banks must be assembled in the EIII's RAM, not in the librarian itself, because the samples and parameter settings are never in the computer, only the names of the samples.

A search utility lets you track down samples or presets within a volume by any character string in their name — "string" or "snare," for example. When the items that have been found are displayed in a list, you can click on any of them and audition them directly from the disk, and then load them into the EIII's RAM by clicking on the LOAD button. This is a super way to build new banks for special projects, although it works best if you've had the foresight to give your

*Continued on page 107*

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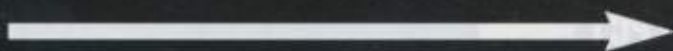
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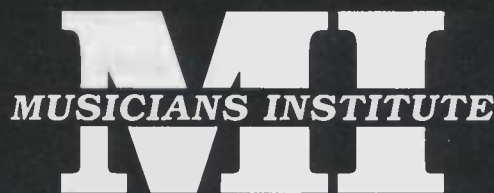


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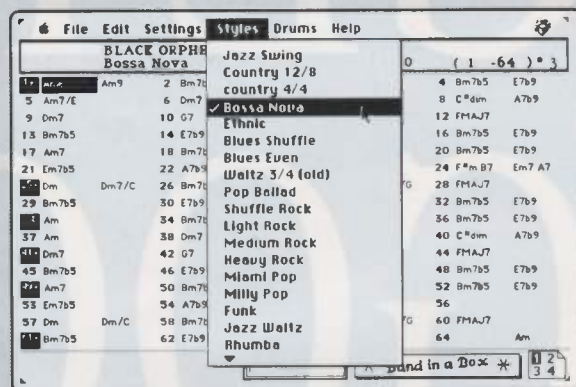
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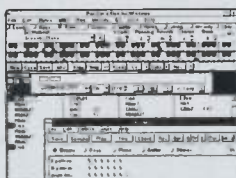
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PC MAGAZINE Jan. 15, 1991 – Technical Excellence Awards

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Requirements: MACINTOSH 2mb RAM memory, system 6 or 7, MIDI interface + synthesizer/module with piano sound, 3.5" high density Floppy Disk, 2mb hard drive space required.  
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### REQUIREMENTS: MACINTOSH 2 MB memory, system 6 or 7, MIDI interface + synthesizer/module with guitar,

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Requirements: WINDOWS (IBM) 2mb RAM memory, Windows 3.1, SoundCard (Roland, SoundBlaster, etc.) or MIDI system with guitar, bass, drums sound, 3.5" or 5.25" high density floppy disk, 2mb hard drive space required.

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## E-MU EMULATOR IIIxs

Continued from page 102

samples and presets sensible, descriptive names.

**Conclusions.** It's hard not to respect E-mu for their long track record of great-sounding samplers. And considered on its own terms, the Emulator IIIxs is a powerful instrument. When we look at the kinds of features found on the competition, though, it's hard to escape the feeling that E-mu has some catching up to do. They've put their major engineering push into upgrading the inside of the box and left the operating system pretty much the way it was five years ago — and maybe that's the best way they could have allocated their resources. Maybe professional users care more about pristine sound quality, and are less impressed by big

LCDs and esoteric parameters that hardly ever get used. We're perfectly willing to live without graphic waveform displays, which are pretty much a joke on a sampler LCD. But we do wish the EIIIxs had things like keyboard rate scaling for the envelopes, more than two-way velocity cross-switching, scalable response to MIDI controllers, and maybe a transpose parameter in the multimode receive page. These are not grandiose dreams of a musical utopia, they've been standard for years on many, many instruments. When it comes to high-end wave-editing features, the old EIII had them, but now they're gone. Back to the future, or something.

The Remote Controller & Librarian software is bound to find a home in many project studios. As useful as its librarian functions are, however, we would much rather have seen a real editor

screen layout, rather than a front-panel emulator for an instrument whose front panel is not that great to begin with.

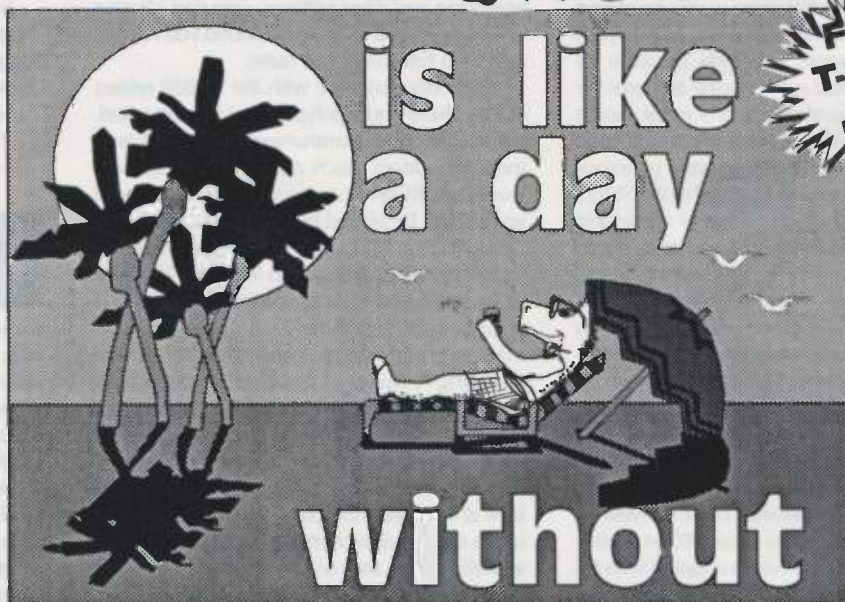
Price-wise, the EIIIxs sits right in the middle of the pack. You can get a 16-bit stereo sampler for \$1,000 less, and have to wrestle with a much more constricted memory architecture — or you can pay twice as much for a model with its own computer screen and mouse input jack. On balance, then, in spite of the fact that we're not whooping and hollering about the feature set, an Emulator III could be a wise and effective choice for the musician who needs a professional sampler. Look at it this way: With the money you save by sacrificing multimode filters, graphic envelope displays, and four-way velocity cross-switching, you can buy a pretty tall stack of CD-ROMs. ■

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## YAMAHA TG500

### RACK-MOUNT SYNTH MODULE

**Pros:** Great sound, up to 64-voice polyphony, parameter offsets in performance memory.

**Cons:** Operating system is not real friendly.

**Main Features:** Optional user waveform RAM. Single-oscillator voice programming, four-voice performance programming. Six audio outs. Program change remap table. Multi-effects with variable signal routing.

**Suggested Retail Price:** \$1,495.00.

**Contact:** Yamaha, Box 6600, Buena Park, CA 90622. (714) 522-9011. Fax (714) 739-2680.

**N**EEED TO PICK UP A NEW TONE MODULE to expand your MIDI rig? Yamaha's TG500 is bound to be a serious temptation. It has the same warm, sparkling sound as the SY85 keyboard-equipped synth (see Keyboard Report, Feb. '93), because it's based on an identical synth engine and uses the same waveforms and effects processor. And it goes beyond the SY85 in some important areas.

The up side: The TG500 sports a generous 64 voices of polyphony as opposed to the SY85's more standard 30 voices, 8Mb of waveform ROM (the SY85 has 6Mb), six audio outs instead of four, 16 multitimbral setups instead of ten, and four card slots — two each for programs and waveforms — in place of the SY85's two slots. The down side: No sequencer, no front-panel expression sliders, no patch search utility, and user waveform RAM is optional rather than standard. Up or down, depending on how you look at it: All of the SY85's patches (128 performances and 256 voices) are programmable; the TG500 reverts to Yamaha's older ROM/RAM scheme, with 128 factory preset ROM performances and 256 ROM voices coupled with 64 RAM performances and 128 RAM voices.

The versatility of the TG500's four-oscillator performances is enhanced by the fact that offsets

are provided for important voice parameters like amplitude envelope and filter cutoff. The effects and resonant digital filters give the module a wide and expressive tone palette. In fact, the variety of signal routing options and multi-effect algorithms in the effects section is fairly astonishing in a synth in this price range. The waveforms are mostly excellent, though the snare drums and cymbals are too compressed; they lack punch. For those who need a wider assortment of drum and other samples, the TG500's waveform card slots can read both RY30 and SY77 cards, so there's quite a lot of great material to choose from. Synth programmers are bound to appreciate the templates for envelope and filter settings; you can choose one that gets you close to the sound you're after, and then fine-tune it to taste.

Our only real gripe with the TG500 relates to how the 64-note polyphony is implemented. It turns out that the instrument has two 32-note tone generators, each of which has its own waveform ROM. Some waves, and thus some voices, will be played by the A chip, and some by the B chip. Okay, that's an engineering limitation that we're prepared to live with. The trouble is, when you're programming a multitimbral sequence setup or simply a four-voice performance, you'd like to know whether you're choosing A voices or B voices, because your choice will directly affect the amount of polyphony that's available. Unfortunately, this information isn't displayed with the voice number; you have to go into voice edit mode and look at the waveform parameter. Other aspects of the operating system are somewhat tangled as well; overall, the user interface rates no better than "fair."

With so many presets to choose from, though, you can get a lot of music out of the

TG500 without ever climbing down into the thorny thicket of submenus. And a lot of music is what it's all about, right? —*Jim Aikin*

## VOCE MICRO B

### ORGAN MODULE

**Pros:** Excellent simulated Hammond B-3 sounds. Realistic stereo Leslie simulation.

**Cons:** No real-time drawbar control of harmonic content.

**Main Features:** 32-note polyphony. 36 preset organ sounds, selectable via MIDI or rotary knob. Rotary switch for selecting one of seven effects (three levels of chorus, three levels of vibrato, and Leslie simulation); fast/slow pushbutton for Leslie speed selection with LED indicator. Three-channel multitimbral mode.

**Suggested Retail Price:** \$499.00.

**Contact:** Voce Inc., 111 Tenth St., Wood-Ridge, NJ 07075. (201) 939-0052. Fax (201) 939-6914.

**H**OW WOULD YOU LIKE TO TOTE A Hammond B-3 in your briefcase? Sorry, but that's impossible. However, Voce has finally done it: Their new Micro B is a solidly made, metal-cased, half-rack module with 36 realistic preset organ sounds, a convincing rotary-speaker simulator, variable overdrive, key click, and percussion volume and decay, and even a three-MIDI-channel multitimbral mode.

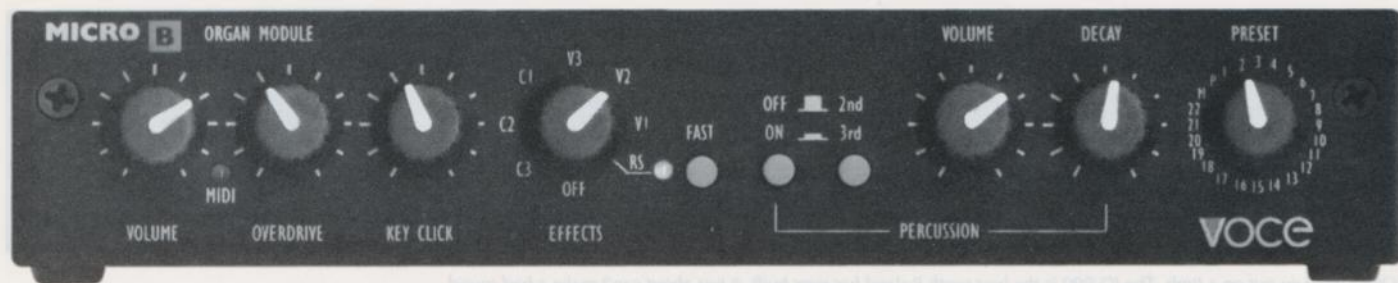
You remember Voce, the manufacturer that put B-3 sounds in a single-space rack module called the DMI-64 Mark II. The DMI-64 sounded pretty good, but the Micro B is the best sounding B-3 replica that we've heard.

In spite of its size, the Micro B pumps out a big B-3 sound. By today's synth standards,

*More voices per rack space than anything else on the planet: the Yamaha TG500.*







*It's tiny and not too expensive, but Voce's Micro B has balls deluxe.*

36 sounds seems miniscule. But since most Hammond players use a total of six to eight basic drawbar settings, 36 is probably plenty. (We understand Voce's sound developers had trouble coming up with that many variations.) Actually, only 34 of these simulate the B-3; the remaining two presets recreate the sound of a pair of vintage combo organs: the Farfisa and the Vox Continental. Twenty-two of the presets can be selected from the front panel; the last 14 are only accessible using MIDI program changes.

We checked back in the Nov. '91 *Keyboard* (the special Hammond issue) to see if all the favorite B-3 sounds of artists we talked with were covered by Micro B presets. While it does offer the drawbar settings preferred by Keith Emerson, Tom Coster, Rosemary Bailey, and Rod Argent, Voce missed Joey De Francesco's 888400080 and one of Booker T. Jones's favorites (they provide 888800000 and 808808008, but not 808800008). Four of the presets are splits, with one sound on above Middle C, and a different one below it.

Unfortunately, even though there are so many B-3 sounds to choose from, they're static. That is, you can't adjust drawbars to alter the sound while you play the notes; you can only select a different preset.

Instead of being stored along with the presets, many parameters are set using front-panel controls. There are knobs for setting overdrive and key click levels. A rotary switch lets you select the active effect; there are three levels of vibrato and chorus, a Leslie simulation with fast or slow speeds, or no effects at all — only one setting is available at a time. Lots of B-3 players would combine chorus or vibrato with Leslie; an external processor will be required to provide one of the additional effects for the Micro B.

Percussion is activated with an on/off button,

another button lets you select the second or third harmonic, and percussion level and decay amount are set with knobs. Therefore, it might be a good idea to place the Micro B near your keyboard setup for easy access to these controls, rather than exiling it to a rack.

Increasing the overdrive level has no effect on the Micro B's output level, which is the way it should work. The Micro B's key click can be varied from practically nothing — although there's a clicking that accompanies note changes in lower registers, as on a B-3 — to a nasty and obnoxiously loud snappiness.

While the Micro B's output level is an improvement over the anemic output of Voce's DMI-64 Mark II, it isn't yet quite as hot as we'd like. In addition, turning the Micro's volume up past three-quarters causes the output to get hissy. With the Leslie effect on, you can hear a swooshing sound. Of course, onstage this noise will be obscured by noisy guitar amps and audience racket, but it's irritating in a quiet studio environment.

The Micro B's MIDI implementation is somewhat limited. Omni mode is supported, or you can set a rear-panel rotary switch to channels 1 through 15 (but not 16). Although it responds to pitch-bend and sustain pedal data — very un-B-3-ish — the Micro B ignores MIDI volume, which means you'll have to insert an analog volume pedal between its outputs and your mixer or amp inputs in order to control its level with your foot.

A surprising supplement to the Micro B's short menu of MIDI capabilities is a multitimbral mode. Three different organ sounds, each selectable using program changes from an external source, can be triggered on three adjacent MIDI channels. If you enable percussion, it will only be triggered by notes on the basic MIDI channel.

What's the verdict? The Micro B is an awe-

some B-3 imitator. Because it comes at a budget price, you don't get real-time drawbar control and programmability. But it's the hottest organ module we've seen, and it should appease those who aren't satisfied with the cheesy organ renditions pumped out by most digital synths.

—Mark Vail

## ROLAND JD-990

### RACK-MOUNT SYNTH MODULE

**Pros:** Terrific synthesis resources. Expandable wave memory. Easy to program.

**Cons:** Maximum of 24-voice polyphony.

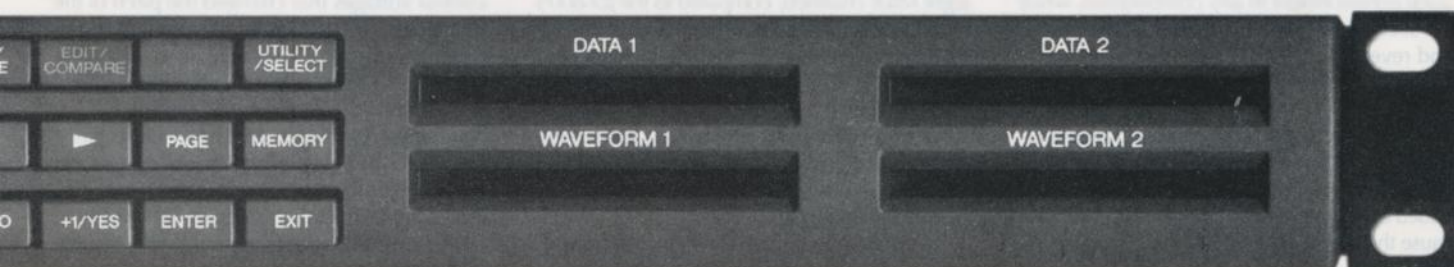
**Main Features:** Multi-effects with real-time control. Eight-part multitimbral. Multimode filters, two LFOs per voice, oscillator sync, variable structures. Graphic editing in large LCD. Eight audio outs.

**Suggested Retail Price:** \$2,195.00.

**Contact:** Roland Corporation US, 7200 Dominion Circle, Los Angeles, CA 90040. (213) 685-5141. Fax (213) 722-0911.

**S**YNTH PLAYERS WHO WERE TIRED OF dialing up parameters, who wanted a real front panel studded with knobs and sliders, got a big kick out of the Roland JD-800. While we enjoyed tweezing the sound in real time, we wondered: How are they going to make a rack-mount version of *this*?

