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This month we give a salute to Dixie and the important recording scene in the great Southeast. A rich musical heritage combined with some of the finest studios anywhere make this an area close to our hearts. And two very special interviews in this issue illustrate the kind of people that have strengthened this heritage and spread it around for all of us to enjoy.

Norbert Putnam, interviewed by Sam Borgerson, is the kind of producer success story that many of us have dreamed about. From borrowing his father's upright bass and starting a band, to the Muscle Shoals rhythm section, to a million selling single on his first and unexpected production, to becoming one of the most in-demand producer/studio owners in the country; Norbert's story is an inspiration.

We've wanted to know more about Ray Stevens for a long time. For years he has entertained, amused and touched us with his unique variety of musical talent. Well, we finally got our chance. In this splendid interview with Dave Goggin, Ray takes off his mask, and then takes off his other one, and eventually we see that Ray is one of that rare breed of creators who is motivated by desire and love.

While we're on the subject of personalities, we'd like to introduce you to a new friend of ours, Ben Harris, who will be taking over the Sound Advice column. Ben, chief engineer at Ronnie Milsap's Groundstar Studio, has a convincing way to build technical understanding of recording on a solid audio foundation. We're looking forward to many fine installments from Ben.

PUBLISHER / EDITOR

David M. Schwartz • William I. Laski • Penny Riker Jacob

ART/PRODUCTION DIRECTOR

Tim Gleason

CONTRIBUTING EDITORS

Larry Blakely
Richie Moore, Ph. D.
Mr. Bonzai
Sam Borgerson
Dennis Buss
Chris Haseleu
Tom Lubin
Ken Fay

ADVERTISING DIRECTOR

Hillel Resner

PRODUCTION/TYPESSETTING

Sandy Cann
Susan George
Penelope

SALES REPRESENTATIVE

Phil Maselli

RESEARCH/TRAFFIC

Ellen Goldstein

EDITORIAL ASSISTANT

Eruce Dancis

CLASSIFIED DEPARTMENT/ STUDIO SERVICES

Gale Rosenberg

CONTROLLER

Mike Stevens

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Next month we look at Texas and the Southwest, for the Mix's first closeup on this quickly growing music and recording scene. We'll also begin a dramatic and insightful look at the beginning of tape recording as viewed through the eyes of John T. Mullin, a true pioneer in our industry.

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TRACKS

CURRENT

Southeast Studio Business on Upswing

Studios in the Southeast seem to be entering an economic recovery period after what many consider to be the most difficult year in recent memory. In Nashville, most major studios feel that late autumn presented the long awaited turning point. According to Woodland Sound's Glenn Snoddy, "We had a terrific December. In fact, it caught us off guard. We let a couple of employees go on vacation and then we got swamped with business." Pat Meyer, of Nashville's Sound Stage Studios, agrees that things are picking up economically and they are proceeding with major renovations in both of their rooms.

Agreement concerning the upsurge is also expressed at Nashville's Quadrafonic, where Ann Keener observes a new level of client consciousness. Carl Frost at the relatively new Bull Run Studios also finds clients counting their pennies, though they experienced a good Fall partly due to a high percentage of radio and television production. At Young'un Sound, where business has been in a strong cycle, Chip Young points out that "Part of the strength is due to more

and more great pickers moving here," as well as a certain amount of optimism regarding the new presidential administration.

In Memphis, which bottomed out several years ago during the Stax disaster, the slow recovery continues. Warren Wagner, of Shoe Productions, feels that the tough times have served "to weed out the deadwood," and attributed their stability to the diversification of project types. Ardent Studios has also been enjoying a diverse musical clientele. (See feature story on pg. 30.)

The Florida recording scene is similarly showing a strong rebound from a year that brought reviews like "terrible" and "awful." At Triad, in Fort Lauderdale, Doug Weyrick feels that the demise of disco has brought about a new diversity of musical styles in his studio, with big moves in the Latin American market. He finds that clients are coming into the studio better prepared, in order to use time more efficiently.

