ONLY PIONEER COULD INTRODUCE A QUARTZ PHASE LOCKED LOOP TURNTABLE AND CALL IT A BARGAIN.
The average quartz phase locked loop turntable plays records virtually perfectly, has no audible wow or flutter, is unaffected by voltage changes, and manages to accomplish all this for slightly under $800.

The new PL 570, on the other hand, has all the same features, but with one distinct advantage: it costs less than $400.

Which, you have to admit, is an awfully small price to pay for perfection.

MORE ACCURATE THAN A QUARTZ WATCH

In brief, the PL 570 works by using a quartz crystal that oscillates 180 million times a minute as a timing mechanism. The speed of our direct-drive platter motor is then "locked" onto that rate of oscillation—and constantly adjusted to account for things like heat, line voltage variations, and even the weight of the record on the platter.

The benefit of all this is simple: the PL 570 can run virtually forever with no variation in speed. In fact, it's so accurate, special measurements are needed to fully describe it. Something called "time drift" is a mere 0.00003%. A figure unsurpassed by the finest quartz watch that gains or loses up to ten seconds a month. And "thermal drift" is 0.000004%. Which means that while we can't guarantee just how well the PL 570 will play in your freezer, normal room and operating temperature variations shouldn't affect it at all.

In more mundane measurements, wow and flutter is 0.025%. Four times under what the human ear can hear. And even with the quartz phase locked loop off, the turntable speed is unaffected with stylus pressure of up to 120 grams. Which, by no small coincidence, is about 119 grams more than you'll ever apply.

OTHER FEATURES NOT USUALLY FOUND ON "BARGAIN" TURNTABLES.

When we set out to build the PL 570, we wanted it to be a lower cost quartz phase locked loop turntable. Not lower quality. So like the quartz turntables that sell for hundreds of dollars more, the PL 570 features an electric siren that eliminates normal voltage frequency variations so you can adjust the PL 570 perfectly. Plus a "quick down" circuit that lets you go from 45 to 33⅓ almost instantly. And one-piece monocoque construction that cuts howling caused by vibration.

At Pioneer, we've become number one today with people who care about music simply because we've always managed to take state of the art technology, and offer it with some consideration of the state of your wallet. If the PL 570 is any indication, it looks like we're getting better at it all the time.

*The value shown in this ad is for informational purposes only. Actual resale prices will be set by the individual Pioneer dealer at his option.
Now speakers with the brains to make your system perform better. And the guts to make it sound better.

First, B I-C revolutionized bass reproduction by applying the venturi principle to acoustics. The result: U.S. Patent #3,892,288. And, industrywide, a new generation of high-efficiency speakers.

Then the new BICONEX* T-Slot Transducer (also patented) expanded sound dispersal to a room-filling 180 degrees.

Now a Clipping Indicator on our System Monitor speakers lets you identify, pinpoint and avoid amplifier distortion.

And all models protect themselves against speaker overload. They automatically shut off power to a stressed speaker component, and signal the one affected.

At most sound levels, the ear has trouble hearing bass and treble tones. So we developed Dynamic Tonal Balance Compensation. As volume changes, it automatically adjusts speaker frequency response to give nature an assist. And a separate control matches midrange/treble levels to room acoustics.

The Formula 7 can even let you see what you’re hearing. That bank of indicators displays Sound Pressure Levels. And the chart relates readings to room size and listening distance. Furthermore, the SPL Indicators help correct for channel imbalance in the music source, and even detect amplifier malfunction (such as spurious oscillations and DC power leakage). Here are loudspeakers that can actually make your entire system perform better. From B I-C VENTURI.

B I-C VENTURI
TOMORROW'S TECHNOLOGY TODAY
Editorially Speaking

By William Anderson

DISC QUALITY: A PROBLEM SOLVED

If your mind is anything like as cluttered with useless information as mine is, I'm sure you won't thank me for reminding you that the German biologist Ernst Heinrich Haeckel is credited with inventing one of the all-time great conversation stoppers: "The ontogeny recapitulates the phylogeny." If you got through Freshman Bio intact you will know that that is the biological fraternity's Darwinian way of saying that the development of the individual from conception on is a kind of summary of the developmental history of the race. It is also a way of saying that first things come first, that chickens (as well as omelettes) come from eggs, and perhaps even (just watch this pirouette into relevance) that the software anticipates the hardware. Or so, at least, I had always thought.

For the past year and more we have been worrying away in these pages at the subject of disc quality. In the process we have established some fairly interesting facts. The first is that there is a large (and growing) population out there seriously disturbed about what it sees as a steady deterioration in the quality of the Great American Phonograph Record. Quite beyond such comparatively high-flown concerns as dynamic-range compression, signal-to-noise ratios, frequency balance, and master-tape hiss, record buyers are concerned about the increase in such comparatively prosaic flaws as warps, non-electrostatic feedback and-pop, off-center pressings, stuck or otherwise untrackable grooves, audible surface scratches, non-fill, mold-grain, and just plain dirt (few things match the disappointment of opening a "factory-fresh," shrink-wrapped disc and finding it already soiled with greasy fingerprints). Record manufacturers, when they choose to reply to these complaints, make a few factual points of their own. There is always, for one thing, a small but vociferous minority of professional carpers in any market (such as those who write me that they return eight out of ten records they buy), and post-Watergate paranoia may be creating new ones at a rate higher than usual. For another, many people do mis-treat their discs, blaming the resulting damage on the manufacturer and returning the cripple for a refund. The industry has been strangely reticent, however, about the real cause of it all: the cost/price squeeze in which record producers find themselves caught (not, to be sure, without a bit of their own connivance).

The costs of labor, raw materials, and management have all gone up in the past two decades at rates that are reflected hardly at all in disc prices. Mass-production efficiencies (faster-moving production lines) and technological innovations (thinner discs) have made up the difference, but they have also resulted in lower quality. And so, for perhaps the first time in the history of recording, we find disc software that is sonically inferior to the hardware it is meant to be played through.

This situation might have been let drift indefinitely had not the status of the equipment market changed radically in the past few years. For it is no longer merely the finicky audiophile minority (look at all those costly noise suppressors!) that is trying to get high-quality sound out of low-quality discs. Excellent audio equipment is rapidly becoming the norm rather than the exception. It is trembling, in fact, on the verge of exploding enormously into the mass market, and the time has come for the software industry to reassert its traditionally technological leadership. That will not be done by dabbling faddishly with regressive direct-cut gimmickry, for however lovely the results in purely electronic terms, they must still run the gauntlet of the physical pressing process which is the principal source of consumer complaints. The time has come rather to step bravely (if expensively) into the noiseless new world of the digital disc. It's that or join the dodo.
The designers of the state-of-the-art DDX 1000 present a direct-drive turntable at less than a third the price: The DD 20.

The Micro Seiki DDX 1000 with its three-tonearm capability and its optional highly-acclaimed MA 505 tonearms has taken turntable engineering in a new direction with its styling and audiophile convenience features. And now these same minds have engineered a superb direct-drive turntable for $200 (nationally advertised value).

Like the DDX 1000, the DD 20 has a servo-controlled motor; changes in line voltage have no effect upon rotation speed. A floating suspension system protects the turntable assembly and tonearm base, eliminating acoustic feedback and providing isolation from outside vibration. Wow and flutter is less than 0.03 and signal-to-noise ratio is greater than 60 db.

Its precision-machined high mass platter has an engraved stroboscope pattern to attain absolute accuracy at 33⅓ and 45. The clean-lined base has an acoustic as well as an aesthetic function: formulated of a special compound of plastic and iron particles, it provides extremely high density. Result: a unique low resonance base.

Its specifications and engineering precision translate into a faithfulness of reproduction that will give you even greater enjoyment out of your favorite records. Isn't it time to upgrade your pleasure?

MICRO SEIKI
Advanced engineering in turntables.

Distributed by TEAC Corporation of America, 7733 Telegraph Road, Montebello, California 90640. ©TEAC 1977. Actual resale prices will be determined individually and at the sole discretion of authorized Micro Seiki dealers.
Introducing
The Bose Model 601.
A New Direct/Reflecting® Speaker of Outstanding Performance, High Efficiency, Moderate Cost, and Exceptional Versatility.

The Model 601 is a totally new, Direct/Reflecting® loudspeaker from Bose. It employs a unique arrangement of six drivers in each enclosure (four tweeters and two woofers) to achieve a level of tonal accuracy and spatial realism comparable only to the world-renowned Bose 901® Series III.

The result is an open, spacious sound and a feeling of realism which can not be achieved by conventional speakers with front-mounted drivers beaming directly at the listener. Such conventional designs are aimed almost exclusively at producing accurate frequency response, while largely ignoring the spatial qualities so critical to the impact of a live performance.

In the Model 601, these important spatial qualities are accurately reproduced through the careful positioning and orientation of all six drivers in each speaker enclosure.

The Tweeters.
Three tweeters in each enclosure (1, 2, and 4) provide reflected sound, creating a feeling of spaciousness, while one tweeter (3) radiates the smaller proportion of direct sound needed for a strong center image and crisp, sharply defined details.

Two of the tweeters are also positioned to radiate sound upward through the acoustically transparent top grille, thus avoiding interference from furniture in the room.

The Woofers.
There are two 8-inch woofers in each Model 601 enclosure, one aimed forward (5) and one angled upward (6) to contribute an important component of reflected sound. The use of two smaller woofers provides a cone area equal to that of a single much larger driver, while offering important performance benefits at low and middle frequencies.

Each high-output woofer is capable of better dispersion and smoother midrange performance than a larger woofer, while they work together to provide bass response of exceptional power and clarity.

Accuracy of Tonal Balance.
With all four tweeters covering the same upper frequency range and the two woofers covering the same lower range, small response irregularities of individual drivers are averaged and smoothed in a way that can not be duplicated using single drivers.

Efficiency.
The Model 601 is also a highly efficient speaker that can deliver superior reproduction of all kinds of music using an amplifier or receiver having as little as 20 watts of power per channel.

The Proof.
For a detailed description of the concepts and technology that make possible the superior performance of the Model 601, write for a full-color brochure to Bose, Dept. SR8, The Mountain, Framingham, Mass. 01701. But for the real proof—your listening enjoyment—just visit any authorized dealer and ask him to introduce you to the newest Bose Direct/Reflecting® speaker system.

Cabinets are walnut veneer. Patents issued and pending.
A Buffett Summer
- The dedicated romantic is always on the lookout for the book or record that will officially inaugurate the summer’s escapist fantasies. My thirty-odd summers have been thoroughly subtitled—the summers of Huck Finn and Tom Sawyer, the seasons of the Beatles and the Beachboys, the vacation I read all those Steinbeck novels. More recently, my estival excursions have been to the tropics with Peter Matthiesen and B. Traven, and it is in this later tradition of the American expatriate in warmer climes that I wish to nominate, as the soundtrack for summer 1977, Jimmy Buffett’s evocative “Changes in Latitudes, Changes in Attitudes.”

Tom Tollefson
Glen Ellen, Calif.

Quadracide
- I would like to join the growing number of people expressing their disgust at the attempted murder of quadrphonics. I have quite a bit invested in my quad equipment and half my records are quad, but after all the initial big pushes by Columbia, Sony, RCA, Panasonic, and JVC there has been nothing new.

Since the economy has stabilized and the various formats have nearly been perfected, there is no excuse for this sorry state of affairs!

J. R. Thomas
Towson, Md.

Larry Klein replies: The “excuse” is that people haven’t been buying quadrephonic equipment and software in sufficient quantities to make it worthwhile to keep producing and innovating. What those same people would have done if there weren’t all those noncompatible formats is of course moot. In any case, the whole picture may change in a year or two, or three, or . . . . For the latest quad news, see the Consumer Electronics Show report coming up in the September issue.

Bette Midler
- Thank you for that really marvelous story on Bette Midler by Rick Mitz in the June issue. I hadn’t paid much attention to her before—a few TV talk-show appearances and such—but the interview really got to me, particularly (God knows why) that one line “. . . right now, I’m in all right. I’ve got my little hat on . . . .” She has that sympathetic quality of vulnerability that so many of our greatest theatrical personalities—from Fanny Brice to Marilyn Monroe—had. That and a little talent. And who can resist?

Michel Landau
New York, N.Y.

Sextets
- Irving Kolodin’s “A Beginner’s Guide to Chamber Music!” in the May issue is a nice collection. However, in counting from two to eight one usually includes six! What happened to sextets? I suggest the Brahms string sextets in B-flat Major, Op. 18 (with the Amadeus Quartet, Aronowitz, and Pleeth, on Deutsche Grammophon 139 353) and G Major, Op. 36 (with the Marlboro Chamber Sextet, on Columbia MS-7445).

Jeremiah Werhner
Goshen, Mass.

Musical Muggers
- I’ve read Lester Bangs’ reviews for years and generally understood them if not downright agreed with them. But his review of the “Ramones Leave Home” album (in the June issue) makes me wonder if perhaps I’m no longer trendy because of my distinct lack of violent masochism.

I certainly agree with his comments on Mr. Frampton, Boston, and everyone else directly or indirectly insulted in the review, but, good Lord, must we go to extremes? I bought the first Ramones album with a sort of bemused, “What on earth is this?” attitude, and proceeded to discover it was the worst five dollars I’d ever spent. My right speaker hasn’t been in a good mood since I subjected it to murder of quadraphonics. I have quite a bit of such—but the interview really got to me, particularly (God knows why) that one line “. . . right now, I’m in all right. I’ve got my little hat on . . . .” She has that sympathetic quality of vulnerability that so many of our greatest theatrical personalities—from Fanny Brice to Marilyn Monroe—had. That and a little talent. And who can resist?

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Since then there has been no time of the day, day of the week, week of the month, etc.
in which I've been in the mood to hear the album again, and it sits there totally ignored between Jean-Luc Ponty and Lou Reed. It's not that the Ramones have no talent, which is beside the point with most of the New York wave of musical muggers, and I can certainly appreciate their artistic integrity, but I don't understand anyone's willfully praising them.

The Ramones are really phonies (as phony as Bowie or Farrah What's-her-name, or anyone else trying to sell an image), and anyone who would waste a whole page of STEREO REVIEW on a group obsessed with "total economy" has been fooled (and probably even believes Charley's Angels is a detective show).

MIKE AUBIN
Fremont, Calif.

Listening Lesson

- The letter from Charles Long in the June issue disturbed me. Some people don't talk while seriously listening to pop music! In my own case, I grew up screaming to the Beatles, dancing to the Stones, and getting stoned to the Dead. The music was enjoyable and consumable, rather like potato chips. But as I learned to be a critical listener to classical music, I turned back and applied my more knowledgeable ears to the rock I already liked, and I was very impressed. I would tell Mr. Long to listen to the best bands of 1965-1970 (not the trash), to listen to Bob Dylan's vocal phrasing and ignore his harmonica playing, to listen to the guitar playing in Cream and avoid the vocals, and to pay attention to the horizontal lines and counterpoint in Traffic and let the chords be subordinate. He should try to distinguish the social phenomenon of popular music from the musical phenomenon. It's rarely ever done—by musicians, insiders, outsiders, or reviewers.

KAREN MARBURGER
Portland, Ore.

TLS

- Concerning the Editor's comment in his June column that reviews in the London Times Literary Supplement "are often unsigned": the TLS abandoned anonymous reviews several years ago. (This has been a brief, signed, polite, and punctual letter of correction on a single subject. I dare you to print it.)

KEITH ALDRICH
Goleta, Calif.

The Editor replies: I abandoned the TLS several years ago largely because of its habit of concealing the identity of its writers; I may have to reconsider now that they have mended their ways. I thank Mr. Aldrich for bringing me up to date; perhaps he will do the same for the New York office of the TLS, who were of the same erroneous opinion when I spoke to them a few months ago!

AM Fidelity

- I'm delighted that Julian Hirsch is paying attention to the AM sections of receivers under test, but I disagree with his comment in the receiver review in the May issue: "Although the AM tuner produced a rather constricted, nasal sound, we would not hold that against [it]." His next remark, that "if AM

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Introducing New Quantum by Memorex. Four Reasons It Sounds So Good.

1. Quantum offers low distortion. You get a true recording of any type of music at high output, with virtually no distortion.

2. Quantum has very high sensitivity. This maximizes output and allows you to effectively capture all signals at a greater level.

3. Quantum provides an excellent signal-to-noise ratio because its high sensitivity is obtained with no increase in noise level. This means a pure, brilliant sound.

4. Quantum gives you high saturation, resulting in a wide dynamic range and broad recording flexibility.

Quantum achieves improved recording performance while maintaining a high degree of mechanical excellence. With long life, durability, precision edge quality and excellent oxide adhesion.

The best way to hear the Quantum difference is to try it out for yourself. Available in 7" x 1800', 7" x 2400' and 10½" x 3600' reels.

MEMOREX Recording Tape.
Is it live or is it Memorex?

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quality were a significant factor, few stereo receivers could be considered even marginally acceptable for quality reproduction," is absolutely right on—but surely, if an AM section is included in a receiver, it has to be a significant factor! AM is capable of high fidelity, it is possible to manufacture high-fidelity AM receiving equipment, and it is inexcusable for otherwise high-fidelity equipment to be sold to the public with terrible AM sections! Not until manufacturers are held responsible for a deficiency in this area will they upgrade, however.

JIM BURKHOLDER
Seattle, Wash.

Both of these are made in Elkhart, Indiana

The one on the right provides permanent relief from the pain of headache caused by poor room response

The good sound that comes out of your speakers can be different by the time it gets to wherever your ears are. Air, walls, rugs, drapes, furniture—can all affect frequency response.

The new Crown EQ-2 Equalization System is designed to correct that particular headache. The system includes the Crown EQ-2 eleven-band, octave-center, stereo equalizer; plus the Crown equalization record, room response chart paper, and a manual which tells you how to make it happen.

Write today for full-color brochure. The information could be very good for your system.

CROWN
Box 1000, Elkhart IN 46514

CIRCLE NO. 6 ON READER SERVICE CARD

Karajan

适宜 I was delighted to see your article in the June issue on Herbert von Karajan, whom I consider easily the greatest living conductor. Indeed, I find him one of the three greatest who have ever put their art on discs, ranking with Beecham and Toscanini.

This feeling is very common in Europe, but very rare in the U.S., especially among the supposedly "expert" critics. However, if you'd like to try a really astounding experiment, take a few people who claim they dislike Karajan and have them compare, without knowing which is which, his Eroica finale with any other, and then the first movement of his recording of Ravel's Rapsodie Espagnole with the critically favored Boulez and Martinon versions.

In my experience thirty-one out of thirty-two people have chosen the Karajan Eroica, and seventeen out of seventeen have picked his Ravel. Statistically this is an almost unbelievable unanimity—but try it for yourself!

JOHN H. CONE
Pasadena, Calif.

About Herbert von Karajan: what a stuffed shirt! He's earned my vote as the person I'd most like to see slip on a banana peel.

MAURY MOLINA
San Francisco, Calif.

Soulless Soul

适宜 I was in a rush when I went into my favorite record store to buy David Soul's new album, so I grabbed a copy, paid for it, and left. When I got home and opened the album up I found that it did not contain his hit song, Don't Give Up on Us. At first I thought my eyes were playing tricks on me, but I looked again and even played the record through: no song. The next day I was in my car and heard a DJ announce the album and mention that it contained Don't Give Up on Us. So I went to my second-choice store and found the album again; sure enough, it had the song.

It's driving me nuts! They're the same album—same cover, same code numbers, same everything—except one has Don't Give Up on Us and the other doesn't. The store manager couldn't explain it to me, but maybe you can. Is my original album (without the song) of any special value? The label is Private Stock.

ROBERT S. YABLANS
Scarsdale, N.Y.

Popular Music Editor Paulette Weiss replies: To save you a trip to your eye doctor or psychiatrist, I spoke with Private Stock Records and learned that there were two pressings of Soul's album. The first, without Don't Give Up on Us, was recalled from stores when the song, released as a single, became a hit. Don't Give Up was then included in the second pressing, which was identical to the first in all other respects. About two or three thousand of the first-run copies are still scattered around.
ANNOUNCING THE SPEAKER NO ONE WAS WAITING FOR.

When people think of us, they think of receivers, tuners, amps, cassette decks and turntables. No one thinks of us for speakers. But with the major advancements we've made in our components, we wanted to make sure they would sound the way they were supposed to sound.

We tested and listened to the best three-way speaker systems and found that almost all of them had remarkably inefficient mid-range speakers. And because 90% of the sound that you hear is in the mid-range, those inefficient speakers were making singers sound slightly nasal and applause sound like rainfall.

So we developed our new LS-406A. Our goal was to eliminate the nasal sound, and make sure an ovation sounded like applause instead of rain on the deck of Noah's Ark.

You, of course, had no idea we were up to this.

With the help of computers, holographic analysis, and the sensitive ears of our engineers we built an efficient mid-range speaker that could do those things. Then we put that technology to work building a woofer whose cone eliminates mumbling, along with a tweeter whose higher output would reproduce the sound of the singer's lips and breath.

It's everything a $325 speaker should be, except it costs less than $250*. And, as crazy as this may sound, it was worth the wait.

For the Kenwood dealer nearest you, see your Yellow Pages, or write Kenwood, 15777 S. Broadway, Gardena, CA 90248.

*Nationally advertised value. For information purposes, actual prices are established by Kenwood dealers. Cabinet is walnut veneered with particle board rear panel.
Sansui establishes of excellence:
The widest frequency response of any

The clean and extremely pure tonal quality of the new Sansui AU-717 and AU-517 DC integrated amplifiers is distinctly superior to that of all other amplifiers available today. Stereo perspective is spacious, musical presence is strong and distortion has been virtually eliminated. Sansui has achieved this audible excellence by sophisticated research and precision engineering. When you listen to the new Sansui amplifiers and tuners, you will know that the more excellent specifications and the most advanced design do, in fact, produce the most pleasing and accurate musical reproduction.

Here's why. Frequency response of the main amplifier section of the AU-717 and AU-517 is from zero Hz to 200kHz (+0.0dB, -3.0dB). This ensures sharp, clean transients and greatly reduces the problems of phase shifts. Audible distortion has been virtually eliminated by reducing total harmonic distortion to an astounding low 0.025%.

Dual independent power supplies permit true stereo separation and provide a large power reservoir. For uncolored phono reproduction, equalization is within ±0.2dB (20-20,000 Hz, extended RIAA curve). The calibrated-attenuator volume control adds another precision capability to these professional quality amplifiers.

The ample power of the AU-717 and AU-517 lets you fill your listening room with the outstanding musical quality that the amplifiers provide. 85 watts and 65 watts per channel, respectively, RMS both channels driven into 8 ohms from 20-20,000Hz with no more than 0.025% THD.

The matching TU-717 tuner is designed to fully complement the achievements of these amplifiers. Dual IF bandwidth lets you select for lowest distortion (0.07% mono, 0.09% stereo) or for maximum selectivity (80dB). Signal-to-noise ratio is excellent: 83dB mono, 77dB stereo.

In addition to their outstanding musical capabilities, these new Sansui matched separates are elegantly styled with rack mounting adapters to be pleasing to the eye. And they are most attractively priced. The AU-717 and AU-517 are less than $450 and $370, respectively. TU-717, less than $320. Look for them at your franchised Sansui dealer today.

A whole new world of musical pleasure.
When you listen to these brilliant new components, you'll understand why from today on the new Sansui AU-717, AU-517 and TU-717 will be the standards of excellence against which all other integrated amps and tuners will be measured.

*Approximate nationally advertised value. The actual retail price will be set by the individual dealer at his option.
the country, and it was one of these you chanced upon. Private Stock will be happy to exchange albums if you write to them at 40 West 57th Street, New York, N.Y. 10019.

Rare Welsh Bit

William Anderson's editorial on "Executive Music" in the May issue left me puzzled about one thing. At the White House function for British Prime Minister Callaghan, Robert White sang the first stanza of All Through the Night "in Welsh to flatter the distinguished visitors." Mr. Callaghan, to judge by his surname, is an Anglicized Irishman; I can't think of any Welsh P.M. since David Lloyd George. Welsh is a gorgeous language, right enough, and a linguistic cousin to Erse, but singing it to make Mr. Callaghan feel all warm and fuzzy inside is about as appropriate as serenading an American President abroad with a Cheyenne buffalo dance.

WARREN C. WETMORE
New York, N.Y.

Griffes Again

Regarding reader Dennis Dunnett's letter in the June issue about Richard Freed's review of a new recording of the Griffes sonata, I would like to bring to the attention of those interested the following points: the recording of the sonata and the Roman Sketches was available on Lyrichord LL 105 as early as 1961; the Lyrichord disc is not true stereo, no matter what Mr. Dennis' jacket may say or his ears may tell him; and the Lyrichord recording was actually a rerelease of the now-defunct Walden label's LP-100, which first appeared in the early Fifties. (I have both the Walden and the Lyrichord pressings and they are identical.) Therefore, Richard Freed's statement that "there has not been a recording of the sonata in well over twenty years" is quite valid.

PAUL J. PORTNUFF
Chicago, Ill.

Audio Careers

In the April issue, Larry Klein's first "Q, and A." deals with a subject (audio careers) I was asked about frequently when I was a recording engineer. Literally hundreds of letters of this nature prompted me to organize a school that would teach not only the basic skills of recording, but also the function and operation of the record-publishing business. It took several years of research and the kind cooperation and participation of the select membership of the RIAA and the AES, who submitted their suggestions for a curriculum. We started teaching in January 1974. Our classes are kept small. We have no desire to turn out a great number of knob-twitlers. We turn out a small, select group of well-trained people, and 85 per cent of our diploma recipients are now working within the industry.

The American Music Conference (3505 East Kilgore Road, Kalamazoo, Mich., 49002) publishes a useful and informative booklet entitled Careers in Music, which discusses careers in performing arts, education, business, the recording industry, and allied fields.

LEO DE GAR KULKA, President
College for Recording Arts
665 Harrison Street
San Francisco, Calif. 94107

Larry Klein replies: On the East Coast, the journalism department of the University of Bridgeport is offering a minor in audio studies. The twenty-one-credit sequence includes courses in audio techniques, audio production and direction, field sound recording, studio technology, and audio engineering practices. The Institute of Audio Studies, capstone course of the program, is a nine-week summer session held in a professional recording studio doing actual production work. A certificate of achievement is awarded to students completing the minor or the summer institute. Interested students should contact Dr. Howard B. Jacobson, Department of Journalism, North Hall 214 (SR), University of Bridgeport, Bridgeport, Conn. 06602.

(STEREO REVIEW is compiling a listing of available audio schooling and would appreciate notice of current or anticipated programs.)
Most quality cassette decks look pretty much alike on the outside. So at first glance you might take the new JVC KD-35 for granted. But take a second look. You'll see something no other make of cassette deck has—five peak-reading LED indicators. With a faster response than VU meters, or even peak-indicating meters, they help you avoid under-recording and they eliminate tape saturation and distortion. It's as close as you can come to goof-proof recording.

Then there's JVC's exclusive Sen-Alloy head for record and playback. Designed to give you the best of two worlds, it combines the truly sensitive performance of permalloy with the ultra long life of ferrite.

Of course, the KD-35 has many other features like Dolby, bias and equalization switches, and automatic tape-end stop in all modes. It's also possible to go from one operating mode to another without going through Stop. What's more, you'll never have to miss taping a favorite broadcast because you're not there; just connect the KD-35 to a timer and switch to automatic record.

And yet, with all this built-in capability, at $260, the KD-35 is priced just above the least expensive model in JVC's new cassette deck lineup. Just imagine what our top model is like.


*Approximate retail value. Dolby is a trademark of Dolby Labs, Inc.

CIRCLE NO. 18 ON READER SERVICE CARD
NEW
KOOL SUPER LIGHTS

Only 9 mg. "tar" in both sizes.
And Kool's refreshing coolness, too.
At last, a low "tar" menthol cigarette with satisfying taste.

mg. 'tar'
in both sizes.

suspending system utilizing a 4-inch woofer and a 1-inch dome tweeter. The drivers, crossing over at 2,500 Hz with a slope of 12 dB per octave, are mounted in a solid aluminum cabinet.

The 200C has a frequency response of 85 to 20,000 Hz ±3 dB (50 to 22,000 Hz ±5 dB). The nominal impedance of the unit is 4 ohms; at least 5 watts of amplifier power is recommended. The maximum continuous input power suggested for the 200C is 30 watts. At a distance of 1 meter, the unit will produce a sound-pressure level of 90 dB with a 1-watt input signal.

The satin-black cabinet of the 200C is equipped with a perforated aluminum grille. For surface mounting the 200C comes with a swivel bracket, and for flush mounting a recess frame and foam grille are available. The 200C weighs about 4½ pounds. The speaker (plus swivel mount) is priced at $110. The flush-mounting kit is optional at $7.50.

Circle 116 on reader service card

The Model 6, shown, is a three-way system utilizing a 12-inch woofer, a 5-inch mid-range, and two 1-inch dome tweeters. Crossover frequencies are 900 and 4,500 Hz. The system is rated for a minimum amplifier power of 9 watts continuous. Maximum recommended power is 100 watts. Dimensions are 27 x 16 x 15 inches. All systems in the Laboratory Monitor Series come in oiled-walnut-veneer cabinets with beveled-front detachable grilles. Approximate prices range from $140 to $460.

Circle 117 on reader service card

The Laboratory Monitor Series (LMS) from Dynaco includes five loudspeaker systems ranging from bookshelf to floor-standing models. All systems in the series have ducted ports. The smallest speaker in the line, the Model 2, requires a minimum continuous input of 5 watts per channel whereas the largest, the Model 7, requires 10 watts. The high-frequency response for all models extends to 20,000 Hz; bass response varies, extending to 38 Hz for the Model 2 and to 20 Hz for the Model 7. Power-handling capability varies from a minimum continuous input of 35 watts for the Model 2 to 150 watts for the Model 7. Tweeter level controls are provided for the Models 2 and 3, and these are augmented by mid-range level controls on the Models 5, 6, and 7.

The mid-range and tweeter radiate directly utilizing a 12-inch woofer, a 5-inch mid-range, and two 1-inch dome tweeters. Crossover frequencies are 900 and 4,500 Hz. The system is rated for a minimum amplifier power of 9 watts continuous. Maximum recommended power is 100 watts. Dimensions are 27 x 16 x 15 inches. All systems in the Laboratory Monitor Series come in oiled-walnut-veneer cabinets with beveled-front detachable grilles. Approximate prices range from $140 to $460.

Circle 117 on reader service card

Two speaker systems employing columnar enclosures are the top models in a new line of loudspeakers from Sony. Both are three-way designs with identical drivers: a 10-inch woofer stiffened with a new lightweight graphite-fiber material called “Carbocon,” and a 3½-inch dome mid-range and 1-inch dome tweeter, both with diaphragms fabricated of titanium foil. The SSU-3000 ($300) has a ported enclosure, while the larger SSU-4000 ($400, shown) employs a rectangular passive radiator with a surface area of 104 square inches. The mid-range and tweeter radiate directly through special diffusion assemblies to control dispersion.

The two systems have rated frequency responses of 35 to 20,000 Hz (30 to 20,000 Hz for the SSU-4000) and nominal impedances of 8 ohms. Crossover frequencies are 600 and 3,500 Hz. Sony recommends amplifier powers ranging from 20 to 150 watts per channel continuous for either system. Enclosures are of particle board finished in walnut veneers. The width and depth dimensions of approximately 13½ x 14½ inches are the same for the SSU-3000 and SSU-4000. Approximate heights are 54½ and 47 inches, respectively.

Circle 118 on reader service card

(Continued overleaf)
The KA-8300 is Kenwood's new top-of-the-line stereo amplifier. The unit features bass and treble controls with selectable turn-over points of 150 or 400 Hz for the bass and 3,000 or 6,000 Hz for the treble. Two power-output meters on the front panel are provided with switchable ranges from 0 to 3 or 0 to 100 watts. Two-position loudness-compensation and "presence" controls are included, along with 12-dB-per-octave high- and low-frequency filters. The KA-8300 has a "tape-through" circuit that permits dubbing from one tape machine to another while the amplifier is simultaneously being used for playing another program source. Jacks are provided for two phono and two tape sources, and the unit has provisions for three pairs of loudspeakers.

The KA-8300 is rated at 80 watts per channel continuous into 8 ohms, from 20 to 20,000 Hz. Both harmonic and intermodulation distortion are no more than 0.1 per cent. The phono inputs can handle up to 260 millivolts before overload; phono-input signal-to-noise ratio is 72 dB. The amplifier's high-level inputs have a 90-dB signal-to-noise ratio. Direct-coupled circuitry is employed in the preamplifier section of the KA-8300. The metal cabinet provided for the unit has approximate dimensions of 6 x 17 x 14½ inches. Rack handles are available as an option. Price: about $450.

Circle 120 on reader service card

Audio Load Kit From Heath

To provide suitable loads for the testing of audio amplifiers, Heath has introduced the ID-5252 kit, a resistance box capable of presenting resistive loads of 2, 4, 8, 16, or 32 ohms to an amplifier. Depending on how it is set up, the box can handle up to 240 watts of single-channel input or 60 watts from each of four channels, both into 8 ohms. The box contains four 8-ohm resistors accessible via five-way binding posts on the front panel. Five connecting tabs are provided to interconnect the resistors in various series and parallel configurations so that a range of resistances and power inputs is available. Jacks are provided for connecting oscilloscopes, voltmeters, or distortion analyzers across the amplifier terminals. The kit includes four 3-foot, 12-gauge leads. Price of the kit: about $45.

Circle 122 on reader service card

Tone-arm Damping Device from Discwasher

The DiscTraker is a pneumatic device designed to add damping to the tone arm and hence improve tracking and increase stability on warped records. The device, which attaches to the tone-arm headshell, consists of a vertically mounted cylinder with a movable piston inside; the base of the cylinder (which is covered with cushioning material) rides on the record surface. The result is a "dashpot" mechanism that counters the effect of headshell/cartridge inertia on the stylus when there are vertical warps in the record surface. It is also said to reduce record wear. Price: under $30.

Circle 119 on reader service card

Kenwood's Top Integrated Amplifier

The KA-8300 is Kenwood's new top-of-the-line stereo amplifier. The unit features bass and treble controls with selectable turn-over points of 150 or 400 Hz for the bass and 3,000 or 6,000 Hz for the treble. Two power-output meters on the front panel are provided with switchable ranges from 0 to 3 or 0 to 100 watts. Two-position loudness-compensation and "presence" controls are included, along with 12-dB-per-octave high- and low-frequency filters. The KA-8300 has a "tape-through" circuit that permits dubbing from one tape machine to another while the amplifier is simultaneously being used for playing another program source. Jacks are provided for two phono and two tape sources, and the unit has provisions for three pairs of loudspeakers.

The KA-8300 is rated at 80 watts per channel continuous into 8 ohms, from 20 to 20,000 Hz. Both harmonic and intermodulation distortion are no more than 0.1 per cent. The phono inputs can handle up to 260 millivolts before overload; phono-input signal-to-noise ratio is 72 dB. The amplifier's high-level inputs have a 90-dB signal-to-noise ratio. Direct-coupled circuitry is employed in the preamplifier section of the KA-8300. The metal cabinet provided for the unit has approximate dimensions of 6 x 17 x 14½ inches. Rack handles are available as an option. Price: about $450.

Circle 120 on reader service card

Infinity Speaker Has Electromagnetic Induction Tweeters

Infinity's Quantum Line Source loudspeaker system has several special design features intended to increase dispersion and improve bass response. The system utilizes a vertical line (four feet in length) of eight electromagnetic induction tweeters for the frequency range of 4,000 to 32,000 Hz. Parallel to the strip of tweeters is a vertical column of six 1½-inch dome drivers for the frequencies from 600 to 4,000 Hz. This array of high- and mid-frequency drivers is intended to provide a line source of sound that fans out in the horizontal plane, so that frequency response is uniform within ±2 dB over 180 degrees in the frontal hemisphere of the speaker's radiation pattern.

A mid-bass driver near the bottom of the enclosure is provided to handle frequencies from 200 to 600 Hz. Below 200 Hz the system employs a 12-inch woofer working on what is called the "Infinity/Watkins dual-drive" principle. The driver has two voice coils of different impedances; these are connected via an electrical network. Near the resonant frequency of the system, the coil with the lower impedance is the one actually driven by the amplifier, whereas at higher frequencies the higher-impedance coil is active. This design is said by the manufacturer to smooth the frequency response of the system in the low-frequency range.

The overall frequency response of the Quantum Line Source is 18 to 32,000 Hz ±2 dB. Impedance is nominally 4 ohms. The speaker requires a minimum of 100 watts per channel of continuous input power, and may be driven by one or two amplifiers. Power-handling ability is said to exceed the output of any currently available amplifier. Separate controls adjust the output levels of the mid-bass, mid-range, and high-frequency drivers.