Well, they did. The sliders are gone from the JD-990. It will respond to JD-800 slider data







Okay, we'll go out on a limb. The JD-990 is the best synth Roland has ever built. It just about can't make a bad sound.

## ROLAND JD-990

over MIDI, however, so if you already have the keyboard version you're all set. In our tests the response sounded somewhat coarser than the JD-800's internal response to its own sliders. Obviously, the 990's new parameters and waveforms can't be accessed from the 800's panel. Even if you don't have an 800 handy, you'll find that the 990 is a programmer's dream. The LCD is large, and the operating system is extremely friendly.

The 990 is more than just a rack-mount JD-800. It reads sound cards from the 800's popular little brother, the JV-80, and has an expanded waveform set that includes the raw materials from both earlier synths. A JV series expansion board (\$375 list) can be installed as well, bringing the unit up to an awesome 14Mb of ROM waves (16Mb if a PCM card is inserted in the front-panel slot). Other updates on the JD-800 concept include real-time control of effects parameters, variable two-oscillator structures, velocity crossfades between tones (hooray!), a whole bank of multitimbral performance setups, and four extra audio outputs (for a total of eight).

Incidentally, JV-80 sounds are only 99% compatible with the 990, because the 990 lacks the JV's waveform reverse parameter.

We reviewed the JD-800 in July '91. For those who don't have that issue handy, here's a quick run-down: The JD-800 is 24-note polyphonic, and up to four independent oscillators can be defined for each patch. The fat-sounding resonant digital filters can be operated in low-pass, bandpass, or highpass mode, which adds considerably to the sonic palette. A function called frequency cross-modulation (not found on the JD-800) can be dialed in to add a bit of grit to sounds that would otherwise be too clean; in large amounts it approximates ring modulation. Dual effects processors are employed; the first provides phasing, distortion, EQ, and aural enhancement in any combination, while the second takes care of the delay, chorus, and reverb.

Synth programmers will be delighted to learn that Roland has restored — and expanded — the variable structure concept found on the D-50. This allows one oscillator to modulate another, which can result in anything from a few added overtones to The Grunge From Hell. Because the JD has filters for all tones, not just the saw and square waves, its structures let you put

two filters in series for dual resonant peaks and sharper rolloff slopes. You can also pass one wave through an amplifier/envelope before it modulates the second, and choose whether or not one of the tones will bypass the modulator section. Other new synthesis resources include old-fashioned oscillator sync, individual panning of the output of each tone, and a generous three seconds of delay in the effects processor.

Compared to the 64-oscillator Yamaha TG500 (see page 108), the JD-990 comes up a bit short in the polyphony department. Where it beats the TG500 all hollow is in the ease with which you can navigate through the operating system. Below the spacious LCD are six function buttons, which are used to move from one screen to another. The buttons are always labelled with a row of menu items along the bottom of the LCD, and the whole structure of screens and menus is only two layers deep. All screens remember where the cursor was previously, so you can easily jump back and forth while editing related parameters.

But that's just the start. Envelopes are displayed graphically, of course. When you're editing a filter envelope, the amplitude envelope for the same tone appears as a dotted line, so you can see the contour of the tone as a whole. LFO waveform, rate, delay, and fade in or out are also displayed graphically. Structures are shown as block diagrams. When you change the order of the effects, a block diagram with large, easy-to-see rectangles and arrows is shuffled around on the screen. Press a button labelled "Palette" and instead of seeing a whole page of parameters for a single tone, you'll see a smaller group of parameters for all four tones at once. In the palette, several tones can be edited at once, and the relationship between levels will be preserved. In place of a single effects bypass button, the JD-990 lets you toggle four different processor stages on or off individually.

Multitimbral performances can use up to eight MIDI channels, compared to the JD-800's six channels. On the 800, only the second effects processor is available in multi mode, but the 990 allows the first processor to process whatever patch is assigned to part 1. Voice reserve and coarse and fine tuning have been added to the multi parameter list, making the multis more usable for both keyboard and sequenced performance.

When it arrived, the JD-990 caused a serious outbreak of oohing and ahing around

the Keyboard offices. The factory patches are a bit generic, though, so if you buy one, we urge you to dig into programming. With a synth this powerful and this easy to work with, you'll be glad you did.

—Jim Aikin

## DOEPFER MAQ 16/3

ANALOG-STYLE MIDI SEQUENCER

**Pros:** Real-time interactivity with sequences.

**Cons:** No MIDI merging. Limited number of sequence memory locations. Stored sequences can't be edited.

**Main Features:** 48 front-panel knobs (three rows of 16) that can be adjusted during playback of non-stored sequences. Transmission of MIDI notes, velocity, pitch-bend, aftertouch, and program changes. Independent step length and direction per row. Some remote-control facilities using MIDI program changes. Four sequence memory locations. MIDI bulk dump for external data storage.

**Suggested Retail Price:** \$795.00.

**Contact:** Doepfer Musikelektronik GmbH, Lenbachstr. 2, D-82166 Gräfelfing, Germany. 011-49-89-85-5578. Fax 011-49-89-854-1698. Dist. outside Germany: Cados Corp., 426 E. North St., #209, Waukegan, WI 53188. (608) 277-8305. Fax (608) 277-8307.

**G**ROWING WEARY OF YOUR COMPUTER-based MIDI sequencer? Want something with knobs and more interactivity for live use — you know, like an analog sequencer? Typical analog sequencers output control voltages that changed the pitch of the oscillators and gate signals that opened up the envelope generators. One or more rows of hardware potentiometers let you adjust the pitch of each note in the sequence by turning the pot corresponding to that note. The smallest analog sequencers had only eight pots, while the largest had three or four rows of pots and could play three or four musical lines simultaneously.

At a glance, Doepfer's MAQ (MIDI-Analog-sequencer) 16/3 resembles those old sequencer



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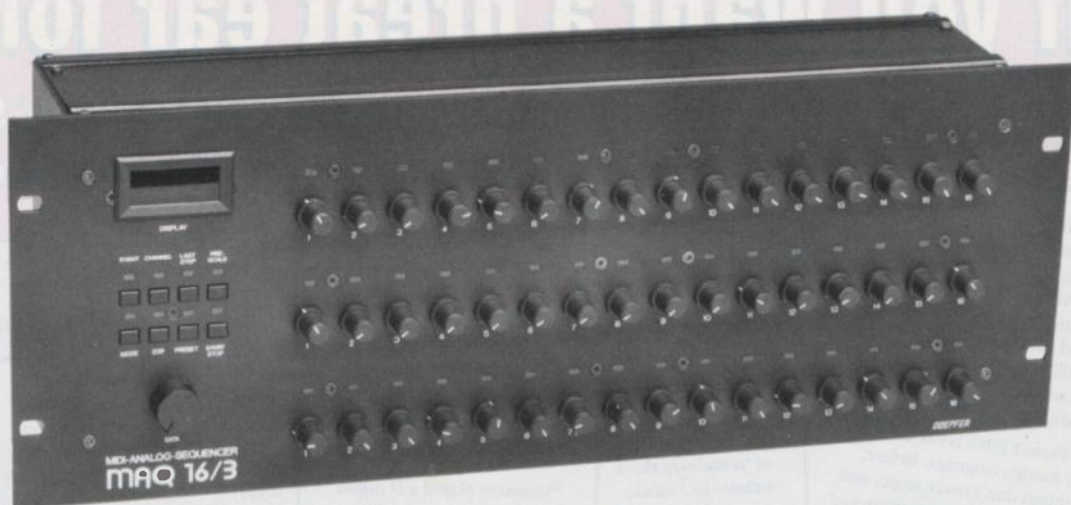
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You'll have to go back to the days of vintage analog sequencers to find anything that looks like Doepfer's MAQ 16/3. Then again, there wasn't anything like it then either.



## DOEPFER MAQ 16/3

things. Developed in Germany in consultation with members of Kraftwerk, the MAQ 16/3 has three rows of 16 knobs — much like the old Moog 960 sequencer module, which had three rows of eight pots. But the similarities end there, because the MAQ is a MIDI sequencer, and it allows you to do things never conceived of by users of the old Moog sequencer.

We've been playing with an MAQ with version 1.0 software for a little over six months now, and Doepfer recently sent us the version 2.0 upgrade for this review. There's plenty of power here, but the programming interface is about as spartan as they come. Eight buttons provide access to eight menus. A three-digit LED shows the status or current setting, depending on the mode. (At least having three digits means you don't have to deal with hexadecimal numbers.) Changes are performed with a data knob. A few parameters have so many options that zeroing in on a specific value can get tricky; inc/dec buttons would have helped.

You can program each of the MAQ's three rows of 16 knobs to send note-ons and -offs or program changes, and adjustments you make to a knob during playback will affect the MIDI data that's transmitted. In addition, one row can control the step durations or MIDI channels of another row, or send velocity, pitch-bend, or aftertouch (channel or polyphonic) data for notes played by another row. Each knob is accompanied by an LED to indicate where the sequence is in a given row. You can set the MAQ to independently step through each row from left to right, right to left, back and forth, or randomly.

The function of a row's knobs depends on what you program the row to do. If the row sends note data, each knob will select the note number — over a range of from one to five octaves. Unless another row controls the velocities of these notes, they'll all be played with a velocity of 100. Besides sending specific note values assigned by the knob positions, a row can be set to respond to incoming note data from an external MIDI source in order to transpose the sequence of notes to the

last key number entered.

To tune the notes for each step in a row, or to trigger events in a free-form manner, the single-step mode lets you move to a specific location in the sequence using the data knob. Staying in one position causes a repetition of the note(s) or event(s) triggered by that step in all three rows. Moving one of the knobs in that step will change the display to indicate the note number transmitted. Individual notes can be muted so that they act as rests in a sequence.

Possible MAQ tempos range from 50 to 254, and you can sync the device to an external MIDI clock source. Although the unit we reviewed transmits start, stop, and continue messages, we couldn't get it to respond to the same data from another sequencer. Doepfer tells us the unit does indeed respond to these sequencer messages, but ours sure didn't.

A teensy four memory banks are provided for storage of MAQ sequences. And since bank 1 acts as the memory buffer for the current front-panel settings, there are really only three. In addition, you can't edit a sequence in memory by readjusting the knob locations; this capability won't be implemented until version 3.0 of the MAQ 16/3's software. We're also told the new software upgrade — due in the fall — will increase memory to 32 sequences.

The main advantage of version 2.0 MAQ software over version 1.0 is the addition of some remote-control functions for the MAQ via MIDI. However, the range of operations that you can perform isn't what you might expect. Nor are the MIDI commands. Program changes are used to control the MAQ as it's running. Program changes 1, 2, and 3 select the corresponding row of 16 MAQ knobs. Once you've selected a row, you can deactivate it, reactivate it, alter its sequence mode, and change the first and last steps in the sequence . . . sometimes. Unfortunately, some of the remote-control functions weren't working properly on our review unit. While we were consistently able to change the first step, whenever we changed the last step, the row in question would get stuck on the last active step and play that event until we reset the first step back to 1. You're also supposed to be able to enable

and disable individual steps within a row and change the type of event transmitted by a row with program changes, but we weren't able to get these functions to work on our unit.

You can change many parameters while the sequencer is chugging away. Caution is advised, though, because some on-the-fly changes can lead to unwanted results. For example, we were scanning through row assignments while the MAQ was running and briefly settled on controller 1 (mod wheel amount) before continuing our scan. While it was set to controller 1, the sequencer spit out mod wheel data to our synth module, which dutifully started playing wavy notes on the same MIDI channel. Since the MAQ won't merge incoming MIDI data with its own (another version 3.0 update), and our merger box wasn't handy, we didn't have a keyboard connected. But patching the keyboard in for a quick jerk of its mod wheel to reset the mod amount to zero seemed much easier than stopping the sequencer, resetting a row to send controller 1, and manually dialing up zero. All that's needed is an all-notes-off routine that also resets MIDI controllers. Maybe in version 3.0. . . .

A few people may find the MAQ 16/3 indispensable, particularly those into experimental or dance-oriented music. The MAQ offers some interesting real-time control over simple one-, two-, or three-track sequences. It will never get much more sophisticated, but let's hope it gets more functional. Otherwise, Kraftwerk will have the box all to themselves. —Mark Vail

## YAMAHA CLAVINOVA PF P-100 DIGITAL PIANO

**Pros:** Excellent piano sound and supplementary sounds. Realistic dynamic response on piano and Rhodes voices. Great keyboard action.  
**Cons:** System-exclusive messages transmitted



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"I'm able to play things I hear in my head a lot faster than ever before. Before I started the course, I could barely do it."  
J.W., keyboards

"It feels like I'm singing and playing 'my' notes instead of 'somebody else's' notes—like music is more 'my own.' Improved delivery because of being able to make more natural music."  
L.H., voice/guitar

"Someone played a D major chord and I recognized it straight away."

"I enjoy listening and playing more and I get new musical ideas as a result."  
S.C., bass

"It's like hearing in a whole new dimension."  
L.S., guitar

"It's so simple it's ridiculous."  
M.P., guitar

"It touches the core of musical perception."  
D.S., violin/viola, Los Angeles Philharmonic

"When I hear music now it has much more definition, form and substance. I don't just passively listen to music anymore, but actively listen to detail. With Perfect Pitch I can make up my own mind about what and how I feel when I hear music, and also know why I feel that way."  
M.U., bass

"After just a few minutes of your instructions, I could locate an F# by ear—even when it was hidden in a group of several tones!" G.B., synthesizer

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Mr. Burge, I am grateful for what you have given me—I feel like a new musician. Since I am a drummer, I am very proud that I could achieve something of this caliber. I feel as if I have a leg up on those who I will be competing with in college."  
J.M., percussion

"Mr. Burge has given me the key to what I once considered a closed door."  
D.H., Ph.D., voice/piano professor

"I believe! It works just because it's so simple."  
S.P., sax

"Perfect Pitch is an invaluable asset in my musical career. I feel if every musician could hear as I do, they would realize how useful it is and how delightful."  
H.M., voice

"It brings me root of their R.C., piano

"It's hard to describe. It's like hearing more of the piece or the different feelings evoked because of the key it's played in."

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"Now I listen more carefully to the sounds of the notes and how they blend together. While working on a piece I was writing, all of a sudden I heard the pitch color of each note. I revised the piece immediately. I'm much happier with it now." W.H.P., synthesizer

"I can listen to myself better and hear what I'm doing, allowing me to express myself better."

"All music listening is improved quite markedly on the level of happiness, as you pointed out on one of the tapes." S.H., jazz guitar

"Never again will I listen to music as before. My playing has improved and I am able to easily transcribe note-for-note many Eric Clapton songs I had wanted to for so long." H.K., guitar

"It's amazing how easy and simple Perfect Pitch is. After understanding it, it was like the pitches were at the 'tip of my ear.'" C.L., piano

"The life and breath of feeling part of what we play can be more fully experienced through this knowledge of Perfect Pitch." D.S., piano

"I hear a song on the radio and I know what they're doing without my bass guitar."

"It all boils down to taking the time to listen." M.B., piano

"This is absolutely what I have been searching for."  
D.F., piano

"My improvisations have improved. I feel more in control of what I'm doing." I.F.B., Costa Rica

"It's strange how some things that seem so hard are so simple."  
D.W., flute

"I am convinced that a finely tuned ear is the greatest gift that I could ever give my students."  
J.F., music teacher

"This course could replace, or at the very least, cut in half the time lavished on seemingly obsolete ear-training courses currently taught." M.S., music teacher

"I used to sleep in instead of practicing in the morning, but since starting your course I haven't skipped one day. My improvisations have improved."  
M.S., piano/synthesizer

"Perfect Pitch for a musician is more valuable than gold."  
E.V., guitar

"Although I was at first skeptical, I am now awed." R.H., sax

"I can't understand why it's remained a secret for so long." B.T., music student

"A few days after starting the course the music did seem more colorful and vibrant."  
J.P., Australia

"I have already acquired abilities I never dreamed of having 2 years ago, as well as an overall zest for music. You've really made a difference in my life." M.G., piano, Germany

"Last Tuesday night in rehearsal I was listening to the soloist play and I recognized F#. I was so excited that I nearly jumped up and down. The next day..."

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## YAMAHA CLAVINOVA PF P-100

with program and effects changes and sweep pedal movements. Built-in speaker and line-out levels aren't separately adjustable.

**Main Features:** 88-note weighted-action keyboard. Ten sounds (two acoustic pianos, two electric pianos, "Clavinova Tone" harp-and-strings layer, vibraphone, orchestral strings, organ, two basses). Built-in chorus, reverb, and "symphonic" (heavy chorus) with adjustable effect level. Three-band graphic EQ. Two-voice layering. Keyboard splits. Transposition by half-steps up to  $\pm 24$  semitones. Four velocity response curves (separately selectable for internal voice and MIDI transmission). MIDI enable/disable button. MIDI sys-ex bulk dump. MIDI merging to MIDI out. Twenty-watt-per-side stereo amp with two 5" speakers; speaker on/off switch. Damper pedal and music rack included. Left/mono and right outputs, left/mono and right inputs, stereo headphone jack (all 1/4"). MIDI in, out, thru. Sustain, sostenuto, soft footswitch jacks (normally closed), sweep pedal input.