Mack Emerman, who's Criteria Sound experienced the worst year in its twenty-five year history, is relieved by the recovery it has felt since November. The slump did little to dampen Criteria's expansion plans, however, as construction is nearly finished on a new 7500 square-foot wing housing a 48-track John Storyk-designed super studio and matching computerized disc cutting suite. Criteria's commitment to the "video/musical marriage" has led to plans for re-equipping to handle complex film and video projects, an investment of \$2 million worth of new equipment.

At Coconuts Recording, in North Miami Beach, Shirley Kaye is also currently investigating the video potential, while noting the more stringent budgets accompanying many new artists. Their business, says Shirley, was not as impacted as many others during the slowdown in that they cater to an international clientele looking for top quality equipment and accommodations in a great climate.

Our Mistake!

In our December issue (Vol. 4, No. 11), in the course of our A.E.S. convention review (pg. 8), we made the very unfortunate error of referring to the Mitsubishi Electric digital recording system as the Matsushita system. Mitsubishi is the Japanese-based corporation that designed, manufactured and marketed the X-80/80A 2 channel digital tape recorder that was such a hit at the A.E.S. convention and the X-800 32 channel digital recorder that we alluded to as 3M's only competition in this area. For more information, contact Mr. Louis Dollinger, PCM Division Mitsubishi Electric, 7045 N. Ridgeway Ave., Lincolnwood, IL 60645. We apologize to the good people at Mitsubishi for this mistake.

John Saul, 1931-1981

John R. Saul, President and founder of MICMIX Audio Products Inc. passed away on January 2, 1981 at the age of 49. He is survived by his wife, Babs Saul and his daughter, Teresa. Mr. Saul was a member of the Audio Engineering Society, National Association of Broadcasters, Society of Broadcast Engineers, Society of Motion Picture and Television Engineers, and was a mechanical engineering graduate of the University of Notre Dame. Mr. Saul worked as a senior project engi-

neer for LTV Corporation and resigned in 1972 after 20 years of service. In 1972, MICMIX Audio Products was incorporated, and Mr. Saul assumed the position of President. The late John Saul was widely known for his outstanding business ethics, warm personality, and inventive mind. He will be deeply missed by the entire audio industry.

Broadcast Conference

The 1981 Broadcast Industry Conference and Awards, hosted by San Francisco State University, will celebrate its 30th anniversary as students and professionals exchange ideas on "Programming The 80's." The five-day session, beginning April 28th, will consist of presentations and workshops with professional broadcasters, radio and television personalities, and media experts. Award recipients will include Broadcast Preceptors, honored for accomplishments which have contributed to the advancement of the highest industry standards. Also honored will be producers of radio and television programming in local markets who have earned the Conference's designation of excellence—the Broadcast Media Award—in competitive judging. For more information concerning the event, contact Broadcast Industry Conference Co-Chairs Janet Lee Miller and Darryl Compton: (415) 469-2184.

AKG to Market Aphex

Aphex Systems Ltd., developers and manufacturers of sound enhancing equipment for the professional audio and music recording industry, has signed an agreement with AKG Acoustics, of Vienna, Austria, for the European firm to market its professional and consumer audio equipment. The international marketing agreement was announced in Los Angeles by Marvin Caesar, president of Aphex Systems, and executives in Austria of AKG Acoustics, which develops, manufactures and markets high-quality professional and consumer audio equipment. AKG will begin to market six different sound enhancing audio products manufactured by Aphex in the broadcast, music and consumer markets in Austria, Germany, England and Africa. The agreement also calls for AKG to market Aphex products in Eastern Europe, including Russia, Hungary, East Germany and Czechoslovakia. In addition, the European company will sell the Aphex Voltage Controlled Attenuator (VCA), for audio and video broadcast application.