The Quantum Line Source's cabinet, offered in a choice of walnut or rosewood veneer on particle board, has dimensions of 66 x 15 x 18 inches; the grille consists of acoustically transparent cloth suspended on a steel frame. The unit weighs 150 pounds. Price: about $1,200. Infinity also features three smaller speaker systems employing the basic design approach of the Quantum Line Source: the Quantum 2 ($700), Quantum 3 ($485), and Quantum 4 ($385).

Circle 121 on reader service card

(Continued on page 20)
IT'S MAGIC.
THE ACCUTRAC 4000.
IT THINKS.
IT REMEMBERS.
IT SEES.
IT PERFORMS.
IT TAKES THE EXPERIENCE OF LISTENING TO MUSIC INTO
ANOTHER DIMENSION,
ANOTHER CENTURY.
IT'S THE ONLY INSTRUMENT IN THE WORLD THAT LETS YOU HEAR THE SELECTIONS ON A RECORD IN THE ORDER YOU LIKE, AS OFTEN AS YOU LIKE, AND SKIP THE ONES YOU DON'T LIKE.

EVEN BY REMOTE CONTROL.

IT SETS A NEW STANDARD OF TECHNICAL SOPHISTICATION THAT WILL SATISFY THE MOST DEMANDING PURIST.

COMPUTER CIRCUITY INSTEAD OF MECHANICAL FUNCTIONS.
WE REPLACED HUNDREDS OF MECHANICAL PARTS WITH ADVANCED COMPUTER CIRCUITRY.
THE LATEST MOS IC CHIPS COMBINE THE FUNCTIONS OF THOUSANDS OF TRANSISTORS, DIODES AND OTHER COMPONENTS TO CONTROL AND PROGRAM ALL AUTOMATIC FUNCTIONS.
AS EASY AS 5, 2, 6, 6.

THE SLEEK CONTROL PANEL IS SOMETHING OUT OF THE 21ST CENTURY.
YET IT'S INCREDIBLY SIMPLE TO OPERATE.
SAY YOU WANT TO HEAR THE FIFTH CUT FIRST, THEN THE SECOND CUT, THEN THE SIXTH CUT TWICE.
JUST PUSH THE BUTTONS MARKED 5, 2, 6, AND 6 AGAIN.
THEN SET BACK AND LET ACCUTRAC DO THE REST.
IT ACCEPTS UP TO 24 DIFFERENT Commands.

THE TONEARM WITH EYES.
HOW DOES THE ACCUTRAC KNOW WHICH TRACK IS WHICH?
ENGINEERED INTO THE CARTRIDGE IS A SOLID-STATE INFRA-RED GENERATOR WHICH FOCUSES A TINY BEAM OF LIGHT ONTO THE RECORD.
THE CLOSERLY SPACED GROOVES OF EACH CUT SCATTER THE LIGHT, BUT THE SMOOTH SURFACES BETWEEN THE CUTS SEND THE LIGHT BACK TO THE INFRA-RED DETECTOR IN THE CARTRIDGE.

THE INFORMATION IS INSTANTANEOUSLY RELAYED TO THE BRAIN IN THE TURNTABLE, WHICH COUNTS THE TRACKS.
AND YOUR WISH IS ITS COMMAND.

YES, MASTER.
A SMALL, CORDLESS REMOTE TRANSMITTER WITH A DUPLICATE SET OF CONTROLS NESTLES IN THE PALM OF YOUR HAND AS YOU RELAX IN THE COMFORT OF YOUR EASY CHAIR.
POINT IT TOWARDS THE SILVER SPHERE ACROSS THE ROOM AND THE BLINKING RED LIGHT ON THE REMOTE RECEIVER WILL LET YOU KNOW IT HAS RECEIVED YOUR COMMANDS.
THE ARM YOUR FINGERS NEVER TOUCH.
BECAUSE OF ACCUTRAC'S UNIQUE PROGRAMMING CAPABILITY, YOU NEVER HAVE TO TOUCH THE TONEARM.
AND THE CONTROLS ARE OUTSIDE THE DUSTCOVER, SO YOU NEVER RISK ACCIDENTALLY DAMAGING A RECORD.
THE TONEARM HAS ITS OWN SERVO-MOTOR WHICH IS DECOUPLED THE INSTANT THE STYLUS TOUCHES THE RECORD, SO HORIZONTAL AND VERTICAL FRICTION ARE VIRTUALLY ELIMINATED.
"WOW", INDEED.
THE ONLY "WOW" YOU'LL HEAR IS FROM YOUR FRIENDS. ACCUTRAC'S WOW AND FLUTTER ARE A COMPLETELY INAUDIBLE 0.03% WRMS.
RUMBLE IS -70dB (DIN B).
THE TRACKING FORCE IS A MERE 1/4 GRAM.
TONEARM RESONANCE IS ONLY 8-HZ.
AND A DIRECT-DRIVE MOTOR TURNS THE RECORD AT THE EXACT SPEED, WHILE ELECTRONIC SPEED MONITORING SENSORS KEEP IT THERE.

MAGIC & SCIENCE.
The integration of computer circuitry, infra-red optics and audio technical excellence lets you hear the tracks you like, in the order you like, as often as you like, and even skip the ones you don't like.
THAT'S THE GENIUS OF ACCUTRAC.

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JBL System Features Separate Bass Unit

In addition to two "full-range" floor-standing units, the JBL L121 loudspeaker system employs a separate "Ultrabass" module, a woofer system for reproduction of very low frequencies. The "full-range" units (designed to respond down to 70 Hz) are three-way systems each utilizing an 8-inch woofer, 5-inch cone mid-range, and 1-inch dome tweeter; they are connected directly to the amplifier's speaker outputs. The 8-inch woofer, employing a 3-inch voice coil and a very stiff cone, operates from 70 to 800 Hz. The mid-range driver is active above 800 Hz, crossing over to the tweeter (JBL's 066 hemispherical-diafragma unit) at 3,000 Hz.

The Ultrabass module contains a built-in 50-watt power amplifier and a 12-inch air-suspension woofer. The input signal for the module, which operates in a "common-bass" mode, is derived from the drive signals for the full-range pair, which are mixed to create a mono signal and equalized for uniform response from the woofer over the range of 25 to 70 Hz. The nondirectional character of these low frequencies permits placement of the bass module in any convenient location in the room. The module has an on-off switch for its amplifier, a phase-reversal switch, and a continuously variable level control.

The frequency response of the entire L121 system is 30 to 40,000 Hz ±2 dB, and the nominal impedance is 8 ohms. The externally powered part of the system requires a minimum amplifier power of 10 to 20 watts per channel continuous, with 75 watts being the maximum safe input on program material. A 1-milliwatt input signal produces a sound-pressure level of 37 dB at a distance of 30 feet. The "full-range" units are about 38½ inches high and have bases which are 17 inches wide by 12 inches deep; they provide an actual enclosure depth of 6 inches. The Ultrabass module has dimensions of 19¾ x 18½ x 18½ inches; it features a smoked-glass top. All three units are finished in black walnut and fitted with black acoustically transparent grille fabric. Price of the complete system: $1,740.

Second Electrostatic Speaker from Koss

The Model 2 is a "hybrid" speaker system that employs a dynamic tweeter for the high frequencies (above 2,500 Hz) and electrostatic panels for the rest of its frequency range. According to the manufacturer, the tweeter, a 1-inch dome unit, was preferred over an electrostatic driver because of its superior dispersion at high frequencies. The Model 2 resembles the larger Koss Model 1 in its use of multiple electrostatic diaphragms operating in tandem within each electrostatic panel. Also like the Model 1, it utilizes the audio-signal step-up transformers for the low-frequency and mid-range panels as elements in the crossover network that feeds them. The panels' bias voltage is derived from the a.c. line.

Frequencies up to 250 Hz are handled by two bass electrostatic panels that provide a total radiating area of 615 square inches. The mid-range panel, active from 250 to 2,500 Hz, provides 165 inches of radiating area. Overall, the frequency response of the Model 2 is 37 to 19,000 Hz ±3 dB. Minimum impedance is 4 ohms. An amplifier capable of at least 75 watts per channel continuous output into 8 ohms is recommended; maximum power-handling ability is 300 watts. The front surface of the cabinet, constructed of walnut veneer on particle board, is 41 x 24 inches. Depth is 11½ inches at the base, tapering to 6½ inches at the top. The back panel of the system is acoustically open hardboard; a brown knit-polyester grille covers almost the entire front surface. Price: $650.

Videoton Speaker Has Six Drivers

The Model D-402A "Supermax" is a new three-way loudspeaker system from the Hungarian firm Videoton. The system utilizes two 8-inch woofers, two 4-inch cone mid-ranges, and two 1-inch hemispherical dome tweeters in an acoustic-suspension enclosure. The woofers feature a special cone-suspension design patented by Videoton. The Supermax has a useful frequency range of 35 to 20,000 Hz and a nominal impedance of 6 to 8 ohms. The manufacturer suggests a maximum continuous-power input of 50 watts per channel for the system; 80 watts can be handled on program peaks. The oiled walnut cabinet has dimensions of 27½ x 15½ x 11 inches, and the system weighs 45 pounds. Price: about $200.

New Line of Marantz Receivers

The Models 2265, 2285, and 2330 (shown) are among the latest stereo receivers to be offered by Marantz. All three models feature tape-to-tape dubbing facilities permitting tape copying from one deck to another while the receiver is playing a third source. Separate controls are provided for bass, mid-range, and treble, with selectable turnover frequencies. The Models 2285 and 2330 feature a steep-slope (18 dB per octave) high-frequency (Continued on page 22)
The Test of Time.

Critics were most generous in their praise when the Shure V-15 Type III phono cartridge was first introduced. The ultimate test, however, has been time. The engineering innovations, the uniform quality and superb performance of the V-15 Type III have made it the audiophile’s choice as the source of sound for the finest music systems both here and abroad.

Consider making the relatively modest investment of a new cartridge to upgrade the performance of your entire hi-fi system. It will make a difference you can hear!

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TECHNICORNER
MODEL V-15 TYPE III
Tracking Force Range: ¾ to 1½ grams
Frequency Response: 10 to 25,000 Hz
Typical Tracking (in cm/sec peak recorded velocity at 1 gram):
400 Hz . 26 cm/sec
1,000 Hz . 38 cm/sec
5,000 Hz . 35 cm/sec
10,000 Hz . 26 cm/sec
Channel Separation (Minimum): 25 dB at 1 KHz; 15 dB at 10 KHz
Stylus: Model VN35E Biradial Elliptical, 5 x 18 microns (.0002 x .0007 inches)
Also available: Model V-15 III G with the VN3-G Spherical stylus, 15 microns (.0006 inches)
Model VN78E Biradial Elliptical stylus, 15 x 63 microns (.0003 x .0025 inches) for mono 78 rpm.

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CIRCLE NO. 34 ON READER SERVICE CARD
filter, and the Model 2330 has Dolby noise-reduction circuitry with the 25-microsecond de-emphasis appropriate for decoding Dolby-ized FM broadcasts.

The per-channel continuous power ratings (into 8 ohms) are 65 watts for the Model 2265, 85 watts for the Model 2285, and 130 watts for the Model 2330, all for any frequency from 20 to 20,000 Hz. Total harmonic and intermodulation distortion is no more than 0.08 per cent for all three units.

The tuner specifications of all three receivers are almost identical. Usable sensitivity is 10.3 dBf, and the 50-dB quieting sensitivity is 36 dBf. Capture ratio is 1 dB. Image and i.f. rejection are 85 and 100 dB, respectively, and AM suppression is 55 dB for the Models 2265 and 2285, 57 dB for the Model 2330. The tuner frequency response for all three units is 50 to 15,000 Hz ±1 dB, with no more than 0.3 per cent distortion in stereo and 0.15 per cent in mono. Stereo separation is 45 dB at 1,000 Hz. The ultimate signal-to-noise ratios for the Models 2265, 2285, and 2330 are 65, 67, and 67 dB, respectively, in the stereo mode, and 75, 78, and 78 dB in mono.

The Models 2265 and 2285 have approximate dimensions of 5 3/4 x 17 3/4 x 14 3/4 inches; the Model 2330 measures 5 3/4 x 19 1/4 x 15 1/4 inches. Walnut-veneer cabinets are available as an option. Prices: Model 2265, $570; Model 2285, $670; Model 2330, $790. Cabinets are $35 for the first two, $45 for the Model 2330.

Sonic Systems also offers a smaller speaker system, the Model Two, featuring the same types of drivers but with just two tweeters, which radiate front and back. Price: $1,100.

Circuit Breaker In Acousti-phase Speaker System

The Acousti-phase Phase Monitor is a two-way bass-reflex loudspeaker system utilizing a 12-inch woofer and a 1-inch Mylar dome tweeter. The Phase Monitor's port is located at the rear of the cabinet, and the woofer is constructed with a special double-foam suspension. A level control is provided for the tweeter, and the entire system is protected from overload by a circuit breaker.

The Phase Monitor, with a nominal impedance of 8 ohms, has a frequency response of 32 to 20,000 Hz. The crossover frequency between the woofer and tweeter is 1,500 Hz. The manufacturer suggests that the unit be used with amplifiers delivering between 10 and 70 watts per channel continuous power; over 150 watts can be handled on program peaks. The Phase Monitor's cabinet, constructed of particle board with simulated-walnut vinyl covering, measures 25 x 15 x 14 inches. A detachable acoustically transparent, grille is provided; the unit weighs 52 pounds. Price: about $160.

Power Research
System IV Speaker

The Power Research Products System IV is a four-way loudspeaker system utilizing four high-efficiency drivers: a 10-inch subwoofer, 6½-inch woofer, 3-inch cone mid-range, and a 1½-inch piezoelectric tweeter. The woofers are mounted face-down on a completely sealed cabinet with a high degree of internal absorption; the backs of the woofer cones provide the bass radiation. The tweeter and mid-range are mounted one above the other on an upright metal frame that faces into the listening area. Foam pads attached to this frame reduce sound reflections and possible edge-diffraction effects.

The System IV has a frequency response of 26 to 22,000 Hz, ±4 dB and a nominal impedance of 8 ohms. Crossover frequencies are at 75, 600, and 8,000 Hz. The minimum recommended amplifier power is 30 watts per channel; up to 200 watts can be handled on program peaks. The system is enclosed in an 11½ x 19 x 39-inch walnut-finish cabinet with an acoustically transparent black grille top. Weight is 78 pounds. Suggested price: $435.
Wolfgang Amadeus Mozart—music's greatest natural genius—divinely gifted beyond any other musician who ever lived! And into his six greatest symphonies he poured a multitude of his most astonishingly beautiful, incredibly moving inspirations!

**Symphony No. 41, "Jupiter"**
Symphony No. 40 in G-minor
Symphony No. 39 in E-flat
**Symphony No. 38, "Prague"**
**Symphony No. 36, "Linz"**
**Symphony No. 35, "Haffner"**
**Extra! Symphony No. 32**

Now you are invited to hear these miraculous works in their finest recording... interpreted with extraordinary empathy by Karl Böhm... played to perfection by the Berlin Philharmonic Orchestra... captured in unsurpassed stereo realism by Deutsche Grammophon. So outstanding is this recording that it has won three of the music world's most eagerly sought honors: the Grand Prix International du Disque, Edison Award and Deutsche Schallplatten Prize! In addition, you will also receive Mozart's Piano Concertos Nos. 12 and 26, "Coronation," superbly performed by soloist Geza Anda with the Salzburg Camerata Academica — winner of the coveted Grand Prix des Discophiles.

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Audio Q. and A.

By Larry Klein

By Larry Klein

Blown Driver

Q. I have a pair of good three-way speaker systems, and I blew out either the tweeter or the mid-range driver—or maybe even the crossover—in one of them. What is the best way to tell which component is damaged? Is something like this covered by manufacturer’s warranty?

J. Norris
Elmira, N.Y.

A. I’ve never come across a case where a crossover network’s components were blown out, although sometimes a tweeter or mid-range level control will “open” under stress. FM interstation hiss will provide a good wide-range test signal that will let you determine by ear which of your drivers isn’t working. If you put your ear close to each of the drivers in question you should be able to tell easily enough whether any noise is coming out of it. Your good system will provide a standard of comparison.

As far as warranties are concerned, you’ll have to take that up with the manufacturer. In these days of super-power amplifiers and discotheque sound levels, most companies aren’t as willing as they once were to believe that their tweeter or mid-range unexpectedly died trying to deliver a flute solo while being driven by a 10-watt amplifier.

New Noiseless Diamond

Q. Recently I purchased a new four-channel cartridge with a “four-dimensional” diamond for my stereo system. The stylus size is 0.2 mil (birelateral) and the frequency response is 15 Hz to 45 kHz. The thing that amazes me is that many of my records that had unbearable surface noise now sound brand new. Can you give me any explanation for this?

Stephen Charles Griggs
Baltimore, Md.

A. Consider the fact that a record groove has a roughly triangular cross section and the conventional spherical (conical) stylus has a gently rounded contact surface (see diagram). This means that each differently shaped stylus is likely to ride on a different area of the record-groove walls. If the surface noise is caused by damages on one “level” of the groove wall and the new stylus rides higher, lower, or covers a greater area than the original one, the noise is going to be far less obtrusive.

Cartridge Degaussing

Q. When I demagnetize the heads on my reel-to-reel recorder, the degauser will pass within 6 to 8 inches of my turntable. Is it possible to damage the phono cartridge in any way with the demagnetizer?

Bill Barminski
Benton, Ill.

A. I assume that you are concerned about whether you might accidentally degauss the magnetic assembly in your cartridge. If you were to place a cartridge on a heavy-duty bulk eraser and give it a couple of jolts, it is possible that its performance would be affected. However, the field around a hand-held tape-head degausser is so concentrated (and usually weak enough) that no damage to your cartridge could possibly occur over a 6-inch distance.

Line-frequency Addenda

I was particularly interested in the “Moving Overseas” Q & A in the May issue since our company manufactures and supplies...
The groove spacing is then continuously adjusted on the basis of the information from the preview head to prevent any grooves from touching (which could cause stylus "sticking") or simply being too close (which could cause groove echo). The accompanying photo of a typical groove area (courtesy Sid Feldman, Mastertone Studios) shows some normal variations in groove spacing and width.

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Groove Ghosts

Q. I have noticed audio ghosts on many of my discs. The ghosts seem to appear before or after the actual signal, depending on which cartridge I use. Is this problem intrinsic to the disc, or does it depend on the cartridge?

A. Yes to everything. What you refer to as "ghosts" are known in the recording trade as "groove echo." Although such an echo can occur on a master tape as a result of "print-through" between adjacent tape layers, it usually arises somewhere in the disc-recording/playback process. (You can sometimes tell the difference between master-tape print-through and groove echo by whether or not the material heard is from the immediately adjacent groove.) As to causes and cures, the matter is more complex than appears at first glance. When the object is to get as much playing time as possible on a side, the acetate is cut with the grooves as closely spaced as possible. "Possible" in each case is determined by the specific character of the material to be cut into the grooves. Loud, low-frequency signals cause greater groove excursions than soft, higher-frequency signals. Rather than space all the grooves on the disc widely in order to accommodate an infrequent loud, low passage, a variable-pitch guidance system is used to control the groove spacing laid down by the cutter head. A special "preview" tape head on the machine playing back the master tape for the cutter is used to monitor the signal that will be cut adjacent to the groove being cut at any particular moment.

But what spacing is too close? The pre-echo effect comes about because the signal cut into the groove wall has somehow modulated the wall of the adjacent groove sufficiently to provoke a response from the phono stylus. It is evident that groove echo is most often heard when a quiet groove is next to a loud one since two equally loud grooves will usually mask each other. However, for various reasons, audio signals around 3,000 Hz are more likely to be heard in adjacent grooves than higher or lower frequencies.

There are several imponderables in the groove-echo problem. I'm told that some cutting engineers won't use fresh blank acetates because they have not yet aged to adequate hardness, and, all other cutting factors being equal, "soft" acetates are more prone to groove echo. Acetates have another peculiar characteristic in regard to groove echo: it is possible to cut an echo-free disc, put it aside, and have groove echo show up hours later. Since the cutting stylus also does a certain amount of "pushing" at the acetate while engraving the groove, it could be that stresses are set up that slowly equalize through acetate "flow" and appear as modulation in adjacent groove walls.

Why should different cartridges reproduce more or less groove echo? Since groove echo is actually a low-level signal modulated into the groove wall, a cartridge capable of responding to small groove undulations (which means any good cartridge) should be as sensitive to the phenomenon as any other. However, there is a factor that I've mentioned in connection with "surface-noise" sensitivity. It may well be that the upper portion of the V-shaped groove is more likely to contain groove echo than the deeper part. This could be true simply because the area that separates the groove walls (the land) gets thinner as you get closer to the record surface. Since differently shaped stylus "read" different parts of the groove wall, it is likely that stylus that sit lower in the groove will pick up less groove echo than wider stylus.

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THOMAS PERAZELLA
Berkeley Marketing
Woodside, N.Y.
DON'T COUNT; LISTEN

ELSEWHERE in this issue George Sioles, a speaker designer, writes authoritatively about his approach to system design. I'd like to supplement his discussion with some remarks about the raw materials he works with and the reasons why they tend to be chosen.

A typical high-fidelity loudspeaker system, of which there are hundreds available, consists of a box containing two or maybe three "drivers" (the actual loudspeakers themselves) and a quantity of Fiberglas or other absorbent damping material. Also, somewhere within the box there will be a compact assemblage of electronic parts (the crossover network) that determines which driver(s) will receive the low-frequency signals from the amplifier and which the higher-frequency ones—and in what relative amounts. One or more controls to adjust the amount of signal fed to certain drivers may be provided as well.

These bits and pieces may seem unfamiliar at first, but there's nothing very complicated about the way they've been put together or even the general way in which they work. Often, all the parts of some celebrated speaker system are individually available on the open market; assembling them physically is simply a matter of woodworking and perhaps a little soldering. But if this is so, what accounts for the "magic" in loudspeakers and the supposed superiority of some over others? The answer lies in the overall design and the reasons why they tend to be chosen.

A "two-way" speaker system (incorporating just a woofer and a tweeter) has certain very persuasive technical advantages, and there are some excellent two-way systems on the market. However, the designer's objective may be a de luxe system with exceptionally deep and/or powerful bass and exceptionally extended, well-dispersed high frequencies, which will probably oblige him to use a large, rugged woofer and a correspondingly small, delicate tweeter. In this case one or more mid-range drivers may be required as well to fill in where the large woofer and tiny tweeter cannot overlap, and the result is a three- or four-way speaker system.

RECOGNIZING that consumers are prone to associate a multi-way design with de luxe performance, there are some speaker manufacturers who throw cheap additional drivers into their designs willy-nilly in the hope of creating some consumer appeal. This is called the numbers game, and it is for suckers only. So don't count "drivers" (the actual loudspeakers themselves) and a quantity of Fiberglas or other absorbent damping material. The speaker system employing various types of drivers does so not because this is a partic-
drivers) and the result is a three- or four-way speaker system.

Almost every driver has a diaphragm—the cone of a woofer or mid-range driver or the dome of a tweeter, for example—and some mechanism to move it. The mechanism is most often a simple motor consisting of a coil of wire in a strong magnetic field. The motion the coil imparts to the diaphragm, which is fastened directly to it, is an in-and-out vibration. All in all, the operating principle of a speaker driver hardly differs from that of a drum, with the drum head being the diaphragm and the drum stick the energizing voice coil. However, a drum has a certain definite and characteristic sound resulting from the fixed frequencies at which it invariably vibrates when left to its own devices. We'd like a speaker diaphragm to have no such "preferred" frequencies of vibration; we want it to move only in response to the voice-coil motion and not according to its own physical nature as well. It happens that this is a practical impossibility, but the degree to which a manufacturer can moderate the various "preferred" frequencies or resonances largely determines a driver's quality. And the degree to which a speaker-system designer can "get around" these resonances that remain is a measure of his skill. This is because the more a driver tends to have audible resonances, the more it will sound like itself and the less like the program material it is supposed to be reproducing.

A speaker system employing various types of drivers does so not because this is a partic-
larly elegant or efficient mode of design, but because of grim necessity. Intuitively we can appreciate that the large, rugged diaphragm of a woofer is best suited to the powerful bass frequencies, while the small, lightweight tweeter diaphragm lends itself to the more rapid vibrations of high frequencies. Drivers that perform acceptably at all audible frequencies have been built and are available, but their cost and complexity are not, in the opinion of many speaker designers, sufficiently offset by their theoretical advantages.

Multi-driver design is based on the premise that almost any driver will perform well over a certain limited range of frequencies. Above and below that range it may get into resonances and other troubles, but if the crossover network is designed to limit the signals reaching it to the frequencies it reproduces best, other drivers can presumably be found to take over where the original driver cannot, with fidelity, go. The ridiculous extreme of this approach would be a speaker system containing perhaps ten mediocre drivers, from huge "sub-woofer" to tiny "super-tweeter," each handling about an octave of the ten-octave audio-frequency range. For various reasons this is not a very good way to build either a low-cost or a high-performance speaker system, so the usual practice is to find two or three better drivers that can span a wider range with genuine competence.

"Two-way" speaker system (incorporating just a woofer and a tweeter) has certain very persuasive technical advantages, and there are some excellent two-way systems on the market. However, the designer's objective may be a de luxe system with exceptionally deep and/or powerful bass and exceptionally extended, well-dispersed high frequencies, which will probably oblige him to use a very large, rugged woofer and a correspondingly small, delicate tweeter. In this case one or more mid-range drivers may be required as well to fill in where the large woofer and tiny tweeter cannot overlap, and the result is a three- or four-way speaker system.

RECOGNIZING that consumers are prone to associate a multi-way design with de luxe performance, there are some speaker manufacturers who throw cheap additional drivers into their designs willy-nilly in the hope of creating some consumer appeal. This is called the numbers game, and it is for suckers only. So don't count "drivers." There is more to a good speaker than you can see behind the grille or read from a specification sheet.
If you've been thinking Realistic is great only in the middleweight division, the STA-2000 is going to take you by surprise. We designed and manufactured it in our own factory to deliver quality beyond reproach, and judging from critical acclaim, we succeeded. The fine styling and precision controls are obvious. But the heart of this receiver is in its circuitry... the extra-low-

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AUGUST 1977
TWO BREAKTHROUGHS

This month I'm pleased to be able to report on two recent technological breakthroughs, one in tape heads, the other in tape itself. Both are developments that may fundamentally alter the future of recording.

In recent years most new developments in tape oxides have come from Japan, but the 3M Company has the honor of being the first to announce that it is ready to produce a tape that goes beyond oxides altogether. The tape will utilize as its magnetic medium extremely refined metallic particles with the trade name Metafine IV. Some idea of the magnitude of the resulting improvement can be gained by comparing the areas under the curves in the upper left-hand quadrant of Figure 1, which shows (A) an older ferric oxide, (B) chromium dioxide, and (C) the new 3M development.

When engineers look at the potential of various magnetic materials, they make use of "B-H" curves such as these to show two vital parameters: coercivity (the width of the loops where they cross the zero axis, designated $H_C$ and measured in oersteds) and retentivity (the height at the vertical axis, called $B_r$ and measured in gauss). Roughly speaking, retentivity is an index of the maximum output level obtainable on playback, and coercivity is the key to high-frequency (or, more precisely, short-wavelength) response. One of the newer ferric oxide tapes, for example, would have a slightly higher retentivity than chromium dioxide, though its coercivity would be considerably less.

According to 3M research director Dr. John D. Holm, Metafine IV has a coercivity between 1,000 and 1,100 oersteds (compared with about 350 to 380 for a top iron oxide and about 550 for chromium dioxide), and a retentivity between 3,000 and 3,500 gauss (1,050 to 1,520 is in the ballpark for today's ferrics, and about 1,400 is typical for chrome). While chromium dioxide represented a major step forward in achieving high-frequency response at slow speeds, it did nothing for overall output. At one step, Metafine IV has twice the output of chrome (a 6-dB jump) and twice its high-frequency potential!

Coercivity is also a measure of the bias current requirement of a tape, however, and this spells trouble if we want to use Metafine with conventional recorders. For one thing, consumer tape decks at present do not have the bias current available to record the new tapes properly. Most pro machines don't either, but this is a simple matter to remedy electronically. More serious, probably, is the fact that most present-day consumer tape heads won't accept the amount of record-bias signal Metafine requires.

At first, 3M planned to use Metafine IV primarily for video tape, but the response from audio manufacturers was so positive that the company is now ready to roll just as soon as equipment manufacturers have produced machines to use the new tape. How soon this will take place is anyone's guess (mine is the second half of 1978), but 3M's announcement should accelerate development. (According to my sources, one manufacturer has already achieved a 60-dB signal-to-noise ratio and flat response to 15,000 Hz using metal-particle tape in a 15/16 ips microcassette.) And 3M is not entirely alone in the field. Although Maxell and TDK have not said anything publicly, I'm told that both have sent samples of a metal-alloy tape to various hardware manufacturers, and BASF showed a prototype as much as two years ago. But 3M has now broken the ice, and we'll let you know how well Metafine IV fulfills its promise— as soon as someone gets me a suitable machine and a tape sample for testing.

Japan has also come forth with a major new development. Hitachi has just announced that its laboratories have perfected a revolutionary new tape playback head that utilizes a "Hall-element" semiconductor in place of the coil used in all regular head designs. This eliminates the need for the whole bass-boost/treble-cut equalization system required by all conventional recorders, and it also reduces low-frequency phase shifts and high-frequency losses from the self-capacitance of the coil windings. Further, eliminating the coil assembly reduces the size of the head to the point where it becomes easy to include separate record and playback elements, each optimized for its own function, in the same head case.

Though discovered in 1880 by Edward H. Hall of Johns Hopkins University, the "Hall effect" used in the new Hitachi head was largely a laboratory curiosity until the development of semiconductor technology in the 1950's. To understand it, imagine that this page is made not from paper but from a very thin sheet of a semiconductor material (such as indium antimonide) to which you have connected a battery at the left and right edges. The flow of electrons will then go from left to right, as these words do. If you now apply a magnetic field perpendicular to the paper (from your eye to the page), some of the electrons will be deflected toward the top of the page, and you could measure this deflected "Hall voltage" with a suitable meter connected to the top and bottom edges of the page. The amount of the Hall voltage depends on the nature and thickness of the semiconductor sheet (the thinner, the better), the amount of control current (the battery, in this example), and, of course, the magnetic field strength.

![Figure 1](image-url)
To make its Hall-effect tape head (see Figure 2), Hitachi starts with a yoke similar to that used for a conventional head. The head core provides the pole pieces and magnetic structure to gather and concentrate the flux from the recorded tape onto the surface of the Hall element, which can be located within the front or the rear gap. The Hall element itself is formed by first evaporating, then remelting and recrystallizing an extremely thin (one micron, or less than 40 millionths of an inch) layer of indium antimonide onto a ferrite substrate, and then connecting suitable electrodes for the control and output currents.

The inventor of the new head is Dr. Tetsu Oi, of Hitachi's Central Research Laboratory, who also perfected the special "microzone recrystallizing" process that is necessary to obtain a sufficiently high signal-to-noise ratio. (Ordinary Hall-element semiconductors are in use at retail checkout counters to read magnetically coded product prices and credit cards, but they don't have the signal-to-noise requirements of a first-class tape head.) According to Dr. Oi, current models have about the same output from a Dolby-level tone on a tape as a conventional head does, but they offer a slightly better signal-to-noise ratio at the tape-preamplifier output.

Cassette decks using the new head will soon be available in Japan and later in this country, but it appears from my own calculations that the head's greatest potential may lie at open-reel speeds, where the greatest amount of bass-boost/treble-cut equalization is used. Further, open-reel is the format in which editing is important, and here the Hall-element head has a tremendous potential. With ordinary heads, the tape must be in motion to produce any output at all, so to find an editing point you have to rock the tape back and forth across the heads and hope you can stop at just the right spot. A Hall-element head, however, works equally well whether the tape is moving or stopped, since it responds directly to the strength of the magnetic field rather than to the rate of change in the field. That in itself should make it a best seller for tape editors, including this one!

New Phase Linear III's restore the missing third dimension.

The third dimension of a live performance, that open airy feeling of "being there," has been missing from recorded music. Until now. The new Phase III Loudspeakers create a sense of acoustic space never before achieved in a home stereo system. Phase III is a four-way, four-piece system consisting of 20 drivers. The twin five-foot panels utilize a precise geometric arrangement of the mid-range and high-frequency drivers designed to generate an ideal relationship between direct and reflected sound. The bass module, with its two 12" subwoofers, provides an awesome bass response. A separate Electronic Motion Control System provides spatial imaging circuitry, frequency tailoring and equalization. It installs easily in your amplifier or receiver. Phase Linear III can add an entirely new dimension to your listening enjoyment.

See your dealer and ask for an audition.

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ARE SPEAKERS GETTING BETTER?: A letter from a reader comments that our recent test reports show a remarkable number of speakers having nearly flat response down to the lowest audio frequencies, seemingly without regard to their size or price. Is it really possible, he wonders, for, say, a $100 bookshelf speaker to have a bass response that is only 3 dB down at 32 Hz without any significant loss of efficiency? His letter goes on to suggest that there has been either a sudden improvement in loudspeaker technology or else a change in the Hirsch-Houck Labs’ frequency-response measurement methods, and he asks which is the case.

First, it should be made clear that the speakers that appear in our test reports are not representative of everything—good and bad—that’s out there in the marketplace. Instead, the units chosen for test are selected from among the better speakers available to the consumer at various price levels. Therefore, any system reported on in our pages represents at least a reasonable value by today’s speaker standards—but it is evident that those standards are considerably higher than they were several years ago.

As far as the Hirsch-Houck Labs’ measurements are concerned, my low-frequency measurement technique employing a close-spaced microphone has remained unchanged for several years. Therefore, if the speakers in recent test reports appear to have better bass response than their predecessors, it is simply because they do.

Over the years, I have given much thought to my test results and how well they do (or don’t) correlate with what I hear. Could it be that my method of measuring frequency response is not sensitive enough any more to reveal the differences normally to be expected between speakers? Since we moved to a newly constructed laboratory nearly a year ago, there would seem to be the possibility that the new acoustic conditions are affecting results in spite of our best efforts to correct for them.

However, any such doubts I might have about the validity of our speaker-response measurements are dispelled by listening experiences in the same room used for the measurements. Once the levels of two speakers have been carefully matched for the particular program material, it is astonishing to hear how much alike the better systems sound. The listening setup accommodates up to four sets of speakers that can be compared in pairs at the touch of a button (which also simultaneously matches their sound levels). Often the only way I can tell (from a distance of 10 feet or more) which speakers are on is to look at the switch settings on the comparator panel. When I push the button, the only differences that stand out may be slight shifts in apparent source position or a change in spatial perspective related to the speakers’ dispersion qualities.

This certainly leads me to conclude that the better speakers are becoming more nearly alike in their important characteristics, though not necessarily in the subtleties that are stressed—perhaps overemphasized—by many audiophiles. It seems clear that the essential sound character of a system (which is basically determined by its octave-to-octave energy balance) can be as good in many $100 speakers as in others costing five or six times that much.

When making such heretical statements, one should take pains to be correctly understood. Since the sound of any speaker is radically influenced by the listening room and everything associated with it, and since not all speakers are affected in the same way by their surroundings, there are going to be many situations in which sizable differences will be heard between speakers even though our tests, or someone else’s, indicate that they should sound pretty much alike. I cannot emphasize too strongly the importance of speaker placement, room dimensions, and room acoustics in determining the response one will actually hear. Just because a speaker measures nearly flat to 30 Hz in our tests, this does not mean that you or I will be able to hear a reasonably strong, clean 32-Hz note from it in our home listening rooms. What it does mean is that, all else being equal, the speaker should deliver a deeper bass than some other whose close-miked response does not extend so far downward in frequency.

I prefer to view my own—and other peoples’—tests and evaluations of speakers as general indicators of performance that should never be accepted by a reader as a guarantee that a certain speaker will sound precisely as good in his home as it did in our lab (or vice versa). Once again, I repeat my warning that the only sure way to know how a speaker will sound in your home is to listen to it in your home. The only thing you can learn with certainty from hearing it in another place is what it sounds like in that place. And, sad to say, even relative judgments between speakers can be affected by the environment, so that just because speaker A sounds somewhat better than speaker B in the showroom...
does not necessarily mean it will still sound better than B if you compare the two systems at home.