**Suggested Retail Price:** \$2,995.00.

**Contact:** Yamaha Corporation of America, 6600 Orangethorpe Ave., Buena Park, CA 90620. (714) 522-9011. Fax (714) 522-9301.

**"P**ORTABILITY" AND "PIANO" HAVE always been mutually exclusive terms. Even if you have a good digital piano sound, you need a weighted-action keyboard for a decent virtual-piano experience. A digital piano with a full 88-note weighted keyboard is neither small nor lightweight, so the term "transportable" would probably be more appropriate than "portable."

Many manufacturers have tackled the transportable digital piano market in the past, some more successfully than others. This time, Yamaha makes the attempt, and frankly the Clavinova PF P-100 is one of the best we've seen. It sports the right combination of features for both home users and pros.

Like the Roland FP-8 (reviewed Aug. '92), the P-100 has built-in reverb and chorus, a great

keyboard action, and built-in speakers. But for \$300 more than the FP-8, you get pitch-bend and mod wheels, three-band EQ, a superior piano sound, and more realistic dynamic response. (The P-100 doesn't have a sequencer like the FP-8, but that's certainly no loss, considering that the FP-8 sequencer is as basic as they come and doesn't transmit notes over MIDI.) Both pianos have plastic cases, but the P-100 seems to be more solidly constructed than the futuristically styled FP-8.

**Across the Board.** In addition to having the performance wheels situated in the appropriate place — at the left end of the keyboard, as opposed to above the keyboard in an unnatural position — the P-100's controls are smartly arranged. You select sounds using eight push-buttons, and you can sustain notes playing one sound while you change to another. (If an effect is active for one voice and not the other, there may be a glitch in the sound when you switch.) An LED accompanies each button, and a three-digit LED display indicates the current sound number or other information. There are two effect buttons, one for reverb — room, stage, hall, or off — and the other for modulation — chorus, "symphonic" (Yamaha's term for a deeper chorus), tremolo, or off. Each press of one of these buttons advances through the effect types. (Changes in the reverbs happen silently, but there's a brief interruption in the sound when you change modulation types.) By holding the button and moving the data slider, you can adjust the level of the effect from zero to seven. The effects and levels you set for each of the ten sounds are stored in memory, even when you turn the machine off, which is a great convenience.

Layering two sounds is as simple as pressing two voice buttons simultaneously. You can adjust the relative levels of the two sounds by holding the split/balance button and moving the data slider; the range is from -16 to 15, with zero being equal volume for both sounds. When you layer sounds in this manner, the effects for the first sound you choose will be used for both sounds in the layer.

Layering cuts the P-100's polyphony in half. Seven of the P-100's sounds (Piano 2, both electric pianos, strings, organ, and both basses) allow you to play 32 notes simultaneously. Vibes and the Clavinova Tone provide only 16 notes of

polyphony, because they're already layered. Piano 1 is in stereo and provides only 16-note polyphony, although you can toggle it to provide 32-note polyphony in mono.

When you hit the split button, the original sound (the "main" voice) will only play above the split point, and a second sound that you designate as the "sub" voice will play below the split point. (The split point is programmable.) Again, the effects active for the main voice will be used by both voices. If you hit the split button again, the P-100 will return to the previous condition — that is, with a single voice active across the entire keyboard, or in layered mode.

We aren't sure how we did it, but at one point the main and sub voices swapped positions on the keyboard, so that the main voice played below the split point and the sub voice played above it. Once we reinitialized the P-100's memory, all worked properly again.

**Velocity Response, Transposition, Line Inputs, & Built-In Speakers.** Four velocity-response curves are available: normal (linear), soft (slightly convex so that notes sound louder without excessive force), hard (slightly concave), and fixed (the volume of all notes is the same no matter how hard you play, which may be helpful for beginners).

By holding the transpose button and playing a note on the keyboard, you can transpose the keyboard up or down by as much as two octaves. Two buttons also let you adjust the transpose amount by half-steps. The transposition setting that you select will be retained until you change it, so you can conveniently switch back and forth between normal and transposed tunings. Since the P-100's internal voices are limited to reproducing an 88-note range, the pitch will fold over and octaves will repeat at either end of the keyboard. In layer and split modes, the main and sub voices can be independently transposed.

Line inputs are provided for amplifying signals from an external mono or stereo source through the built-in speakers. These signals are also sent to the line outs. The P-100's volume slider has no effect on the level of the incoming signal, and neither do its reverb or modulation effects.

Although the built-in speakers aren't adequate for convincingly amplifying low tones, they're extremely convenient for monitoring.

Except for some anomalies in its MIDI implementation, the Clavinova PF P-100 delivers most of the goods.





## YAMAHA CLAVINOVA PF P-100

It's a shame, though, that separate controls aren't provided for adjusting the speaker and line-out levels. In any case, when combined with a quality set of external speakers, the internal speakers go a long way toward simulating the experience of playing an acoustic piano.

**Sonically Speaking.** First, the piano. Although the loop points in its low notes are fairly obvious, we like the P-100 piano sounds a lot. They're very responsive. We're especially fond of Piano 1, but Piano 2 should appeal to rockers who need a bright piano to cut through the electric guitar fog.

As usual, we pulled out our E-mu Proformance/1+ module — our benchmark for judging digital piano sounds since we reviewed it in Nov. '90 — and plugged it into the P-100's line inputs. The first three of the Proformance's four pianos sounded muffled; only the fourth was anywhere near the quality of the P-100's pianos. But instead of responding dynamically like the P-100, with softer notes having fewer overtones, all the Proformance pianos sound like someone banging away on a piano in the next room, no matter how softly you play. The P-100 wins this competition hands down.

The remaining sounds aren't slouches either. E.Piano 1, a faithful rendition of the Rhodes, responds dynamically. Play it softly and it's very bell-like; whang the keys hard and the notes turn snarly. The familiar DX7-style electric piano

is provided in E.Piano 2.

The P-100's Vibes are beautiful, as surprisingly enough are the full Strings, even though there's no aftertouch response for adding expression. Yamaha also supplied their Clavinova Tone, which is a new-ageish but useful blend of harp and strings. Both Bass 1 and Bass 2 are solid, the former being a stand-up acoustic sound and the latter an electric bass. The basses are musically useful in the upper registers as well.

If there's any P-100 sound worth picking on, it's the Organ — an overly bright, jazzy sort of sound. Of course, other than using EQ, you can't mold the timbre or adjust individual harmonics à la an organ with drawbars. Still, it's convenient for gigging players to have organ available at the touch of a button, even though they'll be playing it from a piano-action keyboard.

**Trouble in MIDI City.** MIDI is the P-100's Achilles' heel. Its MIDI implementation offers some useful functions — such as the ability to set a different velocity curve for transmission over MIDI than the curve for internal velocity response, separate transmit and receive channels and local on/off (which means you can play external modules from the P-100's keyboard while its voices are triggered by an external MIDI source), and a button for quickly enabling and disabling MIDI transmission. (If you're holding or sustaining notes when you disable MIDI transmission, MIDI won't be de-

activated until you release the notes or the sustain pedal, so that external modules don't play stuck notes.)

The P-100's major MIDI flaw became apparent when we hooked up our Datastream MIDI Viewport and hit one of the P-100's sound buttons. Besides transmitting a program change, the P-100 sends a packet of two system-exclusive messages whenever a new sound is selected. The split, transpose, and effects buttons also send sys-ex messages when depressed in MIDI enable mode. In addition, moving the sweep pedal we had connected to the P-100 caused the transmission of a constant stream of sys-ex data, instead of MIDI volume data. Sys-ex data can clog the MIDI data stream, and we don't see the point in these common operations transmitting sys-ex. For the record, the P-100's data slider does send MIDI volume messages, and this transmission can't be disabled. Also worthy of mention, even though it isn't MIDI-related, is the fact that the sweep pedal can't decrease the P-100's output volume to silence.

**Conclusions.** The P-100 could well be the best transportable digital piano on the market today. It has a convincing piano action and great piano sounds, along with a handful of terrific alternate sounds. Since we have some reservations about its MIDI implementation, we can't wholeheartedly recommend it as a master MIDI controller. But it's our first choice as a digital piano to take out on gigs. —Mark Vail

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## TODD RUNDGREN

Continued from page 56

a product," which we did.

*This is the psychedelic screen saver for the Macintosh II?*

Well, yeah, it's been called psychedelic or psychoactive. It has some effect on the brain. We know now from unsolicited testimony that it does have a peculiar effect on the brain.

*Quite mesmerizing. It's beautiful.*

People say it's beautiful and it's mesmerizing, but also it does specific things that we're not exactly sure what they are. It may have to do with the rhythm or the phase that it cycles in, and the basic phenomenon that's represented in there. We've gotten letters from therapists who say that they have these anti-social or semi-autistic patients who are suddenly able to communicate as long as they are staring at Flow-Fazer. It somehow loosens something in their head and they are able to talk more openly, but they can't look at the therapist. They have to look at Flow-Fazer.

*It certainly is one of the most distinctive visual effects I've ever seen.*

When I first saw it, I thought, "This is really terrific. What can we do with it?" Marketing it was a headache and a disappointment mostly because of the nature of the industry, deal-

ing with major distributors and the sleazy corporates. The problem is, when you're a computer hacker, you tend to think in very ideal terms because you have so much freedom to change things in a computer environment, and then you have to go out there and deal with the corporate structure that actually moves the software around and sells the hardware. You discover that people are just typical greedy businessmen who don't in any way think the way you do about the computer. They just look at it as a money machine. In any case, marketing turned out not to be very successful in the long run.

*It is still available?*

Well, people pass it around and I imagine there are some copies floating about.

*But it's not actually available for sale?*

As Apple's system software evolved, there were things we would have had to do in order to support the program, which made us feel like we would be back into playing the distributors' game. It was something we just weren't willing to do.

*Interactive music video is certainly something that people have thought about. How are we going to take music video, this incredible artform, into the interactive realm?*

The interface that we used to create *No World Order* is a mechanism that can be applied to different kinds of media. It doesn't

have to be just this particular musical thing. The idea of applying subjective criteria to the performance and then allowing a system to make intelligent decisions about what happens is a good model for consumers as opposed to the model that came from the computer developer's mentality, which is that people will actually sit down with a program that looks like a video editor and painstakingly piece things together.

An outstanding problem with the CD-I and with 3DO systems as defined is storage. How do you remember these things? If you've got a computer, you've got some kind of non-volatile storage that you can put your results in. But on a CD-I player and on a 3DO, non-volatile RAM is limited. I understand that there's supposed to be some kind of system of memory cards for 3DO, but I'm not confident that there's enough storage in any currently available consumer-oriented medium for people that do serious work. In any case, it's going to be one of these things where you will soon discover the limitations of the content if you have the responsibility of putting it together yourself. If the machine does it, the machine doesn't grow tired of the content.

*But the experience is what it's all about.*

Well, we aren't building tools to emulate somebody's job. I'm trying to incrementally up the ante in the home entertainment area. ■

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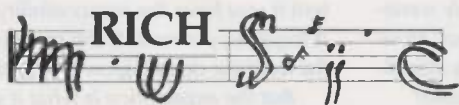
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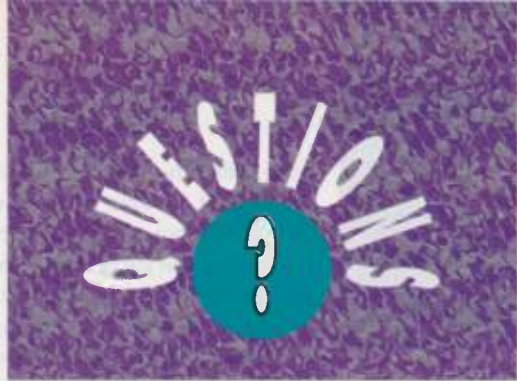
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G R E G R U L E



Recently I overheard a couple of recording studio engineers talking about something called "dither." I can't find a definition of it in any of my music textbooks. Can you help?

Sean Smith  
Minneapolis, MN

We relayed your question to E-mu's "Chief Wizard" Dave Rossum, who faxed us the following response: "In audio, one 'dithers' a signal by adding noise to it. While it would seem like a silly thing to do in the analog world, it can have great benefit in the digital world.

"Generally, it is desirable to dither a signal when it is passing through a process called 'quantization' (not to be confused with quantizing — or auto-correcting — timing errors when sequencing). Quantization occurs when the number of 'bits' is being reduced. The most obvious case is when a signal is converted from analog (an infinite number of bits) to digital in an analog-to-digital converter. In this particular case, adding noise is often *not* necessary because the analog signal is usually noisy enough already. However, numbers are frequently quantized when they are passed from internal digital arithmetic circuits to the digital-to-analog converter. In E-mu's chips, for example, this is a process of converting a 24- or 32-bit number down to 16 or 18 bits.

"Imagine a waveform being quantized. It is essentially being converted to a 'staircase.' You can see this in Figures 1 and 2. This is called quantization distortion, and it's particularly unpleasant-sounding. Adding a small amount of white noise to the signal will

smooth or "whiten" the quantization distortion, thus creating a much more natural sounding signal. Amazingly enough, this process widens the dynamic range so that signals far smaller than the smallest digital step can be represented. The only adverse consequence is a small amount of additional white noise. Figures 3 and 4 will help you visualize this process.

"Dither can be of great benefit; we at E-mu found that even a primitive implementation improved the sound of the decay in our Proteus line. I should credit Julius O. Smith for pointing out that beyond 24 bits of precision, dither is unnecessary in audio. This is because 24 bits is a big enough number to represent all possible waveforms in the air. The least significant bit (LSB) is less than the thermal molecular motion of air against the eardrum, and the most significant bit (MSB) is more than a shock wave in the air. So if we never truncate the signal to fewer than 24 bits, we need not dither."

*In Keyboard's April '93 issue, there was an interview with Jan Hammer about his work on Beyond the Mind's Eye. I'm having a difficult time finding the video or the accompanying CD soundtrack in any stores. Where can I get them?*

Kevin Christian  
Anahola, HI

Most large music/video retailers should be able to special-order them for you. The catalog numbers are: (VHS) MPV6001, (CD) MPCD2901. If that doesn't do it, write or call Miramar Productions at 200 Second Ave. W., Seattle, WA 98119; (206) 284-4700. ■

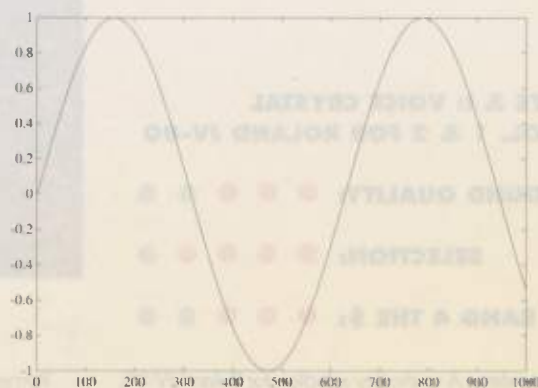


Fig. 1. Incoming analog sine wave.

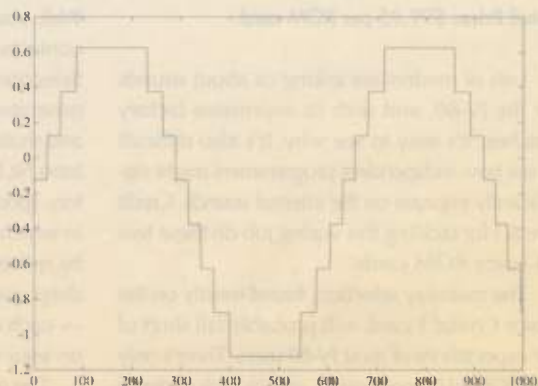


Fig. 2. Signal with obvious quantization distortion.

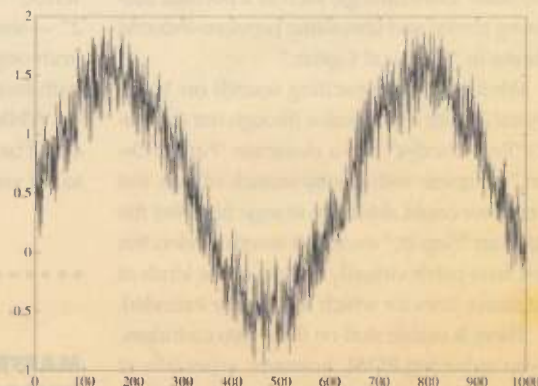


Fig. 3. Analog signal plus dither noise.



Fig. 4. Quantized dithered signal. The sharp edges of the quantization distortion (Figure 2) have now disappeared.



## EYE & I: VOICE CRYSTAL VOL. 1 & 2 FOR ROLAND JV-80

**SOUND QUALITY:** ● ● ● ● ●

**SELECTION:** ● ● ● ● ●

**BANG 4 THE \$:** ● ● ● ● ●

**Overview:** A workaday selection for Roland JV-80, with few surprises and several problems.

**Contents:** 64 patches per volume.

**Retail Price:** \$99.95 per ROM card.

Lots of readers are asking us about sounds for the JV-80, and with its expressive factory patches, it's easy to see why. It's also difficult to see how independent programmers might significantly improve on the internal sounds. Credit Eye & I for tackling this vexing job on these two 64-voice ROM cards.