Village Opens Video Division

Joel Fein, Academy Award nominee and Emmy Award winner for music and sound, has been appointed Manager of Studio and Video Operations at the Village Recorder, announced Dick LaPalm,

Executive Vice President. Fein will manage the Village's new musical post production and audio-video facility for motion pictures and television, a new capability at the recording studio complex.

Before joining the staff at the Village Recorder, Fein served in the post production sound departments at 20th Century Fox, Samuel Goldwyn Studios, Todd-A-O and Ryder Sound Studios. He received an Academy Award nomination in 1978 for Best Sound for "The Buddy Holly Story," and won an Emmy in 1980 for Special Achievement in Audio for "Dive to the Edge of Creation," a National Geographic presentation for the Public Broadcasting System.

JBL Resignations

Jerry Kalov, president of JBL, has announced the resignations of executive vice president for marketing Ed Hart, and vice president for domestic sales Steve Rand. Ed has accepted a position as president and chief executive officer of Phase Linear, effective immediately. On February 1, Steve becomes director of marketing for Marantz Europe, a Philips Netherlands subsidiary.

Patzke Promoted, Masterson Hired At Nortronic

Rick Patzke was promoted to Domestic Sales Manager for Nortronic/Recorder Care Division. With Nortronic since October 1979, Patzke moved up from Eastern Regional Sales Manager to oversee a network of over 100 sales representatives nationally. Dan Masterson was named by the Recorder Care Division as Western Regional Sales Manager. Masterson previously was Sales Supervisor for Pickwick International in Los Angeles.

Ampex Audio Group Moves To Cupertino Facility

The audio products group of Ampex Corporation's Audio-Video Systems Division is moving its operations to the company's Cupertino, California, facility in late January. The audio group's product management, engineering departments and technical support, formerly located at the Redwood City corporate headquarters, will move into the 103,000 square foot Cupertino facility.

Anderson Named President of King Instrument

The King Instrument Corporation of Westboro, Massachusetts, announced the appointment of William H. Anderson as President, Chief Operating Officer, and member of the Board of Directors. The announcement was made by Walter F. O'Connell, Chairman and Chief Executive Officer of King Instrument, a manufacturer and international marketer of automatic tape loading machines for audio and video cassettes.

Anderson most recently served as President and Chief Executive Officer of the Advent Corporation and has previously held executive posts with Sharp Electronics Corporation, RCA and General Motors.

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COMMITTEE REPORT

Audio Engineering Society

60 E. 42nd St., New York, NY 10017

A new edition has been added to the **AES** Anthology Series. The 528 page *Disk Recording Volume 1: Groove Geometry and the Recording Process*, edited by Stephen Temmer, is a collection of 73 papers describing major contributions to the art of disk recording in the areas of groove geometry, cutterheads and lathes, styli, and lacquer blanks, record pressing, and high-density disk technology. The anthology is available for \$19.00 to AES members and \$22.00 to non-members.

Association of Professional Recording Studios

23 Chestnut Ave., Charleywood, Herts WD3 4HA, England

In an attempt to help the recording industry standardize on fewer descriptions for recorded tapes, The Association of Professional Recording Studios has published a consultative document that lists just seven main designations. The document is currently being circulated to **APRS** members for comment, after which it will be included in the Association's general recommendations for studios.

The seven primary descriptions of recorded tape are as follows: **Session Tape**—a reel of original recorded material in any format (stereo, quad or multitrack), which can include both master material and out-takes; **Out-takes**—retained non-master material, both edited or un-edited; **Multitrack Master**—a multitrack session tape prepared for mixdown; **Original Master**—a fully prepared first-generation tape in final format (i.e., edited session tape or remixed multitrack master), with an indication of its release format (album, single, cutting copy etc.); **Production Master**—an equalized or otherwise modified copy of an Original Master for production purposes, with an indication of its release format; **Copy Master**—an identical copy of an Original Master, with both an indication of its release format and a description of the master from which it was made; and **Safety Copy**—an identical copy of any of the above designations, made to safeguard a specific tape against loss or damage.