As to whether a small, inexpensive speaker can really have a good low-bass response without some sacrifice in performance, the laws of physics demand that some "trade-off" take place. For example, there will be wide variations between speakers (with the same bass frequency response) in their bass distortion at a given sound-pressure level, and also in the maximum bass level that can be produced without excessive distortion. A small cone can produce very low frequencies, but not at a very loud level. If your aim is to "feel" the bass pressure, you should not count on doing so with one of the smaller speakers, even if its bass response at lower listening levels matches that of a larger speaker.

Onkyo A-7 Integrated Stereo Amplifier

Onkyo's Model A-7 is that company's finest integrated stereo amplifier, rated to deliver 65 watts per channel to 8-ohm loads from 20 to 20,000 Hz with less than 0.1 per cent total harmonic distortion. Its frequency response is specified well beyond the audio range, with a ±1-dB rating from 2 to 80,000 Hz. This accounts for its excellent low-frequency square-wave response. (A 50-Hz square wave is said to emerge from the amplifier with less than 5 per cent tilt on its top and bottom, indicating flat response without significant phase shift to well below 5 Hz.)

The Onkyo A-7 has a thick brushed-satin aluminum panel and machined metal knobs that give it an exceptionally rugged appearance—which is more than skin deep, we might add. Volume is adjusted by a large, heavy knob that operates a true thirty-two-step switch attenuator (as opposed to the more common potentiometer control with mechanical detents). The upper eighteen steps adjust the volume in 1-dB increments, increasing to 2-dB and larger steps as the volume is further reduced.

Three bar knobs in the center of the panel select the program source and control the two tape decks that can be connected to the A-7. The input selector has positions for two magnetic phonograph cartridges, tuner, and a high-level (aux) input. The monitor switch connects either the selected source or the playback output from tape deck 1 or tape deck 2 to the amplifier. The dubbing switch cross-connects the two tape decks so that tapes can be copied from either machine to the other.

To the left of these controls are the bass and treble tone controls. Each is an eleven-position selector switch, boosting or cutting the response in 2-dB steps. Below each control is a smaller knob that serves to bypass the tone-control circuits entirely or change the turnover frequency. The bass-turnover frequencies are 125 and 400 Hz, and the treble frequencies are 2,000 and 8,000 Hz. The speakers switch connects either, both, or neither of two pairs of speakers to the amplifier outputs.

The other controls, principally pushbuttons, include the power switch (with a nearby pilot light), subsonic and high-frequency filters, the mono/stereo mode switch, loudness compensation, and a 20-dB audio muting switch. The balance control and a stereo-headphone jack complete the front-panel features. At the amplifier's rear, in addition to the signal inputs and outputs, there are separate preamplifier outputs and power amplifier inputs joined by jumper links. Insulated binding posts are used for the speaker connections, and one of the three a.c. outlets is switched. The Onkyo A-7 is 17¾ inches wide, 15 inches deep, and 6¼ inches high. It weighs about 30 pounds, including the furnished black metal protective cabinet. Price: $350.

Laboratory Measurements. Probably because the Onkyo A-7 carries a modest power rating for an amplifier of its size and weight, it became only slightly warm during the one-hour FTC preconditioning period. The output, with both channels driven at 1,000 Hz into 8-ohm loads, clipped at about 76 watts per channel. The 4- and 16-ohm outputs were 105 and 48 watts. The total harmonic distortion (THD) at 1,000 Hz was essentially the residual of our test instruments (0.002 to 0.0025 per cent) from 0.1 to more than 20 watts output. It increased to 0.0045 per cent at 50 watts and to 0.007 per cent at 70 watts. The intermodulation distortion (IM) was 0.05 per cent at 0.1 watt; it decreased to 0.006 per cent in the vicinity of 10 watts and rose to 0.028 per cent at 70 watts. It also rose at extremely low power levels, to 0.19 per cent at 6 milliwatts output.

The Onkyo A-7 was driven to a reference output of 10 watts by a high-level input of 62 millivolts or a phono input of 1 millivolt. The respective unweighted noise levels, referred to 10 watts, were -78 and -74 dB, both excellent figures. The phono preamplifier stage overloaded at a high and safe 235-millivolt input. The manufacturer points out that precision components are used for the RIAA equalization circuits of the A-7, so that its equalization accuracy is rated at ±0.3 dB from 30 to 15,000 Hz. That is exactly what we measured, and the same tolerance applied in fact to the extended phono response from 20 to 20,000 Hz. There was virtually no interaction with phono-cartridge inductance, which increased the output by only about 0.8 dB at 20,000 Hz.

The selectable tone-control turnover frequencies of the A-7 give it considerable flexibility in meeting specific response needs. However, we noted that the maximum range of the bass control, in particular, was far larger than it needed to be. With the 400-Hz turnover, about 23 dB of boost was available at 20 Hz, and with the 125-Hz turnover the maximum boost was almost 20 dB at 20 Hz and still increasing at lower frequencies. These controls should be used with caution, since it would be easy to overdrive a speaker (or the amplifier itself) at very low or high frequencies by indiscriminate use of bass boost.

The loudness compensation, which boosted both low and high frequencies, was very mild in its action and therefore more listenable than most such systems (especially if the audio muting is used so that the volume control can be operated in the upper half of its range). The subsonic filter is rated to take effect below 10 Hz with a 6-dB-per-octave slope. It affected the output at 20 Hz by less than 1 dB. The high filter also had a 6-dB-per-octave slope, with the -3-dB response point at 5,500 Hz. It was about as effective as such a gradual filter can be since the cut-off frequency is well chosen for reduction of noise with minimum effect on the program.

Comment. The Onkyo A-7 is a smooth amplifier whose virtues are best appreciated in use rather than by reading its specifica-
tions. From the beginning, we sensed the care that had gone into providing exactly the right tactile response in the controls. Although the volume detents are distinct, they are so light that one might turn the knob without really being aware that it is a stepped control. This sensation is enhanced by the unobtrusive way in which the level changes as the control is turned, with no sudden or unexpected changes in volume (even the steps themselves are rarely audible as such).

All the other controls operated as effective-ly, without noise but with a positive "feel" that complements the A-7's overall air of precision. We are well aware that other makes of amplifiers have many of the same qualities, but in few of them have all these virtues been put together without slipping up somewhere. If Onkyo "goofed" anywhere, we didn't find any evidence of it.

As for how the A-7 sounds, we can say simply that nothing we have heard sounds any better. This is only to be expected from an amplifier whose performance is so much better than that of any other part of a music system. It doesn't distort; it doesn't add hum or noise (subjectively, it is even quieter than the unweighted measurements would suggest); it doesn't emit clicks or thumps, no matter how the controls are handled; it can perform just about any normal system-control function; it is powerful enough for almost everyone; it looks good; and its price is not unreasonable. To us, all of this adds up to a very successful product.

Circle 105 on reader service card

Heath AD-1307 Audio Control Center

In our reviews of Heath's most powerful amplifier, the excellent AA-1640 (STEREO REVIEW, May 1975 and October 1976) we commented on its meters, which displayed the true instantaneous power-output level of the amplifier. At the time, we were so impressed that we expressed the wish that these meters be made available as an accessory for use with other amplifiers.

Perhaps somebody at Heath was listening, for they have now made available the Model AD-1307, an audio control center based on these meters and their electronic circuits. The unit can also serve as a system control center for both a.c. power and speaker switching.

Styled to match other recent Heath audio components, the AD-1307 is supplied with walnut end panels that contrast with its brushed-aluminum front panel and black-finished metal cabinet. The power pushbutton at the left of the panel (with a LED pilot lamp above it) energizes the internal meter circuits and also applies power to the four switched a.c. outlets in the rear of the unit. This is a boon to the audiophile who has (or plans to have) a super-power amplifier but whose preamplifier (like most) cannot safely switch hundreds of watts of primary power. The Heath AD-1307 power switch can control up to 1,500 watts through its accessory outlets, enough for a pair of AA-1640 power amplifiers (or their equivalents) plus all the other components likely to be used in a high-quality music system. It also has four more unswitched outlets, also able to handle up to 1,500 watts. When power is on, the meter scales are illuminated, leaving no doubt as to the status of the system.

The meters have logarithmic scales covering a range of more than 33 dB. They are also calibrated in watts (to 8-ohm loads) from 0.2 to 200 watts (the upper portion of the scale, from 0 to +3 dB, extends the range to 400 watts).

The AD-1307 has inputs for two separate stereo amplifiers and two pairs of speakers. A monitor level switch connects the meters to either the A or the B amplifier's speaker terminals. Normally, the A and the B pairs of speakers can be connected only to their respective amplifiers (by moving the corresponding speakers lever switch to its up position) or shut off (by moving the switch down).

With a quadraphonic system, connections can be made that will allow the meters to display power levels in all four channels. An alternative connection for stereo systems is to wire jumpers externally between the corresponding terminals of the A and B amplifier connections so that either the A or the B speakers (or both) can be connected to the amplifier with the front-panel switches.

In addition, there are separate conventional headphone jacks on the front panel for both A and B amplifier outputs. Resistive L-pads isolate the phone jacks from the amplifier outputs so that phones can be used safely with amplifiers of any power rating. Additional ter-

(Continued on page 38)
There are 400 different jobs in the National Guard. And every one of them helps somebody. Including yourself.

People in the National Guard aren't just sitting around on their hands waiting for things to happen. They're fighting forest fires. And battling blizzards. Saving folks from floods. Even helping to rebuild schools.

And you'd better believe they're fighting for themselves, too. Learning skills. Learning to make life work.

You can learn any one of 400 different jobs in the National Guard. And every one of them helps somebody. Including yourself.

The Guard needs you. The country needs you. Get your Guard up.

August is Salute the Guard Month.
Call 800-638-7600. Or your local recruiter.

ARMY NATIONAL GUARD
The Guard belongs.
Technics knows there's more to Linear Phase than staggered speakers.

If staggered speakers were all it took to achieve phase linearity, other staggered speaker systems would sound like ours. But Technics knows it takes more. Much more. Like a phase-controlled crossover network that takes into account the phase characteristics of each driver. Like extremely wide-range drivers, each with a frequency response that's as flat as it is wide. And finally aligning the acoustic center of each for the optimum acoustic position.

But just as important, Technics knows that to achieve phase linearity as well as a wide and flat frequency response is also to achieve the ultimate in high fidelity: waveform fidelity. With it the output waveform of any component or speaker will be a mirror image of the waveform put into it. And that sounds better than good. It sounds live.

And if seeing is believing, look at the waveforms. On top is the oscilloscope reading (the fingerprint) of a live piano waveform. The other, the piano as reproduced by Technics Linear Phase SB-7000A. That's waveform fidelity you can see, as well as hear.

How did we do it? By designing a crossover network that would provide an overall linear phase characteristic for the entire speaker system, while simultaneously compensating for the different acoustic pressures of the individual drivers.

When we finished we ended up with a unique phase-controlled crossover network consisting of 6 dB and 18 dB/octave cut-off slopes. It not only eliminates "audible dip" at the crossover frequencies, but also assures excellent localization of the original sound source within the acoustic field.

But as important as the crossover network is in achieving linear phase, so are the individual driver units. That's why we designed and manufactured the speaker drivers with the flattest amplitude, widest frequency response and lowest distortion possible. A goal we achieved only after exhaustive amplitude and phase studies in anechoic chambers.

Our final step was aligning the acoustic center of each driver in precisely the same vertical plane. But it took more than anechoic chambers. Technics had to develop a new time-delay system using BBD (Bucket Brigade Device).

Only then could we locate the optimum acoustic position for each driver. In addition, each unit is positioned vertically for the best horizontal dispersion and then spaced as
closely as possible for the best vertical dispersion of all audio frequencies. What's more, after alignment each unit is fine-tuned to assure precise linearity.

The result, with the SB-7000A for example, is an overall phase response, linear between 0° ± 45° between 100Hz and 15kHz. A figure that's virtually flat and definitely unsurpassed by any other multi-range speaker system.

As the graphs prove, even staggered speaker systems with seemingly "linear phase" characteristics show moderate to severe phase shifts at different frequencies. But as you can see, the Technics SB-7000A has an unprecedented flat amplitude/frequency response and linear phase response.

But we don't expect you to buy any speaker system based on how good it sounds on paper. Audition the world's most linear phase speaker systems: the Technics SB-7000A, SB-6000A, SB-5000A. You'll find out just how much more there is to Technics Linear Phase than staggered speakers.

Technics by Panasonic

In the graph frequency response was measured using the CBS 100 Test Record, which sweeps from 20-20,000 Hz. The vertical tracking force was set at one gram. Nominal system capacitance was calibrated to be 300 picofarads and the standard 47K ohm resistance was maintained throughout testing. The upper curves represent the frequency response of the right (black) and left (grey) channels. The distance between the upper and lower curves represents separation between the channels in decibels. The inset oscilloscope photo exhibits the cartridge's response to a recorded 1000 Hz square wave indicating its resonant and transient response.

For more information on the Empire 2000Z, and our free brochure "How to Get the Most Out of Your Records," write: Empire Scientific Corp., Department ±1 dB, 1053 Stataert Avenue, Garden City, N.Y. 11530.

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CIRCLE NO. 21 ON READER SERVICE CARD
minals are provided in the rear of the unit for connecting electrostatic headphones directly to the amplifier speaker-terminal outputs. The speaker connections are made with the polarized screw-head plugs introduced by Heath in their Modulus series of components. Standard screw-type barrier strips are used for the amplifier's speaker connections and electrostatic headphone connections.

The specifications of the Heath AD-1307, though brief, are impressive. The peak-responding meters have a rated response time of less than 50 microseconds and a decay time greater than 0.5 second. The overall dimensioned transient power levels. So long as the interval between bursts did not exceed 10 milliseconds, the meters exactly indicated the steady-state level with bursts as short as 10 microseconds! Longer "off" times between bursts caused the meters to read less than the steady-state power. For example, a 100-millisecond "off" time gave a -3 dB error when the burst duration was between 1 and 10 milliseconds. In the standard test for VU meter ballistics (applying a 0.3-second burst at a rate of once per second) the meters read 1.5 dB low.

nearly as fast as LED displays, the meters gave at all times a running account of the maximum power that the amplifier was called upon to deliver. We would have appreciated more intermediate calibration marks on the meters (the major markings are at 0.2, 2, 20, and 200 watts), but this can surely be assigned to the category of "nit-picking."

The price of the unit might seem a bit high for a pair of meters and some switches. However, the AD-1307 is much more complicated than that. No unassisted mechanical meter movement can respond in microseconds, and the performance of the Heath unit is made
We don't pick up a woofer here, a tweeter there, and cram them together in a creaky box.
We make everything from scratch. The enclosures, the crossovers, the drivers, and even our own paper.
Because if there's anything we hate, it's loudspeakers that editorialize on the music.
So, to keep our sound perfectly real, we control everything to the nth degree. And then some.
Not just the components and the manufacturing.
But also the testing.
We test our speakers by sight. With laser holography that actually creates a picture of the sound patterns they produce.
We test our speakers by instruments. With anechoic chambers that give our sound waves no place to hide.
We test our speakers by ear. With engineers who, in turn, have their hearing tested every day.
This isn't easy. This isn't cheap. But if the result is loudspeakers like those at the left, who's to say it's not worth it?

The DS-303 (top left) is a 4-way acoustic air suspension bookshelf system with a frequency response of 30-35,000 Hz. A power-handling capacity of 100 watts. And an acoustic pressure level of 90 dB/W @ 1 meter.
The DS-50CS (lower left) is a 3-way bass-reflex floor-standing system with a frequency response of 25-20,000 Hz. A power-handling capacity of 80 watts. And an output acoustic pressure level of 92 dB/W @ 1 meter.
Both are so good, they're sold as part of The System. The only one-name, one-look, one-warranty, high performance audio system with speakers as good as the amplifier. An amplifier as good as the pre-amp. A pre-amp as good as the turntable. A turntable as good as the tuner. A tuner as good as the speakers. With no weak links anywhere.
So if you're considering a new pair of loudspeakers, we hope you'll spend some time with ours.
Because how many other speakers could go through all that testing? And live to speak about it?

For more information write Melco Sales, Inc., Dept. SR, 3030 East Victoria Street, Compton, California 90221.
extended, flat bass response of the ESP/10 (like that of the ESP/9) is perhaps less obvious, but it is just as remarkable as its mid- and high-frequency response. These are the only headphones through which we have been able to hear consistently whatever turntable rumble exists either on records themselves or on FM broadcasts using them. Earlier in this report we wondered how one goes about improving a product that is already a leader in its field. Clearly, one does this by making it more reliable, more comfortable, and generally more convenient to use without in any way degrading its sound quality. That is what Koss did, and the result is a headphone we are quite sure will enjoy the same reputation its predecessor did. Circle 107 on reader service card

Harman-Kardon Citation 16 and 16A Stereo Power Amplifiers

The Harman-Kardon Citation 16 power amplifier, which has been on the market for several years, has undergone some changes and is now designated the Citation 16A. Externally, the only differences are minor cosmetic ones in knob styling and panel lettering. Almost all the published specifications for the 16A are identical to those for the 16. The principal change seems to be a slight reduction in the power bandwidth—from 110 kHz to either 45 or 70 kHz (the figure is given differently in the operating and service manuals). With the bandwidth rating reduction, however, comes a lower distortion rating, between 0.1 to 0.05 per cent at 75 watts output into 8-ohm loads over the specified frequency range.

The basic specifications of the H-K Citation 16/16A are quite impressive in themselves. The FTC power rating is 150 watts per channel into 8-ohm loads, from 20 to 20,000 Hz, with less than 0.05 per cent total harmonic distortion (THD). The square-wave rise time is rated at less than 3 microseconds, and the slew rate at greater than 30 volts per microsecond. The noise level is rated at better than 100 dB below 150 watts, the input impedance is 22,000 ohms, and a signal input of 1.25 volts is required for full output.

The H-K Citation 16A is large and heavy compared with some other similarly rated amplifiers. This results, in part, from the fact that each channel has a completely separate power supply. Each output stage uses ten power transistors whose massive heat sinks occupy most of the rear of the amplifier. Between the two sets of heat sinks are the signalinput phono jacks and the speaker outputs, which use insulated binding posts on standard 3/4-inch centers. The heavy-duty power cord is fitted with a three-prong molded plug.

The most distinctive features of the H-K Citation 16A, viewed from the front, are the two slanting rows of LED lights, extending upward and outward from the center of the panel. Each channel has eight lights, which come on progressively at power levels from -30 to 0 dB (the amplifier's rated maximum output). The 0 and -3 dB lights are red, warning of possible overload, the -6 and -9 dB lights are amber, and the others are green. A rotary switch on the panel increases the display sensitivity in three steps (at maximum sensitivity as little as 4 milliwatts will light the -30 dB LED). It will also turn all the lights on (the so-called test position) or shut them all off if desired. Another knob changes the calibration to match operation into either 4- or 8-ohm speaker loads. The amplifier itself is turned on and off by a pushbutton switch, and two red pilot lights glow when the primaries of the two power transformers are energized (so that an extinguished light signifies a blown fuse for that channel).

With the minor exceptions noted, everything we have said applies equally to the original Citation 16. Curious about the differences between the two, we obtained a sample of each. A careful comparison of their schematic diagrams revealed several circuit differences. The Citation 16 used integrated-circuit "op-amps" in its input section, while in the 16A this function has been taken over by a number of discrete transistors and associated components. Also, in several places in the amplifier a single transistor has been replaced by a Darlington pair (a higher-gain component), and there have been a few minor changes of component values. We also found a change in the amplifier's protective-relay circuit, which disconnects the speakers instantly if any d.c. component appears in the amplifier's output (it also provides a turn-on delay of several seconds). Here we found an added IC opamp, presumably to increase the sensitivity of the protective circuit.

Harman-Kardon notes that the 16A output stages are operated in Class A up to about 2.5 watts output, where the transition to Class AB occurs. The practical effect of this is to cause the transistors to operate at a higher quiescent temperature than would exist with normal Class AB bias (which apparently was used in the original Model 16). In the service manual for the 16A it is stated that the heat sinks will reach 60 degrees Celsius (140 degrees Fahrenheit) during sustained idling, and at the one-third-of-rated-power level used in the FTC preconditioning period the temperature will reach 80° C (176° F). A thermal protective device cuts off the amplifier's power if the temperature reaches 90° C (194° F).

The Harman-Kardon Citation 16A is 19¼ inches wide, 9¼ inches high, and about 13½ inches deep. It is equipped with handles on the front panel, and the panel is drilled for seven rack mounting. The amplifier weighs 55 pounds. Price: $795.

- Laboratory Measurements. We subjected both amplifiers to the same tests. After the preconditioning period, the heat sinks of both amplifiers were too hot to touch comfortably for more than a second or two. The outputs clipped at about 200 watts per channel into 8 ohms at 1,000 Hz. The output into 4 ohms was 240 watts for the Model 16 and 277 watts for the 16A. The respective 16-ohm outputs were 127 and 121 watts.

The 16's total harmonic distortion at 1,000 Hz was about 0.002 per cent or less from 0.1 to almost 180 watts output, reaching 0.05 per cent at 190 watts. The 16A was fairly similar, with distortion measuring between 0.002 and 0.003 per cent up to 100 watts and 0.007 per cent at 190 watts. The intermodulation (IM) distortion of the 16 was virtually unmeasurable, reading about 0.001 per cent from 10 to 150 watts and 0.012 per cent at 190 watts. The 16A's IM distortion was about 0.003 per cent up to 20 watts, increasing to 0.016 per cent at 150 watts and 0.02 per cent at 190 watts. Both amplifiers had harmonic distortion levels well below 0.02 per cent from about 50 to 20,000 Hz at full power and lower output levels; the 16A measured 0.02 per cent or less over the full 20- to 20,000-Hz range.

The two amplifiers had approximately the same sensitivity, developing 10 watts output with inputs of 0.31 and 0.33 volt. The unweighted noise levels measured —85 to —87 dB referred to a 10-watt output—which is consistent with the amplifier's full-power noise ratings.

The only respect in which we measured a distinct difference between the two amplifiers (Continued on page 48)
WHY MOST CRITICS USE MAXELL TAPE TO EVALUATE TAPE RECORDERS.

Any critic who wants to do a completely fair and impartial test of a tape recorder is very fussy about the tape he uses. Because a flawed tape can lead to some very misleading results.

A tape that can't cover the full audio spectrum can keep a recorder from ever reaching its full potential.

A tape that's noisy makes it hard to measure how quiet the recorder is.

A tape that doesn't have a wide enough bias latitude can make you question the bias settings.

And a tape that doesn't sound consistently the same, from end to end, from tape to tape, can make you question the stability of the electronics.

If a cassette or 8-track jams, it can suggest some nasty, but erroneous comments about the drive mechanism.

And if a cassette or 8-track introduces wow and flutter, it's apt to produce some test results that anyone can argue with.

Fortunately, we test Maxell cassette, 8-track and reel-to-reel tape to make sure it doesn't have the problems that plague other tapes.

So it's not surprising that most critics end up with our tape in their tape recorders.

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MAXELL, THE TAPE THAT'S TOO GOOD FOR MOST EQUIPMENT.

Maxell Corporation of America, 130 West Commercial Ave., Moonachie, N.J. 07074
Bernstein! Diamond! Manilow!
was in their transient response. The rise time of the 16 was 2 microseconds, while the 16A measured 1 microsecond (both are rated at 3 microseconds). In like manner, the slew rate measured 24 volts per microsecond on the 16 and 30 volts per microsecond on the 16A (again, both amplifiers are rated at 30 volts per microsecond).

No measurements were needed to reveal the difference in operating bias between the two units, however. The 16 ran quite cool under normal listening conditions. The heat sinks of the 16A became uncomfortably hot to the touch. Our rough guess, based on touching the two amplifiers, would be that the 16A runs hotter with no signal than the 16 does under normal signal drive conditions. However, both amplifiers withstood testing without mishap and, no matter how hard they were overdriven, would be that the 16A is more sensitive to overdriving than the 16. Both amplifiers occasionally had transient response and, no matter how hard they were over-

The power-indicator lights were only approximately accurate, though certainly good enough for their purpose. Their instantaneous response makes it easy to see how an amplifier can often be driven to a 150-watt output on ordinary program material, even with speakers of reasonably high efficiency.

**Comment.** The bench tests of the Harman-Kardon Citation 16 and 16A do not reveal any differences between them that we judge to be significant. Perhaps the redesign was in the interest of reducing transient intermodulation distortion (TIM), for which certain IC op-amps are notorious. This is not the place to go into a discussion of that matter, other than to say that, to us, the entire TIM phenomenon, as it applies to audible effects with well-designed amplifiers under real-world (not laboratory or contrived) conditions, falls into the same category as belief in the Easter bunny.

We set up the two amplifiers for an A-B listening comparison. They were driven from the same preamplifier, using the best records and ancillary record-playing equipment we could muster, as well as FM radio. Several types of speakers were used, all of good quality though quite different in their characteristics. Our listening levels ranged from full output from the amplifiers down to background-music levels. The switching was instantaneous, and of course there was no need to adjust the gain when switching, since the two amplifiers were closely matched in their sensitivity. For a cross-check, we also switched to a line 200-watt-per-channel power amplifier of another make.

The results? It should come as no surprise to anyone who has performed similar tests carefully and objectively that no difference could be heard between the two H-K amplifiers (or the third amplifier, for that matter) on any speaker, with any program material, at any listening level. In short, our tests did not reveal any improvements in the performance of the H-K Citation 16A. We weren't disappointed, however, since we had never found that the Model 16 needed improvement; in either version it is one of the cleanest and most rugged power amplifiers one can buy.

Circle 108 on reader service card
It's time for everybody else to start playing catch-up. Again.

From the very beginning, experts have acclaimed the performance and feature innovations of Yamaha receivers as nothing less than spectacular.

But now, we've outdone ourselves.

Yamaha is introducing a new line of receivers with such unprecedented performance, it's already changing the course of audio history. Real Life Rated™ While traditional laboratory measurements provide a good relative indication of receiver performance, they simply don't tell you how a receiver will sound in your living room in actual operation. So Yamaha developed a new standard for evaluating overall receiver performance under real life conditions. It's called Noise-Distortion Clearance Range (NDCR). No other manufacturer specifies anything like it, because no other manufacturer can measure up to it.

We connect our test equipment to the phono input and speaker output terminals, so we can measure the performance of the entire receiver, not just individual component sections like others do. We set the volume control at -20dB, a level you're more likely to listen to than full volume. We measure noise and distortion together, the way you hear them.

On each of our new receivers, Yamaha's Noise-Distortion Clearance Range assures no more than a mere 0.1% combined noise and distortion from 20Hz to 20kHz at any power output from 1/10th watt to full-rated power. Four receivers, one standard. On each of our four new receivers, Yamaha reduces both THD and IM distortion to new lows—a mere 0.05% from 20Hz to 20kHz into 8 ohms. This is the kind of performance that's hard to come by in even the finest separate components. But it's a single standard of quality that you'll find in each and every new Yamaha receiver. From our CR-620 and CR-820 up to our CR-1020 and CR-2020.

What's more, we challenge you to compare the performance and features of our least expensive model, the CR-620, with anybody else's most expensive receiver. You'll discover that nobody but Yamaha gives you our incredibly low 0.05% distortion and -92dB phono S/N ratio (from moving magnet phono input to speaker output).

You'll also discover that nobody else starts out with such a variety of unique features. Independent Input and Output Selectors that let you record one source while listening to another. A Signal Quality Meter that indicates both signal strength and multipath. The extra convenience of Twin Headphone Jacks. Or the accurate tonal balance provided at all listening levels by Yamaha's special Variable Loudness Control.

More flexibility, it's consistent with Yamaha's design philosophy that you'll find the same low distortion throughout our new receiver line. Of course, as you look at Yamaha's more expensive models, it's only logical that you'll find the additional flexibility of more power, more functions, and more exclusive Yamaha features.

For example, there's a sophisticated tuner, with unique negative feedback and pilot signal cancellation circuits (patents pending), that makes FM reception up to 18kHz possible for the first time on a receiver. Plus other refinements like a Built-In Moving Coil Head Amp, Fast-Rise/Slow-Decay Power Meters, and Yamaha's own Optimum Tuning System.

Now's the time to give us a listen. Our new receiver line is another example of the technical innovation and product integrity that is uniquely Yamaha. And your Yamaha Audio Specialty Dealer is an example of uncommon dedication to faithful music reproduction and genuine customer service. It's time you heard them both.

If your Yamaha Audio Specialty Dealer is not listed in the local Yellow Pages, just drop us a line.

YAMAHA Audio Division, P.O. Box 6600, Buena Park, CA 90622 ©1977 YAMAHA INTERNATIONAL CORP

AUGUST 1977
permitted independent adjustment of level in five to ten separate frequency bands. Now, however, there is an equalizer available whose capabilities transcend those of the old-fashioned octave-band graphic equalizer by about the same degree that the latter outperformed conventional tone controls. The SAE Model 2800 parametric equalizer is so versatile that there is literally no way to describe the variety of response curves it offers.

In the sense that SAE uses the term "parametric," it means that the Model 2800 can be adjusted to boost or cut the response at selectable frequencies (instead of relying on the preset center frequencies of ordinary graphic equalizers). Also, "Q" of each equalizer response is adjustable over a wide range. The latter feature permits the width of the band of frequencies affected by each control to be varied from 0.3 octave to 3.6 octaves.

The control functions of the SAE Model 2800 are divided into four broad (and overlapping) frequency bands, identified as lo, lOMID, hMID, and h frequencies. Within each band, there is a continuously variable frequency adjustment, giving coverage of the 10- to 320-Hz, 40- to 1,200-Hz, 240- to 7,600-Hz, and 1,200- to 15,000-Hz ranges. Since these bands overlap, it is even possible to concentrate the action of two or three filters at one frequency (for example, 1,200 Hz from the lo-MID, h-MID, and h bands). Each band also has a slider control that adjusts its gain over a ±16-dB range, with a detent at the center (0-dB) setting. The bandwidth adjustment for each range is a slider control calibrated in octaves from 0.3 to 3.6.

The dozen controls are pushbutton switches for power (there is a LED pilot light) and the operating mode of the equalizer. The Model 2800 is normally inserted in the tape-monitor loop of an amplifier or receiver, and the tape input and output jacks are duplicated on its rear panel. A button on the front panel bypasses the equalizer circuits when it is released. Normally, the tape outputs carry an unequalized program, but two of the control buttons permit the equalizer to be inserted in the signal path going to the recorder or coming from its playback amplifier. There is also a monitor button for listening to the tape.

The SAE Model 2800 has an insertion loss, with all controls centered, of less than 1 dB, and the maximum output before clipping is rated at 9 volts into a 10,000-ohm load. The input impedance is 100,000 ohms, the output impedance is 500 ohms, and the equalizer can drive any load impedance greater than 600 ohms. Nominal rated output is 2.5 volts.

The styling of the Model 2800 conforms to the "professional" look of the other SAE components. Its front panel, 8 3/4 x 19 inches, is slotted for rack mounting, fitted with rugged handles, and finished in semi-gloss black. The chassis, also finished in black, is 3 1/2 inches deep. The unit weighs about 10 1/4 pounds. The only connectors on its rear panel are the line and tape-recording input and output jacks (standard phono jacks). The equalizer can be operated either vertically or horizontally, and it has rubber feet on its bottom for vertical installation. An optional walnut cabinet is available. Price: $550. The Model 1800, a scaled-down version with two bands, is also available for $300.

**Laboratory Measurements.** Since it would not be possible to measure more than a few of the frequency-response curves made possible by the Model 2800, we plotted several families of curves to verify the calibration accuracy of the center-frequency and bandwidth controls. All were acceptably close to the markings on the panel.

With the controls set to "flat," the response of the equalizer was within ±0.25 dB from 20 to 12,000 Hz, dropping to ±1.5 dB at 20,000 Hz. The clipping level at 1,000 Hz was 8.5 volts. Total harmonic distortion (THD) was about 0.01 per cent at all outputs up to 2.5 volts, and only 0.028 per cent at 8.5 volts, just before the onset of clipping. The gain of the unit was -0.9 dB. The wideband (unweighted) noise in the output was 76.6 dB below 2.5 volts, and power-line hum was 86 dB below that level.

All the controls of the SAE Model 2800 operated smoothly, and the device produced neither audible noise nor switching transients (there is a delay of several seconds after power is applied before the outputs are connected to prevent turn-on transients from reaching the amplifier and speakers).

**Comment.** If you know what you want to hear, can recognize it when you do hear it, and have a good deal of patience, the chances are that the SAE Model 2800 will be able to produce exactly the sound you want from just about any set of audio components. If it cannot, it is unlikely that you can buy anything else that can. However, we suspect that the real forte of this intriguing product is in recording. For producing special effects, emphasizing or de-emphasizing any particular instrumental sound and the like, it should be hard to beat.

The applications of the Model 2800 are sure to be limited more by the user's patience and know-how than by its own capabilities. However, it would be a mistake to think of it as just another "super tone control." It is far more than that.
BE SURE YOU CHOOSE THE ONE YOU LIKE.

A TEAC LASTS A LONG, LONG TIME.

One of the reasons is that we've been making them for a long, long time. In 1955, TEAC came on the scene with the first in a long line of fine open reel tape recorders.

Since then, of course, we have developed a sister line of cassette decks. But our first love remains open reel tape recording equipment: the truest method of sound reproduction available today.

Consider the alternatives. If you want top-of-the-line quality, but only need bottom-of-the-line features, the A-2300SX is the buy of the year. From there, you can add DOLBY, larger 10½" reels, four heads, auto reverse, four-in/two-out mixer, memory stop, 15 ips, four channel Simul-Sync, and variations thereof.

In short, as long as you're getting a tape deck, can you conjure up a single reason it shouldn't be a TEAC?

TEAC
The leader. Always has been.

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CIRCLE NO. 41 ON READER SERVICE CARD
Going on Record

By James Goodfriend

THE GUARD CHANGES

HAROLD GOMBERG, principal oboist of the New York Philharmonic, has made the orchestra season just completed his last. His decision to retire does not so much mark the close of a brilliant career (he is sure to make guest appearances and to continue recording) as it does the ending of one era and the beginning of a new one. Few men have dominated their fields, especially in the eyes of their colleagues, as Gomberg has dominated his. Other oboists had their adherents, but Gomberg was a phenomenon known to musicians everywhere, and the opportunity to hear him when the Philharmonic was on tour drew the best of his colleagues and competitors to the concert hall. He will be missed by many and in their eyes, especially in the eyes of their colleagues, as Gomberg has dominated his.

In their domination, though, they tended to overshadow others. The public mind, after all, is not really big enough, or interested enough, to retain the names of half a dozen flutists, hornists, clarinetists, or what have you. And so some extraordinary talents never received the approbation that was their due. I will not append a list here; every musician and music lover would have at least a handful of musicians who were, for obvious reasons, far more numerous—these were the personifications, the virtual human equivalents of their instruments.

In their domination, though, they tended to overshadow others. The public mind, after all, is not really big enough, or interested enough, to retain the names of half a dozen flutists, hornists, clarinetists, or what have you. And so some extraordinary talents never received the approbation that was their due. I will not append a list here; every musician and music lover would have at least a handful of names to add to it. In most cases this complete possession of the spotlight was both a passive and an unintentional thing, but there are cases known where talents were deliberately covered, too- promising students held back, real competitors disparaged behind their backs. Such is the way of the world. Many who sought a corner in the spotlight were younger than those who held it—but perhaps not enough younger. They came up during the prime of the great ones and suffered the fate of the acorn that falls too close to the tree.

But look at that list of masters now. Several are dead, some are retired, others are close to retiring. Even Rampal, whose strength “is as the strength of ten” and who is as active as ever, cannot claim to be getting any younger. The same, needless to say, has been happening among the multifarious virtuosos of the violin and the piano. The guard is changing.

Some old-line music lovers (like myself) may have wondered about the host of new performers appearing, seemingly, every day and everywhere. I think that it is not that we are experiencing an unprecedented flowering of instrumental talent (though that may be the case in regard to certain instruments), but that the giants are starting to slip away and their shadows no longer mask the new growth. With a place in the sun comes visibility, and shadows no longer mask the new growth.

They are the giants of a past era, and the giants of a future time. Among clarinetists, the estimable Gervase de Peyer probably holds the position once filled by Reginald Kell. But the young American Harold Wright and the young Scandinavians Kjell-Ingé Stevensson, two very different kinds of players, must certainly join him and Stanley Drucker as important musicians.