The mainstay selection, found mostly on the *Voice Crystal 1* card, will probably fall short of the expectations of most JV-80 users. There's only one "Grand Piano" sound, and its lack of depth makes it less than ideal. Other utilitarian sounds also suffer shortcomings, such as a peculiar sustaining partial and unrealistic pressure-induced vibrato in "Classical Guitar."

We found some exciting sounds on *Voice Crystal 2*, with a responsive (though not authentic) "Real Rhodes" and a dynamite "Farfisa Organ," complete with cheesy seasick vibrato. But even if we could abide the strange hiss after the attack on "Slap It!," excessive reverb renders this funk bass patch virtually useless in the kinds of fast dance lines for which it is clearly intended.

There is usable stuff on these two cartridges. If you're buying ROM, however, especially at Eye & I's price, try shopping around a bit first.

—Robert L. Doerschuk

## EAST-WEST: SCIENCE FICTION

**SOUND QUALITY:** ● ● ● ● ●

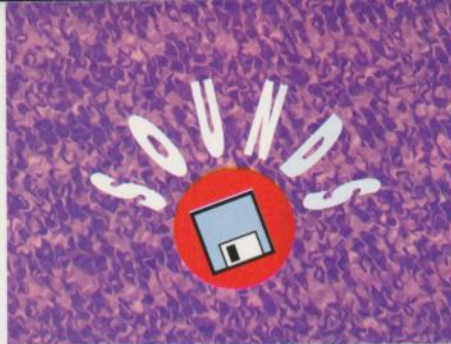
**SELECTION:** ● ● ● ● ●

**BANG 4 THE \$:** ● ● ● ● ●

**Overview:** Samples of atmospheric textures, space ships, vocoded speech, space sounds, special effects, strings, and guitar.

**Contents:** 188 samples; 6-page insert.

**Retail Price:** \$99.00, audio CD.



Remember the *Forbidden Planet* soundtrack, with its bizarre bleeps and bloops that strained the limits of your tiny old television speaker? Well, you can relive it courtesy of this CD, which contains a varied assortment of sci-fi goodies. Selections include subsonic noise, screaming generator motors, ear-piercing metal scrapes, and shattering laser guns. Standouts are "Planet Intro Nr.1" (described in the insert as dark, mystery, spooky) through "Planet Intro Nr.4" (heavy), in which eerie droning textures are punctuated by spikes of bright timbres, evoking images of deep space. Put all four Planet Intros together — each one over a minute long — and you're on your way to a full score.

The overall sound quality of this collection is good, but several samples — notably "Metal Terror," "Uranus Bell," and "Space Percussion 2" — sound as though they had been recorded from original B-movie soundtracks, complete with hissing and glitches.

While probably not for everyone, this CD could be useful for film and multimedia, or just to put you in the mood for *Lost in Space* reruns.

—Mark Grey

## MASTERBITS: CLIMAX- COLLECTION VOL. 3, GUITARS

**SOUND QUALITY:** ● ● ● ● ●

**SELECTION:** ● ● ● ● ●

**BANG 4 THE \$:** ● ● ● ● ●

**Overview:** Beautifully recorded rock, funk, jazz, and acoustic guitar licks, special effects, plus individual plucked notes. If only you could use them.

**Contents:** 48 tracks (433 individual samples) plus Akai S1000/1100 8Mb data dump (10 programs/117 samples); track index sheet.

**Retail Price:** \$99.00, audio CD.

Well over half of the Climax guitar collection can be compared to owning a shiny new Ferrari and living in a town that only allows

horse traffic: The car looks beautiful, the engine sounds great, but since there's nowhere to drive, you've really got nothing more than an expensive gatherer of garage dust. The problem is that about 30 of the 48 tracks on this superbly recorded collection of metal, jazz, funk, and acoustic guitars consist of licks — licks that are played at specific tempos and, naturally, in specific keys. The licks are played by some downright amazing guitarists, but only in the wildest of circumstances are you likely to find the right lick at the right tempo in the right key to fit your song. True, you can time-compress/expand and or pitch-shift as necessary, but in our experience, guitar samples aren't very forgiving of this type of manipulation. And since no tempo or key information is provided, good luck figuring out just how much processing you'll need to perform. (And good luck finding the sounds; most are simply labeled "lick #1," "lick #2," etc.)

Thank goodness for the last third of the collection, which features individual notes played on a variety of guitars, both clean and with distortion. Then again, this section is not without its problems, either. Each group of samples consists of only eight notes (E1–G2), played a fourth apart (we prefer seconds or thirds for sample mapping); they're played only once (and there are some clinkers, which render those notes unusable), and only one dynamic level (loud) is provided.

No doubt you'll find a few sounds suitable for sampling. But despite the overall high audio quality and expert musicianship, the pickings are rather slim.

—Michael Marans

## TECHNOSIS: BASS STATION FOR KORG WAVESTATION

**SOUND QUALITY:** ● ● ● ● ●

**SELECTION:** ● ● ● ● ●

**BANG 4 THE \$:** ● ● ● ● ●

**Overview:** Killer bass synth patches and performances.

**Contents:** 50 performances, 35 patches.

**Retail Price:** \$75.00 ROM card, \$40.00 Mac, Atari, or Alesis disk.

Need a bank of techno synth basses for your Wavestation? Look no further. Technosis has the lowdown, from the dry sequencer pluck



of "Kraftwerk Bass" and the authentic buzzy oscillator sync of "Mean Prophet 5" to the phaser snap of "NotForTheWeak" and the ultimate beef of "Moog GrowlTower." Some of the performances are heavier and some are lighter, some more metallic and some rounded or exotic, but programmer Michael Peake makes no attempt to cover all the bases. (Basses? Whatever.) You won't find cliché items like pick, slap, and fretless.

Most sounds use the joystick for sweeping through the blend between two or four oscillators, so you can add unusual inflections to your lines. A possible technical weakness: Most performances are made up of one patch layered two or three times with detuning. While this adds fatness in the midrange, phase cancellation in the fundamental can cause amplitude shifts of as much as 12dB in a held note — not always what you want from an anchoring sound in a thick texture. Even so, these are terrific sounds, so get groovin'.

—Jim Aikin

ulation wheel.

The *Camel Drums* disk features standard kit and metallic drum sounds that are punchy, tight, and clean, though some of the bongo sounds contain a click at the end of the sample. Why these sounds have no velocity response, we'll never know.

The *Guitar 1* disk contains quality acoustic patches. Most, though, have a small click when you release the note. The guys at Eye & I said it was to simulate the release of the finger from the fretboard. We like the idea, but we'd prefer to have control over when the effect was in or out, say from a patch select button.

The loop in the "Voice Jazz" sample is a complete nightmare. You might get a better loop by putting an LP on and pushing the needle back and forth over the same material. And there's nothing jazzy about the sample itself.

The raw timbres in this collection are quite good, but the programming leaves much to be desired.

—Steve Santana

dynamic sounds that can cut through a crowded mix or fill lots of musical space. The patches were programmed on the SY77, but sound fine on our SY99 — although, as the documentation warns, the 99's effects are sometimes out of line because of parameter differences between the two synthesizers. A simple flip of the effects bypass revealed the true character of suspect patches.

One such offender is "Wakeman." With the 99's effects on, "Wakeman" sounds more like Deep Purple's Jon Lord than our favorite Yes-man. But disable the effects and you've got a ballsy organ-like voice that shines like a laser on a diamond. We thought the 99's effects were adding a bit of the grungy bite to "ChicksTX7," but the patch was spicy all on its own.

"FMonoLead" and "Dream ALL" display programmer Todd Beck's attention to real-time control: Pressure introduces a ring-mod-like distortion to an otherwise pearly-white sine-wave tone in "FMonoLead," and bends the pitch a half-step sharp in "Dream ALL." The timbre transforms from serene at easy velocities to screamingly nightmarish when you really dig in.

Beck rarely lets his sounds get too schmaltzy. For example, it may sound like new age, but "WarmSweep" has a little bit of sweet (synth-like flutes and strings) and nasty (the sweep is a chillingly snake-like noise that swells, ebbs, and swirls in the mix).

In the FX realm, we like "Water," a drippy cave that you'll want to visit, and "Dynamo," which starts with a metallic, echoey crash followed by an ascending tone reminiscent of the Krell machine in *Forbidden Planet*. Speaking of sci-fi movies, we would expect to be scared by "TheMorlocks," but it was almost as comforting as "Water."

—Mark Vail

## EYE & I: VOICE CRYSTAL EPS-16 PLUS/ASR-10/TS-10 SAMPLER LIBRARY

**SOUND QUALITY:** ● ● ● ● ● ●

**SELECTION:** ● ● ● ● ● ●

**BANG 4 THE \$:** ● ● ● ● ● ●

**Overview:** An extensive library of samples including pianos, guitars, drums, strings, brass, woodwinds, synths, and new age timbres. Many sounds are poorly processed and/or programmed.

**Contents:** 129 programs (total); patch list.

**Retail Price:** \$199.00 for 25-disk set.

Lots of samples, but many are plagued by bad loops. Presets also suffer from having too few samples stretched out over too large a range. Many of the bowed orchestral instruments on the *Strings* disk contain some rather strange frequency modulation in their upper registers; the sound is a bit like noise through a filter envelope. The program "JX Strings," a warm synth lead, has a blatant click in its loop. Conversely, the same disk contains "Jeanluc Solo," which uses the patch select buttons to add more synth sound or give a marcato attack — both nice touches. The grainy "2 Stop-B3" has some really nice programming, such as the Leslie effect with speed control from the mod-

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**SOUND QUALITY:** ● ● ● ● ● ●

**SELECTION:** ● ● ● ● ● ●

**BANG 4 THE \$:** ● ● ● ● ● ●

**Overview:** Four sets of consistently strong, usable, and inspiring patches.

**Contents:** 256 patches (four banks) with bank print-outs and performance notes.

**Retail Price:** \$49.95, 3.5" floppy.

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World Radio History



# DISCOVERIES

TITUS LEVI



## LECH MILCZAREK

**Style:** New age with a fusion edge.

**Age:** 37. **Influences:** Tangerine Dream, Jan Hammer, Jean-Michel Jarre, Jean-Luc Ponty, Mahavishnu Orchestra.

**Main Instruments:** Korg T3, 01/W, & Wavestation, Sequential Prophet 3000, Yamaha TG55, Roland DR-550.

**Contact:** Box 672, Middletown, PA 17057. (717) 731-4320 or (717) 944-4046.

**I**N SOME WAYS, I'M KIND OF HESITANT to call what I do new age. I mean, what's that?" Mark Edmondson succinctly expresses a feeling echoed by other keyboard players I've encountered recently, including Lech Milczarek, who suggests, "A huge amount of what is called new age should probably be called something else."

It's an especially tricky tag for the music of these three players. Edmondson has played the gamut, from casuals through modern jazz to classical. Klebzak comes out of a jazz club background. Milczarek has roots in Polish rock, electronic music, and fusion. These differences lend an individual character to the music of this month's Discoveries.

All three, however, pay special attention to programming. "When I started out," Milczarek says, "I used a [Yamaha] DX21, a TX81Z, and an FB-01. I was always hungry for new sounds, but I don't want to be an engineer. Sound design is exhausting; it leaves me frustrated because I'm drained by the time I'm ready to make music. The Wavestation is the first machine I've seen whose factory sounds really work for me."

Similarly, Edmondson insists, "I try to stay away from synths that perpetuate standard sounds. But doing something creative with rhythm is just as fundamental as finding fresh sounds. I don't see why you need to use kick, snare, and hi-hat all the time. That's part of what attracted me to new age music. It's not constrained. I don't have to use jazz voicings or a rock backbeat. There's a lot of freedom."

The sound of tablas mixes with intricate hi-hat patterns and insistent, almost West African drums in Edmondson's music. His melodies are rhythmically snappy too. Jazz syncopations, well-placed rests, and unhurried forward momentum keep the interplay between drums and lead parts lively. But the lush mixture of influences and textures places his work in the new age realm.

Milczarek stretches the borders of new age even further, bringing in jazz fusion and funk elements. Though a dreamy sweetness runs through much of his music, there's plenty of steaminess and sensuality in his bass lines and kick drum samples. This may stem from Milczarek's deep respect for early Mahavishnu albums, especially *Apocalypse*, which he describes as "phenomenal. There were elements of jazz in that music, but it was so far ahead of its time. Now, when I listen to some new age things, they seem to draw some from that group."

Klebzak's new age style is spiced with tasty jazz touches, from the



## MARK EDMONDSON

**Style:** New age with a world music edge.

**Age:** 23. **Influences:** Jean-Michel Jarre, Steve Reich, Wendy Carlos, Mark Isham, Frederic Chopin, Lyle Mays, Andreas Vollenweider, Patrick O'Hearn.

**Main Instruments:** Korg Wavestation, Roland D-50, Kawai K1, K3, & K5, Alesis D4, Oberheim Matrix-6 & -1000.

**Contact:** South Moon Productions, 5614 Summer Oak Way, Burke, VA 22015. (703) 503-5250.

syncopated locked-hand parts through the minor chords that fill textural gaps to the wailing flugelhorn sample that rides above it all. "When I got tired of playing clubs, I wanted to do something different," he says. "The new age world had already accepted the idea of electronic music. Also, it allowed for a lot of improvisation. It's a different style of improvisation than jazz, but it's still open."

## HONORABLE MENTION

### TRAVIS CHARBENEAU

**Style:** New age with a rock edge.

**Contact:** 3426 Stuart Ave., Richmond, VA 23221.

Drama, driving solos, and open-ended polyrhythms. A bit uneven, but when he's on, he's on.



## TOMASZ KLEBZAK

**Style:** New age with a jazzy edge.

**Age:** 39. **Influences:** Miles Davis, Igor Stravinsky, Yo-Yo Ma, Leonard Bernstein.

**Main Instruments:** Ensoniq ESQ-1, Yamaha TG100.

**Contact:** 149 Linden Lane, #5, Theinsville, WI 53092. (414) 242-5329.

Titus Levi, founder of the California Outside Music Association, now spends his free time struggling through graduate economics classes at U.C. Irvine. If you'd like to appear in Discoveries, send a cassette of your best material (full name, age, style, influences, performance credits, career plans, and equipment), a publishable phone number and address at which readers may contact you, and a clear black-and-white photo of yourself with your keyboard setup. Photos should be labelled with your name and the photographer's name and address. All styles of music will be considered. Due to number of submissions, material cannot be returned, and applicants will not be contacted unless accepted. Send all correspondence to Titus Levi, 5135 Hanbury St., Long Beach, CA 90808. Titus also invites Discoveries alumni to keep in touch with news about career advances, and would like to hear from more artists who use non-keyboard triggering devices or interactive computer software.





# BASICS

JIM AIKIN

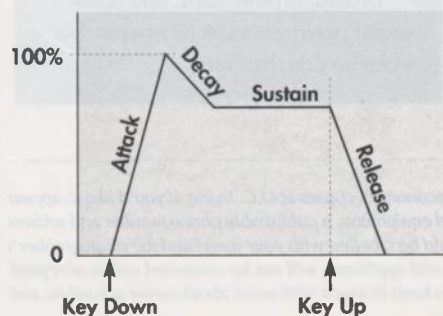
## WHAT IS AN ENVELOPE GENERATOR?

**W**HEN YOU PRESS A KEY ON A SYNthesizer or sampler, the instrument plays a note. This process seems very natural, because we're used to acoustic instruments like piano and guitar, in which the physical motion of hitting a key or picking a string causes the string to vibrate. The shape of the note is determined by the physical nature of the string, and whether or not the player damps the string before the vibrations have died away naturally. Inside the synthesizer, nothing is ever quite so natural or straightforward. In order for a note to be heard, somebody has to tell the instrument what shape the note should have.

The purpose of an envelope generator is to give a shape to each note. By itself, an envelope generator makes no sound. Its output is used as a control source that tells some other part of the synthesizer what to do. A typical synth these days has three envelope generators for each oscillator — one to control the pitch, one to control the filter, and one to control the overall loudness of the note.