National Association of Record Merchandisers

1060 Kings Hwy. North, Cherry Hill, NJ 08034

The 1981 Convention of the National Association of Recording Merchandisers convenes April 11-15 at the Diplomat Hotel in Hollywood, Florida

Five key areas for future growth and expansion will be highlighted at the Opening Business Session. **Advanced Audio Technology** will discuss opportunities for capitalizing on superior quality music product, such as digital, direct-to-disc, and presently unnamed technologies. **Home Video Entertainment** will deal with the one single opportunity area which could expand the horizons of the entire recorded music industry into the recorded entertainment industry. **Creative Tape Packaging and Merchandising** will consider the product configuration in recorded music, offering merchandising opportunities through the use of new packaging and fixtures. **Inventory Management and Bar Coding** will magnify the importance and necessity for intensive inventory management via the use of the newest technologies in bar coding. **"Give the Gift of Music"** will concern itself with techniques for in-store merchandising, advertising and promotional activities at the "grass roots" level. Merchandisers and manufacturers will be offered ideas for specific holidays, and new statistical data on gift giving will be revealed.

Registration for the **NARM** Convention is open only to the Association's Regular and Associate Members. Those interested in affiliating with NARM and attending the Convention should contact the Association.

National Academy of Recording Arts and Sciences

4444 Riverside Drive, Burbank, CA 91505

The **NARAS** Awards Guide selections, a service of Record Source International, now includes two new categories: Imported records and Mastersound Digital Discs at \$3.00 and \$4.25 each respectively. These recordings are made available in accordance with an ongoing policy, for the personal use of voting members of the Recording Academy to assist them in evaluating potential Grammy nominees as well as acquainting them with current industry-wide product.

The New York chapter has launched a campaign to prevent CBS Record's historic 30th Street Studios from being torn down to make way for an apartment building. The 32 year old "home" of *South Pacific*, *The Sound Of Music*, *My Fair Lady*, *West Side Story*, *Candide*, *Camelot*, *A Little Night Music*, *Chorus Line*, *Annie*, *Barnum*, Stravinsky, Sinatra, Bernstein, Streisand, Copland, Isaac Stern, Mitch Miller, Horowitz, Tony Bennett, Serkin, Miles Davis, Glenn Gould, Count Basie, Boulez, Ellington and many others was originally built in the 1850's as a church. Many members of the music community consider that the architecture and acoustics of the studio qualify it to be an historical landmark. Supporters and sympathisers should contact the New York office at (212) 755-1535.

National Association of Music Merchants

500 North Michigan Ave., Chicago, IL 60611

In an effort to save its trade show exhibitors money and time, **NAMM** will sponsor a free, day-long meeting on Wednesday, March 11, at the Hyatt Hotel at Los Angeles International Airport.

The meeting is the first in a planned series of sessions designed to aid exhibitors at the annual International Music & Sound Expo and the Winter Music & Sound Market.

According to NAMM Assistant Executive Vice President Larry R. Linkin, the meetings will focus on time—and money-saving suggestions for exhibitors. Among topics to be covered are: how to minimize freight cost and expedite deliveries; how to schedule union labor and cut personnel expenses; how to take advantage of security provided by the exhibit hall and NAMM; how to promote dealer interest in the exhibitors' product lines; and what NAMM can and will do for its exhibitors.

A second, similar session is planned for Chicago's O'Hare Airport in April or May, prior to the June 27-30, 1981 International Music & Sound Expo.

National Association of Broadcasters

1771 N Street, N.W., Washington, DC 20036

The National Association of Broadcasters said it would be "a rush to judgment" for the Federal Communications Commission to initiate interim authorization of Direct Broadcast Satellite (DBS) service prior to development of a fully-considered United States policy. It termed such action "premature, prejudicial in the extreme to permanent policy-making and nothing short of imprudent rulemaking."