As for the horn, there has probably been no one before Barry Tuckwell, at least in the modern world, who has been able to exist as a soloist without benefit of either an orchestral position or a teaching schedule. Tuckwell’s solo recorded repertoire already far exceeds that of Dennis Brain, and, though no one who has heard it is likely to forget the special sound of Brain’s horn, Tuckwell, together with the admirable Hermann Baumann, is ample evidence that virtuoso horn playing is far from a dying art.

Obviously an expanding field is that of the trumpet virtuoso, for the pioneering efforts of Voisin and Wobisch (among others) brought back to musical life the art and the repertoire of the Baroque trumpet, one that had lain dormant since the death of Johann Altenburg in 1801. (Those who go back twenty or twenty-five years will remember recordings of the Bach Second Brandenburg Concerto with the trumpet an octave lower than written or the part played by a clarinet or soprano saxophone.) Today such young virtuosos as Edward Tarr and Gerard Schwarz, along with the Baroque trumpet, one that had lain dormant since the death of Johann Altenburg in 1801.

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A few samples: James Galway is an astonishing flutist, with a sensational technique, fine musicianship, and, on the basis of his Mozart record (RCA AR-2159, reviewed in this issue), a powerful tone that is virtually halfway to that of a trumpet. Such attributes imply a certain style (and one might question what sort of a Faun he would make), but he is obviously someone to hear. Paula Robison is also making a considerable name for herself on the flute. Ransom Wilson will obviously be heard from more, and Franz Bruggen, who is by no means advanced in age despite his impressive list of recordings, already dominates the field of early music for flute and recorder.

These and others will obviously become the Moyes, the Kineals, the Bareres, the Rampals, and the Bakers of a future time.

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SPACE limitations here allow only a sort of introductory sampling of this changing of the guard, but this will hardly be the last word on the subject. In future issues we expect to present interviews and critical assessments of many of these younger people who will be among the great musical names of their time. You can tell the players without a scorecard, but a word even to the already wise can only make them wiser.
When you're buying speakers, you want to talk specs. And we don't blame you. In fact, we encourage it. Because when you invest your good money in a pair of speakers, you want more than just a pretty cabinet.

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In short, Jensen Spectrum speakers aren't designed to put out the most amount of bass or the most amount of treble. They're designed to put out the right amount. We consider them to be the best speakers we've produced in 50 years. Simply because when it comes to sound reproduction, they're extraordinarily accurate. And that's what specs are all about.

For further information and name of your nearest authorized Spectrum Dealer, write to: Jensen Sound Laboratories, Dept. SR-87 United Parkway, Schiller Park, Illinois 60176.
CARLY, DOLLY, AND LILY

I don’t know precisely when you are reading this (mid-July?), but I am writing it in mid-May, just after Carly Simon, who has made no major public appearances in the past two years, gave the last in a three-night series of unpublicized performances at a New York talent showcase, the Other End. In an effort to overcome an increasingly debilitating case of stage fright, Carly planned several secret appearances in various small clubs such as the End, billing herself only as “a special guest.” Even her record company, Elektra, was unaware of her plans. I had plucked the word off the grapevine operated by sister Lucy Simon, and made plans to attend the next-to-last show on Friday.

Secret, huh! By the third night, everybody had tuned in and turned up for what was obviously destined to be a typical glitter-city Event. Masses of fans were jammed up against the entrance, many of them disappointed to the brink of tears when they discovered that tickets were all gone or, worse, that their reservations had not been recorded. Even songbird Phoebe Snow, looking beauty and mildly disgruntled, was kept waiting in the street.

I was luckier: my host was Doc Pomus, whose name may not be familiar, though the many songs he’s written are—among them Teenager in Love (made famous by Dion and the Belmonts) and Save the Last Dance for Me (one of the Drifters’ hits). In the late Fifties, Doc and Mort Shuman ranked with Leiber and Stoller as one of the best-known teams in rock composing. Now he is an Other End regular, a veteran of the music wars, and a connoisseur of the talent parade. His table offered a great view of the stage and an event better one of an audience in which futurist Herb Mann, actress Diane Keaton, Monty Python man Eric Idle, and, of course, sister Lucy mingled and mingled with varying degrees of nonchalance and self-consciousness. Sure-footed Chevy Chase plowed through the crowd demanding the return of a (fictitious, one hopes) lost pearl necklace, and when the wonderfully dissipated-looking Mick Jagger appeared, Carly’s Evening at the End was inscribed for all time in the pop/rock Book of Blessed Events.

Doc and Mort Shuman, one of the best-known teams in rock composing.

If Carly was nervous, she concealed it magnificently, delivering a smooth, totally engaging performance. Her voice was rich, strong, and beautifully controlled through a program of her old material, every song a hit. She introduced just one new song, Nobody Does It Better, the theme of the newest James Bond flick and scheduled for release shortly as a single—the song, not the movie. (Where there is a single, can an album be far behind?) When husband James Taylor, looking shy and country-gangly, joined her for just one number, a nicely harmonized duet of his lovely You Can Close Your Eyes, the audience quivered with palpable delight. Everyone was obviously much pleased to be there, and the good humor flowed out into the streets with the departing crowd.

I took mine with me to the next socio-musical Event of the evening, the Dolly Parton in Gotham Party. Dolly, too, was in the midst of a three-night gig at a small New York club, but, unlike Carly’s, Dolly’s shows (at the Bottom Line) were heavily publicized, RCA’s mighty PR machine gathering in droves of the high and mighty, many of whom were both. Mick Jagger showed up two nights in a row, perhaps vying for the Most Visible Celeb About Town award with tireless gala-goers Patti Smith and Sylvia Miles, who also caught Dolly’s act. Andy Warhol, Candice Bergen, and Bruce Springsteen shone in the glitzy firmament that made up the country singer’s packed audiences. Dolly, bless her, bounced on stage, all platinum hair, high heels, and amplitude, and entertained with a vengeance. Starting with a spirited version of Higher and Dolly’s act. Andy Warhol, Candice Bergen, and Bruce Springsteen shone in the glitzy firmament that made up the country singer’s packed audiences. Dolly, bless her, bounced on stage, all platinum hair, high heels, and amplitude, and entertained with a vengeance. Starting with a spirited version of Higher and Higher, the only thing she sang that wasn’t her own, she moved on to more “country” material, accompanying herself alternately on the guitar, dulcimer, and banjo. Many of these country tunes slipped easily and naturally into really rocking rhythms (as they do on her latest album, Dolly’s Harvest—First Gathering, RCA APL1-2188). Country purists may cluck over Dolly’s attempts to cross over to a wider audience, but I approve heartily. She’s a fine, stylish, impressively musical singer, and she does right by her own material.

At two in the morning Dolly’s special midnight concert was over, and invited celebants were elevated up to the elegant Windows on the World restaurant (atop one of the World Trade Center towers) for a champagne breakfast.” Although the juxtaposition of guests wearing everything from feather boas to leather boots was visually intriguing, and the spectacular wraparound view of the night-city from the one-hundred-and-seventh floor was breathtaking, somehow it all seemed flat, there was considerably less bubble in the atmosphere than I had expected. That may or may not say something about this whole “crossover” business, but I prefer to blame it on the lateness of the hour. A party needs more than champagne, a smart setting, and Beautiful People; it needs a vital center, a dynamite hostess. But Dolly, who had already done two shows that night, was simply not up to a third.

My favorite Event this merry month of May was not a socio-musical happening at all. Arista Records invited the press to a special afternoon performance of Lily Tomlin’s held-over Broadway show, Appearing Nitely, at which president Clive Davis would announce the signing of Ms. Tomlin to the label. Before the performance began, Davis made his announcement and introduced a handful of famous folk in attendance—Cicely Tyson, Harry Belafonte, Sally Kellerman, Roberts Flack—and the ubiquitous Patti Smith. I was quite unprepared for the way in which Lily Tomlin simply becomes her characters, visually and vocally, using no costumes and almost no props. There are few belly laughs in the show—she is not so much a comedienne as an actress whose dramatic insights and sensitive portrayals border on... well, genius. I left the theater a confirmed fan, determined to spread the word about the (just released) recording of the show, “Lily Tomlin on Stage” (Arista AL 7003).

What else? Well, there was the Olivia Newton-John soirée at the ritzy Hotel Pierre following her sold-out Metropolitan Opera concert, Atlantic Records’ party announcing the signing of the Temptations at the spectacular new disco Studio 54, the Helen Reddy do that night, Sandy and Bette and Larry, and Bruce Springsteen shone in the gaudy firmament that made up the country singer’s packed audiences. Dolly, bless her, bounced on stage, all platinum hair, high heels, and amplitude, and entertained with a vengeance. Starting with a spirited version of Higher and Higher, the only thing she sang that wasn’t her own, she moved on to more “country” material, accompanying herself alternately on the guitar, dulcimer, and banjo. Many of these country tunes slipped easily and naturally into really rocking rhythms (as they do on her latest album, Dolly’s Harvest—First Gathering, RCA APL1-2188). Country purists may cluck over Dolly’s attempts to cross over to a wider audience, but I approve heartily. She’s a fine, stylish, impressively musical singer, and she does right by her own material.
Three heads above other cassette decks.

Hitachi's R&P Head.

Two-head decks are compromise performers, because they use a single head for both record and playback.

To insure no-compromise performance, Hitachi developed the R&P 3-Head system. It uses 3 heads, like professional reel-to-reel decks. And these unique record/playback heads have separate and optimum gap widths extending both dynamic range and frequency range significantly.

The Hitachi R&P head is capable of playback monitoring, so you can compare the original source with your tape, a moment after it's recorded. And as an added benefit, its single housing eliminates height and azimuth adjustment problems.

Add up the benefits. You'll agree that Hitachi's decks are three heads above other cassette decks.
Introducing the Koss Theory of loudspeaker design and the three new Koss CM speaker systems that prove it.

When Koss invented the stereophone, music lovers and audio experts were amazed at the low distortion, broadband frequency response, and high efficiency achieved by the Koss drivers. Indeed, the resultant Sound of Koss created a revolution in the audio industry.

Today, the exciting new Koss Theory of loudspeaker design has created another revolution. By developing a complex series of audio engineering formulas and by utilizing the precise knowledge of modern computer science, Koss engineers have created a breakthrough in loudspeaker technology of such significance that it heralds the second major revolution in loudspeaker design technology.

For the first time, it's now possible to scientifically derive and produce the optimum system parameters for any loudspeaker. By computerizing the Koss Theory and by first selecting the number of bandpasses desired in the system, the system's desired efficiency, the \( f_3 \), low bass cutoff, and the desired cabinet size; Koss engineers are able to derive specific design parameters for every component in the total system. In fact, the Koss Theory is so sophisticated that even the structural design of the cabinet and the precise positioning of the components in the cabinet for optimum dispersion and phase coherency are specified.

Of course, what's really important is not the Koss Theory itself but the sound of the three new Koss speakers that prove it. Indeed, with current technology, there are no speakers available at similar prices that can match the Koss CM 1010 two bandpass loudspeaker, the Koss CM 1020 three bandpass loudspeaker or the Koss CM 1030 four bandpass loudspeaker in low distortion, high efficiency, and broadband frequency response.

But then, the incredible sound of these three new speakers isn't surprising when you consider some of the revolutionary new features they offer:

Take for example, the CM 1010's unique mass aligned 10-inch passive radiator that enhances the lower 2 octaves of the bass and allows for the use of a specially designed 8-inch woofer to reproduce the critical midrange up to 2.5 kHz. With the alignment mass in place, the CM 1010 reproduces a maximally flat response from an \( f_3 \) of 35 Hz on outward. However, by removing the alignment mass, those who prefer more acoustic energy in the 50 to 80 Hz range can create an \( f_3 \) of 40 Hz and a low bass ripple of 1% dB centering on 60 Hz.

Or take the CM 1020's dual port design that provides an optimal cross sectional port area for proper cabinet tuning. Or the unique parallel midrange design of the CM 1030. By utilizing two 4½-inch drivers operating in parallel, Koss engineers were able to decrease the excursion of each driver thus creating a dramatic decrease in potential driver distortion and an equally exciting increase in the overall brilliance and presence of the midrange response. Then again there's the Koss high bandpass 1-inch dome tweeter and unique acoustic transformer that creates an incredible 6 dB increase in headroom.

And, of course, there's also the patented quasi second-order crossover network that provides a smooth, acoustically invisible transition from bandpass to bandpass.

But those are just some of the revolutionary features offered by the new Koss CM loudspeakers. Why not prove the Koss Theory of loudspeaker design to yourself by asking your Audio Dealer to give you a full demonstration of the beautiful Sound of Koss. Or write to Fred Forbes, c/o the Koss Corporation, for our free, full color CM loudspeaker brochure. Once you've heard these revolutionary new loudspeakers, we think you'll agree: hearing is believing.
Renaissance of the Lute

Among instruments long relegated to history, few have made more spectacular comebacks recently than the lute. Perhaps this is because of its relationship to the guitar, so incredibly popular today. With the rediscovery of additional older repertoire and, no less important, a burgeoning interest in hearing old music played on the instruments of its own time, it is not very surprising that a number of guitarists have taken up the lute as a sometime alternative—and in some cases have even moved over to it entirely.

The history of the lute dates back to the early Middle Ages, and its introduction into Western civilization may be traced to the invasion of Spain by the Arabs in 711 A.D. Until around 1500, of course, the instrument had no printed repertoire; this was to come first from Venice, followed in short order by the early sixteenth-century publications of German and French printers. Together with already existing manuscripts, an immense body of solo lute music was swiftly accumulated. (From English sources alone, for example, we have today around two thousand such pieces created between 1540 and 1620.) Nor was this the full extent of the lute’s repertoire, since the pear-shaped instrument, with its fretted fingerboard and pairs of strings tuned in unisons or octaves, was also much in demand for accompaniment and ensemble work.

Over the centuries the lute evolved from a sensitive but workable instrument that could be mastered by virtually any gentleman into an exceedingly complex one suitable only for skilled specialists. The fifteenth-century lute of nine strings became, by the first quarter of the eighteenth century, an unwieldy twenty-four-string instrument (eleven pairs plus two single top strings). Compare this to the guitar’s six single strings, with its consequently simpler tuning and tablature (the special type of notation used for these instruments), and it is easy to see why the guitar eventually superseded the lute in popularity with both players and composers.

Judging at least from his recordings, a perfect example of a guitarist turned lutenist is the forty-five-year-old Austrian Konrad Ragossnig. For DG Archiv he has produced what is perhaps the largest, if obviously not totally comprehensive, survey of Renaissance lute music yet committed to disc. The first volume, of English music (Archiv 2533 157), which I reviewed most favorably more than a year ago, has now been followed by six beautifully recorded discs devoted, respectively, to lute music from Italy, Spain, Poland and Hungary, Germany and the Netherlands, France, and—as if that were not enough—a marvelous assemblage of works for combinations of two and three lutes from the same period and almost as many countries.

A good many of the works chosen are reasonably familiar from other lute and (especially) guitar collections—for instance, the Luis Milan pavanes, the Nurvazé variations on Guardame las Vacas, the dance settings of Jean-Baptiste Besard and Pierre Attaingnant, and the satiric Juden Tantz of Hans Newsidler. To these, however, Ragossnig adds enough lesser-known examples of the varied types of dances, contrapuntal pieces, settings of popular songs, and variations that were the mainstay of the lute repertoire in this period to provide discoveries for even the dedicated lute buff. He plays them all, on a David Rubio instrument, with expressivity, clarity, and a good feel for direction and climax. His interpretations are sprightly or moving as required, and, although some might object to his occasional use of fingernails (rather than fingertips) to pluck the strings, these recordings can safely be considered the most comprehensive and idiomatic survey of lute music available on disc.

"Over the centuries the lute evolved from a sensitive but workable instrument that could be mastered by virtually any gentleman into an exceedingly complex one suitable only for skilled specialists."

By Igor Kipnis
recommended as among the best of their type and overall as a most pleasurable anthology. If buying all seven would disorder either your budget or your musical digestion, I'd be inclined to recommend singly the album of music for two and three lutes as perhaps the most tantalizing appetizer.

A rather smaller survey of sixteenth- and seventeenth-century European lute music, available on the Hungaroton label, features András Kecskés in works by Hungarian, Czechoslovakian, Polish, and Austrian composers, as well as pieces by others written in the styles of these countries (Hans Newsidler's Der Polnisch Tantz for example). Kecskés' playing of the twenty-five brief and relatively simple pieces (most of them dances) is technically and stylistically skillful, if a little low-key in terms of personality, sprightliness, and brilliance. The monochrome dynamics are partly offset, however, by the rhythmic pulse provided by accompaniment from some period percussion instruments (played by Agnes Méth)—a rather curious but very effective addition. The lute reproduction is somewhat too close-up but clean, and the program duplicates only a very few pieces from the Ragossnig set.

Kecskés demonstrates another of the lute's roles on an overly reverberant Harmonia Mundi disc entitled "The Pleasures of the Renaissance," where he provides the accompaniment for six mid-sixteenth-century to early-seventeenth-century lute songs as well as eight instrumental pieces, mainly dances, from Central Europe. On his own, the lutenist performs four brief solos (including the anonymous English Greensleeves and Kemp's Jig). His partners are Zeger Vandersteebe, a countertenor whose lower range is more pleasing to the ear than the upper reaches, and René Clemencic, who performs brilliantly on recorders and percussion. (Kecskés, incidentally, is a member of the redoubtable Clemencic's Viennese early-music ensemble.)

An especially intelligently conceived program by James Tyler, an American now working in England, involves no fewer than four instruments: a normal Renaissance lute, a larger bass lute with the same number of strings but differently tuned, an eighteen-string theorbo (an archlute with far greater bass capacity), and, finally, an eighteenth-century English-made guitar. The album, entitled "Music for Merchants and Monarchs," offers, among other entertaining fare, some anonymous early-seventeenth-century music that might have been heard at an English ale house, three pieces by Hans Newsidler (who described himself as a burgher of Nuremberg), two pieces written by Michelangelo Galilei (brother of the astronomer Galileo) for the Duke of Bavaria, and dances and song settings for the Medici court in the mid-seventeenth century by Carlo Calvi. Tyler's scholarly style is admirable and his technique very secure, though I would describe his playing as more gentle and lyrical than dynamically virtuosic. Not least among the delights of this well-recorded disc are the guitar selections by Calvi and his contemporary, Giovanni Paolo Foscarini, which attest to the popularity of the Spanish guitar in Italy during the seventeenth century and help explain why this instrument, far mellower and brighter than the modern guitar, was in a position to rival the brighter-sounding—and higher-status—lute.

David Rhodes, who has recorded other lute works by Bach's friend Sylvius Weiss (1686-1750), performs a suite and a chaconne by that composer on the second side of his new Titanic disc, "Baroque Guitar and Lute." Most of the opening side is devoted to Robert de Visée's D Minor Suite, played (like the music of two other French composers, François Campion and Henri François de Gallot) on a J. Van Lennep reproduction of a Baroque guitar. Its sound is intriguing in color, but Rhodes' performances on both guitar and lute tend to be rhythmically wayward, which may be acceptable in freer, prelude-like pieces but not in dance movements. (Contrast his style in playing Weiss with that of Eugen Müller-Dombois on the recently released ABC Classics 67006, "The Baroque Lute I"—a fine introduction to later music for the lute.) Compared to that of his colleagues on the other discs reviewed here, Rhodes' technique is uneven. Moreover, his ornamentation is not always cleanly executed and his use of the strumming rasgueado (in the guitar works), though interesting at first, deteriorates through excess into an annoying mannerism—quite unlike the more subtle way Tyler employs it on his album. Titanic's engineering, which produces a somewhat dry sound on the guitar side, dispenses with the usual stereo placement and gives the solo instruments to the left channel, the
right one being reserved for room ambiance. The program annotations are scholarly but not always to the point.

The British Oryx label presents an all-Bach recital of partly original, partly transcribed works for lute played by the late Walter Gerwig. Although the reproduction is extremely good, it is worth noting that these soberly conceived but pleasing performances, originally recorded by Bärenreiter in Germany, were released eleven years ago on Nonesuch (H-71137) and are still available on that label. The interpretations compare favorably with the live-taping of Bream's first solo lute recording—on Westminster XWN 18429, released in the mid-Fifties—was devoted entirely to music of John Dowland, and in the years since he has continued to pay special attention to the often intensely melancholic outpourings of this grandest of Elizabethan lutenist-composers. (Dowland is well represented, for example, on Bream's RCA albums LSC-2819, 2987, and 3331.) His latest RCA collection, entitled simply "Lute Music of John Dowland," contains a dozen pieces, of which the majority are either dances or "fancies" (contrapuntal fantasias). It is the latter, in fact, that give this album its special distinction, for Bream provides the most ravishingly, touchingly beautiful versions of the well-known Farewell and Forlorn Hope fancies (Nos. 3 and 6, respectively, in the new Poulton/Lam edition) that I could ever imagine. Equally fantastic are his virtuosity and the excitement he generates in the few faster pieces, such as the extraordinary A Fancy (No. 73). Also notable is the fact that, through multiple recording, Bream plays two duets with himself—My Lord Chamberlain, His Galliard and the popular My Lord Willoughby's Welcome Home (Nos. 37 and 66a)—but these emerge without a hint of gimmickry. The reproduction, though at too high a level and consequently requiring a stiff volume cut for pleasant listening, is immaculate. The greatest praise I can bestow on this superb album is that, after having listened to well over twenty-four sides of (mainly) lute music in a period of a few weeks for this assignment, I played Bream's disc through not once but three times in succession.


LES PLAISIRS DE LA RENAISSANCE. Music by Plasnon, Castro, Picchi, Caccini, Cara, Rotenbacher, Japart, Phalese, Dowland, Morley, and Anon. Zeger Vandersteene (counter-tenor); René Clemente (Renaissance recorders and percussion); Andras Kecsé (lute). Harmonia Mundi HMU 963 $7.98.


BACH: Prelude in C Minor (BWV 999); Fugue in G Minor (BWV 1000); Suite in A Major (BWV 1007); Suite in E Major (BWV 1006), excerpts; Suite in E Minor (BWV 996), excerpts. Walter Gerwig (lute). Onyx 1202 $6.98.

DOWLAND: A Fancy, No. 5; Captain Digger Piper's Galliard; My Lord Chamberlain, His Galliard; Resolution; Mr. Ianton's Galliard; Forlorn Hope Fancy; Sir John Souche's Galliard; Piper's Pavane; My Lord Willoughby's Welcome Home; Galliard to Lachrimae; Farewell; A Fancy, No. 73. Julian Bream (lute). RCA ARL-1-1491 $7.98.
I am engaged in what some consider to be a rather mysterious occupation, part art, part science, and perhaps just a dash of magic. Granted that it may look that way to outsiders, the fact of the matter is that the work of the speaker designer is neither mysterious nor magical. It is, however, fascinating for those who enjoy wrestling with problems and making design choices involving electronics, acoustics, mechanics, and musical aesthetics.

The first thing that must be said is that no one these days designs a loudspeaker system—or any other product, for that matter—in a vacuum. Though a designer can, on the one hand, draw upon the research, the designs, and even the products that have gone before, he is hemmed in on the other by considerations involving visual aesthetics, manufacturing costs, and the realities of the marketplace.

Perhaps because the design problem involves so many different elements, it attracts many kinds of problem-solvers. And so there is no such thing as a stereotypical speaker designer. They vary all the way from the eager young...
enthusiast gifted with a "golden ear" and not much technical training to go with it to the experienced technologist with advanced degrees who knows far more than he actually needs to design an acceptable speaker. The former owes his job to the still-popular belief in the intuitive or "talent" aspect of acoustics. The latter knows that acoustics is not an intuitive field and is therefore suitably wary in his approach to design problems.

Outstanding audio designers have the faculty of creativity coupled with an objectively critical attitude and backed by a broad knowledge of engineering and music. Some confirmation of this is provided by one psychologist's observation that the most creative output in pure mathematics takes place by the age of twenty, in physics by the age of thirty, and in product development in the late forties—presumably because years must pass before one acquires the necessary experience in the various aspects of art, science, and commerce that have to do with product development.

How does a speaker designer go about his business? The first-born design is typically an effort to exorcise the creative devil; the designer senses an unrealized need, comes up with a novel solution, and cannot rest easy until he has tested it. For example, faced some years ago with a tweeter that had limited power-handling ability but potentially excellent response characteristics, I realized that I could use numbers of them to achieve both power handling and wider dispersion by mounting them on differently facing planes—initially on the facets of a dodecahedron. This first product was later followed by several others based on the same principle. (The first design of a sequence is frequently the most innovative one; subsequent designs are usually scaled-down variations on the theme.)

Speaker designers often go through a progression in their professional development. They become involved first with transducers—say, the design of specific drivers having certain prescribed characteristics (an example would be a woofer that will produce the required low-frequency response in an enclosure of a given size—a relatively simple and totally analytical problem). But these are things most designers can handle well enough. To understand the whole reproduction/perception process, to develop a design "philosophy," if you will, a designer must go beyond transducer design to learn about room acoustics and how they influence speaker performance, about psychoacoustics and how sound is perceived by the brain. It is when these (and other) factors are well understood that refinements in design beyond the obvious become possible.

These additional considerations also introduce frustration, of course, for the acoustics of the listening room, although certainly part of the total design problem, are rarely under the designer's control (low-frequency losses, for example, can be quite variable—low in rooms with plaster, brick, or cinder-block wall construction, high in cases where light wallboard is used). Some designers have nonetheless attempted

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**Which Frequency Response?**

The frequency-response curve is one of the few pieces of data that, correctly interpreted, can tell you something about how a loudspeaker really sounds. But one vital question must be answered first: which frequency response? All speakers have at least two major response curves, and knowing which one you're looking at is vital to the interpretation.

In the totally sound-absorbent (anechoic) room of Figure A—and also in open air—the sound radiated by the speaker in directions other than toward the listener is completely lost. Thus, when the listener is directly in front of the speaker, only its on-axis frequency response is heard. This is the curve most often presented in specification sheets. In Figure B, a highly reflective room assures that virtually all the speaker's radiation in every direction will reach the listener, so that what he hears is closer to what is called the loudspeaker's acoustic-power response.

This distinction would not matter if the speaker's on-axis and power responses were identical or at least very similar. They almost never are, however. Figure C shows the output of a hypothetical tweeter as it varies with frequency and direction. At 0 degrees (on axis), the curves for 1, 6, and 12 kHz correspond, suggesting a flat on-axis response. But, at 60 degrees off axis in either direction, the 12-kHz output has decreased to a small fraction (about 20 per cent) of the 1-kHz output, which is anything but a flat response. From this example it is apparent that a typical speaker has numerous different frequency responses that will combine in a normally reflective room to give an overall response.

Figure D compares the on-axis response of a system using the tweeter of Figure C (solid line) with the probable power response (dashed line) it would exhibit in a reflective room. Under normal circumstances, the power response is closer to what the speaker would actually sound like than the on-axis response is—unless one were very close to it.

For better or worse, a typical listening room is neither perfectly absorptive nor perfectly reflective. A speaker designer must therefore give serious consideration to how he will adjust the two frequency responses to best control the sound the listener will actually hear.
"...the acoustics of the listening room, although certainly part of the total design problem, are rarely under the designer's control..."

to deal with these problems in different ways. Reflections by the room boundaries (walls or floor) that affect bass response because of interference effects can be dealt with by adjusting the mounting position of the woofer within its cabinet. (It is best to get the woofer as close as possible to the room boundaries so that the interference dip produced by the distance from the boundaries moves up in frequency to the range handled by the mid-range driver—which is then spaced further from the boundaries than the woofer, effectively eliminating the output loss.) One can also position the speakers asymmetrical with respect to the room boundaries, thus getting a dip at different frequencies for the two stereo channels. This helps minimize the net irregularity in response. Ideally, the serious designer would like to be able to specify exactly how his speaker will be installed because the best placement means, simply, the best response.

For many of these same reasons, the speaker designer would also like to exercise some control over the recording sessions that produce the records that will be heard through his speakers. This is but wishful thinking, of course, for not only are the recording sonics well out of the speaker designer’s control, they are not even standardized from studio to studio. Some employ a number of microphones “close up,” with the performers randomly arranged or recorded at different times, mixing the results appropriately into left and right channels to produce the stereophonic perspective. Others use crossed, directional microphones at some chosen “optimum” distance to pick up left and right sections of a musical group. Since the frequency balance of the recording is affected by the directional effects of musical instruments and the control-room “balancing” of multiple mike outputs, it is apparent that a working familiarity with them is of great importance when it comes time to make judgments about various speaker-design trade-offs.

Aside from such cost-adding cosmetics, there was at the time a magnet-structure weight race whose best analogy could perhaps be discovered in the concurrent horsepower race in automobiles. A woofer, for example, was often judged solely on the size of its cone and the weight of its magnet; the bigger both were, the better. These days it is generally understood by audiophiles that there is an optimum magnet weight for a given woofer, depending on the size of the enclosure and the effective diameter and mass of the cone. In designing an acoustic-suspension speaker, for example, one must pay close at-
As an aside on this matter of speaker measurements, it is interesting that some people still believe a massive cone is inherently incapable of producing the rapid attack of a steep wave-front. This is a beautiful example of how intuition can lead one astray. The frequency components that produce the rapid rise time associated with good transient response are handled not by the woofer, but by the high-frequency drivers. The real or imagined slowness of response of the woofer has no bearing on whether the system as a whole is capable of the proper reproduction of transients.

Somewhat further along in the design process, the designer will submit detailed woofer specifications (mass, voice-coil characteristics, magnet flux, etc.) to one or more of several manufacturers of drivers, or he may select suitable units from one of their catalogs. Although woofers are assembled, by and large, by the suppliers to the designers' own specifications, tweeters and mid-ranges are generally stock items. But since the designer has such a wide choice available from U.S. manufacturers (and others in Germany, Holland, Denmark, England, France, and—of course—Japan), there is no shortage of suitable units for a given purpose.

When samples of the specified units arrive, the designer tests them first in an anechoic chamber. Why? Because the detailed behavior of a driver can be investigated most readily without room-boundary reflections that would confuse the data. What he is looking for are undamped resonances, adequacy of power handling, polar response (used to assess the acoustic power radiated vs frequency, since the frequency response on the principal axis gives only a small part of the total picture), and so on.

(Parenthetically, on the matter of sound dispersion, dome tweeters might seem—intuitively—from the shape of their radiating surfaces to have broader dispersion at high frequencies, and many advertisements suggest that they do. Not so. Whatever its shape, a radiating surface 1 inch in diameter has some "beaming" at very high frequencies. Figure 1 shows a typical set of responses, taken at various angles from the principal axis, that make this clear.)

The choice of a cone as against a dome tweeter hinges in general on whether or not the design will use one or several tweeters—and what they will cost. Because of the larger voice coil in the dome type, power-handling capacity is greater than it is in the smaller-coil cone type. But the larger voice coil means that a larger (more expensive) magnet will also be required to attain the same efficiency.

Woofer-cone size is another choice that must be made. The larger the woofer, the greater the acoustic-power output for a given cone excursion. But, all others things being equal, a driver of smaller diameter will provide a lower resonance frequency in an enclosure of fixed volume, and therefore a more extended low-frequency response. And
that is what is meant by “trade-offs.”

Once suitable drivers have been chosen, they are combined in geometrical (acoustic) configurations that (1) conform to the budget and (2) produce the acoustic-power response and dispersion characteristics the designer wants. It should be obvious that not all designers are pursuing the same goals in every design. Some are looking for very high efficiency, which usually corresponds with very high power-output potential. Others are looking for the very flat acoustic-power response and wide dispersion that characterize “neutral”-sounding speakers, and they are content to let the efficiency fall where it must. Still others prefer enhanced low-frequency or high-frequency output—or both—in the interest of providing impressive thumps or sizzles for those hooked on such sound effects.

Figure 2 shows the form of one type of trade-off that engineers refer to as “gain-bandwidth product.” Curve A shows a high level of output (for a given level of input) with roll-off at both the high and low frequencies. Contrast this with Curve B, which depicts a less-efficient speaker with a wider and flatter range (note that at 25 Hz and 20 kHz, speaker B is actually more efficient than its high-efficiency competitor). The point is that all these individual measurements and values affect each other, and everything cannot be accomplished in one package. It can therefore be seen that what typifies the speaker-design process more than driver-validation techniques and other quite necessary measurements is the decision making; the deliberate choice of just those characteristics the complete speaker is intended to have. Competent designers can get pretty much what they are looking for; their speakers usually sound different simply because they are looking for different things.

Having selected the drivers and assembled them in a box, the designer can proceed with the crossover network, which is designed to adjust the frequency-response characteristics of the drivers to protect the high-frequency units from potentially damaging low frequencies. The final curve defining overall performance is actually derived from a larger number of response measurements taken at various points equidistant from the speakers and summed to obtain the speaker’s omnidirectional frequency response—which is another way of saying acoustic-power response. The single most important characteristic of speaker performance. Finally, there are listening tests in a “calibrated” listening room to check on the objective measurements. If what we hear doesn’t seem “right,” we go back to our earlier work, review it carefully, and determine (if we can) what went wrong.

Listening tests are carried out in a number of ways. Some companies use statistical methods—a panel of “golden ears” listens to a number of speakers (the one under evaluation plus those considered to be its competitors) concealed behind acoustically transparent but optically opaque screens. A variety of program material is used by the panelists to evaluate the various unseen and unidentified speakers, which are then rated numerically by preference or characterized by such purely subjective descriptors as “natural,” “balanced,” “open,” “hollow,” “nasal,” etc. Japanese manufacturers (among others) also use such techniques, but their jurors are frequently selected at random rather than being specially chosen for their trained ears.

Some designers like to ear-check speakers using “pink noise.” Such a signal played through a flat speaker yields no sense of pitch, and therefore is very revealing of any overemphasis of a part of the frequency range. But this test, like all others, is fraught with peril, for any quasi-absolute ear test of speaker “neutrality” should be done in a listening room whose transmission characteristic is known to be uniform—and that means an awfully good room. Lesser rooms require that speaker locations be interchanged so that any perceived differences are due only to the speaker and not the room. And when “accuracy” is being evaluated, the listening levels of the reference and test speakers must always be kept equal, for it is well known that on an A-B test the louder speaker will almost always be perceived by the listener as the “better” one.

Obviously, all designers do not approach their problems in the same way, and all the work that goes into a design and its evaluation has not been described here. But it should nonetheless be clear that the process is neither mysterious nor magical. Not only are the electroacoustical laws governing speaker design easily understandable, but they can even be programmed (for woofer/cabinet operation) into a computer for optimization.

These days, the products of competent speaker designers, whatever their technical persuasion, tend to sound more alike than different. Those differences that do exist are the result of the trade-offs in “Q” value that are chosen, acoustic-power response, efficiency, octave-to-octave balance, and the like. From the consumer’s point of view, the fact that the better speakers are sounding more and more alike should be reason for rejoicing, for it means they are all getting closer to the accurate reproduction of the recorded “reality” even though they are approaching the task from many different directions.

George Sioles, president and chief engineer of Design Acoustics, Inc., has worked as an acoustic designer for twenty-five years, occasionally on products other than speakers.
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The Audibility of
- Intermodulation
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- Doppler

DISTORTION IN LOUDSPEAKERS

By Peter Fryer
In some quarters of the audio world it has long been taken as gospel that small fractions of a per cent of a given kind of distortion can make an otherwise good loudspeaker unacceptable to critical listeners. It is further alleged that esoteric technical measurements employing sine-wave or white-noise signals that are flat to several megahertz are capable of demonstrating this.

It has always seemed to me and my fellow researchers, however, that such demonstrations missed the point entirely, that the whole question of the audiability or inaudibility of these minute distortions really comes down to this: How much distortion can the human ear detect on the kind of signals loudspeakers are designed to reproduce? For the vast majority of people that means music, whether classical or popular, and not sine or square waves. And it also means listening rather than watching the oscilloscope of a spectrum analyzer.

Since there have been some suggestions that intermodulation distortion is one of the worst culprits in respect to making speakers—and other components—sound nasty (and most speakers are supposed to produce at least some of it) the engineering staff at the Wharfedale Works of Rank Hi FI in England decided to tackle it first in an effort to determine its subjective rather than its theoretical audiability.

Intermodulation distortion (IM) is caused by nonlinearities in the reproduction chain, and it consists of new "unmusical" frequencies added to two or more input signals at some point during the process of reproduction. These IM products are "unmusical" because they are not harmonically related to the tones present in the original signal; therefore, they must sound bad. Presumably you can expect to be able to hear very tiny amounts of IM—unlike the case with "harmonic" distortions (HD), which often merely amount to crossings of crossovers which would cloud the issue? In the case of IM, a device known as a balanced modulator can be used to give pure "first-order" components of intermodulation distortion (these being frequencies that are the mathematical sum and difference of the high and low frequencies in the music signal). When building this device we made sure that it could provide IM outputs down to less than 0.1 per cent since we tended to support the generally held view that even very minute amounts of this kind of distortion would be disturbingly audible. However, when we reached our preliminary test stages we thought our carefully built apparatus had gone wrong because even at its output of 1 or 2 per cent none of us could hear any difference when the distortion was added to the music. The device had to be redesigned to give up to 10 per cent measurable distortion and 100 per cent total for demonstration purposes—quite a surprise to all parties concerned.