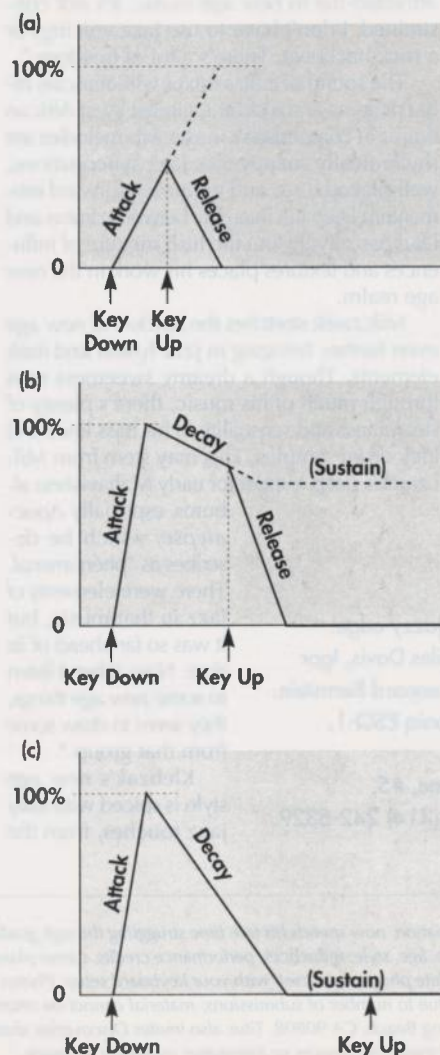
The pitch envelope controls the pitch (frequency) of the oscillator. It can add an upward or downward smear to the attack of each note, or create a special effect such as a swooping wind noise by changing the pitch of a noise waveform. Many types of sounds don't require a pitch envelope.

Fig. 1. You may have seen this diagram before. It's the classic ADSR envelope. This envelope has three time parameters (attack, decay, and release) and one level parameter (sustain). When the key is pressed, the envelope rises from its initial level, which is zero, to full-on, at a rate of speed controlled by the attack parameter. It then falls to the sustain level; how fast it falls is controlled by the decay parameter. When the key is released, the envelope falls back to zero at a rate controlled by the release parameter.



We'll have a lot more to say in a couple of months about filters. For now, all you need to

Fig. 2. The actual envelope shape created by an ADSR envelope generator may vary, depending on the settings of the parameters and how long the key is held. If the key is released before the end of the attack portion, the release portion will begin immediately, and the decay and sustain won't be heard (a). If the sustain level is set to zero (b), the release won't be heard if the key is held long enough, because the envelope will already be at zero when the release starts. If the key is released during the decay (c), the release begins immediately, and the sustain is not heard.

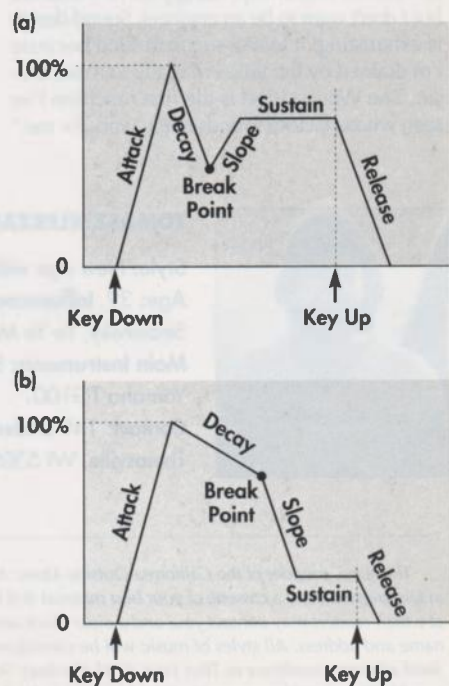


know is that the filter controls the tone color of the sound. When the cutoff frequency is higher, more overtones pass through the filter, resulting in a brighter sound. So the filter envelope can be used to create a plucked sound with a bright, sharp attack and a muted decay, or a sound with a slow sweep upward from a muted beginning to a full-on sustain with lots of high overtones.

The amplitude envelope governs the overall loudness of the note. For example, an organ-type envelope is full-on from the moment the key is pressed to the moment the key is released, and then drops suddenly to zero. A string orchestra envelope will usually have a slower attack and perhaps a long release, so that each note dies away gently.

Normally, these three envelopes are independent of one another. They work together to give a shape to each note. On some older synths, a single envelope might be used to control both the filter and the pitch, with a switch

Fig. 3. Korg's envelopes improve on the ADSR concept by adding two extra parameters between the decay and the sustain. The break point is a level parameter, and the slope is a time parameter. The break point can be set lower than the sustain (a) or higher (b). This changes the overall contour of the envelope.





to turn the pitch envelope function on or off.

The classic envelope shape, suggested in the 1960s by Vladimir Ussachevsky and first used by Bob Moog in his modular synthesizers, is shown in Figure 1. This envelope is called an ADSR. The four letters stand for attack, decay, sustain, and release. Each word is the name of a parameter, and each parameter controls one aspect of the envelope. The attack, decay, and release parameters control *time*, while the sustain parameter controls *level*.

The attack parameter sets the amount of time that the envelope takes to rise from its starting level (which is zero) to a full-on level (100%). The decay parameter sets the amount of time that the envelope takes to fall from its peak to the sustain level. The sustain parameter sets the level that is maintained for as long as a key is held down. This can be anywhere between zero and 100%. If the sustain is at 100%, the decay parameter will have no effect, because the envelope will rise to 100% during the attack portion and then stay there until the release begins. Finally, the release parameter controls how long the envelope takes to fall from the sustain level back to zero.

While the basic ADSR shape is one of the foundations of synth programming, most manufacturers have added more parameters to their envelope generators in order to give musicians more control over the sound. Today, Akai samplers are just about the only electronic instruments still being manufactured with ADSRs.

Even a simple ADSR can respond to a musician's performance in a variety of ways. For instance, we can ask: What happens if the key is released before the end of the attack portion? In this case, the release begins immediately, and the decay and sustain parameters will have

no effect on the sound. Likewise, if the sustain level is set to zero and the key is held, the envelope will rise (the attack) and then fall back to zero (the decay); the release will never be heard. These ideas are illustrated in Figure 2.

As synthesizers developed, various manufacturers glued new concepts onto the ADSR. Korg added another level parameter, called the *break point*, and another time parameter, called the *slope*, between the decay and the sustain (see Figure 3). E-mu added a *hold* time parameter between the attack and the decay. Some modular synths had a *delay* time parameter before the attack.

In 1983, Yamaha introduced a slightly more general way of looking at envelopes (see Figure 4). DX7 envelopes had four *rate* parameters and four *level* parameters. Each rate parameter controls how long it takes the envelope to move from one level to the next. This is often referred to as a *four-stage* envelope, because each rate/level pair is considered a stage. You'll also hear the word *segment* used to refer to an envelope stage, but this term is used somewhat loosely. Some people consider an ADSR a four-segment envelope, and refer to the attack segment (or stage), the decay segment (or stage), and so on. Technically, the ADSR only had one true stage, the decay/sustain stage. It had two more partially controllable stages, because the attack and release levels were fixed at 100% and zero, respectively.

We just said that the DX7's rate parameters were used to control envelope times. Actually, we need to make a clear distinction between time and rate. The question is, what shape will the envelope have when

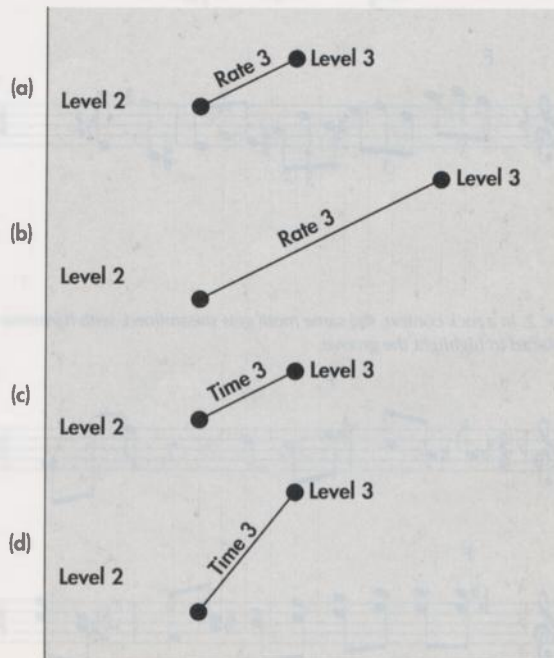
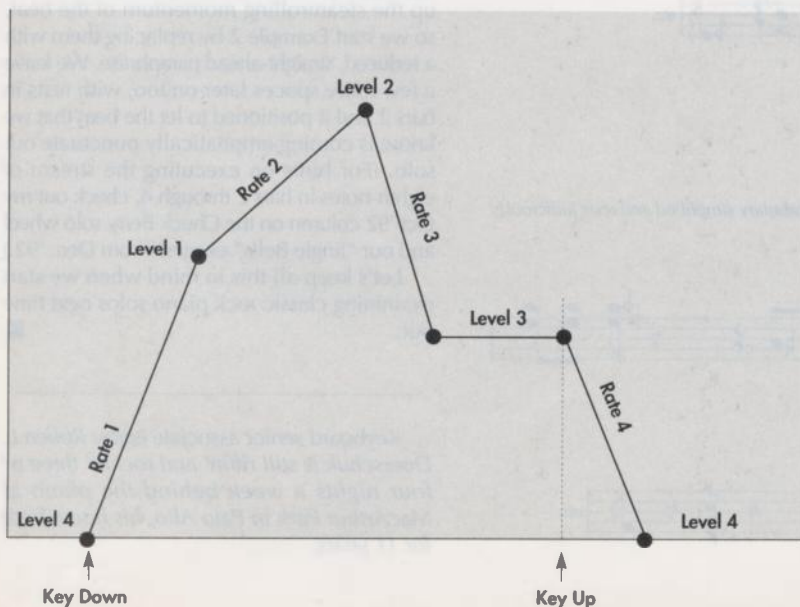
the levels of two adjacent stages are closer together or farther apart? If the envelope has time parameters, then the time it takes for the envelope to reach the second level will ideally be constant, no matter whether the two levels are close together or far apart. A rate parameter, however, typically controls the rate of change of the envelope segment — its slope (not to be confused with Korg's slope parameter). With rate-type envelopes, if the rate is kept constant, when two levels are close together the envelope will get to the second level faster, while if the levels are further apart the envelope will take longer to get to the second level. This concept is illustrated in Figure 5.

Just to add a bit of confusion, there is no standard way of displaying time/rate parameters. For some manufacturers, the fastest possible time or rate is 00 and the slowest is 99. For others, 99 is fast and 00 is slow.

Since the DX7, we've seen quite a variety of envelopes, such as the eight-stage envelopes on the Casio CZ series and the two-dimensional vector envelopes in the Korg Wavestation and Yamaha SY22. And just about all envelopes have some other important parameters besides times and levels. So be sure to tune in next month, when we talk about the ins and outs of envelope control.

Fig. 5. While rate and time parameters both control how quickly the envelope moves from one level to the next, they're not identical. If the rate is kept fixed, the envelope takes longer to move from one level to the next when the levels are farther apart; the rates in (a) and (b) are identical, but the envelope takes longer to reach level 3 because the difference between level 2 and level 3 is greater. If the envelope generator uses times rather than rates, and if the time parameter is kept constant, then the distance between levels seen in (c) and (d) will have no effect on the overall length of the envelope, but the change in level will seem more sudden.

Fig. 4. Yamaha's DX7 introduced the rate/level envelope. Each envelope has eight parameters — four rates and four levels. Level 3 is the sustain level. These envelopes are more flexible than ADSRs because level 1 doesn't have to be set to 100%, and level 4 doesn't have to be set to zero.





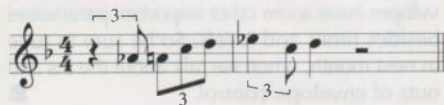


# IMPROVISATIONAL PIANO

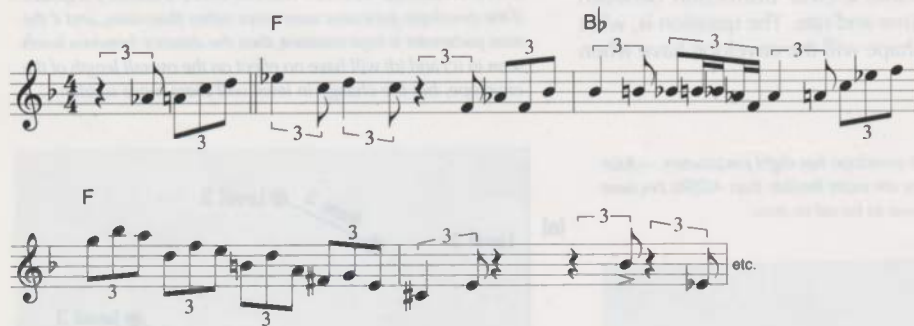
ROBERT L. DOERSCHUK

## MOTIVIC DEVELOPMENT IN ROCK & JAZZ

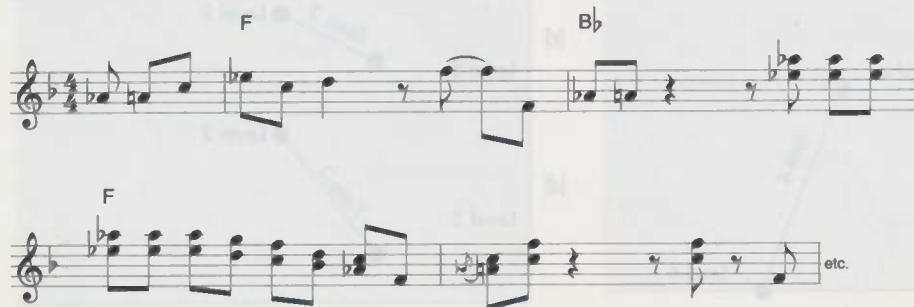
**A**FTER BATTLING THROUGH SEVERAL months' worth of Fats Domino, Little Richard, and Jerry Lee Lewis, we come up for air with an important bit of enlightenment — namely, that rock piano soloing, no matter how far adventurous players may take it, feeds on a solid backbeat, either played or implied by the drummer. To illustrate, let's invent a generic blues motif:



Ex. 1. Played against a swing feel, our opening motif evolves into a triplet-based solo, with room in bar 3 for bitonal harmonic movement.



Ex. 2. In a rock context, the same motif gets streamlined, with harmonic vocabulary simplified and rests judiciously placed to highlight the groove.



Imagine that you're working in a jazz context. The group is playing at medium tempo

with a swing feel. The bass player is laying down a steady quarter-note pattern, and the drummer is playing the kind of stuff jazz drummers often play at the beginning of a solo section: irregular hits or bombs on the snare, light dotted-eighth rhythm variations on ride cymbal. You're about to kick off a solo with this figure. Where might the motif steer your improvisation?

Perhaps you'll wind up doing something like Example 1. The triplets in the pickup section of the motif recur on the last beats of the first three bars, thus establishing a rhythmic structure for the solo. The regularity of its recurrence lets us develop the last half of the motif, first by moving from a dotted to a straight rhythm in

bar 1, then applying the extemporized figuration at the beginning of bar two, and finally by stretching the I chord being played in bars 3 and 4 with a descending series of triplets that suggest a circle of fifths (a G chord in the third beat of bar 3 and a D chord on the fourth beat, leading to the A triad implied by the C# and E that launch bar four).

By playing an extended line, uninterrupted except for the brief rest following the statement of the motif in bar 1, we take command of this solo from the start. The drummer, noticing this, will hold back and give us plenty of room to establish a rhythmic feel. Our triplets play against the regularity of the walking bass; at the same time, by both speeding up the flow of notes and moving outside the tonic chord in bar 3, they make the completion of the phrase more noticeable and cue the drummer to respond with a few fills once we reach the rests in bar 4. In other words, the expectation of interaction and the understanding that we are responsible for creating our own contours guides our approach.

In a rock setting, the drummer will stick to a backbeat groove. Aside from a few fills here and there, he or she will basically pump an eighth-note pattern on closed hi-hat, kick a few gratuitous syncopations on bass drum, and slam the snare on beats 2 and 4. This relieves us of the responsibility of attempting to create a give-and-take dialog with the drummer; instead, we work with the regularity of the beat. Right off the bat, this means modifying the opening figure somewhat. Triplets tend to trip up the steamrolling momentum of the beat, so we start Example 2 by replacing them with a reduced, straight-ahead paraphrase. We leave a few more spaces later on too, with rests in bars 2 and 4 positioned to let the beat that we know is coming emphatically punctuate our solo. (For hints on executing the stream of eighth-notes in bars 2 through 4, check out my Oct '92 column on the Chuck Berry solo wheel and our "Jingle Bells" exegesis from Dec. '92.)

Let's keep all this in mind when we start examining classic rock piano solos next time out.

Keyboard senior associate editor Robert L. Doerschuk is still riffin' and rockin' three or four nights a week behind the piano at MacArthur Park in Palo Alto, his home base for 11 years.



# Vintage Synthesizers

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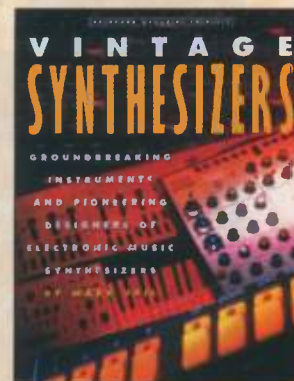
*Vintage Synthesizers* looks at the modern history (1962-1992) of the electronic music synthesizer, and includes:

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This is a book for all those synth players who "long to rediscover the sound of analog oscillators beating wildly against each other in an orgy of warm fatness that would expose any modern-day digital synth's sound as so much anemic wheezing pap," as Dominic Milano remarks in his foreword to the book.

Author **Mark Vail** joined the editorial staff of *Keyboard* magazine in 1988 and took over the "Vintage Synth" column from Bob Moog in early 1990.