In its filing **NAB** said interim authorization makes no regulatory sense especially with a new-technology service which necessitates the investment of enormous private and public resources. The Association said it makes even less sense and is more damaging to authorize an interim service "which presents potential prejudice to the development of permanent DBS policy decisions." NAB noted that such operating authority would prejudice the Commission's basic question of "whether any broadcast satellite service is appropriate for the United States."

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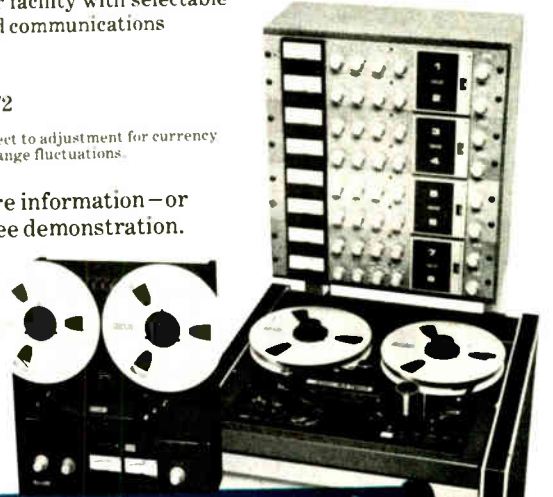
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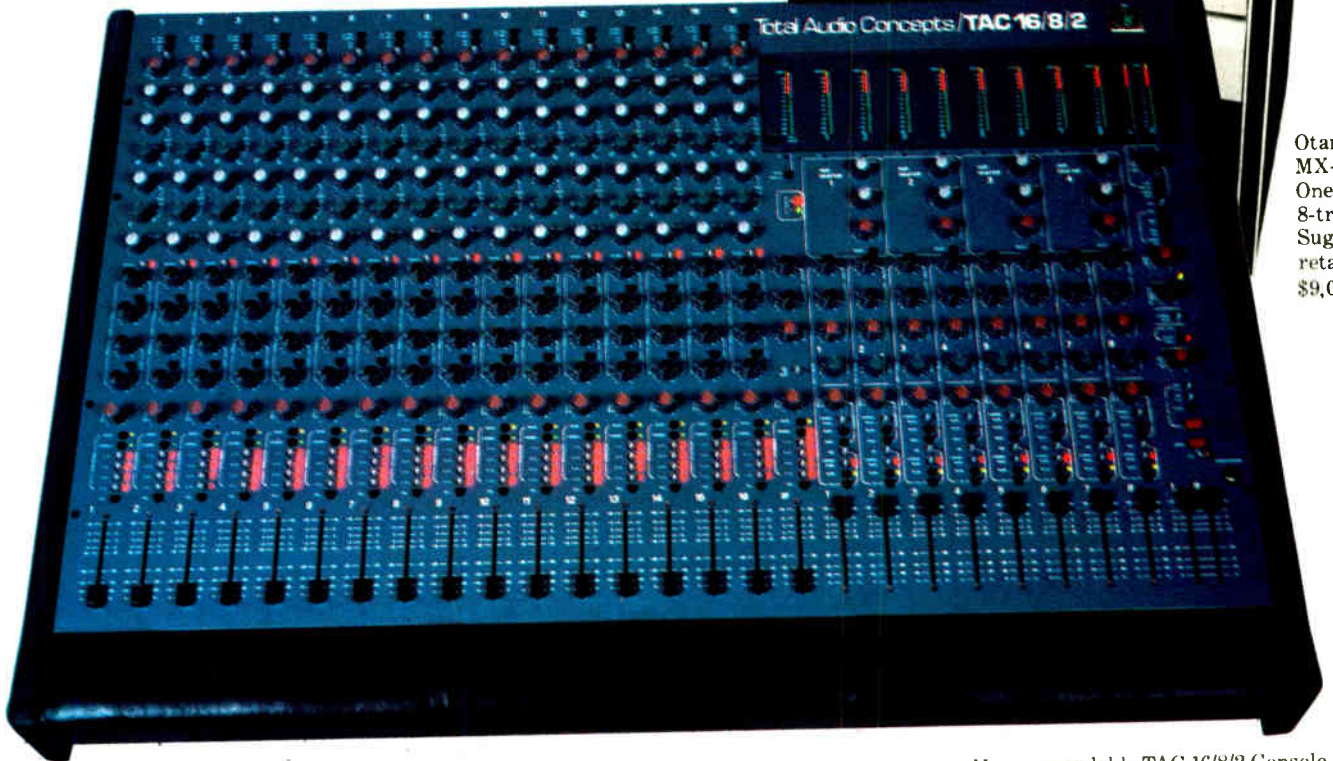
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SESSIONS