After several false starts and design modifications of our testing equipment, the listening tests commenced in earnest using several different types of music and different "classes" of listeners. The first thing we noticed was just how awful intermodulation distortion sounded. In fact, it did not sound much like a loudspeaker fault at all. Rather it sounded like a mistracking phonograph cartridge or a very small transistor radio straining to be heard (I must be one of the very few audio engineers who has actually been paid to make a perfectly good loudspeaker sound like a transistor radio). The second thing we noticed was that with most kinds of music it took about 5 to 6 per cent distortion to be detectable, but piano music was more revealing. For example, with Liszt's Piano Concerto No. 4, 2 per cent distortion was clearly audible. The situation changed radically when two pure tones were used; 0.1 per cent could then be heard when the conditions were right.

We found pronounced differences in distortion-detection ability between the different classes of listeners. Skilled listeners such as audio engineers and people who listened critically to a lot of classical music were able to detect as little as one-fifth as much distortion as those who listened only to pop music or were not in the audio business. It also seemed (admittedly on the basis of a very small sample) that women were less able to detect IM distortion than men—a result perhaps best left without comment.

Delayed Resonance

Since at normal listening levels less than 1 per cent IM is produced by most loudspeakers, we felt safe in assuming that IM is not an intolerable or even audible problem under most circumstances. It therefore seemed best to concentrate our efforts on those distortions we can actually hear in loudspeakers—but, once again, which are they? Well, one distortion was uncovered a very long time ago by D.E.L. Shorter at the BBC; he called it "delayed resonance." Despite the fact that manufacturers seldom if ever mention the delayed-resonance phenomenon, it is one of the distortions one can actually hear, mainly because most speakers produce lots of it. The cause of this distortion can best be described as "the speaker carrying on broadcasting long after the program has finished," and it results when parts of the cone assembly store energy and continue to release it after the music ceases. Figure 1 (next page) illustrates the effect. It is possible to measure this type of distortion in a number of ways, one of which employs a computer. The measurement gives a number of curves showing how much the speaker continues to radiate, at various frequencies, so many milliseconds after the input signal has been switched off, and these curves often reveal peaks and dips which do not show up on normal steady-state (sine-wave) frequency-response curves. Figure 2 shows a typical spectrum of delayed energy after an interval of 1 millisecond.

Having charted the peaks and dips resulting from this delayed-resonance phenomenon, we nevertheless (as with
The next kind of distortion we decided to look (listen?) into is a real hot potato. Some experts say that it is totally irrelevant and never audible, while others maintain that it is very important indeed and that even minute amounts of it completely destroy the musical experience. Clearly, it appears to be largely a matter of opinion. The distortion I refer to is caused by the Doppler effect.

Doppler distortion occurs as follows: consider a single speaker cone reproducing two frequencies at once—100 and 10,000 Hz, for example. During each half-cycle of the 100-Hz signal the same speaker reproduces 50 cycles of the 10,000-Hz signal. The cone has a relatively large excursion at 100 Hz and a far smaller one at 10,000 Hz. The net result is that the listener is hearing a cone producing 10,000 Hz that is also alternately moving toward and away from him at a rate of 100 times a second. Thus (if you recall the Doppler effect from high-school physics) the first 50 cycles of the 10,000-Hz tone are "compressed" by the advancing cone and the frequency is increased; the next 50 cycles of 10,000 Hz are stretched out (and the frequency decreased) as the speaker cone retreats.

There is no question that speakers do produce this distortion, and the smaller the driver involved and the wider the frequency range that it must cover, the more of this distortion occurs. However, the real question again is the sen-
sitivity of the human ear to Doppler effects in loudspeakers reproducing music. It was with great interest that we set about building a device to simulate Doppler distortion. We found we could simulate Doppler effects by using an electronic delay line whose delay could be varied at a rate determined by a low-frequency signal. This electronically variable delay can simulate the effect of low-frequency cone excursions on a simultaneous high-frequency signal. With the particular instrument we designed, we were able to simulate a total voice-coil/cone movement of 150 mm (±75 mm), or almost 3 inches!

So, with open minds, and not knowing which of the two camps of opinion was more nearly correct, we fed some music containing very low organ notes (Camille Saint-Saëns' Third Symphony) through the simulator into a four-way speaker which inherently had very little of this distortion. Our Doppler-effect device made the music sound as though it were being produced by a smaller and smaller single-cone, full-range loudspeaker. The first thing we noticed was that most of the time, even with the simulator on full, there was not enough low-frequency energy in the music signal to produce any audible effect. But when the low organ notes came on and modulated the higher frequencies present in the music, we found that the small amounts of Doppler distortion generated were not particularly unpleasant and their detectability was perhaps half of that for intermodulation distortion.

When it comes to expressing this distortion as a precise percentage, we run into several problems. We can either express it as a percentage of frequency shift (in which case the percentage will be constant whatever the upper frequency being shifted around), or we can express the amplitude of the extra frequency components (which appear as a result of the Doppler action) as a percentage of the upper frequencies' "unshifted" amplitude (Figure 3 shows the "extra" frequencies or sidebands produced as a result of the Doppler effect). In this latter case the percentage increases as we increase the upper frequency; for example, if we are feeding our 100-Hz and 10,000-Hz signals to the speaker, the 10-kHz signal would result in twice as much distortion as a 5-kHz signal would.

This dependence on the upper frequency used makes giving percentages of Doppler distortion in music difficult, though of course the percentage of frequency shift is unaffected. It turned out that our first design for a Doppler-simulating machine was fine for pure tones (the specific test signal for this kind of distortion), when it showed that about 0.2 per cent of upper-frequency (4,000 Hz) amplitude distortion was detectable—corresponding to 0.015 per cent of frequency shift. But it could be used on music only when the music consisted mostly of two relatively pure tones—such as a track from Mike Oldfield's 'Tubular Bells.' In such a case, it showed that about 5 to 6 per cent distortion of the upper frequency was audible. To obtain an absolute value of the amplitude distortion, another delay line was used to cancel out the "carrier" (or non-shifted upper frequencies), leaving only the new frequencies created by the Doppler effect. These could then be measured as a percentage of all frequencies and would give us an absolute value. Fortunately, in the case of "Tubular Bells," this figure turned out to be about the same as that calculated by assuming the music consisted of only two frequencies. As for other program material, organ music had a detection level at 9 per cent, and distortion of 8 per cent and below remained undetectable on a pop vocal recording. On the basis of our research, we are prepared to state that, with the possible exception of small full-range units, loudspeaker systems used under domestic listening conditions will never produce enough Doppler distortion to be audible on conventional program material.

There are still a number of other distortions that can be studied through this line of approach; indeed, even after we had reduced "delayed-resonance" distortion to below audible levels we could still hear phenomena that we would judge worthy of investigation. We have already begun to probe into cavity and reflection effects in loudspeakers. There are also diffraction effects, simple harmonic distortion, and other orders of intermodulation distortion worth investigating. These last two, oddly enough, are quite difficult to generate in pure form.

It is clear that for those distortions that actually produce "extra" tones (intermodulation, Doppler, crossover, and, I suspect, harmonic), the threshold of audibility lies somewhere between 2 and 6 per cent in program music, though the test signals that reveal them best permit as little as 0.1 per cent to be detected. Those distortions that modify the response in some way, such as delayed resonance and box reflections, are far less disturbing in that the threshold of detection falls to 3 to 5 per cent. However, speakers produce more of these latter kinds, and they are the most significant form of distortion investigated so far. All in all, I guess we can count ourselves lucky that the ear allows music to mask significant amounts of these distortions, for otherwise the job of the loudspeaker designer would obviously be much more difficult than it already is!

Dr. Peter Fryer devises new speaker measurements at Rank Hi Fi England. He assesses distortions and studies speakers with holography and delayed-gating techniques.
Most people are spared the knowledge of exactly how many records are released each week, but those of us who have to carry all of them home from the post office know that it is a staggering figure. Happily, a certain number of them prove to be quite listenable, even memorable. Somewhat fewer—about one in twenty-five, I’d say—actually last through the week and become favorites. But what may seem a small percentage to a reviewer is probably more records than most consumers buy or even hear about in a year, and many of these favorites, often some of the very best records issued each year, simply slide unnoticed into vinyl limbo.

One of the discouraging things about organizing this bevy of sleeping beauties was the discovery that many of the rhythm-and-blues records I’d hoped to rescue from obscurity were already cut-outs, dropped from their record companies’ active catalogs after a year or two of disappointing sales or lost through the demise of an entire label. There are a lot of them still out there, though, still in print and still available, and I’ve chosen six of these. My own taste tends toward invigorating disco styles, Philadelphia sophistication, emotional voices and emotional lyrics, but the selection below is a mixed bag containing something for everyone.

- Facts of Life is a two-man, one-woman trio whose first album, “Sometimes” (released earlier this year on Kayvette 802), falls into that down-to-basics, soap-operatic area where rhythm-and-blues and country-and-western overlap. Produced by Millie Jackson, queen of lowdown soul, the album is at its best when dealing with Jackson’s own favorite subjects: adultery and “gettin’ it on.”

- Caught in the Act is a minor classic in this genre—a short, deftly dramatic dialogue over a quietly understated rhythm track that begins like this: “Get dressed, baby, I’m afraid we’re caught. Your husband is here—somebody musta tipped him off.” The woman gives the situation a nice, nasty bite when she announces her only regret is the timing of the interruption: “We were in the midst of heaven,” she swoons, “When hell broke in on us.” The music throughout is serviceable, occasionally catchy, but not very ambitious, so it’s the vocals—robust and gritty—and the unabashed directness of the songs themselves that make the album an especially enjoyable example of the Southern r&b tradition.

- Dee Dee Sharp, of course, is the girl who made Mashed Potato Time in 1962, followed it up almost immediately with Gravy, and then disappeared from the radio and the record-hop circuit as abruptly as she’d arrived. While out of the public eye, however, she married producer Kenny Gamble, half of the brilliant, trend-setting Gamble and Huff team. They brought her back in 1975 on one of the most satisfying albums to come out of Philadelphia that year, “Happy ’Bout the Whole Thing” (Philadelphia International PZ-33839, PZA-33839). Here, Sharp replaces the hard-edged cuteness of her singles with a smooth Philadelphia soul so-
phistication, though producer Bobby Martin never allows it to smother the real delight and sass in her voice. The material is strong and widely varied: 10cc's I'm Not In Love sends Sharp zigzagging across her emotional range, from whispering to shouting and back again; Love Buddies is a casually sexy testament to modern romance; and both Share My Love and the title track, Happy 'Bout the Whole Thing, are energetic dance numbers that Dee Dee romps through in high spirits. This is one of the best comeback albums in recent years.

- Perhaps the most immediately striking thing about Carl Carlton is the similarity of his sharp, young-boy voice to that of Stevie Wonder in his early years: both have the same cutting, raw-honey quality, almost shrill around the edges yet bursting with sweetness. Carlton's last album, "I Wanna Be with You" (ABC D-910, © 8022-910H, © 5022-910H), released at the end of 1975, was also his best, primarily because it brought him together with Bunny Sigler, Philadelphia's most eccentric, unpredictable, and entertaining producer. Sigler, who also wrote most of the songs here, provides Carlton with a collection of bright, upbeat tracks that the singer makes the very most of, strutting his stuff with breathy exuberance. Though the material is uneven and Sigler's quirky arrangements are occasionally difficult to dance through, for the most part this is a match made in heaven. Carlton has the perfect adolescent tone and attitude to get away with a song called Spend the Night ("So I can make love to you") and such lyrics as "Take Liz Taylor, Vonetta McGee/My baby looks so much better to me."

- Vernon Burch is another singer who might easily be confused with Stevie Wonder. Not only does he sound like Wonder at his peak, he is also capable of writing songs of Wonder quality. Burch's "I'll Be Your Sunshine" (United Artists LA342-G), one of the strongest debut albums by a black performer in 1975, is composed entirely of original material that he produced and arranged along with veteran pop producers Tom Wilson, Spencer Proffer, and Denny Diante. Clearly, there's a debt to Stevie here—most noticeably on Loving You Gets Better with Time, the lovely, gently pulsing song that opens up the album—but Burch is no imitator; he's taken Wonder's inspiration and translated it into his own style. The bulk of the album is given over to high-powered dance cuts in a chunky rock-and-soul mixture that's a refreshing departure from the prevailing disco sound. But the slower songs have enough strength and vitality to keep them from being overwhelmed or reduced to mere filler status.

- Another impressive 1975 debut was Angelo Bond's "Bondage" (ABC D-889), an album that deserves comparison with some of Smokey Robinson's best solo work. Like Robinson, Bond is a singer-songwriter from Detroit with a plaintive, aching voice and the wit and precision of a short-story writer. He manages to deal with the most sentimental themes without turning to cliché or mush, and even the flaws are covered up by the emotional sureness and purity he brings to them. Reach for the Moon is a short sketch about a poor family that draws strength from the mother's words: "Reach for the moon, you may land among the stars/But you're gonna make it, I know that you are." In He Gained the World (But Lost His Soul), Bond sums up the life and death of a gospel singer turned rock star in three verses of quick, brilliant detail. Elsewhere, he sings about loving two women and losing both (Man Can't Serve Two Masters), about temptation (Eve), about neglect (I Never Sang for My Baby), and, with touching affection, about his gambling, womanizing father (What's So Bad About Feeling Good?). This richly rewarding, beautifully crafted album should not be overlooked.

- Loleatta Holloway is a big woman with an even bigger voice. Her roots are in belting Southern r- &- b and gospel, and she sings with a magnificent, unrestrained fervor rarely heard these days outside of black churches. Her finest album, "Loleatta" (Gold Mind GZS 7500), came out at the beginning of this year; it hit hard and fast with the disco crowd but slipped by nearly everyone else. There's no reason, though, why this should remain a cult record. Under the direction of Norman Harris, another Philadelphia master, Holloway shouts and sizzles her way through a collection of love songs that put even Aretha Franklin's to shame. The disco cuts, especially Hit and Run and Dreamin' (which ends in a terrific gospel rave-up), are frantic and fierce, set in dense, swirling arrangements that are among the sharpest the genre has to offer. The ballads, particularly Worn Out Bro-
Once upon a time, back in the early days of high fidelity, if you wanted a good amplifier you probably built your own. And, of course, you also built your own speaker. Life was rather simple then: you bought a full-range driver (preferably the largest one you could find or afford), built a box that would suit it (usually the largest one that would fit into your living room), and—voilà—you had a speaker system. If you were a really sophisticated audiophile, you might have added a carefully chosen mid-range and tweeter and bought or built a crossover network. And, of course, you had to deal with only one box, because those were the good old days of mono.

As commercial speakers became smaller and somewhat more scientifically designed, the appeal of do-it-yourself systems declined correspondingly. No longer could the average home-built system compete effectively in cost or performance with the creations of a technically competent company geared to high-volume production. But this development certainly did not eliminate the desire of some audio enthusiasts to get involved in the construction of speaker systems. It did, however, change the nature of the involvement somewhat. Today, in place of hit-or-miss matings of drivers and enclosures, there is substantial activity centered on a newly revived kind of do-it-yourself project: the speaker-system kit.

What makes one of the new kits different is its more consistent performance. Whether it comes ready to assemble with pre-cut and finished enclosure panels or simply as a set of cabinet plans with a list of drivers and crossover components, it is essentially a final design that does not require (or invite) further experimentation and modification by the builder. If the instructions are followed faithfully, the result will be a known quantity—a functional replica of the original design as engineered and “fine-tuned” by the manufacturer. This means that many kits can and do offer performance that conforms to rather tight and ambitious specifications. Many also benefit from the recently developed mathematical models for speaker performance and computer-assisted design techniques.

All this is fine, but why build your own speakers in this day and age? For several reasons: the satisfaction of working with your hands, the sense of accomplishment when the job is finished, even the knowledge that you have made a personal contribution to your system. But if you approach a speaker kit with the idea of saving

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Bozak's Symphony Kit with recommended drivers

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By William Kanner
big money, you will likely be disappointed. The cash you save is more than made up for by the time spent and the possible hassles encountered in the building itself. Kit-building can be fun and marvelous therapy for idle hand or mind, but only if you enjoy the activity as well as the end product. And the activity, needless to say, will call more upon whatever woodworking skills you have than any electronic experience you may have acquired in building audio components from kits.

If we accept the notion that building a speaker kit looks like an interesting project, then what kind of kits are there out there? Perhaps the easiest to build are the ones from Heath, which supply loose drivers and an assembled cabinet. Your task is to put together a crossover network, wire the connections between the components, and install all the parts in the cabinet. One large advantage of Heath's speaker kits is that the company has retail dealers across the country, and at these Heathkit Electronic Centers you can frequently audition any of the company's speaker systems before you build.

Since Bozak's B-4000A speaker system is available assembled (as well as in kit form), it too can be auditioned in advance. As a kit it comes either as a pre-cut but unassembled cabinet that you have to put together or as a free set of plans for constructing your own enclosure. The drivers and crossover are sold separately in either case. The full price of the B-4000A's component parts is a rather steep $590, but the company says that the B-4000A is planned around what it calls the "growth system." Thus you can start out with fewer than the full complement of drivers, use the system in that form, and build up to the final ten-driver B-4000A in stages.

If you'd like a somewhat more adventurous carpentry project, England's KEF Company supplies drivers and crossovers. It also supplies plans for suggested enclosures, but all the cabinet work is up to you.

Some of the long-established famous names in loudspeaker systems still sell drivers and plans for their products. If you should crave Altec's "Voice of the Theatre" system or one of Electro-Voice's new computer-optimized kit systems, all you need do is buy the drivers and the appropriate crossover networks (if necessary) and go to it (you'll have to buy the wood independently). Company-supplied plans are usually adequate for someone who has a background of experience with woodworking tools, but if you should find yourself in need of assistance, the companies will help.

While most people are still more interested in going to their local audio dealer and buying a set of ready-built speaker systems, there is clearly a resurgence of interest in kit building. And as speaker systems improve overall, the quality and performance of kits goes up too. The old stand-bys are known quantities, and if you buy the Altec or Tannoy systems you know, by and large, what kind of sound you will end up with. However, one of the problems with many of the speaker kits on the market is that they are from relatively new companies, and because of their limited distribution, auditioning them is difficult. Your friend down the block is not likely to have just bought a pair, and tests on them in audio magazines are few and far between. This dearth of information leaves the kit market somewhat less accessible to the audiophile than it might be, but a willingness to invest some extra effort in pre-purchase research will usually get you answers to many of the important questions about the product.

The table on the following page will give you an idea about what speaker kits are available and where. Any questions you have should, of course, be directed to the manufacturers involved. And for those who want to plunge even more deeply into speaker design, we include a bibliography that will take you as far as you care to go into the world of crossover design, response curves, sawdust—and acoustics.

### Speaker-Kit Manufacturers and Suppliers

- **Accurate Sound**, 1213 "M" Street, Lincoln, Nebraska 68508
- **Altec Corporation**, 1515 South Manchester Avenue, Anaheim, California 92803
- **Bozak, Inc.**, Box 1166, Darien, Connecticut 06820
- **Electro-Voice**, Inc., 600 Ceci Street, Buchanan, Michigan 49107
- **Heath Company**, Dept. 40-325, Benton Harbor, Michigan 49022
- **James B. Lansing Sound, Inc.**, 8500 Balboa Boulevard, Northridge, California 91329
- **KEF Electronics**, Intratec, 399 Jefferson Davis Highway, Arlington, Virginia 22202
- **Peerless Audio**, Burwen Research, Inc., 40 Jytte Drive, Leominster, Massachusetts 01453
- **SpeakerKit**, Box 12, Menomonie, Wisconsin 54751
- **Speakerlab, Inc.**, 5500 35th Avenue N E, Seattle, Washington, 98105
- **Tannoy-Ortofon, Inc.**, 122 Du Pont Street, Plainview, New York 11803

### Speakers and Acoustics—A Bibliography

- **How To Build Speaker Enclosures**, by Alexis Badmaeff and Don Davis, Howard W. Sams & Co., Inc., Indianapolis (1966), $4.95.
- **Building Speaker Enclosures**, by Robert G. Middleton, Radio Shack, Fort Worth, Texas (1972), $1.25.
## Speaker Kit Manufacturers and Specifications

### ALTEC
- **A7-8**
  - **Reference Price:** $8.95
  - **Price:** $8.95
  - **Manufacturer:** ALTEC
  - **Specifications:**
    - **Woofer:** 15 in.
    - **Compression driver:** 8 in.
    - **Price:** $8.95

### OAKWOOD
- **B-4000A**
  - **Reference Price:** $10.75
  - **Price:** $10.75
  - **Manufacturer:** OAKWOOD
  - **Specifications:**
    - **Woofer:** 12 in.
    - **Price:** $10.75

### HEALTH
- **A7-8**
  - **Reference Price:** $7.20
  - **Price:** $7.20
  - **Manufacturer:** HEALTH
  - **Specifications:**
    - **Woofer:** 12 in.

### ELECTRO-VOICE
- **12 TRX**
  - **Reference Price:** $2.00
  - **Price:** $2.00
  - **Manufacturer:** ELECTRO-VOICE
  - **Specifications:**
    - **Woofer:** 12 in.

### PEERLESS
- **B-82**
  - **Reference Price:** $2.00
  - **Price:** $2.00
  - **Manufacturer:** PEERLESS
  - **Specifications:**
    - **Woofer:** 12 in.

### SPEAKERKITS
- **Lamberts Four**
  - **Reference Price:** $6.00
  - **Price:** $6.00
  - **Manufacturer:** SPEAKERKITS
  - **Specifications:**
    - **Woofer:** 12 in.

### SPEAKERLAB
- **A1**
  - **Reference Price:** $3.85
  - **Price:** $3.85
  - **Manufacturer:** SPEAKERLAB
  - **Specifications:**
    - **Woofer:** 12 in.

### STUDY
- **Eaton**
  - **Reference Price:** $2.50
  - **Price:** $2.50
  - **Manufacturer:** STUDY
  - **Specifications:**
    - **Woofer:** 12 in.

### TANNOY
- **Eternity**
  - **Reference Price:** $3.85
  - **Price:** $3.85
  - **Manufacturer:** TANNOY
  - **Specifications:**
    - **Woofer:** 12 in.

### SPEAKERINSTALL
- **Eaton**
  - **Reference Price:** $2.50
  - **Price:** $2.50
  - **Manufacturer:** SPEAKERINSTALL
  - **Specifications:**
    - **Woofer:** 12 in.

### SPEAKERKITS
- **Lamberts Eight**
  - **Reference Price:** $6.00
  - **Price:** $6.00
  - **Manufacturer:** SPEAKERKITS
  - **Specifications:**
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  - **Price:** $2.50
  - **Manufacturer:** TANNOY
  - **Specifications:**
    - **Woofer:** 12 in.
You're looking at the world's best-designed tonearm.

This is a Dual tonearm. It can make a big difference in the way your records sound. And how long they last.

The four-point gyroscopic gimbal is widely acknowledged to be the finest suspension system for a tonearm. It pivots the tonearm precisely where the vertical and horizontal axes intersect. The arm remains perfectly balanced in all planes of movement.

Further, the straight-line tubular design achieves the shortest distance between pivot and stylus. That's basic geometry. Curving the tonearm adds mass, decreases rigidity and makes the arm prone to lateral imbalance.

The vernier counterbalance permits you to balance the tonearm with micrometer-like precision. Tracking force is applied so that the stylus remains perpendicular to the record, even if the chassis is not level.

All this serves to establish and maintain the correct cartridge-to-groove relationship. So the stylus can trace the rapidly changing undulations of the groove walls freely, precisely and with the lowest practical force. In short, flawless tracking.

Despite the advantages of the gimba-mounted tonearm, you won't find many around. But now, you will find one on every Dual turntable. Even our lowest-priced model, the new, fully automatic 1237.

It's one more example of Dual's total commitment to engineering excellence.

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120 S. Columbus Ave., Mt. Vernon, N.Y. 10553
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"The Ohm F may well be the finest speaker on the market and is certainly without a doubt among the top few."

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If you'd like to find out what hi-fi experts from all around the world have to say about the patented Ohm F coherent sound loudspeaker, please visit your Ohm dealer or write to us at the address below. An informative full-line brochure that explains how the Ohm F works is also available.

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241 Taaffe Place, Brooklyn, N.Y. 11205
Ohm Canada Ltd.
9 Oriole Crescent, Toronto, Ontario M5P 1L6
The Merry Wives of Windsor: the Sort of Work Schumann or Mendelssohn Might Have Composed If They'd Had Nicolai's Sense of Theater

The recorded repertoire may be vast, but there is still room for exploration and joyous discoveries. I am sure that the first complete recording in some twenty-five years of Otto Nicolai’s The Merry Wives of Windsor (we have had good “highlights” on Angel and Deutsche Grammophon, but they are gone now, too . . .) will fall into the latter category for many opera lovers. This brightly melodious masterpiece by the greatly gifted but short-lived (1810-1849) Nicolai is the German answer to the comic operas of Rossini and Donizetti, the kind of work such contemporaries as Schumann or Mendelssohn might have composed had they possessed Nicolai’s sense of the theater. Indeed, the best pages of Nicolai’s score bring Mendelssohn to mind with the transparency of the writing and constant flow of witty inspiration.

Comparison with Verdi’s Falstaff, which is based on the same Shakespeare play, is unavoidable, but those who are prompted to look patronizingly at Nicolai miss the point. The decades that separate the two operas (1849 to 1893) were crucial in musical history. In contrast to the harmonic advances and overall sophistication of the Verdi-Boito masterpiece, Nicolai gives us the traditional Singspiel of Mozart and Weber. And so, where the music of Falstaff flows with a mercurial continuity, that of The Merry Wives of Windsor is frequently halted by long stretches of spoken dialogue. Furthermore, as the title implies, the central interest in the Nicolai opera lies in the charming and conniving wives; Sir John goes through the familiar indignities, but he remains only a foil for the formidable females.

The Deutsche Grammophon set is a virtual triumph. Bernhard Klee’s lovingly paced direction is perhaps a shade too meticulous at the expense of eut-
berant spontaneity, but he draws a precise and radiant-sounding performance from orchestra and singers alike. The casting could hardly be bettered. The voice of Edith Mathis is a trifle light for Frau Fluth (more girlish than womanly), but it projects all the wit and charm the role requires and is handled with perfect accuracy in the florid passages. Helen Donath and Hanna Schwarz complete the trio of Merry Wives; they are as excellent in all their individual opportunities as they are ravishing in ensemble.

Kurt Moll is an outstanding Falstaff, pouring out solid, rich tones with grave pomposity, liquid ease, and in unwavering observance of perfectly centered intonation. He is effectively contrasted to Bernd Weikl, a Fluth active in his sound and convincing in his outrage. Memories of Fritz Wunderlich (the Fenton on the deleted Angel disc of highlights) intrude on my appreciation of Peter Schreier’s contribution: he is a good singer who nearly matches Wunderlich’s technique, but not his warm, ingratiating timbre.

The spoken dialogue in this opera causes a bit of a problem with non-German-speaking audiences. Deutsche Grammophon has provided a narration (in German) as a means of streamlining the spoken passages between musical numbers. It is not a very good solution, but this minor flaw should not be held against the total effort: a delightful opera brilliantly performed and recorded. The album presentation, too, is admirably done.

—George Jellinek

A Schubert Missa Solemnis as Jubilant, Lyrical, and Engagingly Colorful as Rosamunde

All six of Schubert’s Masses have been almost as neglected on records as they have been in live performance, though Seraphim’s recent reinstatement of Erich Leinsdorf’s fine Berlin recording of the last in the cycle (the E-flat, D. 950, on S-60243) brought to a total of three the number of versions of that work listed in the current issue of Schwann. Unlisted in those pages for several years has been the E-flat’s immediate predecessor, the Mass No. 5, in A-flat (D. 678); it has just turned up on a new Nonesuch disc, conducted by Dennis Russell Davies, and it is one of the nicest surprises of the year.

The Mass in A-flat was completed in 1822, the year of the Unfinished Symphony. It is a Missa solemnis, contemporaneous with the more grandly scaled one by Beethoven. Actually, the designation more aptly suits the E-flat Mass, for the A-flat is more jubilant than solemn, a most attractive blend of Schubert’s characteristic lyricism with the theatrical/virtuoso elements in the Masses of Mozart and Haydn. (Indeed, in view of Schubert’s curious omission of portions of the text, one might even question whether his Masses were really intended for actual liturgical use.) The scoring, for the winds in particular, is as engagingly colorful as that of the Rosamunde music composed the following year. (The Osanna is surely a shepherds’ chorus, the Benedictus a flowing romance that opens out into another woodland fantasy.)

Davies’ expert and communicative
performance represents much more than the filling of a gap in the catalog. Though unlisted in Schwann, the Angelicum recording under Antonio Janigro has been available on MHS 878 for nearly a decade, and it is by no means unpleasing. But the new version knocks it out of court in just about every respect. First of all, good as Janigro’s concept is, Davies’ is more inspiring still; in place of the nondescript Italian soloists, Davies has a first-rate quartet; his choral forces are at least equal to Janigro’s, and his Saint Paul Chamber Orchestra conspicuously outshines the Milanese ensemble in both the brilliance and the warmth of its playing. Enfolding it all is the rich and realistic sound, which leaves the competition even further behind. All in all, a stunning production, one that should go a long way toward making this splendid work as familiar and beloved as Schubert’s instrumental compositions and songs. —Richard Freed

SCHUBERT: Mass No. 5, in A-flat Major (D. 678). Marlee Sabo (soprano); Jan DeGaetani (mezzo-soprano); Paul Sperry (tenor); Leslie Guinn (baritone); Carleton College Choir, Chamber Singers, and Festival Chorus; Saint Paul Chamber Orchestra, Dennis Russell Davies cond. NONESUCH H-71135 $3.96.

John Cale’s Best Cuts: A Welcome Combination Of Rock, Brains, And Guts

John Cale’s music is not for everybody. Born in Wales and conservatory trained, he studied under John Cage until the early Sixties, when he decided rock-'n'-roll was more adventurous than contemporary “serious” music. He founded the Velvet Underground with Lou Reed and mostly defined the electronic drone of their first two albums. It took the outside world about eight years to catch up with what the Velvets were doing; David Bowie, Mott the Hoople, and Roxy Music were some of the results. John has been making solo albums since 1970’s “Vintage Violence,” most of them as brilliantly idiosyncratic (if commercially unsuccessful) as Reed’s were mindless and self-compromising, and now it looks as though the world of mainstream music and John Cale are finally ready for each other.

It must get tiresome working perpetually in the future. Aside from his solo projects, Cale produced the Stooges’ first album (in 1969, and effectively the birth of punk rock as it exists today), Nico, the Modern Lovers, and Patti Smith. Always associated with the rock avant-garde, his music now has real pop elements as well; it rocks hard, and many of the lyrics reflect a mature-adolescent sensibility akin to that of, say, the poet Charles Bukowski or novelist Henry Miller. Meanwhile, his musical discipline is constant, and his rich musical background informs everything he does with an intelligence, a sense of sonic nuance, that nobody else in rock quite matches. He consistently pulls off the rare feat of making solid rock-'n'-roll that’s literate without being collegiate, complex without being show-offish.

“Guts” is a compilation of the best cuts from his three previously released Island albums. I would have liked to see them release his British-only “Helen of Troy” album (his best work) instead, but this one will serve as a fine introduction. Not averse to doing covers, he takes to its logical conclusion the depression Elvis’ macho yowl fought against in the original version of Heartbreak Hotel, and his interpretation simply plows under Jonathan Richman’s original of Pablo Picasso.

Of Cale’s own songs, Leaving It All Up to You is at once the strangest and the most characteristic. Angry, confused, and controversial (it was originally deleted from “Helen of Troy” because of a reference to Sharon Tate), it’s a masterful juxtaposition of total musical discipline with attitudinal frenzy that even manages to make Charles Manson funny without offending (and I’m easily offended by cheap
BONNIE RAITT: a voice that's salty but pretty

nihilism these days). In Guts, the protagonist knows another man is bedding his wife. Although he still loves her anyway, he'd like to kill them both and himself as well. But, like the rest of us, he's paralyzed by his civilization and even perhaps by his better instincts. He finally decides that both his rival's blandishments and his own paranoid fantasies are "familiar hyperbole." Guts is what it takes, I'd say, to let songs like this out of yourself in public in the first place. In that light, Fear Is a Man's Best Friend speaks well for itself by title alone.

JOHN CALE sings most of this stuff like a Jim Morrison with self-critical faculties. Though there is neuroticism in this music, he's not narcissistic about it (that's rare these days), and his honesty and sense of humor bring a warming universality to everything he does. Meanwhile, he's got the chops to orchestrate this vision on a level I can only compare (in rock terms) to Bernard Herrmann. John Cale will probably never be a superstar—he's too subtle, for one thing. But this isn't coming from the obscure fringes of the rock avant-garde either—it's simply some of the most viscerally intelligent rock made in years. If you pick up on it, shout it from the housetops, John deserves that much. —Lester Bangs

JOHN CALE: Guts. John Cale (vocals, guitars, bass, keyboards, percussion); vocal and instrumental accompaniment. Guts; Helen of Troy; Pablo Picasso; Fear Is a Man's Best Friend; Mary Lou; Leaving It All Up to You; Gun; Dirtyass Rock 'n' Roll; Heartbreak Hotel. ISLAND ILPS 9459 $6.98, © Y81-9459 $7.98.

Bonnie Raitt: Getting More Impressive All the Time

BONNIE RAITT has got to be one of the very best. She has a great voice that's salty but pretty, good taste in music, great credibility with people who live with music, and an ability to convey the essence of a song that's getting more impressive all the time. "Sweet Forgiveness," her latest album for Warner Bros., has all these elements and backs them with extraordinary instrumental.

Bonnie's interpretive skills—and her band's rhythm section—come to the fore in Runaway, the old Del Shannon-Max Crook song, which she redefines in such a way as to discover real emotional quality. For the first time, the words and the phrasing make sense together.

She's picked out other good songs, too. Jackson Browne's My Opening Farewell is an excellent one. Paul Siebel's Louise, which Bonnie has been doing on stage for some time, is given simple and perfect acoustic backing and a compassionate but not overly mushy reading; you may never hear a better one.

From that pastoral folkie extreme, she moves with no apparent difficulty and nary a hitch to a rhythm-and-blues stomper, About to Make Me Leave Home, on through Browne's interlaced lyrics, on through the hard-rock piece Three Time Loser, and eventually to the kind of post-rock pop song Karla Bonoff (of Linda Ronstadt album fame) writes. A couple of the songs—Three Time Loser, which attempts too little, and the title song, which attempts too much—aren't up to the standard of the others, but then they aren't bad either.

Raitt is the kind of performer who has a reason for recording every song she records—a reason beyond merely
filling up albums—and it shows. This is one of those albums I’ll play on my own time. A lot. —Noel Coppage

BONNIE RAITT: Sweet Forgiveness. Bonnie Raitt (vocals, guitar); Will McFarlane (guitar); Jeff Labes (keyboards); Dennis Whited (drums); Freebo (bass). Sweet Forgiveness; Gamblin' Man; Runaway; Two Lives; About to Make Me Leave Home; Three Time Loser; My Opening Farewell; Takin' My Time; Louise; Home. WARNER BROS. BS 2990 $6.98, ® M82990 $7.97, ® M52990 $7.97.

The New Barbara Cook's New Recording: Superb Musicianship and Bittersweet Wisdom

WILL wonders never cease? Well, sometimes they pause for a little. The wonder that was Barbara Cook, the singing ingenue of all those Broadway shows (The Music Man, She Loves Me, The Gay Life, and so many others), dropped out of theatrical sight and hearing for several years, leaving behind only the memory of some spectacular evenings. Her eight-show-a-week performance as Cunegonde in Leonard Bernstein's Candide (which included her unforgettable Glitter and Be Gay aria, the Sempre Libera of American lyric theater) remains an incredible feat to this day.

I can't say that I missed her very much while she was away, however. She had always seemed to be a supercompetent performer. I always responded strongly to the Puccini-esque vibrato of emotion she poured into such things as 'Til There Was You, and the very real heart-wrencher she made out of the Dietz-Schwartz Magic Moment still gets me every time I hear it. But she also had a touch of steelily unreality about her—she was going to get it right, by God, or strangle in the attempt. She had a rigid, Olympian quality that somehow made her work seem impersonal.