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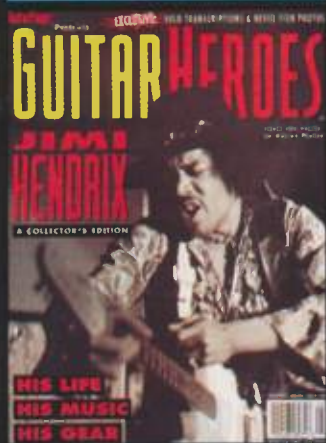
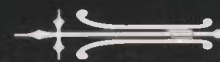
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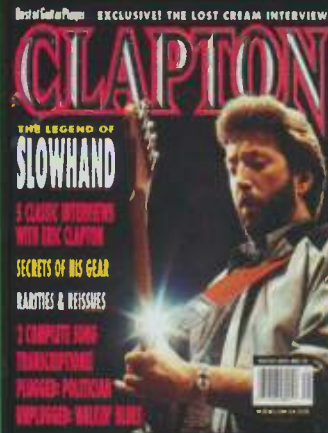
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# REEL WORLD NOTEBOOK



J E F F R O N A

## PROJECT: HOMICIDE (PART 2)

CLIENT: BARRY LEVINSON

**S**CORING THE TELEVISION SERIES *Homicide: Life on the Streets* for producer/director Barry Levinson kept me occupied nearly around the clock for nine weeks. From the beginning, the goal was to work counter to TV-music conventions by working with texture and sound as abstractly as possible (but still as music). Over the weeks of the show, the music I wrote underwent a metamorphosis: I added more and more traditional elements of rhythm, melody, harmony, and instrumentation, but I never strayed completely from my main themes and sonic textures. In order to make a score cohesive throughout the series, it's essential to keep returning to a set palette of sounds and motives. In a word, style. More on that later.

Here's the process I went through each week working on the series:

**Tuesday** — I received (by Federal Express from the editing house in New York) a videotape copy of the episode striped with SMPTE timecode. I watched it carefully and made notes of where I felt the need for music or unusual sound. Moments of anger, action, suspense, and odd moods were the prime candidates. Occasionally I did a quick sketch if I felt inspired by a scene, knowing full well that the scene might end up not being scored.

**Wednesday** — I met with producer Levinson to go over the episode and agreed on the spots to have music (hence the term "spotting session"). Having already watched the episode a couple of times, I went into the meetings with my spotting ideas already firm in my head. Because I was prepared, the meetings usually went very smoothly and quickly. Often we didn't even watch the episode all the way through, and forwarded directly to the scenes I had already chosen. Homework helps.

**Wednesday night through Friday** — Go home and write, write, write. This was perspiration time. I did everything with the sequencer, though I also used a few live instruments on several episodes. When I came up with something I liked, I did a quick mix on the spot in case it got approved. For some reason, a rough mix created while composing is sometimes the best a piece of music will ever sound, so I made sure to grab those spontaneous mixes.

**Saturday or Sunday** — Get the music approved by Levinson. As I described last month, I recorded my demos not only to DAT, but also onto a second videotape along with the picture and dialog. I took this video back to Levinson to show him what I was doing for each scene. He either approved a piece, asked me to make

specific changes, had me do it again from scratch, or decided that the scene really didn't need music after all. His word was final. On this show, as is true of most episodic television, it is the producer and not the director who wields the majority of the clout. The director's job is simply work for hire, just like the writer or, for that matter, the composer. Feature films are typically the opposite, with the director calling the shots.

**Saturday night or Sunday night** — Make the changes and get them approved by Levinson. Since we were so close to deadline, I usually had a new demo video sent over to him by messenger so I could keep writing. If I could, I'd go in person, but by early Monday it was time to press the ol' record button.

**Monday** — Mix the music and get the tape to the Federal Express office in time to send back to New York for their Tuesday morning dubbing session. No matter how much I prepared, it was always an adrenaline-filled, heart-pounding race to beat the 6 P.M. deadline. I could have and should have gotten a traffic ticket every week. If I had, I would certainly have missed the deadline, which would not have gone over very well with the people in New York (who I think would savor watching an L.A. composer trip and fall from grace). Last-minute changes, difficult mixes, or other logistical problems guaranteed a heart-stopping ride for those four long miles from my house.

As is typical in a mix for video, I used the timecode from the VCR to drive my sequencer. At the same time, I fed a regenerated version of the code (from the SMPTE output of my Studio 5 MIDI interface) to the timecode track of a Sony timecode DAT machine, which I rented every Monday. It's considered better practice to use a timecode resampler as opposed to a regenerator, but I never got one. As a precaution, in the event there were ever problems with the timecode (which I still don't trust on these DATs yet), I put a click with a drum machine exactly two seconds before the first note. I then noted the timecode number for the click as a reference for the editors in New York, and included it on the tape label. If the timecode failed, they could simply

use the click to align the music to the proper start frame. For some of the denser cues, I would mix the music in two passes, one percussive and the other textural, and they would blend them while dubbing. That way, in case there was an element of my score that interfered with dialog, they could lower the level of that element without dropping the music altogether. That approach was very handy on several occasions.

**Tuesday** — Start doing it again (see above).

I'm not a very fast composer. I don't have a lot of the "chops" of keyboard skills or the arsenal of hip licks that other seasoned film and television composers use to get a prodigious amount of music written quickly. I work carefully and intuitively. Besides, the point of the music in *Homicide* was to bend the conventions of typical television music. Though most episodes didn't have a great deal of music, it still took a commitment of virtually all my time, including many long, late, and lonely nights. My wife became a MIDI widow, and I found a new respect for the composers doing these shows with 30 or even 45 minutes of music every single week for months. I am unworthy! But I had a great time, and by the end came up with a few bits I thought were interesting. The show wasn't a big success with the mass TV audience, but the people who did watch it loved it. *Homicide* was a critical success that got raves from the press, but little support from NBC in the form of promotion. It became a minor cult hit (though I don't know if it was on in Waco, Texas).

Next time, I'll wrap up the talk of my *Homicide* days with a description of some of the sound design and musical elements I used in the show. Until then, remember: Be careful out there. **E**

*Jeff Rona is a composer, synthesist, writer, and educator in Los Angeles. He was chairman of the MMA for five years, and is currently coordinator of the UCLA Extension electronic music program.*

• • • •  
**NO MATTER  
HOW MUCH I  
PREPARED, IT  
WAS ALWAYS AN  
ADRENALINE-  
FILLED, HEART-  
POUNDING RACE  
TO BEAT THE  
6 P.M. DEADLINE.**  
• • • •





# INSIDE THE MUSIC

DAVE STEWART

## RETURN TO TENEMOS ROADS

Ex. 1. The exercise I repeated for hours as a seven-year-old on my Aunt Hilda's antique upright piano.

(*ff sfz*)

(X $\infty$ )

Ex. 2. "Tenemos Roads" is on the compilation CD National Health — Complete [East Side Digital, 530 N. Third St., Minneapolis, MN 55401, USA. Phone (612) 375-9162.]

$\text{♩} = 140$

1

lead line

*f*

B9+5/D#

Asus4

F#B

6

keyboard

4

(A)

(B9)

(Dmaj7/9/#11)

*p*

*f*

lead line

C#sus4

Bm7sus4

E9+5/G#

E6/9/G#

4

keyboard



8

lead line

electric piano

3

B

A9

Gmaj7/9/5

C#E#

F#B

F#m5/A#

12

lead line

*p*

C#9 C#D#

C#9 C#D# F#9 A

Dmaj7

electric piano

*f*

lead line

keyboard

G9+11

R.H.

L.H.

ad lib L.H. rhythm

bass line

16

lead line 1

*mf*

lead line 2

G#m11

C#9/F

G/C6

A9/C#

Dm

D#maj7/6/9

electric piano

8va

3

keyboard

bass line

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## INSIDE THE MUSIC

wanted. I knew instinctively that if I could get my hands on those seductive ivory levers, musical sounds would emerge. I was a little hazy on theory; the low notes were probably high up at the right hand end, and the shorter black keys must be the wrong notes. (Why include them at all? In case you wanted to play a wrong note, of course.) I pestered my mother about getting a piano, and was eventually rewarded with visits to Aunt Hilda, who possessed an antique, battered upright which had sustained local morale through the last five World Wars. While Hilda and the maternal parent drank tea and chatted, I would busy myself with the piano, playing the exercise in Example 1 over and over. I don't think I have ever since derived so much pleasure from a piece of music. After three or four hours of this, Aunt Hilda's smile would become a little strained, and I would be dragged protesting back to our home, where I refused to eat, drink, or sleep unless promised immediate further access to a piano. Faced with such monstrous behaviour, my parents had no choice but to capitulate, and before long Hilda's piano was moved into our house. Ha! And from morning till night, the happy sound of steadily ascending and descending fortissimo C major scales mingled joyously with the thumps on the wall and muffled curses of the neighbours.

Thirty years or so later, I finally figured out where the black (a.k.a., wrong) notes fit in, and began to write, er, "proper" music of my own. To prove this, we have reprinted (on pages 132-133) part of the middle section of a late '70s piece called "Tenemos Roads." (Please forgive yet another nostalgic excursion; I have contemporary compositions a-gogo to share with you, but as their ink is barely dry and I'm right in the middle of recording them, I've opted this month for a piece on which I have a comfortable temporal perspective.) I don't know whether this music is an improvement on my early white-note "Hilda" fantasia, but there are some nice changes and interesting harmonic details. Bar 16, for example, shows how many notes you can crowbar in round a G#11 chord if you're sneaky enough. If nothing else, it proves that a battered upright is just as good a composing tool as your average super-duper workstation, for this music was all written on piano.

Though "Tenemos Roads" was originally written for a six-piece band, we've compressed all the essential parts into three-stave score form to save space (though bar 16 finally got the better of us). This means that the "lead line" stave (guitar/vocal melody) occasionally shows an electric piano part played by a second keyboard. Also, the bass line (which appears to start at bar 15) is the same as the bottom notes of the keyboard left hand for bars 1-14. Hope this is not too confusing! Feel free to work out your own orchestrations, have fun, keep on taking the tablets, don't give up the day job, see you next month, goodbye.

*National Health is one of Dave Stewart's old bands. Dave's current band is Stewart/Gaskin. Dave and Barbara Gaskin are Rykodisc recording artists.*

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T. O M Y A G E R

## MPC PRIMER, #3:

## BUNDLING UP

**W**HEN PUTTING TOGETHER YOUR MPC system, you may find it advantageous to opt for pre-packaged multimedia systems and upgrade kits over raw components, as the value of the software that comes bundled with these packages is almost always greater than the difference in price. But the big question remains: Do you *need* these programs? While the definition of "throw-away" depends on the beholder, no matter how great a buy this software is, it's still just landfill.

With that in mind, I tend to shrug off bundled games, kiddie educational titles, and other cute-but-useless fare. Also in the crap category is the assortment of weak DOS-based toys that most sound card vendors employ to puff up the list of software on the back of the box. Don't be too stirred by promises of bundled speech synthesizers, MIDI sequencers, multimedia synchronizers, and the like. Many vaguely named, brandless bundle items are hokey DOS gewgaws that you can't run (or run well) under Windows anyhow. They usually require drivers and TSRs (for Terminate and Stay Resident — a memory-resident DOS program), and the effort to get them running is seldom worth the tiny payoff. Stick with Windows software, and with package names you recognize.

The one exception I'll allow to that rule is for sound editors. It took some time, but now almost all upgrade kits include at least passable sound editors, written or commissioned by the card vendor. These programs won't put Turtle Beach (Wave for Windows) out of business, but you should expect a modern bundle to include an editor that will record at a variety of sampling rates and bit resolutions (8/12/16). It should also provide a graphic waveform view, record and play directly to and from the hard disk, and allow you to do basic cut-and-paste editing. I've been pleased to see standard audio editors appear that even handle resampling and multi-file mixing. It's worth buying through a dealer that can show you the standard bundle; the quality and feature sets of audio editors vary widely enough to make it worth shopping around.

Your MPC bundle will almost certainly include some kind of reference set (encyclopedia, dictionary, atlas, etc.). You probably can't escape it, so you might as well get something that works for you. Of the common bundles, I tend to prefer the Microsoft Bookshelf over the Compton's New Media multimedia encyclopedia. Both are good, and the Compton's offering will give you a fine demo of your system's multimedia capabilities, but the search engine

and variety of materials in the Bookshelf collection work better for professional use.

Of course, the joy of multimedia is in creation. Most bundles include some tools that allow you to combine media elements into a presentation or program. Macromedia Action is showing up in a lot of MPC bundles. Action is a fairly capable business presentation package that places an emphasis (undue, in my view) on animation. You can create a bullet chart, for example, in which each item flies onto the screen from the right margin, accompanied by a semi-synchronized sound effect. I find the interface a bit obtuse, but it is possible to produce presentations and even simple interactive multimedia shows with Action.

The next step up from Action is HSC Interactive. This is a trimmed-down version of a multimedia authoring system called Icon Author. Macromedia also offers a bundle edition (in other words, function-limited) of its famed Authorware, called Authorware Star. Both are icon tree-based authoring systems, in which an on-screen tree is used to graphically represent the hierarchical structure of a multimedia piece. To create a slide show with music, for example, you drag icons for graphics and digital or CD audio onto the tree, and define a set of attributes for each icon. The graphic icon's attributes tell it which file to display, how long to keep it displayed on the screen, and so on; the music icon's attributes identify the selection and other playback parameters; and so it goes for an assortment of icons that relate to media control and program flow. While the vendors prefer not to call this programming, it certainly is: Even these limited authoring systems can turn out remarkably complex interactive multimedia creations.

For me, the cream of the multimedia bundle crop is Asymmetrix Toolbook. I'll readily admit the reason for my bias: I have a programmer's background and heart. While HSC Interactive and Authorware Star have you pro-

gramming by pictures, Toolbook gives you explicit control of your MPC system through more traditional programming methods. The bundle edition of Toolbook is full-function, but sparse on written documentation. There is a basic structure behind Toolbook that makes creating simple works, such as slide shows, a snap, requiring little or no programming. The real power lies in OpenScript, Toolbook's interpreted programming language, which incorporates everything you'd expect in a serious BASIC program (though Toolbook isn't BASIC), but which has the added hooks needed to make your programs event-driven. The most common complaint about Toolbook is that it's slow, and true enough, Toolbook programs do not run fast. They do run well, however, and Toolbook is far and away the most popular Windows multimedia application development and delivery tool. If you find a bundle that includes Toolbook, it's probably worth the extra dough.

Rounding out the bundle assortment is the mixer. As with sound editors, Windows mixers span the spectrum from mediocre to thrilling. Make sure yours can save its settings and recall them automatically when Windows loads, and that it lets you choose your record sources. Most other features are just gravy — nobody uses a PC sound card as a studio mixer — but user-settable default levels and record source selection are non-negotiable essentials.

Having taken you fully around the MPC block, I'll make this my last MPC introductory column. Next time, I'll talk about some new technologies that may give the doubters a reason to start getting pumped about multimedia. ■

*Tom Yager is a multimedia consultant and producer, and author of "The Multimedia Production Handbook for the PC, Macintosh and Amiga" from Academic Press (Summer, 1993).*

• • • •

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AND THE LIKE.  
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BUNDLE ITEMS  
ARE HOKEY DOS  
GEWGAWS THAT  
YOU CAN'T RUN  
UNDER WINDOWS.**

• • • •





# POWER SEQUENCING

CRAIG ANDERTON

## MAKING BASS PARTS COME ALIVE

**H**AVING COVERED SEQUENCING TIPS for drum, guitar, and wind parts in previous columns, let's get down — literally — and turn our attention to bass parts.

**Monophonia Reigns.** As with wind parts, bass parts are often monophonic. Therefore, all the tips we covered in the previous installment of *Power Sequencing* (July '93) for making wind instruments monophonic also apply to bass. To summarize, you want a note to end before the next one begins (except when you're using a legato synth patch, as we'll see a bit later); some sequencing programs have an algorithm that can do this automatically, while other programs require you to trim notes manually.

**Let It Slide.** Probably the most important part of making bass parts seem real (assuming, of course, that you're trying to simulate a real bass) is the judicious use of slides. Whether playing fretless or fretted, bass players often make the transition from one note to another by sliding. They also use longer slides for accents (e.g., sliding down an octave and "landing" on the tonic at the same time that the kick drum hits). Set your bass patches to respond to a pitch-bend range of  $\pm 12$  semitones, as this allows for slides of up to two octaves.

Fretless bass parts are the easiest to emulate since the slide isn't "quantized" by the bass's frets. Players with good wheel technique can simply move the pitch-bend wheel as they play to do fretless parts. However, this is quite tricky with large pitch-bend ranges, and it may be difficult to obtain the desired degree of pitch accuracy.

Alternately, you can play the bass part without slides, then draw them in later with pitch-bend messages. This works because most slides end with a new note being plucked, so all we really need to do is add slides between existing notes. You'll will, of course, need to determine whether you want to bend the pitch up or down.