SOUTHEAST

Donald Byrd/Elektra/Asylum artist is presently recording at **Master Sound Recording** in Atlanta, Georgia, **Isaac Hayes** producing, **Joe Neil** engineering. Also just finished, a session with **Pure Gold** for Capitol Records; **Dennis Williams** producer and **Ron Christopher** engineering mixing.

At **Ardent Recording, Inc.** in Memphis, Tenn., **Homer Banks** and **Chuck Brooks** are producing an album for **Randy Brown** on the Casablanca label. The album is due for January release. **William Brown** and **Robert Jackson** were engineers for the session.

Activity at **CBS Recording Studios** in Nashville includes **Willie Nelson's** band recording an album for lead guitarist **Jody Payne**, **Foster and Rice** producing and **Ron Reynolds** engineering.

Bassist **Jaco Pastorius** is currently recording at his home in Deerfield Beach, Florida with the **Artisan Recorders' mobile unit** out of Fort Lauderdale, Fla. Pastorius is recording and producing an upcoming solo album for Warner Brothers Records Artisan President, **Peter Yianilos**, is engineering the project. **Richard Hilton** is assisting.

B.J. Thomas was at **Sound Emporium** in Nashville, to record an album for his new label, MCA Records. The recording was his first with Grammy-winning producer **Larry Butler**, who wrote the hit song "Hey Won't You Play (Another Somebody Done Somebody Wrong Song)" for Thomas several years ago. **Billy Sherrill** engineered the sessions.

At **dgp Studios** in Miami, Fla., **Fantasy** is working on their latest LP with original vocalist **Jamene**. A few years back, Fantasy had a hit with their instrumental "Stoned Cowboy." Currently guest appearing on drums is well known session player **Larry Hirt**. **Greg Kimple** is producing the album, engineered by **Ted Stein**, assisted by **Jeff Dean**. And, **dgp's Dave Graveline** narrated tracks for the 1980 Orange Bowl Halftime extravaganza for NBC-TV on New Year's Day.

NORTHEAST

David Sanborn's Warner Bros. LP **Hideway** recorded at **Minot Sound** in White Plains, NY, and produced by **Michael Colina** and **Ray Bardani** has been on the Jazz Chart for 41 weeks. Sanborn is currently in the studio work-

ing on his new album with **Colina** and **Bardani** producing.

At **Kingdom Sound**, Syosset, Long Island: **Blue Oyster Cult** and **Black Sabbath** are mixing the live soundtrack for their soon to be released concert film. Soundtrack was recorded at the Nassau Coliseum on their recent "Black & Blue" tour. **George Geranios** and **Clay Hutchinson** engineering the project, produced by **Sandy Pearlman** and **Steve Schenck**.

NORTHWEST

Rif Rafson and **Jerry Rafson** were in **Fantasy Studios** in Berkeley having their album **Wasted In Wasteland** mastered by **George Horn** of Fantasy for Goldstream Records. The album was recorded in Fairbanks, Alaska at **Dome Studios**. This is the first studio album recorded in Fairbanks.

Recent activity at **Heavenly Recording Studios** in Sacramento, CA, **DeWayne Blackwell** working on a new project for **Snuff Garrett Productions**. **Larry Lauzon** is engineering and **Cappy Lewis** is producing his new album with **Ike Paggett**. **Larry Lauzon** is engineering.