When Barbara Cook returned to performing a few years ago it was as a cabaret and concert artist, and she revealed herself as a wonder of a totally different kind, no longer the cool vocal acrobat I remembered. First, there was a womanliness in place of the ingenue-girlishness; then there was the bittersweet wisdom of her lyric readings; and finally there was the same superb musicianship, now suffused with light and shade that put a personal signature on every piece of material she touched. She had filled out in oils the angular pencil sketch that was her talent.

That she's lost none of the strength or immediacy of her earlier performing style but only enriched and enlarged upon it can be heard, and gorgeously, on her new Columbia release “As of Today.” It contains magnificent performances that range all the way from Irving Berlin standards (What'll I Do and Let Me Sing and I’m Happy) to the demanding, cerebral intensity of Janis Ian's Stars and the throwaway charm of Leslie Bricusse’s You and I. She's on top of it all the way, absolute mistress of the music, the lyrics, and her own wide-ranging talent. Trot on down to your local record store and salute the return of a fine singing artist.

—Peter Reilly

BARBARA COOK: As of Today. Barbara Cook (vocals); orchestra. Ain't Love Easy; Why Did You Promise Me the World?; You and I; Sing a Song with Me/Let Me Sing and I'm Happy; It Was; One More Love Song/What'll I Do; Waiting; Candlelight; Stars. COLUMBIA PC-34493 $6.98, ® PCA-34493 $6.98, © PCT-34493 $6.98.
After people learn what we've done, no one will heckle our speakers.

We're as close to the impossible as possible.
Our new speakers color sound.
Anybody's speakers do.
Should someone tell you otherwise, they speak with forked frequency response.
We at Sony approached the development of our new speaker line with this grim reality in mind.
Thus our goal was to create speakers with a minimum of coloration. With a frequency response flat and wide. With low distortion. And with repeatability. Which is critical. Which means that each speaker we turn out will sound like the one before and the one after.

Searching and researching.
Our basic dilemma was that speaker specs don't specify much.
You can build two speakers with identical specs, and find they'll sound non-identical.
That's because your sophisticated ear can pick up differences our clumsy measurements can't.
Some examples:
You can hear how pure water is. The purity of the water in which the pulp for the speaker cone is pressed will influence the sound. (Spring water is the best.)
But water purity would hardly change the frequency response—or any other measureable characteristic.
Nor would the dye used to color the cone—or the glue used in gluing the cabinet.
But you'd hear the dye and the glue. And there are dozens and dozens of elements that interact this way.
So our job was mammoth. To correlate these factors in order to reach the goal we outlined earlier. Changing one changes the other and almost changed our minds about going into the speaker business.
But we stuck it out. And found the answer to the juggling of these variables thanks to a major technological innovation.
Trial and error.
That's why we labored for three years to bring you our speakers. While other manufacturers rushed frantically to market with theirs.

We keep the whole world in our hands.
Once we understood how to control the sound of our speakers, we realized we had to control what went into our speakers.
So we did the only logical thing.
We built a plant.
And pursuing that logic, we built it at a place called Kofu. Which is at the base of Mt. Fuji. Where we can get all the spring water we want.
This factory does nothing but produce—under outrageously close control—the components for our speakers. Whatever we do buy, we specify so carefully that our vendors have nightmares about us. (It's unfortunate that we can't make everything ourselves, but only God can make a tree, and only wood can make a fine cabinet.)
Few companies make this effort.
So it's safe to say that when it comes to exercising this kind of control, our speakers are a voice in the dark.

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As you can see, there's a lot that goes into producing a speaker that's not easily seen. (One beautiful exception—the handsome finish on our cabinets.)
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Carbon fiber is light and strong. (Why they don't use it in girdles we'll never know)
Light, so our speaker is more efficient. Meaning you need less power to operate it. Meaning you are closer to the ideal of converting electrical energy to mechanical energy without a loss of power.
Light, so our speaker cone reacts quickly to stops and starts in the signal. The result: improved transient response.
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Moreover, carbon fiber doesn't resonate much. It has what's called a low Q, and it took someone with a high IQ to realize it would absorb the unwanted vibration rather than transmit it down the cone.
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We could go on, but at this point the best thing would be for you to move on to your nearest Sony dealer. And listen.
Because the results of our three years of labor will be clear after three minutes of listening.
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Rediscovered Historical Beatlefacts

History, as the mother of a friend of mine once observed, is a thing of the past. Thus, two hitherto unreleased live albums documenting the major pop phenomenon of the last decade are, logically, mere historical artifacts. But the strange thing is that the Beatles, who no longer exist as a unit and have not made a new record together in seven years, resolutely refuse to lie down and become history.

Despite the best revisionist efforts of various pop-music critics and musicians, high-school kids far too young to have experienced the Beatles firsthand still find them "relevant" and have, in droves, shelled out money for last year's Capitol repackaging ("Rock the Beatles firsthand come history.

The Lennon-Yoko relationship, which seems to have made the group into something new and different, has given the Beatles the staying power a band with a portable cassette machine. The music? Well, it's delightful on both recordings. The sheer energy and drive of the group are so winning that even the technical deficiencies of the Hamburg set are almost forgivable. Both John and Paul are in superb vocal shape; listen to John in Twist and Shout or Paul in Long Tall Sally on the Capitol release—and they were singing without monitors, remember, so from their perspective it was in effect a cappella. Ringo demonstrates why both whole generations of session drummers have felt compelled to cop his style. George plays with the kind of youthful fire that he now seems unable to summon up, and Paul was already the superb bassist he is today (the major revelation of the German tapes). At least judging from this recorded evidence, John and George are merely waxing nostalgic when they claim that the Beatles declined as a performing band once they became international celebs. The sound, unsurprisingly, is pretty rough, although the instruments are loud and clear (the drums overpoweringly so). The whole thing sounds pretty much like the recordings you might make of your own garage band with a portable cassette machine.

"Live at the Star-Club," on the European Bellaphon label, distributed here by Atlantic records on the Lingasong label, is far more primitive. It was recorded with a single microphone, on a nonprofessional machine in the crowded club in Hamburg, West Germany, where the Beatles worked out in the days before they became international celebs. The sound, unsurprisingly, is pretty rough, although the club atmosphere is faithfully caught. The Beatles themselves are reportedly pleased with the Capitol release, but the Hamburg set is a bit too raw for them. The P.A. doesn't cut through the audience hubbub very well, although the instruments are loud and clear (the drums overpoweringly so). The whole thing sounds pretty much like the recordings you might make of your own garage band with a portable cassette machine.

What's important, I think, about both these albums is that they're fun. I defy you to listen to them without grinning, especially if you were around at the height of Beatlemania. Even if you're too young to be in that category, you'll probably still have the same reaction, except that your appetite will be whetted for more—in which case, Lord knows, there's a big enough catalog for you to investigate. In the meantime, regardless of What It All Meant, it's good to have both "Live at the Star-Club" and "The Beatles at the Hollywood Bowl" around. Thanks again, lad.

—Steve Simels

THE BEATLES: At the Hollywood Bowl. The Beatles (vocals and instrumentals). Twist and Shout; She's a Woman; Dizzy Miss Lizzie; Ticket to Ride; Can't Buy Me Love; Things We Said Today; Roll Over Beethoven; Boys; A Hard Day's Night; Help; All My Loving; She Loves You; Long Tall Sally. CAPITOL SMAS-11638 $6.98, © 8XX-11638 $7.98, © 4XX-11638 $7.98.

THE BEATLES: Live at the Star-Club in Hamburg, Germany, 1962. The Beatles (vocals and instrumentals). I Saw Her Standing There; Roll Over Beethoven; Hippy Hippy Shake; Sweet Little Sixteen; Let Me Love You; You're Not Alone, I'm Just a Lonely Boy; Can't Buy Me Love; Things We Said Today; Roll Over Beethoven; Boys; A Hard Day's Night; Help; All My Loving; She Loves You; Long Tall Sally. CAPITOL Established Records 7897 $7.98.

... what's important about these albums is that they're fun...

88
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ant surprise. Sure, lead singer Willy DeVille has pinched his entire vocal style from Mick Jagger, and the band, in part because of Jack Nitzsche's production, has the same kind of crude, ragged sound found on the albums Neil Young made with Crazy Horse. Still, overall, DeVille's sound is closer to that of Ben E. King's Spanish Harlem and Jay and the Americans than it is to, say, Television or the Ramones. Call me a terminal Sixties type if you will, but I rather like Mink DeVille for just that reason.

This isn't music for everybody; there's a lot of posturing here that isn't totally believable, and these boys are certainly not slick enough to impress the Aerosmith fans whose attention they'll have to attract if they're ever going to make it big. Still, I'm predicting that, provided they don't start believing their own hype too soon, Mink DeVille is going to be one in rock. He's already done Chuck Berry, the Everly Brothers, Bob Dylan, and the Phil Spector girl groups (!) successfully. "Get It," he takes on Elvis, Hank Williams, the Beach Boys, Dion and the Belmonts, and a few others so obscure I haven't been able to place them. If that sounds as if he's too clever for his own good, it's meant to; such imitation merely requires facility, and only Edmunds' total commitment to the music keeps him from being nothing more than the Todd Rundgren of the Rock Revival.

There are, however, some indications here that he's beginning to find his own voice at last. There are more originals than usual, and while they're all period evocations (surf stuff, rockabilly, straight country) they have a marvelously relaxed groove to them that recalls such early-Seventies pub bands as Brinsley Schwartz and the current Graham Parker (not surprising, really, since Edmunds has worked with both of those outfits). If this is the direction he's going to explore in the future, we should be in for a treat. On this album, he has as usual displayed remarkable intelligence in the choice of cover material (Get Out of Denver, an early Bob Seger tune) and in matching the production approach to individual songs; the Dion thing is rearranged a la Phil Spector, the Hank Williams updated a few years to sound like Carl Perkins, and so forth. I really hate to nitpick about Edmunds, because he deserves a much wider audience. Lord knows this is a terrific album—honest, unpretentious, and entertaining—and I wouldn't like to frighten anybody away from it by voicing my reservations. Let's simply say that one senses here an unrealized potential, that Edmunds has it in him to make a truly classic record that will succeed in synthesizing all the different kinds of music he loves. While "Get It" isn't that album, it's close enough for you to take the title literally. All he needs, I suspect, is a bit of audience feedback.

Anyway, for the uninitiated, Edmunds is sort of a combination Eric Clapton and Roy Wood, the ultimate guitar-wizard/one-man-band/producer. With deceptive ease, he can reproduce the sound and style of literally any.

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Over the last decade or so, Burt Bacharach has been demonstrating not only that he can make charming music, but also that old smoothies can still make out like cat burglars in the tough, "thug"-dominated world of pop. "Futures," the Master's newest offering on A&M, is another engaging, world of pop. "Futures," the Master's new burglary that old smoothies can still make out like cat that he can make charming music, but also fit the image. As a result, Bacharach's music well from the experience is to make the action herself-employed Bacharach as her musical Marlene Dietrich-old Madame Perfectionist admiring audience. designed to satisfy the tastes of his large and smoothly clicking piece of stagecraft cannily repeatedly exposed to as this jet-setting com- ways Makes Out—certainly in his business God of Singles Bars. He's The Guy Who Al- stables.

sounds just like he looks—a look we're re-peatedly exposed to as this jet-setting com-poser/personality turns up on TV commer- cials, in fan magazines, on talk shows, in ten-nis exhibitions, at star-studded movie pre-mières, or posing in front of his own racing stables.

Bacharach is the sun-tanned darling of the God of Singles Bars. He's The Guy Who Al- ways Makes Out—certainly in his business life, but, even more important, in his "rela-tionships." He floats easily from invitation to invitation, suavely plying his practiced charm on any female within range of his dazzling smile. Willing to be little boy, father, or broth-er as the occasion demands, he always, al- ways keeps his cool, always has it made.

His music reflects this sort of "attitude dancing." The nervous, carefully crafted, completely contemporary (though a bit square) style, based on rapid successions of crescendos, is more concerned with flashy sonic filigree and tinsel, colored bulbs and twinkling lights. Only in Genesis' case somebody forgot to include a Christmas tree to hang it all on. Santa never came for Genesis as he did for Yes (which didn't have a tree either but was sly enough to hang it all on an orange tree named Rick Wakeman). Genesis had no sold-out arenas, no stockings bulging with fat royalty checks, just glitter.

Peter Gabriel used to be the lead singer for Genesis, which, like Yes and Queen, specialized in loud, heavily ornamented rock, full of sonie filigree and tinsel, colored bulbs and twinkling lights. Only in Genesis' case somebody forgot to include a Christmas tree to hang it all on. Santa never came for Genesis as he did for Yes (which didn't have a tree either but was sly enough to hang it all on an orange tree named Rick Wakeman). Genesis had no sold-out arenas, no stockings bulging with fat royalty checks, just glitter.

So Gabriel departed Genesis (leaving his prospects even bleaker) to make his way as a Solo Artist. His debut album was extravag-antly produced by Bob Ezrin, who can do no wrong in my book since he manages to put the voices of his self-taught moppets somewhere ly good. This kind of thing is palpably unfair to reviewers, like me, who don't like having their preconceptions shattered, but obviously a much better deal for the listener. Two years ago, when panning one of his earlier albums, I joked that Ferry was the first rock star to raise sneakiness to the level of genius. I guess I was more on target than I realized, for in making an almost delightful album Bryan has pulled off the sneakiest move of his career. 

Gracie Fields—"Our Gracie" to her huge British audiences—is probably the greatest star the English music halls have come up with in this century. At her peak in the Thirties, when most of these recordings were pro-duced, her films and radio appearances made her the highest paid and easily the best loved performer in Britain. The only American equivalent to her particular kind of National Treasure status would be Will Rogers. Well, it's easy to hear what all the fuss was about in this marvelous collection of her work (to un-fortunately leaves out her post-war resurgence as a top star in England and America based on her hit Now Is the Hour, but perhaps that will appear at a later date). Here Gracie is often simply glorious as she runs through such classics as The Biggest Achievements in the World, Will You Love Me When I'm Mutton?, and Heaven Will Protect an Honest Girl in her broad Lancashire accent and her family love- lorn style. And, like all great stars, she can be gloriously awful too, as in such gaspers as Danny Boy, Annie Laurie, and (hold on!) Ave Maria (sung in Latin!). This is an album to make you star-crazy all over again even though we live in an era when the number of real stars seems to have shrunk to almost nothing.

Peter Gabriel (vocals, keyboard, flute, recorder); vocal and instru- mental accompaniment. Moribund the Bur- germeister; Humdrum; Slowburn; Down the Dolce Vita; Waiting for the Big One; and four others. ATCO SD 34-167 $6.98, © TS 104-177 $7.97, © CS 36-147 $7.97.

Performance: De Millean Recording: Kubrickian

Peter Gabriel used to be the lead singer for Genesis, which, like Yes and Queen, specialized in loud, heavily ornamented rock, full of sonie filigree and tinsel, colored bulbs and twinkling lights. Only in Genesis' case somebody forgot to include a Christmas tree to hang it all on. Santa never came for Genesis as he did for Yes (which didn't have a tree either but was sly enough to hang it all on an orange tree named Rick Wakeman). Genesis had no sold-out arenas, no stockings bulging with fat royalty checks, just glitter.

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on every album he does—proof positive that the nuclear family is not dead. In Ezrin’s extended family are a group of prodigious Toronto-based musicians, including guitarists Steve Hunter and Dick Wagner and drummer Joey Cockroft. But, because of the strict rules of the Ezrin family, they don’t always get to display their talents very much, which is a shame.

Gabriel’s album is produced so elaborately that everybody involved but Ezrin plays second fiddle. Gabriel does a semi-credible impersonation of Randy Newman as he sings about the big Southern California earthquake, but that’s about the extent of his vocal ability, and his original compositions are...well, somehow I can’t see Moribund the Burgermeister becoming a standard—or even a future K-Tel nostalgia item. On stage with Genesis, Gabriel used to dress up as a toadstool, and such experiences tend to leave their mark. Come to think of it, this album isn’t all that different from Genesis, at that—more tinsel without a tree.

MARVIN GAYE: Live at the London Palladium. Marvin Gaye (vocals); vocal and instrumental accompaniment. All the Way Round; Since I Had You; Come Get to This; Let’s Get It On; Got to Give It Up; Trouble Man; and three medleys. TAMLA T7-352R two discs $7.98, © 9-352NT $9.98, © 9-352NC $9.98.

Performance: Lackluster
Recording: Good

Marvin Gaye has recorded a score of great performances since the 1960's—Hitch Hike, I Heard It Through the Grapevine, Ain’t That Peculiar, Inner City Blues, and You’re All I Need to Get By are among them—but his craftmanship belongs more to the recording studio than the stage. Three sides of this double-disc album are of a live performance in which Gaye sings medleys of his long string of hits, but the pedestrian arrangements make them all sound like the same song; the dynamics, twists and turns, and grotty moods of the original studio performances are pressed flat as a Peking duck. The fourth side, thrown in for good (and commercial) measure, is the unedited eleven-minute-plus version of Get to Give It Up, which has been a hit in the discos. There is nothing to commend here except the drummer, who should receive an award for noise. 3...

THE STEVE GIBBONS BAND: Rollin’ On. The Steve Gibbons Band (vocals and instrumental). Wild Flowers; Light Up Your Face; Now You Know Me; Mr. Jones; Till the Well Runs Dry; Tulane; and eight others. MCA MCA-2243 $6.98, © MCAT-2243 $7.98.

Performance: Energetic
Recording: Good

Here is an album that answers a burning question: “What ever happened to Trevor Burton?” Burton, you may recall, was the original bassist with the Move, the did the Eddy Cochran imitations on their first album that quit that group long before they became cult heroes in America. Move drummer Bev Bevan characterized him as “a great musician who’s never found himself.” Where he finds himself now is with an aggressive rock band from his home town that makes likable but forgettable noises. Gibbons is an okay singer, and the Trevor Burton fans out there (all six of you) will doubtless be reassured to know that your hero is playing well, but “Rollin’ On” isn’t much of an album. There’s a nice version of Tulane (the last good song Chuck Berry wrote) that shows the band’s heart is in the right place, though, so I think I’ll keep it. One-song albums like this are cropping up with increasing frequency lately, by the way; it’s a pity the industry seems to want to phase out singles entirely. S.S.

RECORDING OF SPECIAL MERIT
WAYLON JENNINGS: Ol’ Waylon. Waylon Jennings (vocals, guitar); Richie Albright (drums); Ralph Mooney (steel guitar); Sherman Hayes (bass); Clifford Robertson (keyboards); other musicians: Luckenbach, Texas; As If You See Me Getting Smaller, Lucille; Sweet Caroline; I Think I’m Gonna Kill Myself; Till I Gain Control Again; Satin Sheets; and four others. RCA APL1-2317 $6.98, © APS1-2317 $7.98, © APK1-2317 $7.98.

Performance: Authoritative
Recording: Very good

Waylon’s last album was hurt by having too many vaguely similar songs in it, and this one is quite a radical departure from that: here is what they used to call a mixed bag. Mostly it’s a good one, much more interesting than “Are You Ready for the Country?” and only a little too interesting in a negative way a few times. These have to do not with versatility—Waylon has the vocal prowess to handle tougher and even more “foreign” stuff than this—but with how he identifies with a particular song...
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Once I interviewed Jethro Tull's leader, Ian Anderson. Asked what he thought of jazz, he replied that he didn't understand it but suspected it was all a fake, some kind of hoax perpetrated on the public. "What about Roland Kirk?" I asked. "Oh yes, I did hear one song by him once—Song for a Cuckoo. Quite liked it." That was nice of Anderson, considering that anybody familiar with both performers could tell that he stole his entire flute style from Kirk—from just one song, according to his own admission.

On the surface, this new Jethro Tull LP is a sylvian romp, more genial and less curmudgeonly than its predecessors. But you don't have to listen to it very long to pick up on the underlying attitude, which is as uptight, pretentious, and haughty as ever. This music and its creator's pose have never been anything but ugly and trite.

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DOUG KERSHAW: Flip, Flop & Fly. Doug Kershaw (vocals, fiddle, accordion, viola-electra), Johnny Sandlin (guitar), Neil Larson (keyboards); other musicians. Rag Mama Rag; Louisiana Blues; Twenty-Three, You Won't Let Me; Bad News; Black Rose; I'm Walkin'; and four others. WARNER BROS. BS 3025 $6.98, © M83025 $7.97, © M53025 $7.97.

Performance: Good
Recording: Good

The ragin' Cajun seems fairly tame here, but after listening a while you realize he's made an absolutely unclassifiable album, ranging all over the place for sources if not whole songs. His is a visual act; even on television you can tell he's pretty rough as a fiddler (that's masked here by fairly dense arrangements), but his antics are so distracting you may not be able to tell how well he sings. Here you can, yet here he really doesn't get into some of the songs with the gusto they deserve. Waylon Jennings outclasses him on Billy Joe Shaver's Black Rose, Fats Domino does likewise on I'm Walkin', so does Joe Turner on the title song, and so forth. What's missing from the Kershaw versions is not style or soul but, of all things, fire. Still, his singing is impressive when you consider all the material.

(Continued on page 98)

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DOUG KERSHAW: the ragin' Cajun comes up with an unclassifiable album

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(Continued from page 98)
AT LAST, EAST MEETS WEST.

Traditionally, the audiophile has had to choose between the East Coast Sound and the West Coast Sound, each with its own particular advantages and disadvantages:

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At $400, the EPI 200 would be an exceptional value. But at under $300, it is nothing short of phenomenal.


CIRCLE NO. 12 ON READER SERVICE CARD
There are three of them—Gary Herb, Michael Pace, David McDaniel. They call themselves Gotham, and they talk so much and so briskly that you can’t tell one from the other from the other. Recently, they stopped talking long enough to concentrate on singing, and managed to record an album that will be released in twenty-seven countries, but not in the U.S. They had this to say about that: “On the album, we do all kinds of music—the Boswell Sisters, Elton John, Dorothy Loudon, Billy Joel. The problem, you see, is that we’re all gay—but we’re not a gay act, if you see the difference. We’re just entertainers. American record companies are worried that we’d only appeal to gay audiences, that there aren’t enough of us in the world to buy the record, that sort of thing . . . none of which, of course, is true.” Despite all the negative chatter, Gotham thinks they’re pretty close to getting an American recording contract, but all thirty fingers are crossed.

Galdston and Thom is not the name of an intestinal disease or an English meal of eggs and sausages, but rather a new pop duo. Besides being grand prize winners in the American Song Festival, Phil Galdston and Peter Thom are feminists. You may have thought all women’s liberalists were women, but Thom says, “Men can be feminists too.” Galdston adds, “We see sexism all the time in the music world—music businessmen tell dirty, degrading stories at meetings before they get down to work.” So, what are they going to do about it? “Well,” says Thom, “there’s not much we can do about it now. But when we’re important, when we have influence . . .” In the meantime, G&T have written two feminist songs, It’s a Man’s World and De Lady Delayed, neither of which made it onto their new debut album “American Gypsies” (Warner Bros. BS 3037).

Pop singer Steve March, who lists Stevie Wonder and Joni Mitchell among those who influenced him, claims that another influence is Mel Tormé. Mel Tormé? “Mel Tormé’s my father,” March says. Then why is March March instead of Tormé? Because, he says, after his parents were divorced, his mother married actor Hal March, who became Steve’s legal guardian. “But I realized I was going to have to make it on my own if I was going to make it at all.” One thing Steve March made was an album called “Lucky,” and maybe he is and maybe he isn’t. He’s pictured here with dad Mel on a Dinah Shore TV show that featured famous folk and their offspring. Standing left to right are Steve, Mel, Pam Tillis (daughter of country singer Mel Tills), Pearl Bailey, her daughter Dee Dee Belson, and Dinah.

Stephanie Mills, who plays Dorothy in Broadway’s The Wiz (and the matching Atlantic Records original-cast album), has nearly as much determination as she has vocal power. “I have two dreams,” she said a while back. “One is to meet Diana Ross. The other is to star in the movie version of The Wiz.” As this photograph proves, Mills met Ross. Recently, however, it was announced that Ross will play the part of Dorothy in the movie, beating out Mills for the part. Just goes to show that even that Yellow Brick Road has a few rocks in it. And guess who’s going to appear in the role of the Good Witch? None other than the eternally youthful Lena Horne.
The latest sibling to emerge in the record business is Sylvester (Rocky) Stallone's brother Frank. RCA has taken on Frank Stallone and his rock group Valentine, but RCA spokesmen say that the contract was signed well before the movie Rocky was released. Maybe so, but the group's first album will contain Take You Back, a song Frank and his band sang in the film. Rumors that the album will be called "Rocky's Brother Sings!" are unfounded.

Singer Cleo Laine has a new sideline. She is the head of the Luton Women's Aid, a group that is based near her home in England and is dedicated to helping women who are beaten by their husbands. Is Cleo, who is married to bandleader John Dankworth, a battered wife? She laughs. "No. They just wanted someone with a well-known name to head their group." Says husband John: "They should also have an organization for battered husbands."

Martin Mull, whose latest album is called "I'm Everyone I Ever Loved" (ABC AB 997), and who was a featured member of the Mary Hartman, Mary Hartman players and currently star of its spinoff, Fernwood Tonight, had a little real-life soap opera experience of his own recently. Seems that one afternoon Mull was having a drink in a Manhattan bar. When he left, three overdressed young women approached him and made a few offers, which he refused. Whereupon one of the ladies stole his wallet. A nearby policeman saw the whole thing and got Mull into his police truck; they barreled down the street after the hookpockets and . . . um . . . grabbed them. On the way to the police station, they picked up another prossy who, upon getting into the truck, stepped on the toe of the woman who had taken Martin's wallet. She got angry enough to beat up on the latecomer and set her hair on fire. After a few hours in court, Martin retrieved his wallet, and the girls were hustled off to the pokey. Now, in the next episode . . .

Judy Collins says that one of her goals for 1977 is to perform in Las Vegas. Las Vegas? "I'm no longer a folk singer," Collins claims. "I sing all kinds of songs by all kinds of artists." One of the more distinctly non-folk songs in her repertoire is Send In the Clowns by Stephen Sondheim, who recently sent Judy a letter saying: "Thank you for giving me my first hit song." Judy has been asked to sing a command performance at the end of the summer for Queen Elizabeth, but she's not sure she wants to do it.

Carole Bayer Sager, who wrote the words to the hit Midnight Blue, and Marvin Hamlisch, who wrote the music to just about everything else, have begun collaborating. They have written a song for Aretha Franklin, another one for Sager's debut solo album, "Carole Bayer Sager" (Elektra 1100), and the theme song for the new rough and tough James Bond film. No, the theme song is not to be called Midnight Black and Blue. Its actual title is Nobody Does It Better, and, performed by Carly Simon, it will soon be released as a single.

Talk about crossovers. Boy! Dolly Parton, country star, is trying to branch out into other kinds of music. And Carol Channing is branching out into country—she's even been recording tunes in Nashville. Channing plans to return soon to Broadway in yet another revival of Hello, Dolly!—could it be a country version? And does this mean Parton will open on Broadway in a new musical called Hello, Carol!? Boy! Talk about crossovers.
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**BROWNIE MCGHEE: Blues Is Truth.** Brownie McGhee (vocals, guitar, piano); instrumental accompaniment. The Blues Had a Baby; Without Terry this time around, McGhee is backed by several sidemen, among them Louisiana Red on guitar and a harmonica player named Sugar Blue. Nearly all the songs are McGhee's own, and they are sturdy material, especially the title tune and The Blues Had a Baby (and They Called It Rock and Roll). McGhee’s vocals are polished, warm, forceful, and urbane. What detracts from the album is the looseness of the sessions; they are so loose that the band never seems to be quite able to end a tune together. McGhee kiddingly points this out on Key to the Highway when he says, "Now we goin' out together—for once." (They don't.) Still, McGhee's own performances more than make up for the sloppiness of the sidemen.

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**ELLIOTT MURPHY: Just a Story from America.** Elliott Murphy (vocals, guitars, Farfisa organ, marimba, harmonica, tambourine, harmonium); vocal and instrumental accompaniment. Drive All Night; Summer House; Rock Ballad; Think Too Hard; Anastasia; and four others. COLUMBIA PC-34653 $6.98, © PCA-34653 $6.98; © PCT-34653 $6.98.

Performance: He thinks too much

Recording: Fine

There's absolutely no point to delving into an album as deep as Elliott Murphy (the self-proclaimed "F. Scott Fitzgerald of rock") claims this one is until we've paused a bit to scratch the surface. I mean, the guy's promoters actually try to sell this record with the line that "He could write a book. But he chose rock and roll instead." This raises the question of just which book he would have honored us with had rock-and-roll not claimed his talents.

(Continued on page 100)
High Bias.

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The machine for your machine.
Tender Is the Night? The Decline of the West? Principia Mathematica? Miss McIntosh, My Darling?

I suppose we will never know, which is actually a kind of relief. After being sandbagged by such heavy recent books as JR and Gravity's Rainbow, both of which I mysteriously failed to comprehend, I just don't think I'm up to another masterpiece. I was going to settle for watching Captain Kangaroo when a batch of review albums arrived and I was able to seize upon "Just a Story from America" as the solution to my problem: culture and pain. Right on this record we get references to Anastasia (pretender to the throne of all the Russias), Errol Flynn, and Rhett Butler. Not exactly Spender, Marx, and Freud, of course, but Murphy does try; in the past he's written songs to, about, or with passing mentions of Eva Braun, Marilyn Monroe, Patti Smith, and Danny Fields, among others. Before Bruce Springsteen broke through, certain rock critics were tentatively elevating Murphy to Next Dylan status, just because his lyrics were fairly safely and his songs sounded like 'Blonde on Blonde': played by a radio station getting leakage from a Lou Reed broadcast.

The trouble is, Murphy's modern in just the way that Springsteen is not. While Springsteen usually believes and feels all that hubcap chivalry stuff, Murphy is cool and sophisticated—so cool and sophisticated that his last two albums consisted mainly of namedropping (Patti Smith was "Lady Stiletto"), lit., major purges, and ever-so-sincere songs about how much he really wants to be a famous superstar but, y'know, gee, he's getting all these ambivalent feelings. 

"Just a Story from America" is Murphy's best album yet, though that isn't saying much. If you can get past the Springsteen-steal/cap song and the weird sense of history that produces such lines as "Anastasia please come home/Your daddy the Czar is on the telephone/His little girl so lost and alone/It makes him cry," you'll still have to contend with the fact that his singing sounds affected from first note to last. Murphy is the Al Stewart of counterfeit street-poets. Lester Bangs

MINNIE RIPERTON: Stay in Love. Minnie Riperton (vocals); orchestra. Young, Willing, and Able; Could It Be I'm in Love; Can You Feel What I'm Saying; Stick Together; Gettin' Ready for Your Love; and four others. Epic

Performance: Very good
Recording: Good

Minnie Riperton has one of the truly unique voices in pop: dramatic, warm, and highly expressive even into the upper reaches of what sounds like a real coloratura soprano. It's mostly wasted here, though, in what is billed as "a romantic fantasy set to music." It's actually an assortment of solemn ballads, all co-authored by Minnie, that would sink a collection of sodden ballads, all co-authored by Minnie, that would sink a.

Riperton's singing is, as usual, just fine—it's impressive even into the upper reaches of what voices in pop: dramatic, warm, and highly expressive even into the upper reaches of what sounds like a real coloratura soprano. It's mostly wasted here, though, in what is billed as "a romantic fantasy set to music." It's actually an assortment of solemn ballads, all co-authored by Minnie, that would sink a collection of sodden ballads, all co-authored by Minnie, that would sink a.

Perfection: Excellent
Recording: Very good

"Ummistakably" is one of the best albums Lou Rawls has made in years. He's singing out better and bigger than ever, and the result is a delightful, old-timey jaunt reminiscent of years-ago Nat "Kin'" Cole in one of his more exuberant moods. The big-band sound, provided here by the arrangements of Bobby Martin and Jack Faith, and the production work of the omnipresent Gamble-Huff, who are also responsible for six of the songs here, glides along behind Rawls with the silvery purr of a brand-new 1953 T-Bird. As bad as the material often is—and it can be woeful in such and cut recordings for several small labels. The experience shows, and in all the right ways. She's easy and assured, with a generous jazz-pop style that can handle almost anything. Unfortunately, "almost anything" is just about what she's been given here in the way of repertoire. Only the title song, Sweet Beginnings, is worthy of her talents—everything else seems like escaped vamp. Bert deCoteaux's production, arrangements, and conducting don't give her much room to swing out, but then what's there to swing out about? This is a disappointing major-label debut. P.R.

MEL TILLIS: Heart Healer. Mel Tillis (vocals, guitar); instrumental accompaniment. Heart Healer; Wedding Bells; Play It Again, Sam; Someone Else Tends the Garden; Burning Memories; and five others. MCA 2252 $6.98. © T-2252 $7.98, © C-2252 $7.98.

Performance: Coolish
Recording: Good

Mel Tillis has a fine, smooth voice and is a groundbreaking tough not very prolific songwriter. His arrangements have been getting slicker and slicker lately, though, and my overall impression of this one is that it stands offish and cool. I wonder whether being on television a lot lately could be having an effect on him, since you probably have to be cool in the more cutthroat outlets of showbiz, like TV, to keep from getting eaten alive. A couple of years ago Tillis could sing about working at the sawmill and make me believe he'd been there; this time it sounds more like he's dutifully reporting on some movie he saw and found mildly interesting. Real life, Mel, give us real life . . . more about Ruby taking her love to town and that sort of thing. N.C.

UTOPIA: Ra. Todd Rundgren (vocals and instruments); Utopia (vocal and instrumental accompaniment). Overture/Companion with the Sun; Magic Dragon Theatre; Jealousy; Eternal Love; Sunburst Finish; Hiroshima; Singing and the Glass Guitar. Bearsville BR 6965 $6.98, © M8-6965 $7.97, © M5-6965 $7.97.

Performance: Synthedelia
Recording: Equal to the purpose

Tapes played backwards, fourteen-minute electric fairy tales, songs about the sun god and how your mind is flying, unnecessary sexual effects—these are a few of the elements in Todd Rundgren's sonic wonderland. This sort of stuff was popular among rock musicians, from the Beatles on down, around 1967-1968, but at the time Rundgren was apparently too busy to listen as he was trying to make it in a fine Philadelphia band called the Nazz. Now, a decade later, he has finally made it in a fine Philadelphia band called the Nazz. Now, a decade later, he has finally

STEREO REVIEW

BONNIE RAITT: Sweet Forgiveness (see Best of the Month, page 82)

STEREO REVIEW

LOU RAWS: Unmistakably Lou. Lou Rawls (vocals); instrumental accompaniment. Spring Again; Early Morning Love; Some Day You'll Be Old; Secret Tears; All the Way; and six others. Epic

Performance: Excellent
Recording: Very good

Minnie Riperton has one of the truly unique voices in pop: dramatic, warm, and highly expressive even into the upper reaches of what sounds like a real coloratura soprano. It's mostly wasted here, though, in what is billed as "a romantic fantasy set to music." It's actually an assortment of solemn ballads, all co-authored by Minnie, that would sink a collection of sodden ballads, all co-authored by Minnie, that would sink a.

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Lou Rawls

Like Nat "King" Cole with gusto

LOU RAWS

Like Nat "King" Cole with gusto

PE-34191 $6.98, © PEA-34191 $6.98, © PET-34191 $6.98.

Performance: Very good
Recording: Good

MARLENA SHAW: Sweet Beginnings. Marlena Shaw (vocals); orchestra. Pictures and Memories; Ya-Ma, Walk Softly; I Think I'll Tell Him; No Deposit, No Return; and five others. Columbia PC-34458 $6.98, © PCA-34458 $6.98. © PCT-34458 $6.98.

Performance: Good
Recording: Good

Marlena Shaw has been around for a while. Starting as a child performer at the Apollo in Harlem, she went on to sing with the Count Basie Orchestra, tour the nightclub circuits,
Performance: Restrained
Recording: Clattering and busy

Ben Vereen seems oddly restrained in this overproduced bit of slickery. His TV appearances are so full of "lovingness" that you can't escape his moist rapture at being Ben Vereen In Person. Here, though, plowing through enormous arrangements with a flotilla of back, side, and foreground singers swooping around him, he sounds distantly over-tracked and puny. Most of the material is as weak-kneed as the performances, but Stop Your Half Steppin' Ma Ma has a clattering energy and at least sounds as if Vereen were in the same studio as everyone else. P.R.
Charles Strouse and Martin Charnin’s Annie is probably the squarest, most conventional thing to hit Broadway since the palmer days of George M. Cohan. But no matter how far you have your sophisticat-ed musical lip curled in advance, and no mat-ter how oh-God-not-another-quaint-little-million-dollar-musical you’ve allowed your head to get, it’s ten to one that you’ll be as en-tirely captivated (“Gloriosky!”) by Annie’s genuine charm and great big ricky-tick musical heart as I am.