0-127	0-8192	4096-8192	Interval
0	0	4096	tonic
10	683	4437	flatted 2nd
21	1365	4779	2nd
31	2048	5120	min. 3rd
42	2731	5461	3rd
53	3413	5803	4th
63	4096	6144	flatted 5th
74	4779	6485	5th
84	5461	6827	flatted 6th
95	6144	7168	6th
105	6827	7509	flatted 7th
116	7509	7851	7th
127	8192	8192	octave

Fig. 1. Use this chart to determine the pitch-bend values needed to bend notes by specific intervals.

To draw in messages with the appropriate bend amount, it helps to make a chart (Figure 1) of what pitch-bend values correspond to what intervals. (Note: This chart assumes a linear pitch-bend response at the synth.)

Three columns are shown because different sequencers display pitch-bend data differently. Pro 5, for example, shows these values as  $\pm 127$ , Performer as  $\pm 8192$ , and Cubase "splits" 8192 so that no pitch-bend corresponds to 4096, maximum bend up is 8192, and maximum bend down is 0. Different values are used by different sequencers because pitch-bend messages actually contain two data bytes; one of these, the LSB (Least Significant Byte), is ignored by many synths and software programs.

Suppose we want to add a slide that goes from the tonic to the fifth, as shown in the last two beats of Figure 2 (measure 2, beat 1 and part of beat 2). Simply draw a slope that ends at the appropriate value. For example, if your sequencer follows the convention in column 1 of the table, end the slope at 74. Then add

a pitch-bend = 0 message (or whatever value centers the pitch-wheel) just before the fifth (the next note after the slide) plays. If necessary, extend the note you're sliding so that its duration equals that of the slide. (Also note that many sequencers have functions that let you smooth the slope for a bionically perfect slide.)

One caution: When extending the note, end it before the pitch-bend returns to 0 or you may get a pitch glitch (although sometimes that can sound cool). This also implies having a very short — almost nonexistent — release time on the patch. Program the patch so that the initial decay and sustain parameters control the duration, not the final release.

**Time to Fret.** Fretted bass slides are a little more complex, but adding this effect can create a stunningly realistic part that has the listener wondering "is that a synth or an extremely consistent and accurate bass player?"

You have two main options for emulating a fretted bass. The first requires a synthesizer with legato mode (Yamaha TX81Z or TX802, Ensoniq EPS-16 Plus, Peavey Spectrum Bass, etc.). When legato mode is on and the duration of a note extends beyond the point where a new note-on occurs, the second note will change the pitch, but not retrigger the synth's envelopes — just like sliding on a fretted instrument. (By the way, this is why legato mode is so crucial

Continued on page 137

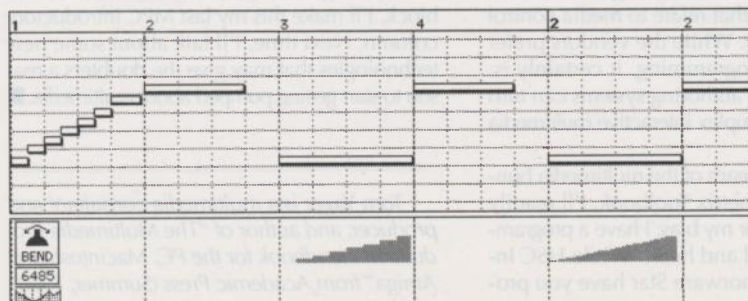
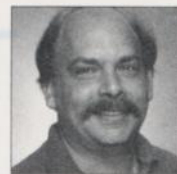


Fig. 2. Fretted bass slides can be created using note-ons (bar 1, beat 1) or stair-cased pitch-bend messages (bar 1, beat 3). For fretless slides, use continuous, smooth pitch-bend commands (bar 2, beat 1).

Craig Anderton is a monophonic synthesizer with a three-octave range, pitch-bend, vibrato, and several gigabytes of on-board memory. He responds to both pressure and velocity.



# DRUM MACHINE PROGRAMMING



NORMAN WEINBERG

## PHRASING TIPS FOR LESS COMMON METERS

**M**USICIANS CANNOT LIVE BY COMMON time alone. The 4/4 time signature is great for general rock or dance tunes where steady grooves must reign supreme. But introduce even the most subtle time changes to an otherwise standard groove and you'll be surprised at how different your music can sound and feel. This month we'll examine a few programming methods for drum

patterns in less common meters.

One favorite tip is compressing or expanding a beat so that it fits a new time signature. Example 1 is a garden-variety pattern in 4/4 time. In Example 2 you'll notice that the last eighth-note has been deleted, thus transforming the time signature to 7/8. In Example 3, an extra

*Norman Weinberg hates the term "odd meter." He prefers the phrase: "measures of dis-enhanced metric invariance."*

Ex. 1. A standard 4/4 groove.



Ex. 2. The groove from Example 1 minus its final eighth-note.



Ex. 3. The groove from Example 1 with an additional eighth-note added to the end.



Ex. 4. Rather than adding or deleting notes from the end of a pattern, try altering the middle section, as illustrated in the following patterns.



Ex. 5. Three ways to phrase a pattern in 7/8.



Ex. 6. Four ways to phrase a pattern in 9/8.





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## DRUM MACHINE PROGRAMMING

eighth-note is added to the hi-hat track (without altering the pattern of the other instruments). The time signature has now changed to 9/8. Patterns programmed using this technique still retain a hint of the original common time groove — but perhaps it's more accurate to call them "common time grooves with a limp."

With just a little variation, these patterns can be altered in a way that disguises their common time genealogy. Instead of subtracting or adding an eighth-note at the end of the bar, we can alter the eighth-notes in the middle of the measure. Example 4 shows a few ways that this technique can be applied.

Another phrasing method involves breaking a measure down into smaller groups of two or three eighth-notes. For example, a measure of 7/8 could be phrased in the following three ways: 3+2+2, 2+3+2, and 2+2+3. Example 5 illustrates these three styles of phrasing. Patterns in 9/8 time can also be phrased in several ways: 3+3+3, 3+2+2+2, 2+3+2+2, 2+2+3+2, and 2+2+2+3. Example 6 shows several such ideas.

While the patterns in all of the examples are quite basic (for the purpose of illustration), more complex and syncopated patterns can be created using the same techniques. These methods work equally well in all musical styles — from rap to reggae to swing to samba. Have fun! ■

## POWER SEQUENCING

Continued from page 134

for use with MIDI guitar and bass.)

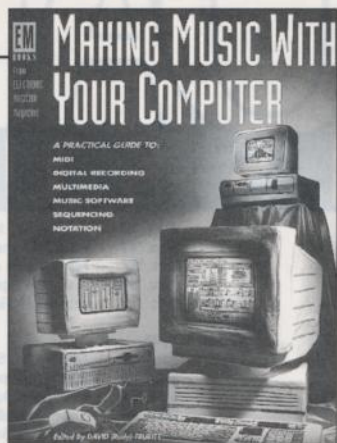
Figure 2's first two beats shows the same example as the last two beats, but with a fretted bass slide. Add notes in semitone steps between the source and target notes, but make sure that the note durations overlap until you hit the target note, which you *do* want to retrigger.

To create the slide, enter notes in step time with 100% "articulation" (i.e., if the step-entry time value is eighth-notes, then each note should be exactly an eighth-note long). Then use a "change duration" command to set each note to 110% of its original length. This insures that the end of a note will overlap the attack of the subsequent note, thus producing the legato effect in synthesizers that are so equipped.

If your synth does not include a legato feature, write the manufacturer and complain so they'll add it in the next update! Meanwhile, you can create fretted slide effects by extending a note's duration to the length of the slide, and using evenly-spaced pitch-bend messages in a staircase shape to change pitch. This produces the same effect as having legato mode on the synth, but requires more work.

Beats 3 and 4 of bar 1 (Figure 2) show the same examples as the first two and last two beats in the diagram, except that it uses discrete pitch-bend messages to add "frets" to the slide. The message values are derived from Figure 1.

The moral of the story: With bass parts, sometimes it's better to just let things slide. ■



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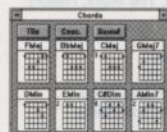
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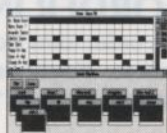
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Mar. '85 BACH SPECIAL: Carlos, Corea, Duke, Riley, Kipnis, Musical Tributes.  
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May '85 England's Howard Jones, Build A Vocoder, "Misty" For Organ.  
Jun. '85 SYNTH PROGRAMMING SPECIAL: Getting Started, Patches, Ciani.  
Jul. '85 Patrick Moraz Record, Kate Bush, Lennie Tristano, MIDI column.  
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Oct. '85 10th ANNIVERSARY SPECIAL: Chick Corea Record, Synth Technology.  
Nov. '85 Mark Isham Record, Talking Heads' Jerry Harrison, Bernie Worrell.  
Dec. '85 The Piano's Future, Samplers, Keyboards with Dire Straits & Sting.
- 1986**  
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- 1987**  
Jan. '87 EXPERIMENTAL MUSIC SPECIAL: Sampler Record, The Stars, History.  
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- 1989**  
Jan. '89 Third-party Sounds, Corea & LaVerne Record, Elton John Solo.  
Feb. '89 Randy Newman, Billy Taylor, Practicing, Art Of Noise.  
Jul. '89 Mike + The Mechanics' Paul Carrack and Adrian Lee, FZ1 Clinic.  
Nov. '89 Rolling Stones' Keyboardists, Multi-Effects User's Guide, Chuckii Booker.  
Dec. '89 Laurie Anderson, Multi-Effects Buyer's Guide, Margaret Leng Tang.
- 1990**  
Apr. '90 Tears For Fears, Tony Hymas, Atari ST Clinic, Nine Inch Nails.  
May '90 Jam And Lewis, The Future Of MIDI, "Blue" Gene Tyranny, Yamaha SY77.  
Jun. '90 Jane Child, Amiga Multimedia Tools, Harry Partch, Passport Encore.  
Jul. '90 Jonathan Cain, Mixer Shootout, Gershwin Meets MIDI, Ryuichi Sakamoto.  
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Nov. '90 Baby Face, Dr. John, The Music Of Twin Peaks, Tips for Opcode Vision.
- 1991**  
Jan. '91 Prince's Keyboardists, Opcode Studio Vision, Roland S-550/330 Clinic.  
Mar. '91 Keyboards In The Grateful Dead, Ensoniq EPS Workshop, Korg S-3.  
May '91 Patrick Moraz, Alesis SR-16, Yamaha SY77 Programming Clinic.  
Jun. '91 Deee-Lite, How To Get A Record Deal, E-MU ProCussion, Roland MV-30.  
Jul. '91 Andrew Farris of INXS, Wavestation Programming Made Easy, Roland JD-800.  
Aug. '91 Rick Wakeman & Tony Kaye, IBM MIDI Starter Kits, Roland JX-1.  
Sep. '91 Iain Baker of Jesus Jones, Philip Glass, Passport Pro 4 Power Tips.  
Oct. '91 M.C. Hammer's Michael Buckholtz, Ensoniq SD-1 & SQ-2, Yamaha QY10 Tips.  
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- 1992**  
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Feb. '93 David Bryan, The Past, Present & Future of MIDI, Kurzweil K2000 Tips & Secrets.  
Mar. '93 Keith Jarrett, General MIDI, Gallery of Weird Gear by Bob Moog, Ensoniq ASR-10.  
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May '93 NEW GEAR SPECIAL, Depeche Mode, Historic Motown Sessions.  
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**OPCODE SOFTWARE (MACINTOSH).** Opcode has released Musicshop, an entry-level software package for music notation printing, real-time recording, and editing of MIDI data. Features include 16 tracks, tape-deck style controls, and dual editing screens that can toggle between standard music notation and graphic piano-roll editing. The page preview window allows users to add title, tempo, and composer headings before printing. Opcode has also announced version 2.5 of Max, a graphical MIDI programming language. The update offers a new user interface that supports color, QuickTime movie objects, enhanced OMS support, and a menu bar object for writing menus. Patcher files reportedly load up to five times faster. An improved *snd* object allows the user to transpose samples and play up to six sounds at once through the Macintosh's speaker. Opcode's Edit One is a special version of Galaxy Plus Editors designed for users who need an editor/librarian for a specific synthesizer or MIDI device. When the user configures the editor/librarian for a single device, the disk is then locked into compatibility with that device. Edit One is OMS-compatible and can be upgraded to Galaxy Plus Editors. Musicshop: \$149.95. Max ver. 2.5: \$395.00. 2.5 upgrade: \$49.95. Edit One: \$149.95. Opcode Systems, 3950 Fabian Way, Ste. 100, Palo Alto, CA 94303. (415) 856-3333. Fax (415) 856-3332.

**FENDER MIXERS.** Fender Electronics' PX Series powered mixers are available in 8- (PX-2208D), 12- (PX-2212D), and 16-channel (PX-2216D) versions. The PX Series combines a mixing console, a built-in

digital reverb, and a dual nine-band graphic equalizer. The PX-2208, an 8-channel unit with a spring reverb, and the PX-2208D have a 150-watt stereo power amplifier. The PX-2212D and PX-2216D have a 250-watt stereo power amplifier. PX-2208D: \$1,650.00. PX-2212D: \$1,899.00. PX-2216D: \$2,099.99. PX-2208: \$1,450.00. Fender Musical Instruments, 7975 N. Hayden Rd., Ste. C-100, Scottsdale, AZ 85258. (602) 596-9690.

**MOTU INTERFACES.** The Macintosh version of Mark of the Unicorn's MIDI Express is a four-in, six-out MIDI matrix with 64 incoming and 96 outgoing MIDI channels. Features include a 16-scene memory with front-panel bank and scene-select buttons, serial port thru switches for the use of a modem and other peripheral devices, and an internal power supply. The PC version is a six-in, six-out MIDI matrix with 96 available MIDI channels; the interface card fits any 8- or 16-bit slot in the computer. Both 19" single-space rack-mount units offer the ability to merge and route any input to any output, mute any MIDI data on any cable, and re-channelize on input and output. Other features include SMPTE read/write (all formats), MIDI filtering, an all-notes-off panic button, a built-in click-to-MIDI converter, and a footswitch input. Mac MIDI Express: \$349.00. MIDI Express PC: \$295.00. Mark of the Unicorn, 1280 Massachusetts Ave., Cambridge, MA 02138. (617) 576-2760. Fax (617) 576-3609.

**JUPITER SOFTWARE (MACINTOSH).** Jupiter Systems has announced Infinity, a DSP tool kit for use with existing sample editors

to automate and improve the looping process. With Real-Time Loop Adjust, users can move loop points anywhere in the soundfile during real-time playback. SPR Looper automatically randomizes the spectral components of the sound inside the loop points. Rotated Sums Looper randomizes irregularities inside the loop points. Freeze Looper reportedly creates perfect loops in winds, brass, bells, and other sounds that have a pure harmonic series. Infinity, which can read and write all Sound Designer and AIFF file formats, also features a crossfade looper with smart auto-scan, adjustable edit blending, compatibility with all Digidesign DSP cards, and the ability to interface with SampleCell (ver. 2.5 or later). System requirements include a Macintosh with System 7.0 or greater and a minimum of 4Mb of RAM, math coprocessor, and 32-bit addressing enabled. 8Mb of RAM and Digidesign DSP card recommended. \$495.00. Digidesign SampleCell II owners: \$295.00 (with discount coupon included with SampleCell II). Jupiter Systems, 59 Crother, Box 697, Applegate, CA 95703-0697. (800) 446-2356. Fax (916) 878-2770.

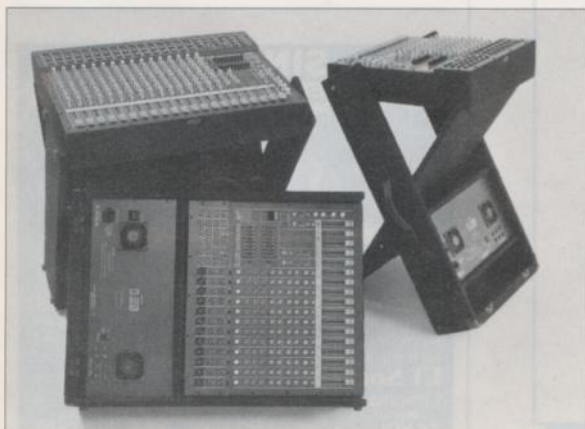
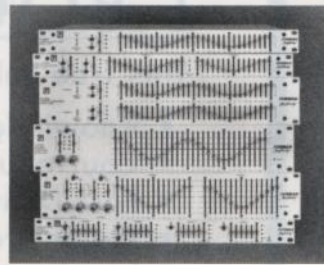
**TONALITY SOFTWARE (MACINTOSH).** Symbolic Composer version 2.2 offers 150 general-purpose music tools for music composition, including morphing, chord generation, and user-definable styles and libraries. Large-scale multi-instrument pieces can be composed with full control of

all elements and parameters. The final product can be saved as a standard MIDI file, and can be played back on all MIDI-compatible sequencers and notation software. The software, which offers a tutorial and Hypercard stack, covers most chords, scales, and composition routines, and provides access to an extensive library of algorithms. \$495.00. Tonality Systems, Churchillaan 46 III, 1078 EH Amsterdam, Netherlands. +31-20-6757 993 (phone & fax).