At **White Rabbit Studio** in Sausalito, CA, **Marty Balin** is working on a new album for EMI. **White Rabbit** expects that a video segment of this session will be broadcast on **VideoWest**, a California video program.

At **M. Al's Productions** in Oakland, CA, **Jamaican Reggae** band **Session** in recording their new album **M. Al Azeem** producing.

SOUTHERN CALIFORNIA

At **Sunset Sound** in Hollywood, **Lee Ritenour** has finished mixing his upcoming Elektra LP in Studio 2. At the board were **Humberto Gatica** and **Don Murray** with **David Leonard** assisting. The unique aspect of this session consisted of two Ampex MM1200 24 track machines locked up with the Audio Kinetics Q-Loxk SMPTE system.

Producer, **Arthur G. Wright** and Motown Vice President and A&R head, **Lee Young, Sr.** at **NSP Studios** in Hollywood, CA doing final mixes on **Nolen & Crossley** album. Album was produced by Motown producer **Hal Davis** and **Arthur G. Wright** to be released on Motown Records.

At **Salty Dog Recording**, in Van Nuys, CA, **Hoyt Axton** producing **Dennis Weaver**, with **Corey Bailey** engineering. **Cisco Deluna** is engineering for **Tierra**, who are involved in a new project for Boardwalk Entertainment.

At **Soundcastle Studios** in Los Angeles, **Alton McClain** and **Destiny** laying down tracks for Polygram with **Skip Scarborough** producing and **Bill Bottrell** engineering. **Peter Bernstein** mixing the **Cretones'** latest album for Planet Records with **Gabe Veltri** engineering. **Mike Flicker** producing and engineering basic tracks for **Dollars'** latest album on CBS Records.

At **Artisan Sound Recorders** in Hollywood, CA, **Johnny Guitar Watson** producing himself for **Vir-Jon Enterprises**, overdubbing and mixing his newest LP with **Rick Smith** at the console. **Smith** also mixing artist **John Michael Talbot** with the **London Symphony Orchestra** for **Sparrow Records**. **Dan Collins** producing.

MIDWEST

At **Universal Recording Corp** in Chicago, **United Artists' Noel Pointer** arrived with his producer, **Richard Evans**. **Universal's Bill Bradley** was the mixer for the project; and **Tommy Dorsey** recorded for **Wooded Lake**, with **Joel Dorn** handling production and **Bill Bradley** at the mixing board.

Activity at **Studio A Recording**, Dearborn Heights, MI, includes **Flight** working on their first album, the group is self-produced, **Eric Morgeson** engineering, and **Detroit rock and roll band, Artist**, laying down tracks for their first album, **Eric Morgeson** producing; **Scott Houston** engineering.

SOUTHWEST

Stevie Nicks was at **Goodnight Dallas** in Dallas, Texas working on material for her solo album with **Tom (Gordo) Gondolf** as engineer; and **Pat Benatar** was mixing a live performance for the **King Biscuit Flour Hour**, also with engineer **Tom (Gordo) Gondolf**.

Recently the **Omega Audio 24 track** remote recording facility, which is based in Dallas, found itself in Houston at the **Astrodome** providing audio recording support for a video shoot of a show called **Country Magic**. The production, produced by **Alvin Cooperman** and **Judith DePaul**, New York, slated some ten major country artists such as **Johnny Cash**, **Helen Reddy**, **Eddie Rabbitt**, **Johnny Lee**, **Mickey Gilley**, **Johnny Duncan**, **Charlie McClain**, and **Moe Bandy**. **Omega** was called on to originate the video mix and to record the shows on 24-track with SMPTE Time Code for later mixdown and post production "sweetening." Sound reinforcement was provided by **Showco** of Dallas and video facilities and personnel were supplied by **Northwest Teleproductions** of Minneapolis and **Southwest Producer's Service** of Dallas.

STUDIO NEWS

Goodnight Dallas in Dallas, Texas, just made a new equipment addition—of a Studer B67 tape recorder.