First off, this is one of those superbly well done Columbia original-cast albums, in the tradition of My Fair Lady, Mame, and Cabaret, that almost make the need to see the show itself superfluous. Larry Morton and Charles Strouse’s production couldn’t be improved on: the listener is thrust directly into the cen-ter-stage action, and as the slight, segmental tale of Annie’s being rescued from the orphanage by Daddy Warbucks, her search for her real folks, the machinations of Miss Hannigan and her cohorts to pass off a false cou-ple, their come-appliance at Warbucks’ man-sion in the presence of none other than FDR and his entire cabinet—and at Christmas!—unfolds, you begin to feel as close and as tail-waggingly friendly to the characters as dear old (“Arf!”) Sandy (who, unfortunately, does make an appearance here vocally).

Moreover, Annie, with all its easy virtues, elephantine airs and graces, absolute techni-cal perfection, and warmth (to say nothing of the Swiss-watch observation of all of its ele-ments), is The Broadway Musical. That unique, and uniquely American, contribution to the world lyric theater has taken an awful drubbing in the last few years; one of the quickest ways to show you were in was to de-clare that Broadway—particularly its musi-cals—was out. If you had to like something, well, you just might admit that Chicago has a certain Brechtian validity—I mean, after all, the Ebb-Kander score does have a kind of sour-assy message: none of us are any damned good and the only way to beat the system is to join it and then give lessons in corruption. But Annie gives that whole cynical cliché a won-derfully raucaus send-up in a Weillish number called We’d Like to Thank You (Herbert Hoover). It is sung in fine proletarian style by the residents of a sub-ponitine Hooversville, particularly by one anonymous Mother Cour-age in the chorus who asks melodramatically, "Whoever thought I could steal!!??"

About a minute into the overture, right af-ter the signature song (called Tomorrow—a bit droopy and Inspirational, but it’ll do, it’ll do), the orchestra cranks up, lets out, and softs to soar with You’re Never Fully Dressed Without a Smile. And man, Broadway Is Back! All I could picture was hundreds—count ‘em—hundreds of chorus girls hoofing up a storm, but the reality of it is that in the show the song is performed first by a typical radio "charm" singer (Rudy Vallee?) of the someday winding up in the nut house be-cause, while other women seem to be dripping in diamonds and pearls, all she seems to be doing is “dripping with girls”;

I Think I’m Gonna Like It Here, where Annie is first intro-duced to the splendors of Daddy Warbucks’ palatial Fifth Avenue mansion; Easy Street, in which Miss Hannigan, her rotten-rotten brother Rooster, and his shady lady Lily plot together how they’re going to get there; Something Was Missing, Daddy Warbucks’ sentimental little lilac-colored-spotlight ode to Annie; and even the finale, a deliriously corny and endearing Big Number called A New Deal for Christmas, featuring FDR and cabinet members (“Sing up, Harold!”) Ike and Frances Perkins. About the only number in the show that just wouldn’t go down is a bum-mer called N.Y.C.; it’s about the joys of New York (there are some), but it sounds as if it were whipped up between crises for the re-election campaign of Hizzoner Abe Beame.

Andrea McArdle, in the title role, sings her songs with an unaffected, genuinely childlike charm, and aside from an at times disconcert-ing vocal resemblance to Bernadette Peters she’s an ideal non-camp Annie. Reid Shelton as Daddy Warbucks is good verging on excel-lent, but it is Sandy Faison as Grace, War-bucks’ secretary, who makes the single strongest impression as one of the new breed of Broadway singers. She has no solo number of her own, but she’s heard in several of the group songs, and she’s very, very good. Doro-thy Loudon, who doesn’t seem to have been around for several years, is back with a re-sounding boom, and she’s only superb as Miss Hannigan: scheming, selfish, querulous, with a heart and a world-view of pure lead.

Charles Strouse’s credits go back to include such hit shows as Bye, Bye Birdie, Applause, and Golden Boy, and in Annie he has hit an easy stride, composing music that is mean-purely and simply to entertain. That writing such music is by no means purely simple can be evidenced by the fact that no one since Irving Berlin seems to have been able to make a consistent career out of it. Martin Charnin’s love for horror and a wise avoiding coming up the subject or the era and graced with a nicely felt tinge of admir-a-tion for a simpler—or so it seems now-time.

Annie is, of course, based on Harold Gray’s famous comic-strip. But there was an earlier “Little Orphant Annie,” a poem in dialect by James Whitcomb Riley, about a little housemaid who “come to our house to stay.” / An’ wash the cups and saucers up, an’ brush the crumbs away.” Riley’s Annie told absolutely enthralling ghost stories. Gray-Charnin’s Annie simply spins out a little fable and charms us. But no matter how high your musical brow or how sophisticated your taste, this album will surely seduce you “Ef you Don’t Watch Out!”

—Peter Reilly

ANNIE (Charles Strouse-Martin Charnin). Original Broadway-cast recording. Andrea McArdle, Reid Shelton, Sandy Faison, Robert Fitch, Dorothy Loudon, others (vocals); orchestra, Peter Howard cond. COLUMBIA PS 34712 $7.98.
Jazz

RECORDING OF SPECIAL MERIT

ANTHONY BRAZTON: The Montreux/Berlin Concerts. Anthony Braxton (soprano, alto, and bass saxophones; clarinet, flute); Kenny Wheeler (trumpet); George Lewis (trumpet); Dave Holland (bass); Barry Altschul (drums, percussion). H-46M . . . B-BW4; 84" KELVIN . . . G; and five others. AKS-

TA AL 5002 two discs $9.98. Performance: Braxtonian. Recording: Very good. I was somewhat disappointed by Anthony Braxton’s last Aresta release (“Duets 1976” — AL 4101), but he redeems himself with this two-record set of concert performances from the Montreux and Berlin festivals. Those pretentious diagrams identifying each selection are back, but the music is without pretense. There’s some wonderful work by trumpeter Kenny Wheeler, and Dave Holland and Barry Altschul build a solid rhythm foundation. The selection that ends the first side has some particularly effective — and very swinging — ensemble play by Wheeler and Braxton. Whimsey and Weill (Kurt, that is) enter into the last cut of side two, which — like so many of Braxton’s pieces — starts off a bit disjointedly and then suddenly comes together, making uncanny sense. Sides three and four are more of the same — yet completely different, if you know what I mean — making this a set no Braxton devotee ought to be without. C.A.

DIZZY GILLESPIE: The Development of an American Artist, 1940-1946. Dizzy Gillespie (trumpet); with his Sextet, his All-Stars, the Tempo Jazzmen, the Joe Marsala Sextet, Sarah Vaughan, and the orchestras of Cab Calloway, Les Hite, Coleman Hawkins, Billy Eckstine, Oscar Pettiford, Boyd Raeburn, Lucky Millinder, and Georgie Auld. Pickin’ the Cabbage; Kerouac (two excerpts); Good Bait: Interlude (Night in Tunisia); Disorder at the Border; Co-Pilot; Confirmation; ’Round Midnight; and twenty-five others. SMITHSONIAN COLLECTION R 004 two discs $9.00 (from the Smithsonian Collection, P.O. Box 1641, Washington, D.C. 20013). Performance: Sparkling. Recording: Good transfers. Truly innovative jazz musicians — I mean the kind who turn the music itself around — seem to be an endangered species. Where are the Armstrongs, Youngs, Christians, Parkers, and Coitranes of today? Well, if their equivalents are to be found among the younger generation of musicians, I have yet to hear them, which is not to say that we haven’t seen some extraordinary new talent emerge in recent years. Of the surviving innovators of old, none has had the impact of John Birks “Dizzy” Gillespie, who was the vanguard of the Swing Era sounding like Roy Eldridge and developed a style that became the model for all modern jazz trumpet players. Gillespie not only set the pace for his own instrument, he was also a major force in developing modern jazz, or be-bop, as it was once called.

This album traces Gillespie’s development from 1940 to 1946, a period that saw him help build and cross the bridge from swing to bop. It was a period of confusion and polarization, reflecting the state of the music at the time — a period of confusion and polarization...
during which the walls of style grew more and more impenetrable as young musicians joined with defectors in a direction that had the traditionalists (some of whom even considered swing a betrayal of jazz) screaming heresy. But as the jazz war raged, some great music was being created on both sides, and the thirty-three selections assembled for this set by Martin Williams make up a generous sample of a music in transition. We hear Dizzy in a traditional big-band setting with Cab Calloway (who called Dizzy’s music “Chinese”) and eventually fired him for throwing a spitball and in an informal session at Monroe’s Uptown House as captured by Jerry Newman’s portable disc-cutter in 1941. We hear him with Billy Eckstine and Sarah Vaughan, the vocalists of the Bop Era, and in the unlikely company of stride pianist Cliff Jackson on a session that demonstrates the stylistic transition that was taking place. But we do not hear Gillespie with Charlie Parker, a celebrated association that was recorded early enough for inclusion in this set and would have been excellently represented by a selection from the November 1945 Savoy session (with Miles Davis) that yielded Billie’s Bounce and Ko Ko. That session is, of course, available now on a Savoy album (“Bird/The Savoy Recordings”—Savoy SJL 2201), but I still think one of the alternate takes might well have been used by Williams in place of one of the four Cab Calloway sides. Nevertheless, this is a fine album filled with outstanding music, annotated in a scholarly way by Williams (with interesting comments by Gillespie himself), richly illustrated with photographs (the double album has a four-page insert), and generously endowed with discographical data. Most important, it delivers what it promises.

C.A.

BOB JAMES: Three. Bob James (keyboards); Grover Washington, Jr. (soprano and tenor saxophones, tin whistle); orchestra. One Mint Julep; Jamaica Farewell; and three others. CTI CTI-6063 $6.98, CTI-6063 $7.98, CTC-6063 $7.98.

Performance: Spiritless Recording: Very good

BOB JAMES: Four. Bob James (keyboards); orchestra. Pure Imagination; Tappan Zee; El Verano; and three others. CTI CTI-7074 $6.98, CTI-7074 $7.98, CTC-7074 $7.98.

Performance: Less spiritless Recording: Very good

Since he signed with the CTI label, Bob James has given his unabashed commercial touch to countless albums, including two, titled simply “One” and “Two,” under his own leadership. When I reviewed “One,” I called it “a fine example of lush, jazz-flavored pop” and expressed a hope that it would soon be followed by “Two.” It was, and now we have—you guessed it—“Three” and “Four.” I should be in seventh heaven, but I’m not. Enough is enough, and four albums of this sort of slightly-hipper-than-Mantovani mood music is more than enough.

“Three” features Grover Washington, Jr., who has had exaggerated success playing the saxophone in a manner that would pale in comparison with a Lester Young warm-up. It is a plodding, monotonous thirty-six minutes of lush, predictable James arrangements played with apathy by a large ensemble that includes such CTI regulars as Hubert Laws, Eric Gale, and Ralph MacDonald plus twelve strings and a harp. Get the picture?

“Four” is essentially more of the same, though there are moments when some of the musicians actually seem to show some interest in what they are doing. Both these albums are very slick, well produced, and obviously high-budget excursions destined for that wide market of people who want little more out of music than a beat to gyrate to. But when I look at the talent on hand and imagine what music it could have created, I have to regard “Three” and “Four” as meaningless waste. Bob James, for the moment at least, is on a treadmill. I understand he has now left CTI. Perhaps the split will be good for both of them.

C.A.

RECORDING OF SPECIAL MERIT

EDDIE JEFFERSON: The Jazz Singer. Eddie Jefferson (vocals); various instrumental groups, including Howard McGhee (trumpet), James Moody (tenor saxophone), and Osie Johnson (drums). Body and Soul; So What?; Moody’s Mood for Love; Sister Sadie; and eight others. INNER CITY IC 1016 $6.98 (from
King Pleasure's recording of Moody's Mood for Love—a 1952 vocal version of James Moody's 1949 solo on I'm in the Mood for Love—established Pleasure as a jazz singer and introduced a novel vocal concept that was carried further by Annie Ross, perfected by Lambert, Hendricks & Ross, and recently bastardized by a French vocal group called Quire. Though Pleasure is often believed to have originated the concept of setting lyrics to improvised instrumental solos, the man who started it all—by writing the Moody's Mood lyrics sung by Pleasure—is Eddie Jefferson, who recalls singing this sort of thing for friends as far back as 1939. Jefferson, now fifty-nine, began recording twenty-five years ago, but he never had a hit to equal the one he had helped King Pleasure create. Still active today, he is frequently heard at informal sessions in Greenwich Village lofts, and he has recently continued his recording career on the Muse label.

Except for Body and Soul and one other selection (I believe it was Now Is the Time), which appeared as a single on the Triumph label in 1961, the recordings in this album—made at three different sessions in 1959 and 1961—are now being released for the first time. The overall sound is a bit dated, as are some of the lyrics (it is, of course, the pre-electronic Miles Davis that Jefferson describes in So What?), but this music was meant to be heard at another time, when it would have been considered very hip. I don't know why it took so long to make this album available, but it deserves to be heard; indeed, if it had been released in 1961, a reissue at this time would not have seemed inappropriate. Eddie Jefferson is in good form here, the repertoire runs the gamut from Pine Top Smith to Charlie Parker, and the accompanying groups include enough formidable soloists to stand on their own. Jefferson's vocal style does not lend itself to the instrumental style of today, but just as we can still enjoy the oral wah-wahs and growls of Baby Cox on those Ellington sides of the Twenties, Jefferson's vocal twists and turns will continue to please generations to come. They typify vocal jazz of the Fifties as much as the scat singing of Leo Watson—Jefferson's prime inspiration—typifies the heyday of 52nd Street.

C. A.

JONES/BROWN/SMITH: Hank Jones (piano); Ray Brown (bass); Jimmie Smith (drums). My Ship; Alone Together; Rockin' in Rhythm; and five others. CONCORD JAZZ CJ-32 $6.98 (from Concord Jazz, Inc., P.O. Box 845, Concord, Calif. 94522).

Performance: Smooth
Recording: Good

It is only to be expected that a trio made up of pianist Hank Jones, bassist Ray Brown, and drummer Jimmie Smith, whose career has spanned nearly forty years, would play quite well together. Sometimes excellent, always tasteful, and always tasteful jazz, as they do here. Anything less than good from these men would have given me something to write about. The only news I can report about this album is that Hank Jones plays electric piano on four of the tracks, and he does that very well indeed.

C. A.

OLIVER LAKE: Holding Together. Oliver Lake (soprano and alto saxophones, flute, percussion); Michael G. Jackson (guitars, mandolin, flute, percussion, vocals); Fred Hopkins (bass); Paul Maddox (drums, percussion). Machine Wing; Usta B; Hasan; and three others. BLACK SAINT BSR 0009 $7.98 (from J.C.O.A.!, 6 West 95th Street, New York, N.Y. 10025).

Performance: Multifaceted
Recording: Good

Oliver Lake, having bunged a bass drum and clashed cymbals in a drum and bugle corps, took up the alto saxophone in 1960. His inspiration was Paul Desmond, then going full guns with the Dave Brubeck Quartet, but any traces of Desmond that might have been found in Lake's playing have long since vanished. Lake, who is a major force in BAG (Black Artist Group), the St. Louis equivalent to Chicago's AACM avant-garde movement, cites Jackie McLean as a major influence, but that, too, seems to have passed and he is very much his own man on this album. I don't think I have ever previously heard anything played by the three men who complete this quartet, but they are all excellent musicians. There is wonderful unity throughout this set of intensely personal, free-flowing, free-form music. Though some of the sounds might grate on the ears of a purist, the quartet never resorts to the kind of tasteless gimmickry that so often mars music of this genre.

Two earlier Oliver Lake albums have been released in this country on the Arista label, but this one—though recorded in New York last year—is an Italian import. I believe the
MARKY MARKOWITZ: Marky’s Vibes. Marky Markowitz (trumpet, flugelhorn); Urbie Green (trombone); Al Cohn (tenor saxophone); John Bunch (piano); Milt Hinton (bass); Mousey Alexander (drums). Four Flights Up; On the Alamo; Over the Rainbow; and three others. FAMOUS DOOR HL-111 $6.98 (from Harry Lim Productions, 40-08 155th Street, Flushing, N.Y. 11354).

Performance: Fine mainstream
Recording: Very good

Irvin “Marky” Markowitz, now approaching fifty-four, came up through the ranks of the C.A. group of this caliber should not have to look for Lim, long a friend of good, straightforward jazz, that he has turned an album over to for Lim, who has come forward to do an album of his own—his first, I believe. It speaks well of Markowitz may not have the versatility that Ralph Towner enters in a relatively unknown musician while underplaying the presence on it of such established musicians as Al Cohn, Urbie Green, and Milt Hinton, who could surely sell more records for Lim’s small but dedicated Famous Door label. Markowitz may not have the name, but he does have the skill: good technique, rich tone, and a relaxed style rooted in the swing tradition. And his colleagues all seem to be enjoying themselves, which makes this a most pleasant album in a small-band tradition that will remain with us as long as jazz musicians are around.

CARMEN McRAE: At the Great American Music Hall. Carmen McRae (vocals); instrumental accompaniment. Them There Eyes; Paint Your Pretty Picture; On Green Dolphin Street; A Song for You; On a Clear Day; and fifteen others. BLUE NOTE LA-702-HZ two discs $7.98, © EA-709-1 $7.98, © CA-709-1 $7.98.

Performance: Unflappable
Recording: Very good

Carmen McRae is one of those legendary singers with a supple style who seems to have been born into the world full-blown. Hasn’t there always been a Carmen McRae to come on loud, lamenting, bluesy, and lyrical with all those songs about the agony of love? Such voices seem not to have evolved, but to have been with us from the start. McRae is heard here in a high San Francisco recording studio, where she was recorded live in 1976. After a while it all begins to seem excessive, since the mood is largely lovelorn and the cheering from the gallery becomes increasingly difficult to tolerate by the fourth side.

But the singer herself is unflappable throughout, mesmerically moving in such ballads as On a Clear Day, Never Let Me Go, and A Song for You; saucy and insouciant in T’ain’t Nobody’s Business If I Do; and almost a match for Ethel Waters herself in a curiously earnest version of Miss Otis Regrets. She gets support from five of the best jazz musicians in the business—Dizzy Gillespie on trumpet, Marshall Otwell on keyboards, Ed Bennett on acoustic and fender bass, Joey Baron on percussion. Too much of a good thing, perhaps, but a good thing for sure.

RALPH TOWNER: Diary. Ralph Towner (twelve-string and classical guitar, piano, gongs). Dark Spirit; Icarus; Erg; Ogden Road; and four others. DOUGLAS NBLP 7044 $6.98.

Performance: Fine entry
Recording: Very good

With so many young guitarists these days hiding their weaknesses behind electronic accessories, it is always refreshing to hear Ralph Towner play au naturel, so to speak. Not that I like everything he does—what he did when he teamed up with John Abercrombie bored me—but most of his work is engrossing. ‘‘Diary’’ is Towner’s latest ECM release in this country, but it was recorded over four years ago. A multiple-track technique allows him to play piano, guitar, and gongs simultaneously. As a rule, this sort of thing does not work—there is no rapport that, ideally, develops between musicians in a studio—but I have no qualms about anything that is happening here. Towner is a versatile player, and his musical mind has explored many varied directions. Raga, rock, Baroque, blues—all come together here in a well-proportioned blend that Ralph Towner enters in his ‘‘Diary’’ with skill and feeling.

(Continued on page 109)
LOUIS VAN DYKE: 'Round Midnight. Louis van Dyke (piano); bass and drum accompaniment. Django; The Entertainer; Valse; Sweet Georgie Fame; and six others. COLUMBIA M-34511 $6.98.

Performance: Good

Reading Peter Venuti's notes to this album made me suspect a put-on, another attempt by Columbia's Masterworks department to break into the pop field. After all, calling Louis van Dyke "the most brilliant of the current generation of Dutch piano players" is just about equivalent to calling me "the most gifted jazz writer born in Ireland." I don't recall that encomium doing anything for my ego, and Holland hasn't exactly been a breeding ground for jazz pianists. The line that really got me, however, was the one boasting that Mr. Van Dyke had been "invited to accompany such great vocalists [my italics] as the Anita Kerr Singers, Salena Jones, and Coretta King." Now I simply had to hear this record. Was it actually a humorous aside by Horowitz? Was it Artie Weins' bracing his roots? Did it mark the return of Jonathan Edwards? Well, any of the above would have been preferable to what I heard when I played "Round Midnight." I guess there really is a Louis van Dyke, a capable technician who plays pretty but without verve and—for someone billed as "Europe's foremost jazz pianist"—with a surprising lack of feeling. What next, Masterworks? "Coretta King's Greatest Hits"?

C. A.

LEE WILEY: On the Air. Lee Wiley (vocals); instrumental accompaniment. You Can't Go Wrong; Three Little Words; You Turned the Tables on Me: Here's Love in Your Eyes; The South in My Soul; I'm Comin' Virginia; All the Things You Are; Twelfth Street Rag; Dance Me Madly; Up Above My Head; and four others. COLUMBIA M-34512 $6.98 (from Kiner Distribution Co., P.O. Box 742, Redmond, Wash. 98052).

Performance: Excellent

Recording: Variable reprocessing

Lee Wiley was a precocious, gifted, and very womanly balladeer who never quite made it to the top in the Thirties and Forties but was well regarded by jazz musicians for her phrasing, feeling, and impeccable timing. She could take a lyric line and extend it to the utmost limits imposed on it by a given tune, then snap it back on the beat like a rubber band. She was a "discovery" of bandleader Paul Whiteman, who had also "discovered" Mildred Bailey.

Though Wiley's career did not take fire the way it might have, she always kept the respect of musicians and knowledgeable fans. Her recording dates after the Thirties were sporadic, mostly as a guest artist or as the star on semi-private and limited-edition sessions. She died in 1975, a minor legend whose performances remain highly prized.

The recordings in this archive set are taken from radio-broadcast airchecks between 1932 and 1936, some made with the Whiteman orchestra and some with Rudy Vallee's band. Many of the recordings made when Wiley had not yet reached twenty. Her vocals are canny, fluid, and tempting; her voice, style, and intent are not those of the radio vamp singer, but of a "nice" girl who would do anything for her man. The tunes and lyrics, of course, are from an era of American songwriting that has never been equaled for sentimentality, sophisticated baton, and pure emotional tug. I recommend the singer and the songs. J. V.


Performance: Frequently poetic  
Recording: Excellent


Performance: Crisp  
Recording: Very good

Aldo Ciccolini, always a more than dependable performer, gives us a crisp, generally enjoyable account of Albéniz’s masterwork, not without occasional flashes of elegance; the recorded sound of his piano is very good indeed, and the Seraphim price makes the set still more attractive. Michel Block, however, seems to me to go a good deal deeper into the essence of this music; his playing is more flexible and frequently poetic, with a consistently wider range of both color and mood. Moreover, he benefits from even finer sound, the Connoisseur issue includes the supplementary piece Navarra, and it is further enhanced by Peter Eliot Stone’s exceptional annotation. Block’s Iberia is a thoroughly satisfying presentation in its own right—more so than Francisco Aybar’s, issued on the same label about two years ago, but inevitably less so than Alicia de Larrocha’s magical performance in London set CSA-2235 (wherein she includes not only Navarra but the entire suite Cantos de España). Attractive as the various other versions may be, it is Larrocha’s that remains the most fulfilling.

R.F.

C. P. E. BACH: Trio Sonatas in C Major, B Minor, and B-Flat Major. Eugenia Zukerman (flute); Pinchas Zukerman (violin); Samuel Sanders (harpsichord); Timothy Eddy (cello). COLUMBIA M-34216 $6.98.

Performance: Pushy  
Recording: Dry

If you are seeking the Sturm und Drang, the sentimental, the bizarre and spastic writing usually associated with Bach’s second-oldest son, stay away from this disc. Here the innovator is writing in an archaic trio-sonata idiom that lacks the strength of the Baroque and has not yet caught the elegance and clarity of the Classical style. The music simply plods along without climax or shape.

In a brave attempt to make these pieces interesting, the Zukermans force the tempos and play with an aggressiveness that is entirely unbecoming to the placid, dull music. Since C. P. E. himself left explicit performance instructions and Quantz bequeathed us an equally detailed account of how to play the flute in the appropriate style, it seems rather strange that the Zukermans perform the music as they do. If the music is to come off at all, it will come off only in the original style, about which we know more, perhaps, than we do of any other.

S.L.


Performance: Excellent  
Recording: Rich

Johann Christian Bach is one of the few men who comes off well in Mozart’s letters. Mozart loved him as a person, admired his music, and, with the possible exception of Haydn, learned more from him than from any other of his contemporaries. Yet today most people ignore “the London Bach” or pass him off with the old “Mozart without soul” cliché. Admittedly, Johann Christian was no Mozart, but he did write music of a noble simplicity, filled with elegant melodies, that deserves a wider audience than it presently enjoys. We should be grateful to Karl Münchinger for recording these beautiful works and lavishing on them the loving care that is so often reserved for Mozart.

So many conductors, when confronted with relaxed, spacious music of the Classical era (these relatively late works of the London Bach are truly Classical), feel the need to push it forward, as though to apologize for the very quality that is its essence. Münchinger does not fall into that trap, bless him, but rather brings out the long-lined, free melodies Bach spent so much time and care to create. Yet he never lets the fabric go slack: the textures are well articulated, and there is a constant sense of direction that points up the beautifully molded contours of the music. Johann Christian is here served with the opulence his music deserves.

After hearing the three Bach pieces, one wishes Münchinger had offered us a fourth instead of the Telemann suite. Don Quichotte is always a winner because of its good-natured fun and wit, but the Stuttgart outfit simply is not as convincing in Baroque music as it is in Classical.

S.L.

J. S. BACH: Arias (see Collections—Janet Baker)

J. S. BACH: Toccata and Fugue in D Minor (BWV 565); Toccata, Adagio, and Fugue in C Major (BWV 564); Toccata and Fugue in D Minor (“Dorian,” BWV 538); Toccata and Fugue in F Major (BWV 546). Lionel Rogg (organ). ANGEL □ S-37265 $7.98.

Performance: Mixed  
Recording: Splendid

One of the most striking characteristics of Baroque instrumental music is its dramatic juxtaposition of the rhymodic and the well-ordered. The form most apt to make an issue.

Explanation of symbols:

- = reel-to-reel stereo tape  
- = eight-track stereo cartridge  
- = stereo cassette  
- = quadraphonic disc  
- = reel-to-reel quadraphonic tape  
- = eight-track quadraphonic tape

Monophonic recordings are indicated by the symbol □.

The first listing is the one reviewed; other formats, if available, follow it.
of this sharp stylistic contrast is the toccata and fugue. Lionel Rigg is excellent in the well-ordered parts: his performances of the fugues are strong, rhythmically well-marked, and clearly articulated. When it comes to the rhapsodic, however, he is too strongly attuned to the written page. The broad gestures and fanciful flights of figuration in Bach's toccatas suffer from a literal reading of the rhythm markings; they fall on each other in spastic gasps because of a lack of space between them, and rarely treat us to the highly colored solo stops so frequently required by this music.

S.L.

BARBER: Excursions (see MACDOWELL)

BEETHOVEN: String Quartet No. 15, in A Minor, Op. 132. La Salle Quartet. DEUTSCHE GRAMMOPHON 2530 728 $7.98.

Performance: Impeccable but bland  
Recording: Excellent

The La Salle Quartet is a splendiferous ensemble, but one whose energies, as suggested by this release and an earlier one of the Op. 130 Quartet and Grosse Fuge, are more effectively directed to material other than the late Beethoven quartets. To be sure, what is bland to one listener may be "straightforward" to another, and what one finds expressive may strike another as overindulgent, but I cannot help feeling that the hasty traversal of the Heiliger Dankgebet here simply misses the point of the work. Were these fine musicians afraid a confrontation with what we may call (for lack of a better term) the 'mystique' of Beethoven's valedictory quartets might tempt them into the self-conscious bathos that is the opposite extreme of the note-perfect blandness they have settled for here? Whatever the reason, while there is an abundance of first-rate playing per se, there is precious little sense of real involvement, and what ought to be one of the most sublime and fulfilling experiences music has to offer comes out instead merely as a demonstration of impeccable bowing and fingering. The Quartetto Italiano (Philips 802.806) probably balances polish and Invidget more successfully than any other foursome currently represented in a recording of Op. 132, though the Vegh Quartet, displaying a bit less of the former quality, shines with still more of the latter (in Telefunken 6.35040). The lower-price versions by the Hungarian Quartet (in Seraphim SID-7076) and the Yale Quartet (Van der Kuijlen VCS-10005) also yield more of the Beethoven essence than this handsomely played but curiously unmoving new entry.  
R.F.


Performance: Expansive  
Recording: Very good

The combination of Rostropovich and Bernstein in Bloch's Schelomo led me to expect something like the epochal Feuermann-Stokowski-Philadelphia Orchestra collaboration of 1940, which for fiery dramatic impact and urgency has never been equaled. As it turns out, there are differences, but the new team does come close. The major point of difference lies in the more expansive view of the music taken by Rostropovich and Bernstein—and, of course, there is the difference that comes from the finest current recording technology, enhanced by effective use of four-channel ambience. The end result is a mind-boggling experience in sonic richness, together with a projection of musical detail (inner voices, subtle but significant figurations, and the like) far surpassing that of any previous recording of Schelomo I have heard. The final climactic statement of the main theme, which paves the way for the "all is vanity" epilogue, is just plain shattering in its musical dramatic impact.

When it comes to the Schumann concerto, though, I find the similarly expansive treatment rather too much for the essentially intimate, almost frail, substance of the work. I lean toward the Walevska-Inbal version on Philips—a disc that offers as coupling, by the way, a fine and somewhat tastier treatment of Schelomo.  
D.H.


Performance: Energetic  
Recording: Crisp but crackly

The story of how Antonín Dvořák came to write his American Suite and The American Flag is almost more interesting than the music. As Andrew Cosgrove puts it in his fascinating liner notes, in June 1891 "the son of a Bohemian butcher received a telegram from the wife of a New York grocer:" that led to the composition of the New World Symphony as well as the two works presented here. The butcher's son was Dvořák, the grocer's wife a Mrs. Jennett Thurber, who was offering the composer the director's chair at her National Conservatory in New York City. A year later, Dvořák took up the challenge; it was the four-hundredth anniversary of Co.

(Continued on page 114)
Late G&S: The Grand Duke

The curtain went up on the marketplace of Speisesaal, in the imaginary Grand Duchy of Pfennig Halbpfenning, on March 7, 1896, when The Grand Duke, or The Statutory Duel opened at the Savoy Theatre in London. After that curtain went down 123 performances later, the D'Oyly Carte Opera Company didn't produce this last of the Gilbert and Sullivan operas again until April 5, 1975. The success of the revival led to the decision to record the score, thus making complete on the London label the entire cycle of Gilbert and Sullivan collaborations in D'Oyly Carte productions—with the exception of their earliest effort, Thespis, for which most of the music seems to be missing.

For the plot of The Grand Duke, Gilbert went all the way back to Thespis, which dealt with a company of actors taking over the roles of the gods on Olympus. In The Grand Duke the setting is around 1750, and a theatrical troupe, headed by an ambitious manager named Ernest Dummkopf, is involved in a plot to assume positions of royalty in a Ruritanian duchy. From then on, the story grows hopelessly complicated, involving the statutory duel of the subtitle, wherein the drawing of cards decides a duel's outcome rather than the shedding of blood; the machinations of the cheap Grand Duke Rudolph and his penny-pinching fiancée the Baroness von Krakenfeldt; a court coup in which the company of theatrical imposters appear in costumes for Troilus and Cressida so as to look like ancient Greeks; the ducal aspirations of the company's comedian Ludwig; a whole rigmarole having to do with the eating of sausage rolls as a conspiratorial ritual; and a mass wedding at which the Prince of Monte Carlo appears to invent the game of roulette.

Many people feel that The Grand Duke is the one Gilbert and Sullivan opera that failed, but if that is so, it is certainly one of the theater's most delightful failures. I have heard the entire work, including spoken dialogue, as produced for the BBC by Stanford Robinson, and it holds up absorbingly. On the new London release we have the score alone, and an exhilarating score it is. This is a more continental Sullivan than we are accustomed to hearing, one who takes advantage of the play's locale to supply lifting waltzes and dances as well as a spectacular Roulette Song that is hard to get out of your head once you've heard it. Gilbert's lyrics are surely as brilliant as their predecessors, the highlights being Ernest Dummkopf's "Were I a king in very truth," the Grand Duke Rudolph's "When you find you're a broken-down critic," and a melodramatic dissertation by Julia, the troupe's leading lady, on what constitutes a first-rate part for the stage. The choreal and orchestral passages glitter with Offenbachian effervescence—and here is where the D'Oyly Carte really shines. Anyone who has heard previous rather amateur attempts to commit this piece to records is sure to be thrilled by the difference.

The Grand Duke, though, is more ambitious operatically than anything else in the series except for Princess Ida, and it makes vocal demands on the singers that the D'Oyly Carte's soloists today cannot always match. Julia Goss is surprisingly adept at meeting the challenges of her coloratura role, but John Ayldon doesn't have quite the honeyed baritone needed to bring off the Roulette Song as well as I have heard it done by others. (Yet, like so many of the D'Oyly Carte principals, he makes up in enthusiasm what he lacks in vocal prowess.) As Rudolf, John Reed is his usual chuckling self, much improved in comic presence over the years but still a bit toolearn ing in his approach. Meston Reid makes an excellent, imperturbable Ernest Dummkopf, company veteran Kenneth Sandford is splendidly droll as Ludwig, and Lynside Holland is perfectly cast as the miserly Baroness, whose parties are mined for her by her guests' appetites but who loves a glass of good wine when it's provided out of somebody else's budget. Conductor Royston Nash, though a mite too military at times in his beat, has proved himself a worthy successor to the adroit Isidore Godfrey (who directed most of the other London recordings of Gilbert and Sullivan).

Now that the D'Oyly Carte's version of the series is complete on discs in stereo (a number of the operas are also available on excellent-sounding cassettes, and more, including The Grand Duke, are reportedly on the way), it is possible to look back on it as a whole. The main things that stand out in such an overview are the enthusiasm of the presentations, the brilliance of the orchestral playing and the choral singing, the excellence of the recorded sound, and—as above—all the marvelously preserved sense of style. Earlier versions provided stronger comedians—Martin Green and Peter Pratt—and there were better endowed, real opera singers such as Elsie Morison on hand when Sir Malcolm Sargent put his series together for Angel. But for overall precision and panache nothing matches these latest discs; and as an additional bonus the complete dialogue has been included in the first disc. Of all the D'Oyly Carte operas, (H.M.S. Pinafore, The Pirates of Penzance, Patience, Iolanthe, and The Gondoliers), but perhaps the D'Oyly Carte will take care of that lack in future recordings.

Paul Kresh

Gilbert and Sullivan: The Grand Duke, or The Statutory Duel. John Reed (baritone), Rudolph; Meston Reid (tenor), Ernest Dummkopf; Kenneth Sandford (baritone), Ludwig; Michael Rayner (tenor), Dr. Tannhäuser; John Ayldon (baritone), Prince of Monte Carlo; Jon Ellinson (baritone), Ben Hashbaz; James Conroy-Whitcomb (bass), Herald; Barbara Lilley (soprano), Princess of Monte Carlo; Lyndsie Holland (contralto), Baroness von Krakenfeldt; Julia Goss (soprano), Julia Gellice; Jane McCall (soprano), Lisa; Patricia Lee (mezzo-soprano), Elsa, Second Girl; Anne Eggleston (mezzo-soprano), Gretchen, First Girl; Beti Lloyd-Jones (mezzo-soprano), Bertha, Third Girl; Glynis Prendergast (soprano), Olga. D'Oyly Carte Opera Company and Royal Philharmonic Orchestra, Royston Nash cond. London OSA 12106 two discs $13.96.