**FURMAN EQUALIZERS.** Furman Sound has introduced the Q-series, graphic equalizers with constant-Q equalization, output level sliders, and 4-LED level meters. The single-space rack-mount Q-151 and Q-301 are dual 15-band and single 30-band models that use 20mm sliders. The two-space rack-mount Q-602 is a dual 30-band unit with 20mm sliders. The two-space rack-mount Q-152 and Q-302 use extended-travel 60mm sliders. The single-space Q-541 features four channels of five-band stereo equalization. In the 20mm slider models, which have low-cut



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buttons that roll off frequencies below 20Hz, maximum boost and cut can be selected as 6dB or 12dB. The 60mm slider models have continuously variable low- and high-cut knobs that roll off from 15Hz to 135Hz and 12.5kHz to 32kHz. Q-151: \$399.00. Q-301: \$389.00. Q-602: \$699.00. Q-152: \$489.00. Q-302: \$469.00. Q-541: \$399.00. Furman Sound, 30 Rich St., Greenbrae, CA 94904. (415) 927-1225. Fax (415) 927-4548.

**RESURRECTION KITS.** The Korg CX-3 and BX-3 organs use a pair of SM304A key processor ICs that are prone to failure and have become obsolete. The Resurrection Electronics kit replaces these failed ICs. Each kit contains a replacement circuit board, necessary parts, and installation instructions, and comes with a one-year parts warranty. Resurrection also buys and services CXs and BXs. \$299.00 (or send both old 304 ICs and pay \$249.00). Installation fee (if keyboard is sent): \$25.00 plus shipping. Resurrection Electronics, 3504 King St., Austin, TX 78705. (512) 451-5900.

**MUSIC QUEST PRODUCTS.** The MIDIEngine 2Port/SE is a MIDI interface for IBM-compatible laptop, notebook, and desktop computers that offers dual MIDI ports with FIFO data buffering, data compression, and message filtering to drive 32 MIDI channels. The unit also reads and

writes all SMPTE formats. An MCI-compatible multi-client Windows driver and drivers for DOS versions of Twelve Tone's Cakewalk and Cakewalk Professional are provided. Music Quest has also announced the MIDIEngine FrameLock, a SMPTE synchronization module with freewheeling on SMPTE in, regeneration to SMPTE out, flexible system connection, and full sys-ex programmability. Both devices measure 6.25" x 3.85" x 1.25". 2Port/SE: \$199.95. FrameLock: \$179.95. Music Quest, 1700 Alma Dr., Ste. 330, Plano, TX 75075. (214) 881-7408. Fax (214) 422-7094.

**GIEBLER PRODUCTS (IBM-PC).** Giebler's Alesis MIDI Manager (AMM) is a software package that enables users to send and receive Alesis sys-ex dumps to and from an IBM-PC equipped with a Roland MPU-401 or compatible interface. AMM can also be used as a general utility to send and receive sys-ex dumps to and from any MIDI device that supports sys-ex messages. The MMT-8 Sequencer Conversion Package (MMTSMF) converts standard MIDI files into Alesis MMT-8 sequences. The package, which also converts MMT-8 sequences into standard MIDI files, includes the ability to filter out specific controller information and remap patch changes and drum notes during the conversion from standard MIDI files. Giebler has also released version 1.6 of the Ensoniq Disk Manager (EDM), a software package that will read, copy, format, and display Mirage, SQ-80, EPS, EPS-

16+, VFX-SD, SD-1, and ASR-10 disks on your IBM-PC. EDM can use free space on the user's hard drive to copy disks. Individual file copying/storing is available for all keyboards except the Mirage and SQ-80. ASRSMF converts ASR-10 sequences into standard MIDI files and vice-versa. AMM: \$34.95. MMTSMF (includes AMM software): \$54.95. EDM: \$34.95. ASRSMF (includes EDM software): \$54.95. Giebler Enterprises, 8038 Morgan Rd., Liverpool, NY 13090-2009. (315) 652-5741.

**VALLEY AUDIO PROCESSOR.** The Model 730 Digital Dynamics Processor is a single-space rack-mount unit that supports all digital and/or analog inputs and outputs at any level or protocol. The Model 730 can mix analog and digital inputs together and feed both analog and digital outputs simultaneously. All common sample rates are supported. Parameters include threshold, attack, release, ratio, gain, setpoint, slope, range, pre-delay, hold, mix, and stereo spread. With the 99 user-programmable storage registers, users can customize settings. The unit also offers an optional hand-held remote with two assignable linear faders for digital level or parameter control. \$2,000.00. Valley Audio Products, Inc., 9020 West 51st Terrace, Merriam, KS 66203. (800) 800-4345. Fax (913) 432-9412.

**STEINBERG/JONES SOFTWARE (ATARI).** StudioModule is an optional software module that

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adds four windows to Steinberg's Cubase 3.0. The studio setup window includes dedicated parameters for a total recall function. The memory manager provides patch load, save, and send control over the user's MIDI gear. The bank window allows memory contents of connected gear to be viewed by name. Clicking on a name automatically sends program changes to the corresponding instrument. With the macro-edit window, users can macro-edit a group of common synthesizers, effects processors, etc. \$149.00. Steinberg/Jones, 17700 Raymer St., Ste. #1001, Northridge, CA 91325. (818) 993-4091. Fax (818) 701-7452.

**LYRRUS SYSTEM.** G-Vox is a hardware and software system that creates an interactive link between a guitar and a Macintosh or IBM-PC computer. G-Vox hardware includes a light-weight pickup that is attached to the guitar and translates its sound into an electrical signal. The Belt Pack receives and converts the transmitted signal into a computer signal. Users can then interact with the computer through the Utilities program, which offers guitar tuning functions and the ability to adjust sensitivity according to playing style. Current software packages include Tour (for developing finger-board accuracy), Midi (for editing capabilities), Chords (for learning new chords), and Riffs (for playing riffs). Software libraries authored by artists such as guitarist Steve Morse are also available. G-Vox hardware (includes pickup,

belt pack, and utilities): \$399.00. Tour (available in fall): \$59.00. Midi: \$149.00. Chords: \$79.00. Riffs: \$79.00. Artists Libraries: \$16.95 to \$24.95. Lyrrus Inc., 35 North 3rd St., Philadelphia, PA 19106. (215) 922-0880. Fax (215) 922-7230.

**ART PROCESSORS.** The FXR digital signal processor offers discrete two-channel operation, 250 preset patches, and provides for up to four simultaneous effects. The single-space rack-mount unit can be used mono in/mono out, stereo in/stereo out, or as two independent processors. ART's FXR Elite is a programmable version of the FXR with MIDI. Both units feature reverb, gated reverb, delay, chorusing, and flanging. Inputs and outputs are 1/4" jacks. Contact dealer for pricing information. Applied Research & Technology, 215 Tremont St., Rochester, NY 14608. (716) 436-2720. Fax (716) 436-3942.

**MISCELLANEOUS SOUNDS.** Kid Nepro has announced two soundbanks with 64 patches each for the Roland JD-800, U-220, and D-110. The sounds are available on ROM and RAM cards, and in Alesis Data Disk, Macintosh, and Atari formats. Other new releases include a 50-

disk sample library for E-mu's SP-1200, a 60-disk sample library for the E-mu Emax series, a 700-disk sample library for the Akai S1000/S1100/S01, and a 70-disk sample library for the S900/S950. Sounds range from hip-hop and drum loops to classical guitars. JD-800, U-220, and D-110 disk formats: \$40.00, ROM: \$60.00, RAM: \$85.00. All sample libraries: \$10.00 per disk. Kid Nepro Productions (Dept. K), 180 Bethel Loop, Brooklyn, NY 11239. (718) 642-7802. (212) 629-3708. Fax (212) 947-0027. . . . **Patchman Music** has released 73 disks for the Kurzweil K2000 and K2000R. The sound library consists of digital recordings of the Synclavier, Roland JV-80, R-8m, and D-110, E-mu Proteus, Ellii, and Emax, Yamaha SY77, SY99, and TX802, Kawai K3m, and Oberheim Matrix-1000. 73-disk set: \$450.00 (\$20 per disk, quantity discounts available for all disks except volumes 1-3). . . . **Valhalla** is distributing Musitronics PCM-expansion for the Yamaha SY77 and TG77. The expansion board adds 143 new PCM waveforms (4Mb of sample data) including piano, drums, synth timbres, brass, woodwinds, and strings. A free audio demo cassette is available upon request. \$599.00. Valhalla, Box 20157-KB, Ferndale, MI 48220. (313) 548-9360. Fax (313) 547-5949.

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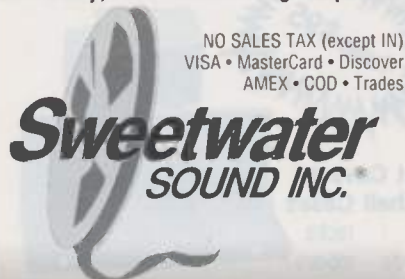
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## LETTERS

Continued from page 12

downloaded. What Paul is saying, essentially, is that it's too much work for a sys-op to keep track of the copyright status of files in his or her database. The FBI apparently disagrees.

"If you would like further information about 'Rusty & Edie' or software copyrights, you can call the Software Publishers Association at (800) 388-7478."

### Kurzweil Sampling Option

Your review of the Kurzweil K2000 sampling option [June '93] was an obscene, thinly disguised attack on a breakthrough synth. Why apply one standard to the K2000 and a less stringent one to other samplers? Case in point: You state that the K2000 wouldn't pass post-production scrutiny (although K2000s have replaced Synclaviers in some L.A. studios), yet you praise a scandalously overpriced, no-meg, no-SCSI DJ-70 as "one mean monster of a sampler." You've also lavished praise on the ASR-10, which has one-tenth the power of a K2000. These samplers are post-production quality . . . not. And doesn't the ability to read world-class libraries merit notice in your Pros list?

Next time there's a K2000 upgrade, let the Kurzweil competitors write the review. They're more clever than you guys — after all, they've been fleecing folks out of \$6,000-\$10,000 for their samplers for years.

Mike Carter  
Dayton, OH

### Mellotron Mania

After reading about *Rime of the Ancient Sampler* [June '93], I immediately called a record dealer and ordered it. The Mellotron is not dead, nor is it sleeping. It has been awakened by the Swedish progressive rock groups Landberk, Anglagård, and Anekdoten. In particular, Anglagård's album, *Hybris*, will convince Mellotron freaks that our God is alive. It was released in January '93, and is available from Mellotronen, Kåkbrinken 16, S-11127 Stockholm, Sweden.

Gunnar Creutz  
Floby, Sweden

### Dream Theater

Like Sparky the Magic Piano Tuner [Letters, June '93], I purchased the Dream Theater CD after reading the *Keyboard* interview with Kevin Moore [Apr. '93]. Obviously, the band is influenced by hard rock and heavy metal, but if Sparky can't hear any keyboards, maybe he needs a hearing aid. Sure, they're not blaring, but they're a lot easier to hear than in bands like Bon Jovi. Not only that, but with only three 'boards in his rig, Moore is an inspiration to those of us who don't have \$100 bills flowing out of our pockets.

Dream Theater has influenced me. I've started playing some of their songs, like "Metropolis" and "Wait for Sleep." I've even found a hard rock band that's looking for a keyboardist, and

they love Dream Theater. All I have to add is thank you, *Keyboard*, and thanx, Kevin Moore, keyboardist extraordinaire.

Rich Halpern  
Marietta, GA

### Drummers In Sync

Thanks to Greg Rule for recommending the Visual Conductor to the reader whose drummer was having problems playing with an onstage sequencer [Questions, June '93]. I would like to clarify one point, however. Rule writes that while "not every player can groove with flashing lights," visual sync is a viable alternative to clicks. "Flashing lights" may describe other devices, but the Visual Conductor leads by gestures, not by lights flashing on the beats.

Just as a movie uses many still pictures to give the illusion of motion, the Visual Conductor uses many lights to give the illusion of one light in motion. The movement imitates that of a baton in the hands of a conductor. A light that merely flashes on the beat can be as hard to follow as an audible click track, since it disappears between the beats. The VC conducts between the beats as well.

John Clifton  
TimeStream Technologies  
Englewood, NJ

### Undiscovered

Thanks for including my CD in Titus Levi's Discoveries column [June '93]. But could I be a thankless geek enough to point out three errors? First, my name is misspelled in the bold print. Second, the band's name is spelled Gaijin. And third, my contact address is incorrect as well. Thanks for your time.

Dave Hartl  
Box 161  
Oceanville, NJ 08231

### M1 Sounds & Programmer Travails

I would like to touch on a few points that Jim Aikin made in his intro to your interesting and very well-compiled review of Korg M1 sounds [Apr. '93]. Aikin stated, "If the pay is lousy, and there's no glory to be had, and you can expect your work to be stolen, it's hard to blame programmers." As a sound programmer for a third-party company that has lasted through tough times for more than five years, I have mixed feelings about this remark. Yes, the pay is lousy. And glory? That's like asking a roadie if he finds the limelight too bright! But programmers are to blame for poor sounds. My rule of thumb is simple: If I wouldn't want to use a particular sound for one of my own recordings, then it doesn't get included. And if even one of my sounds sparks creativity in an artist, then I've done my job.

Jason Alexander  
Digital Informative Data  
Ottawa, Ontario

My plasma sizzled when I read the letter from Matt Haines commenting that the M1 "can't be hip, because it's middle-aged" [June



'93]. Well, Matt, if you don't like the M1, buzz off and play with your brand new toys. But next year you'll have to dispose of them in favor of the latest toys. And the year after that you'll need to do it all over again.

Like a few thousand other musicians, I love the M1. Since it's been around for a while, I've had time to understand it more thoroughly and thus get more out of it. Sure, there's always some newer or fancier machine coming out, but what's good is good. That's why the acoustic piano is still around.

Rick Cross  
Richmond, IN

#### The Forgotten Amiga

Is there any reason why Geoffrey Ryle did not include the Amiga in his listing of multiport MIDI interfaces [Computers On-Line, May '93]? Blue Ribbon Soundworks, the people who did Atlanta's winning presentation in its Olympics bid, has been selling Triple Play Plus for the Amiga for more than a year now. For that matter, Ryle also left the Amiga out of other cross-platform columns. Does he have a problem with Commodore, or is there some editorial policy we don't know about?

Gary Goldberg  
Silver Spring, MD

## YAMAHA QY20

Continued from page 86

paniment track comprising multiple patterns can be created in real time or via step entry. In real time, you can record your track, literally, on the fly: As you change patterns during playback, the QY20 will record the changes. If desired, you can also change the chord structure of the patterns as you go. That might turn out to be too hectic, so you can either slow down the clock, or do it all with step entry.

**Conclusions.** The QY20 is one of the biggest little boxes in the business. Its user interface is excellent, its sequencer is surprisingly flexible, and the fact that you can operate it anywhere with no strings attached (or should we say cables) is wonderful. But . . .

. . . it isn't exactly cheap. For \$599, we miss not having such items as a basic voice editing menu (at the very least, an envelope generator). And an AC adapter would be nice — right now, you have to pay extra for one. Also, trying to actually perform and record music from the QY20's miniature built-in keyboard is often time-consuming and frustrating. If you're a serious key tickler, we wouldn't recommend using it without an external MIDI controller attached.

Still, the QY20 is a one-of-a-kind product. Nowhere else (unless you count the QY10) can you find a sample playback synth and an eight-track sequencer packed into such a tiny frame. Looks like Yamaha has another hit on their hands.

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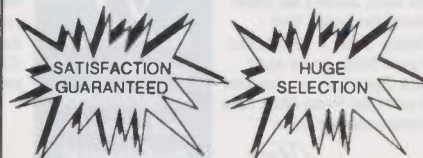
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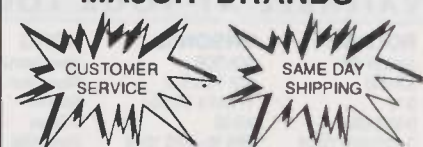
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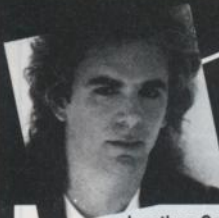
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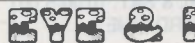


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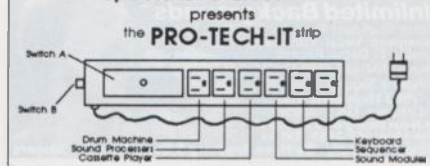
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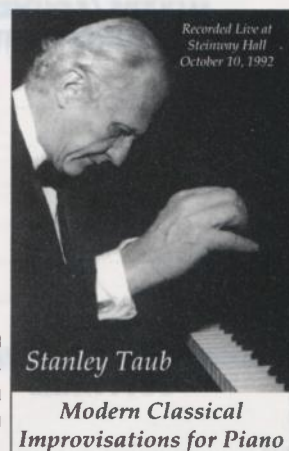
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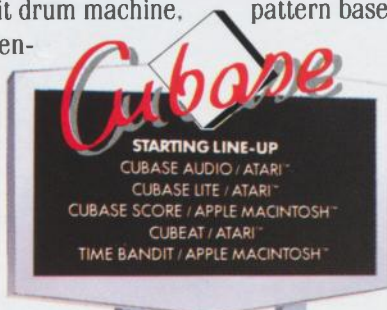
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