For the seasoned Savoyard who would like to indulge in a luxurious retrospective of the entire collection, the American Heritage Society has produced a spectacular package containing a superbly illustrated book on Gilbert and Sullivan (by Christopher Hibbert) and a three-record set (drawn from the London series) of excerpts from all the operas right through The Grand Duke reviewed above—and including a trio from Cox and Box, the tuneful result of Sullivan's early collaboration with Francis Burnand. The selections, ranging from individual patter songs to the complete first-act finale of Iolanthe, have been chosen with exceptional intelligence (and are clearly set in the context of the action by Richard Traubner's lucid descriptions in the notes). The surfaces are flawless. To obtain this treasure-box of splendors, send $37.50 to the American Heritage Catalogue Department, P.O. Box 1776, Marion, Ohio 43302. That's real coin, and they could never have shaken it loose from the purse of the Baroness von Krakenfeldt, but for the devotee—or the novice seeking to get better acquainted with the Gilbert & Sullivan repertoire—it's worth every pfennig.

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Fischer-Dieskau has provided a gorgeous but unexaggerated sonic frame for the superb playing that is at home in the Fauré and the Poulenc. La Bonne Chanson gains, I think, in the warm, textured setting with strings, and Le Bal Masqué as heard here is a special delight for the period music-hall flavor projected by the instrumental octet as well as Fischer-Dieskau’s uninhibited identification with the satirical spirit of the texts. The recording is close-up but very well balanced, the pressings quiet, and full trilingual texts are included. R.F.

**RECORDING OF SPECIAL MERIT**


**Performance:** Good

**Recording:** Good

Maazel’s earlier recording of the Franck symphony, made with the RIAS Orchestra for Deutsche Grammophon more than fifteen years ago, was one of the best of its time, but I do not remember its being as good as this new Cleveland version, which strikes me as a more than reasonable candidate for the top of the current list. It is surely the finest thing Maazel has done in Cleveland since his first recording there (the Prokofiev Romeo and Juliet issued four years ago); he has the orchestra at the very top of its form, and his reading informs the work with great dignity and credibility. He seems to have found the ideal tempo for each of the three movements, pressing on just enough to sustain momentum and convey an exceptional sense of alertness, but never enough to counter the essentially expansive character of the work. Rhythms are secure; sensitively handled dynamic contrast is used as an effective expressive device. Every big moment makes its proper point; none is overindulged. What it all adds up to is a remarkably fresh presentation of an extremely familiar work—without being a self-consciously “different” one—and London/Decca has provided a gorgeous but unexaggerated sonic frame for the superb playing that is

FAURÉ: Pelléas et Mélisande—Suite, Op. 80 (see FRANCK)


**Performance:** Good

**Recording:** Good

**RECORDING OF SPECIAL MERIT**

FRANCK: Symphony in D Minor; Symphonic Variations for Piano and Orchestra. Pascal Rogé (piano); Cleveland Orchestra, Lorin Maazel cond. LONDON CS-7044 $7.98.

**Performance:** Superb

**Recording:** Gorgeous
heard from every orchestral choir and section soloist.

Andrew Davis' Franck is the sort of performance anyone would be delighted to hear in the concert hall, but it is not really exceptional. However, the work, too, is generally clean and unsentimentalized, with well-judged tempos and tidy playing, but his version misses the conviction and elegance of Maazel's or the older ones of Monteux, Beecham, and Martinon. The New Philharmonia in this instance shows less spirit than the Clevelanders and is far less richly recorded.

Of the two fillers, neither of which is likely to sway a decision one way or the other, Davis' Fauré is the more imaginative choice, and it is beautifully played; I hope Columbia recouples it with something other than the Franck symphony. On the Maazel disc, Pascal Rogé, in his first recording with orchestra, does very well indeed by the Symphonic Variations, and the orchestra's participation in this work, too, is unusually eloquent. R.F.

GLINKA: Songs (see Collections—Galina Vishnevskaya)

RECORDING OF SPECIAL MERIT

HAYDN: La Vera Costanza. Jessye Norman (soprano), Rosina; Helen Donath (soprano), Lisetta; Claes H. Ahnsjo (tenor), Count Rienzi Enrico; Wladimiro Ganzaroli (bass), Villotto Villano; Domenico Trimmarchi (baritone), Masino; Kari Lovaas (soprano), Baroness Irene; Anthony Rolfe Johnson (tenor), Ernesto. Orchestre de Chambre de Lausanne, Antal Dorati cond. Philips 6703.077 three discs $20.94.

Performance: Very good

Recording: Excellent

The steady routine and relative security Haydn enjoyed in the Esterházy Castle were clearly beneficial to his productivity in the field of orchestral and instrumental music. His development as an opera composer, on the other hand, suffered because of it. There was a wealth of operatic activity at the castle, and the performances under Haydn were probably as good as could be found anywhere in Europe during that period (1760-1780). But the prince did not like comic operas (for which Haydn exhibited a decided flair), and librettists for entertaining and sophisticated "semi-serious" opera were, apparently, not available. La Vera Costanza (1779) is typical of the necessary dramatic compromises: the buffa elements are not funny enough, while the heroic and even cruel gestures are not convincing.

This set is the second in a series undertaken by Philips in association with Radio Suisse Romande, a project that may lead to recordings of all Haydn's operas. The performances are so painstakingly prepared and beautifully executed that I find myself torn between gratitude and frustration. Again and again we are regaled with evidence of Haydn's craft, imagination, wit, and ingenuity, yet the end result is an unsuccessful opera. There are some inspired arias and beautifully constructed ensemble finales, but the lacunae between these high points seem endless. In general, the ratio here between action and padding seems the opposite of what it should be.

The performance, however, is remarkable. Dorati's leadership is a model of elegance and precision, considerate of the expert and musically singers but equally devoted to the realization of Haydn's delicious orchestral writing. Above all, he obtains an animated ensemble performance that deserves universal praise. The rich and finely detailed recorded sound permits clean continuo registration (Maestro Dorati is at the harpsichord). This is not for the average opera lover, but as documentation of a little-known phase of Haydn's encyclopedic activity it is peerless. G.J.

RECORDING OF SPECIAL MERIT

LEONI: L'Oracolo. Joan Sutherland (soprano), Ah-Yoe; Tito Gobbi (baritone), Chim-Fen; Richard Van Allan (bass), Win-Shee; Ryland Davies (tenor), San-Lui; Clifford Grant (bass), Hu-Tsin; Huguette Tourangeau (mezzo-soprano), Hua-Qui. John Alldis Choir; National Symphony Orchestra, Richard Bonynge cond. London OSA 12107 two discs $15.96.

Performance: Very good

Recording: Very good

Set in San Francisco's Chinatown around the turn of the century, Franco Leoni's L'Oracolo, a grisly one-acter, served for many years as a vehicle for Antonio Scotti. It has received few performances anywhere since 1933, when the great baritone chose it for his historic farewell to the Metropolitan. On the occasion of this rediscovery I am happy to say that Richard Bonynge, that imaginative searcher for opera's lost treasures, has struck . . . well, silver, at least.
Leon Bates: making a case for MacDowell's Fourth Sonata on a fine debut disc

light in tone. Richard Van Allan's peculiar tone production distorts his vowel sounds in the low range, but he handles the upper part of his demanding music impressively. Good contributions by Huguette Tourangeau and Clifford Grant round out the cast. Richard Bonygne underplays the shock effects and concentrates, successfully, on obtaining a polished and transparent realization of what turns out to be a very rewarding score. The fourth side of the two-disc set contains orchestral "Reminiscences" of Leoni's music for James Bernard Fagan's play The Prayer of Shadows. I must admit, by the composer's own account, I wish he had given us the Sonata Tragedia on the other side of the disc instead of the recording of MacDowell's four piano sonatas. That he does not make Leon Bates' fine account of No. 4 any less welcome. MacDowell dedicated this work (together with its immediate predecessor, the Norse Sonata) to Grieg, a composer with whom he had more than a few characteristics in common; we are reminded of this particularly in the opening movement of this 1901 sonata, while in the tempestuous final movement there seem to be thinly disguised allusions to MacDowell's own Second Piano Concerto. Bates deals effortlessly with the work's technical demands and is almost equally successful in realizing the element of fantasy underlying its three movements. He makes so strong a case for the Fourth Sonata, in fact, that I wish he had given us the Sonata Tragedia on the other side of the disc instead of the

Barber and Walker pieces. Not that he does any less well by them than he does by the MacDowell, but Zola Shaulis' somewhat more persuasive (and more richly recorded) version of the Excursions is part of a disc made indispensable by the inclusion of the Bloch sonata (CRI SD 295), and George Walker's Sonata No. 3, unlike his stimulating Trombone Concerto, gives the impression that the composer was more interested in effects for their own sake than in communicating with his listeners. The three performances, though, add up to quite a debut disc for Bates, from whom we shall surely be able to perform, and there is never a dull moment. Musically, it shows a definite indebtedness to Puccini (La Bohème, mainly), a graceful gift of melodic expression, little in the way of an individual profile, but great skill in fusing voices, chorus, and off-stage effects into a flowing and always colorful continuity. These qualities were perhaps not appreciated when the opera was new (1905) and Puccini, Mascagni, Leoncavallo, Giordano, and Giaia were also enriching the repertoire. Considering the current state of operatic writing, Franco Leonini may yet be given greater recognition.

Tito Gobbi is a singing actor in the Scotti mold; his portrayal of the murderous, despicably Chin-Fen is commanding and terrifyingly real. Joan Sutherland sings prettily in the love scene and with convincing delirium in the sordid final moments. As her doomed lover, San-Lui, Ryland Davies is refined, but too unaccounted for in the catalog. It seems a strange lapse in this age of the "Complete Sets," but the continued neglect of No. 1 does not make Leon Bates' fine account of No. 4 any less welcome. MacDowell dedicated this work (together with its immediate predecessor, the Norse Sonata) to Grieg, a composer with whom he had more than a few characteristcs in common; we are reminded of this particularly in the opening movement of this 1901 sonata, while in the tempestuous final movement there seem to be thinly disguised allusions to MacDowell's own Second Piano Concerto. Bates deals effortlessly with the work's technical demands and is almost equally successful in realizing the element of fantasy underlying its three movements. He makes so strong a case for the Fourth Sonata, in fact, that I wish he had given us the Sonata Tragedia on the other side of the disc instead of the takeover of Austria—to this latest one almost forty years later, the Mahler Ninth has been fortunate in most of its recorded realizations. During the stereo era alone we have had at least three of the very top rank: Columbia's with Bruno Walter, Angel's with Otto Klemperer, and Philips' with Bernard Haitink. And now we have yet another to equal those, but with a difference.

The difference is in the singing quality Giulini brings to the end movement, a quality that takes precedence even over the compassion of Walter, the starkness of Klemperer, or the stern control of Haitink. Not that Giulini can't sing stern control into play when the musical situation demands: the Rondo-Burleske here as gnarly and rough-hewn as one could ever want, and it is played with surpassing brilliance. But it is in the last movement that Giulini and the Chicagoans come through in altogether inspired fashion. The lambency that has already distinguished the performance here bursts into a sustained tonal glow equaled in my memory only by the greatest public performances of Stokowski's Philadelphia Orchestra or Koussevitzky's Boston Symphony. Rarely indeed does one hear such string sound as in the opening pages of the finale in this recording. Indeed, the performance as a whole has much in common with my remembered impressions of Koussevitzky's, who had his own special flair for the work. In all, then, this is another outstanding recorded performance of Mahler's Ninth to add to the extensive roster of splendid ones already available.

D.H.

RECORDING OF SPECIAL MERIT


Performance: Superb

Recording: Excellent

If anyone can make the unique style and substance of Messiaen's musical language palatable, it is certainly Michel Beroff, as he has already proved in the Angel recording of the Quartet for the End of Time. Quite simply, there are marvelous sonic events in the Vingt Regards, events that receive a most remarkable realization through the wizardry of Beroff's fingers and the immense recording facilities. Whether or not one cares for Messiaen's aesthetic as expressed in his somewhat hyperbolic expatiations on his own music, one can only be impressed by his command of all the sonic resources of the keyboard medium—timbre, rhythm, commanding line, harmonic tension-relaxation, and the rest—freely as well on Gregorian chant, Oriental music, bird song, and other exotica. And yet the whole thing is no hodgepodge but a coherent listening experience, aided in this instance, I must admit, by the composer's own vivid program annotations included in the Connessseur Society album. This Vingt Regards was, moreover, excellently recorded by Pathe Marconi in France and splendidly mastered by Connoisseur Society over here. Clearly the album's Grand Prix du Disque was well deserved.

D.H.

MONTEVERDI: Vespro Della Beata Vergine (Vespers, 1610). Elly Ameling, Norma Burrows (sopranos); Charles Brett (alto); Anthony Rolfe Johnson, Robert Tear, Martyn Hill (tenors); Peter Knapp, John Noble (basses). (Continued on page 118)

STEREO REVIEW
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RECORDING OF SPECIAL MERIT

MOZART: Flute Concerto No. 1, in G Major (K. 313); Flute Concerto No. 2, in D Major (K. 314); Andante in C Major for Flute and Orchestra (K. 315). James Galway (flute); Lucerne Festival Strings, Rudolf Baumgartner cond. RCA ARL1-2159 $7.98, ARSI-2159 $7.98, ARK1-2159 $7.98. Performance: Marvelous Recording: Good

RCA must be out to corner the market in Mozart flute concertos, having issued the same program with Rampal less than two years ago (FRL1-5330) and now giving us a no less mar-

The Exemplary Performance helps one realize why it was that Morales was so renowned for his Magnificats.

Of the motets on the album, two are sung without instruments. The performances remind one that voices are infinitely more supple and expressive when left to their own devices than when accompanied. Only winds are used to accompany the other motets, and, while they add to the sound, the old instruments are necessarily rather stiff and cumbersome, which takes away from the highly expressive vocal writing. The true artistry of the vocalists here is best displayed without the instruments. But both accompanied and unac-

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ly-instrument players. The sound of this re-

In an attempt to overcome the stodginess of the traditional interpretations of early sacred music, many conductors and choirmasters have infused vitality into the genre by means of quicker tempos and more vigorous rhythms. In other words, they have quite rightly begun to treat the music as music rather than as fervent expressions of religious dogma. But Philip Ledger, in this reading of the Monteverdi Vespers, seems to have gone too far in that direction. In striving for bril-

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The Pro Cantione Antiqua comprises a small, all-male chorus and a supporting group of ear-

The Pro Cantione Antiqua comprises a small, all-male chorus and a supporting group of ear-

ners who are generally excellent. Elly Ameling loses her vibrato and produces the sensitive singing we expect of her. Robert Tear, right at home in this florid idiom, is thrilling in the almost Oriental coloratura of the final Gloria, in which he is joined by Anthony Rolfe Johnson. Also notable is the performance of the Duo Seraphim by all three tenors. And the Early Music Consort of London turns in a performance of such accurate intonation and brilliance that the musical climax of the recording occurs in the instrumental Sonata Sopra "Sancta Maria." S.L.


Recording: Excellent Performance: Very good

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Aside from the cadenzas (each plays his own, of course, so it is very much a matter of "How happy could I be with either..."

velous package with Galway. Both flutists are superb, of course, so it is very much a matter of "How happy could I be with either..."

Aside from the cadenzas (each plays his own, of course, so it is very much a matter of "How happy could I be with either..."

Gabriel's Passepied No. 7 and the Adagio non troppo in which Galway seems to ignore the "non troppo" and offers instead a very slow and dreamy nocturne, whose hypnotic effect is actually enhanced by the slight haze over the orchestra from the somewhat reverberant acoustics (but not by the noisy surfaces of the two copies I received). In the finale Galway's pacing, less perky than Rampal's, seems closer to the Tempo di menueetto marking, while in the slow movement of K. 314 (Mozart's transcription of his Oboe Concerto) it is Rampal who is more expansive and dreamlike. Both soloists enjoy first-rate collaboration from their respective conductors, and both discs are so enticing that the differences between them may simply be seized upon as an excuse for acquiring them both. (It should be noted that the Rampal recording is also available on MHS 865 at much less than the RCA price.)

R.F.

Nicolaia: The Merry Wives of Windsor (see Best of the Month, page 79)

POULENC: Le Bal Masqué (see FAURE)

Puccini: Messa di Gloria. Kari Lovaas (soprano); Werner Hollweg (tenor); Barry McDaniel (baritone); Chorus of the West German Radio, Cologne; Frankfurt Radio Symphony Orchestra, Eliahu Inbal cond. Philips

The choral and orchestral performances are very good throughout. Tenor Hollweg is the most effective of the three soloists. Miss Lovaas is entirely competent, and Mr. McDaniel sings stylishly but without enough sonority in his solos. The recording is faultless.

G.J.

Puccini: Tosca (Highlights), Vladimir Atlantov (tenor), Mario Cavaradossi; Tamara Milashkina (soprano), Tosca. Orchestra of the Bolshoi Theater, Mark Ermler cond. Columbia

This disc includes virtually all the music of Tosca and Cavaradossi except the Scarpia scenes. It was meant to be released in time for Vladimir Atlantov's Metropolitan debut as Cavaradossi last March, but that event failed to materialize. I wish I could say the same about the recording, for it does little for the

(Continued on page 122)
ASKED how fast a song of his should go, Gabriel Fauré replied: "When the singer is bad—very fast." The quip sounds glib. But remember that he had fewer exceptions about their songs than about their sonatas; song is subject to legitimate distortion by virtue of a singer's range and sex. On a more personal level, and surely unbeknownst to Fauré, the quip suggests a shabby truth: maybe his songs are all intrinsically slow. Music necessarily reflects the humor of its composers. Those of broad scope, like Chopin and Strauss, are choleric-melancholics capable of both the inherently fast and the inherently slow. Narrower sanguinaries like Rossini or Scarlatti conceive only allegros (their slow pieces being really fast pieces played slow), while phlegmatics like Delius and Fauré are men whose fast pieces are really slow pieces played fast.

Or so I had always believed.

Already at twenty, confusing love with knowledge, I cast myself as an American authority on French song. Ravel and Poulenc sat at the top of the ladder, Debussy and Duparc on middle rungs, and at the bottom, with Gounod, crouched Fauré. Those dozen Fauré chestnuts that I knew (Prison, Au Cimitière, Le Secret, etc.) seemed mere bloodless modulations. Narrower sanguinaries like Rossini to Ronsard. Fauré is the only prolific composer I can think of whose texts, with one brief exception (Molière), are drawn exclusively from his own century. The statue is noble, the details plebian.

People always ask if second-rate poems can make first-rate songs. Yes, but only if the composer thinks the poems are first-rate. Fauré was known to be cultured and up-to-date, frequenting both Mallarmé's "Tuesdays" and Robert de Montesquiou (the model for Prout's Baron de Charlus), who showed him Verlaine's verse. Yet the composer never experienced through Faure, Victor Hugo seems too weak and Baudelaire too strong. Unlike Debussy, Fauré is not devious; he says what he says. He preferred now-dim poetasters such as Prudhomme (Nobel laureate though he was), Bussine, Samain, Mendes, and also one Louis Pommery, official supplier of verse to Proust. Poulenc's Viardot, who was mistress to Turgenev and the first bigtime performer of Faure's songs. Their paraphernalia was quaint: endless perfumes, dreams, girls, sighs, sorrow, dead leaves, living waters, tears, roses, moons and dawns and graveyards. But Fauré's staunch conviction, through his convincing gifts, convinces us.

The first and much better of the sets of "Complete Songs," both originating in France, have come out in the United States in honor of the fiftieth anniversary (three years later) of Fauré's death. Having listened to all 140 songs twice through, with a blush of surprise I realize what I've been missing.

Yes, he does compose basically slow music. Even in La Bonne Chanson with its busy piano, the voice never patters a la Poulenc, but moves at the "sensible" speed of conversation. Within the slowness there is not much variation—little rhythmic invention, no contrapuntal curiosity. Nor is Faure tunefully self-contained. Perfection may be a minor virtue to Fauré, who, as his voice never patters, "telling" twists of phrase. They do not soar into Puccinian flights. Even in the English sense of that word. Poems can't be read on a page like Delius. Still, if accompanist may pertain to pianist and singer (who accompany each other through an adventure where in their instruments mesh), then Dalton Baldwin is the best since Gerald Moore. He can play. He is not self-effacing. In those many moments where the piano is in fact an accompaniment—a strumming, an ostinato, a flow—Baldwin becomes more than mere support: he is the velvet upon which rubies are offered, the landscape against which portraits are sketched. Fauré, however, was the first mélodiste to give the keyboard an identity. Even in the relatively early Claire de Lune and Nocturne the vocal lines seem afterthoughts imposed on a self-styled piano solo, while in the icy Chanson d'Evre voice and piano form complements of independent counterpoint—the

Complete Songs of Fauré

"Fauré's uniqueness...lies in the flawlessness of his jewels."

By Ned Rorem

G. Fauré
E. Ameling
G. Souzay

from below, like sap through a lily's stem, to color the pitch or figure—and, by extension, the word, thereby changing or at least heightening the poem's meaning.

The world's best song composers of the past always majored in poetry, either contemporarily or of the preceding generation. Invariably, though, they ventured toward—even dwelt long among—more distant poets: Debussy to Charles d'Orléans, Ravel and Poulenc to Ronsard. Fauré is the only prolific song composer I can think of whose texts, with one brief exception (Molière), are drawn exclusively from his own century. The statue is noble, the details plebian.

People always ask if second-rate poems can make first-rate songs. Yes, but only if the composer thinks the poems are first-rate. Fauré was known to be cultured and up-to-date, frequenting both Mallarmé's "Tuesdays" and Robert de Montesquiou (the model for Prout's Baron de Charlus), who showed him Verlaine's verse. Yet the composer never set Mallarmé, and, except for Verlaine, the great poetry he did use fell flat. As experienced through Fauré, Victor Hugo seems too weak and Baudelaire too strong. Unlike Debussy, Fauré is not devious; he says what he says. He preferred now-dim poetasters such as Prudhomme (Nobel laureate though he was), Bussine, Samain, Mendes, and also one Louis Pommery, official supplier of verse to Proust. Poulenc's Viardot, who was mistress to Turgenev and the first bigtime performer of Fauré's songs. Their paraphernalia was quaint: endless perfumes, dreams, girls, sighs, sorrow, dead leaves, living waters, tears, roses, moons and dawns and graveyards. But Fauré's staunch conviction, through his convincing gifts, convinces us.

The first and much better of the sets of "Complete Songs" is a two-volume set (four discs) issued by Connoisseur Society, originally recorded by Pathé-Marconi in France. It features baritone Gérard Souzay and soprano Elly Ameling, with Dalton Baldwin as accompanist. "Accompanist" has servile overtones. I prefer simply pianist. Still, if accompanist may pertain to pianist and singer (who accompany each other through an adventure where in their instruments mesh), then Dalton Baldwin is the best since Gerald Moore. He can play. He is not self-effacing. In those many moments where the piano is in fact an accompaniment—a strumming, an ostinato, a flow—Baldwin becomes more than mere support: he is the velvet upon which rubies are offered, the landscape against which portraits are sketched. Fauré, however, was the first mélodiste to give the keyboard an identity. Even in the relatively early Claire de Lune and Nocturne the vocal lines seem afterthoughts imposed on a self-styled piano solo, while in the icy Chanson d'Evre voice and piano form complements of independent counterpoint—the
Nell Tangeman or of Povla Frijsh with their hot enthusiastic swoops. Yet, if Ameling's Chanson d'Eve, for ripeness and energy, falls short of Phyllis Curtin's (Cambridge Records, 1964), it is nevertheless there that her noble hues glimmer most favorably. The cycle is Fauré's only extended vocal piece that does not sound better in a masculine voice. Insofar as the suite of poems is intoned by, and mirrors, what is often called Feminine Viewpoint, one might be tempted to name it Female Art, were not both composer and poet (Belgium's symbolist, Charles van der Bergher) men. Yet what woman composer today would select such fragile texts, or dare to concoct such scented sonorities as have come to be known, erroneously, as Ladies' Music? Other centuries, other stigmata. Fauré the man, with that Mark Twain face and irreproachable domesticity, was bourgeois to the teeth, as were virtually all French composers (though not poets or painters) of the nineteenth century. His determination, for Maillarmé's, but no less manly than Berlioz's or Delacroix's, for art, though sexual, is without sex. Fauré is never ribald like Ravel and Poulen. Unlike Ravel and Debussy, but like Poulenc, he is often religious. Debussy's only larrne's, but no less manly than Berlioz's or

Purple metaphors do not a critic make. But just as Souzay's most singular quality—the Frenceness of his musicality—cannot be taught, neither can it be described except through comparison. His least singular quality is all too describable, if harmless. In contrast to Ameling, who inclines to underdo, Souzay sometimes tries too hard. Après un Rêve is a case: he will not let the words sing themselves, he must feel them, interpret them. Interpretation, of course, is the forte of Bernac, who is the only reliable teacher of French song literature in the world today. But what works for the teacher may not be needed when a pupil's voice, in itself, is evocative. Souzay commits likeable word-errors here and there, substituting an et for an ou, a quand for a lorsque, a front for a coeur (Frijsh used to do this too, accidentally on purpose maybe, to prove that her comprehension wasn't rote). With Ameling we have an agreeable Fauré performer, but with Souzay we have the definitive one. And with Dalton Baldwin as the equalizing force in this healthy ménage à trois nations, we have a magic keyboardist.

The accompanying notes contain a spirited essay by Jean-Michel Nectoux; it is transated by Royal S. Brown, who also provides clear, knowledgeable translations of all the songs, including the just-discovered unpublished L'Aurore. The surface sound is smooth.

The second version of Fauré's "Complete Songs" is the Musical Heritage Society's set of six discs which offers (except for L'Aurore) the identical repertoire in much the same chronology. The major cycles, Poème d'un Jour, La Chanson d'Eve, La Bonne Chanson, Le Jardin clos, Mirages, and L'Horizon Chimérique, are interspersed with the sixty-odd miscellaneous songs. Except for La Chanson d'Eve, sung with studently style by Anne-Marie Rodde in a not especially nice soprano, the burden of performance falls on Jacques Herbillon. Herbillon's baritone is exact, his diction admirable, but after Souzay the effects are large, the sound precious.

In the duets, Rodde is joined by Sonia Nigghoshian (on the Connoisseur Society set Ameling is dubbed with herself). The pianist, Theodore Paraskivesco, is capable. The record sound is hard. Included in the album is an intelligent and opinionated article by a Philippe Olivier idiosyncratically translated by David M. Greene. Greene also made the poem translations, which are more comprehensible in their bilingual layout than those with the Connoisseur set.

FAURÉ: Songs (Complete). Gérard Souzay (baritone); Elly Ameling (soprano); Dalton Baldwin (piano). CONNOISSEUR SOCIETY CS-2127 (Volume I) two discs $15.96; CS-2128 (Volume II) two discs $15.96.

FAURÉ: Mélodies (Complete). Jacques Herbillon (baritone); Anne-Marie Rodde (soprano); Sonia Nigghoshian (soprano); Theodure Paraskivesco (piano). MUSICAL HERITAGE SOCIETY 3438/3448 six discs $29.70 plus $5 handling charge from the Musical Heritage Society, Inc., Oakhurst, N.J. 07755.

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REGRETEDLY, Jerzy Semkow and his players have to compete against recorded versions by the world's finest virtuoso orchestras. I'm afraid it's a losing battle.

D.H.

SCHUBERT: Mass No. 5, in A-flat Major (see Best of the Month, page 80)

SCHUMANN: Cello Concerto in A Minor, Op. 129 (see BLOCH)

RECORDING OF SPECIAL MERIT


Performance: Outstanding
Recording: Warm and full

Last November, in reviewing this same coupling by Thomas Rajna and the Alberni Quartet on CRD 1024, I found it more pleasing than any other current pairing of these two works. I enjoyed it no less now than I did then, but the new Philips release is more persuasive still, and may well represent the finest version of each of the two works considered individually as well as of the pair in tandem. The approach is similar to that of the English players—bristling energy in the fast movements and a tasteful caressing of Schumann's plaintive themes in the slow ones—but how the deeper maturity and refinement of the Beaux Arts team tell at every point! It is partly that—a matter of seasoning—and partly, too, simply a more subtle kind of intensity and more eloquent phrasing on the part of the individual players. A Pressler and a Greenhouse do make a difference, after all, in the marvelous material Schumann wrote for their instruments in these works, and so does the way they and their associates "breathe together." Beautiful sound, too—warm, full, and well balanced.

R.F.


Performance: Lacks momentum
Recording: Very good

Previn's recording of The Nutcracker (Angel SB-3788) was such an all-round winner that expectations were high for his coverage of Tchaikovsky's other, rather grander ballets. His Sleeping Beauty (Angel SCLX-3812), however, proved disappointing, with only its smoother sound (and its four-channel capacity, for those so inclined) to recommend it over Ernest Ansermet's altogether more elegant account of that score (London CSA-2304). Part and parcel of Ansermet's elegance are the thrust, momentum, and vitality that fail to make themselves felt in Previn's version—and so it is again with the new Swan Lake. It is all quite handsomely played (and how nice to have violinist Ida Haendel on records again), but it just doesn't come to life.

R.F.

TELEMANN: Don Quichotte Suite (see J. C. BACH)

WALKER: Sonata No. 3 for Piano (see MACDOWELL)

(Continued on page 124)
If you're surprised to learn that tubes solve some amplifier problems best, you have something to learn about amplifiers.

And about LUX.

It may seem courageously retrogressive for a company to introduce a tube amplifier—even a highly advanced type—to the semiconductor audio world of 1976. Especially for a company only recently established in the market with a comprehensive line of solid-state amplifiers and tuners. But for LUX, it is simply consistent with our philosophy: whatever path may lead to improvement in the accuracy of music reproduction will be explored by our audiophile engineers. Whether it leads to transistors or tubes. Certainly, transistors are not about to be obsoleted by tubes. However, there are some amplifier problems that tubes still handle better than transistors. Overloading is one such problem.

When a solid-state amplifier is driven beyond its rated power, it clips abruptly. Engineers call it "hard" clipping. The term is apt, as the sound from the spurious high-order odd harmonics is raspy and irritating. Further, if the overall circuitry is not stable, and the protective circuits not well-designed, the distortion is extended in time beyond the moment of overload. Drive a tube amplifier beyond its rated power and it too clips the waveform, but gently and smoothly. This "soft" clipping introduces much smaller amounts of odd harmonics. The distortion is far less irritating, hence less noticeable.

Notch (or crossover) distortion, present in many transistor amplifiers, is another source of spurious high-order odd harmonics. It occurs when the transistor output circuits are not able to follow the musical waveform accurately at the points where it changes from negative to positive and back again. Since notch distortion, unlike clipping, is at a constant level regardless of the power the amplifier is delivering, the ratio of this distortion to signal is worse at lower power. The gritty quality heard from many transistor amplifiers, particularly when they are playing at low levels, is usually due to crossover distortion.

Of course, tubes also have their limitations. Especially conventional tubes. The only tube previously capable of high-power amplification—the pentode—has inherently higher levels of distortion than the triode. Existing lower-distortion triode tubes cannot deliver sufficiently high power as a simple push-pull pair. But LUX, together with NEC engineers, has developed the first of a new breed of triode tube, the 8045G, which with other related technological advances, makes possible a high-power, low-distortion triode amplifier—the Luxman MB-3045. Among the differences in this new triode, the plate-electrode uses a special bonded metal with high heat-radiation characteristics. Also, the fin structure further aids heat dissipation.

LUX also developed a low-distortion high-voltage driver tube, the 6240G, capable of delivering over 200 volts of audio signal to the output triodes. Also, a new output transformer (LUX's long-time special area of expertise) has been designed to take optimal advantage of the triode configuration feeding it. The quadrafilar winding and core technology of this transformer represents another breakthrough. Overall, from input to output, the use of advanced design direct coupled and self-balancing differential amplifier stages assures stability and minimum harmonic distortion.

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"Magical" is perhaps the best term to describe Kalish's traversal of the score. His Emerson is more stately and luminous than most, the musical discourse becoming altogether spellbinding in the pages immediately following the carillon-like climax. His Hawthorne movement is not quite so phantasmagoric as some, but there is more humor, notably in the ragtime and Irish jig bits that crop up here and there. His performance of The Alcots finds its match only in Ives's own, as documented in Columbia's four-disc centenary album. And as for the Thorea movement, it is the most deeply poetic realization of this elusive and evanescent music I have yet to hear, thanks not only to Kalish's "fine-turning" but also to Baron's flute in the final pages. But all this musical-poetic wizardry would go for nothing were it not for the painstaking work of recording engineers Marc J. Aubert and Joanna Nickrenz. With this disc they have added yet another to a long line of distinguished achievements. —David Halliday

**IVES: Piano Sonata No. 2 ("Concord, Mass., 1840-1860 "). Gilbert Kalish (piano); John Graham (viola); Samuel Baron (flute). NONE-SUCH H-71227 $3.96.**

**RECORDING OF SPECIAL MERIT**


**RECORDING: Excellent.**

**RECORDING: Excellent.**

During the course of this generous display of Mozartian writing for tenor, the technical challenges include not only the familiar breath-defying "Il mio tesoro," but also the less well-known and more treacherous "Ah lo veggio" (Cosi Fan Tutte) and the dramatic, almost Florestian-like "Furur del mar" (Idomeneo). I wouldn't say that these are blithely tossed off, but Burrows copes with them capably, with unfailing musicianship and without ever compromising his manly, rounded, and agreeable tone quality. This is Mozart singing as good as we can get from a tenor today. Peter Schreier may run him a close second, but Burrows is far more idiomatic in the Italian arias. Excellent accompaniments, too.


**RECORDING: Very good.**

If your idea of bliss is a hour-long concert of religious music drawn from old Moravian manuscripts and played by a choir of trombones, you should add this record of meticulously annotated chorales and anthems to your collection without delay. If, on the other hand, seventy-six trombones, or even five of them, send you diving for soundproof shelter, it might be advisable to let this one go. Here is music drenched in religious history, much of it discovered in the archives of Moravian settlements in Pennsylvania towns with such Biblical names as Nazareth and Bethlehem, and in Salem, North Carolina. In their churches and musical colleges, the deeply religious settlers, having fled from persecution in Bohemia and Moravia, sang and played the distinctive music of their faith. The emphasis on brass instruments dated back to medieval Germany, when musicians would climb the towers of walled towns and play to announce religious festivals, to warn of such catastrophes as fires. It is not music of much melodic or emotional interest, but it does possess an austere nobility, and there is a lot of it here. The trombone ensemble of the Los Angeles Philharmonic performs with great virtuosity. Over the long haul, though, a trombone is a trombone.

P.K. **(Continued on page 130) STEREO REVIEW**
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RECORDING OF SPECIAL MERIT


Performance: Perfection itself
Recording: Excellent

This group of five talented singers may bill themselves as the Scholars because they are, but they are also superb musicians. They sing with instrumental precision and a rhythmic vitality that makes a fa-la-la dance with joy. Their intonation is perfect, their dynamics beautifully conceived and boldly executed. One’s first inclination is to carp at the absence of printed texts with the record, but the singers’ diction is so fine that texts are really not needed. In short, this is one of the finest recordings of English madrigals to come from the country of their origin. If you like madrigals, buy it; if you don’t, buy it anyway. You’ll like it.

GALINA VISHNEVSKAYA: Songs by Rachmaninoff and Glinka. Rachmaninoff: Night Is Mournful; Oh, never sing to me again; Music; Spring Waters; Vocalise. Glinka: Doubt; I remember the wonderful moment; How sweet it is to be with you; To Her; No sooner did I know you; Night in Venice; The Lark; Barcarolle. Galina Vishnevskaya (soprano); Mstislav Rostropovich (piano). DEUTSCHE GRAMMOPHON 2530 725 $7.98.

Performance: Vital
Recording: Good

Song specialists should welcome this recital, for its program has been well chosen. True, the Rachmaninoff side offers only two unusual songs, but I have not seen so many Glinka items on one disc since Boris Christoff’s masterpiece—and inexcusably deleted—recital on Angel 36133.

Vishnevskaya, always a compelling if a somewhat uneven performer, is in good voice here. She is surprisingly restrained and inward in the Rachmaninoff songs and uses an almost vibrato-less sound for the near-impressionistic Night Is Mournful and Music. There are some exquisite tonal shadings and floated pianissimos, though I find her way with the lovely “Oh, never sing to me again” (perhaps better known as O Cease Thy Singing, Maiden Fair) uncharacteristically cool. She lets out all the stops for the Glinka songs, which are comparatively uncomplicated, highly emotional, and invariably haunting. The singing lacks neither fire nor spontaneity, though at times the passion interferes with the purity of the melodic line.

Rostropovich’s piano accompaniments are solid and sensitive. The tempos are broad—in the case of the Vocalise damagingly so. The dedication of that song, incidentally, was Antonina Nezhdanova, an internationally celebrated lyric soprano. The trilingual liner notes thrice identify her as a mezzo.

G.J.
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