Tandem Recording Studio of Bristol, Virginia recently completed upgrading to 16-track with the installation of an API console, which had been in Chet Atkins private studio in Nashville and prior to that was in use in RCA Recording Studios of Nashville. Tandem has also installed a Scully 16-track recorder, with remote and digital counter.

Michelle Meisner is the new studio manager of **The Automatt** recording complex in San Francisco. Prior to joining the Automatt staff, Ms. Meisner worked in national record promotion for Fantasy Records. Also new at The Automatt are recording engineers Susan Gottlieb and Maureen Dronev.

Intermedia Recording Studio in Boston recently held a free seminar on studio procedure, record production, and automated mixdown. Nearly eighty members of Boston's music community took part in the seminar which was run by Intermedia's chief engineer, Fred Torchio. Kristian Beard and Jerry Radas were also on hand.

Big Apple Recording Studios in New York City has recently completed a major renovation and equipment upgrading, and has opened its doors as **Greene Street Recording, Inc.**

Gerry Block, well-known studio engineer and inventor of the revolutionary Compudisk disc mastering computer, has been appointed general manager of the New York recording complex of **Sigma Sound Studios**; it was announced by Joseph D. Tarsia, President. Tarsia also announced that Jay Mark, who has helmed the Gotham operations for the last two years, will be stepping out of his management role to specialize in his primary fields of interest—engineering and producing.

Milton Blackford has been named vice president and producer at **The Soundshop**, a major Nashville recording studio, Soundshop president Craig Deitschmann announced. The appointment accompanies the merger of the The Soundshop with Nashville production company **Sounds Creative**. Formed by Blackford in 1978, Sounds Creative has produced radio and television commercials for several major national advertisers, including Pontiac, GMC Trucks, Wyler's, Marriott and Dial.

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SOUND ADVICE

Opamps and Pads... All Simple

by Ben Harris

Ed. Note: This month we welcome a new proprietor to the Sound Advice column. Ben Harris is Chief Engineer at Nashville's Groundstar Studios, a division of Ronnie Milsap Enterprises. A recording engineer since 1968, Ben has done console design work for Sphere Electronics and currently teaches advanced engineering at Belmont College in Nashville.

We recording engineers, at times, are more musically inclined than technically, as it should be. However, there are times when a little electronic "know how" could help us in our daily profession. In this age of operational amplifier circuitry, it is amazing how little most of us know about the equipment we have entrusted to our care. Underneath those massive panels of knobs and faders lies a world of audio signal flow and most of us haven't the foggiest idea how it works.

If we consider opamps (operational amplifiers) without diving too deep into the realms of solid state theory, then it alone becomes reasonably simple. Audio circuits, for the most part, are comprised of gain stages and resistive pads. Both are quite easy to calculate and understand.

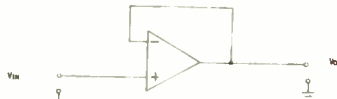
FIGURE 1: Hardy Company 990 Opamp



Opamps can be found in many forms, from integrated circuits or "chips" to discrete devices, those made from individual transistors, diodes, capacitors and resistors. Opamps (shown in Figure 1) have found such wide acceptance that there remains hardly any manufacturing of audio processing equipment not comprised of opamps

in one form or another. In our brief review of these circuits we will also be covering resistive pads, for it is almost impossible to speak of one without involving the other. This is true especially where audio consoles are concerned.

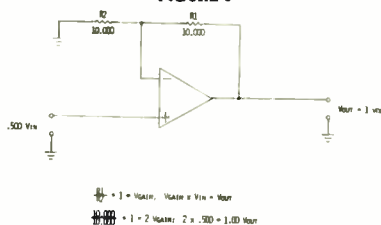
FIGURE 2



In Figure 2, we see the electronic symbol for an opamp, a simple triangle. As shown, this is a non-inverting unity gain device sometimes known as a voltage follower. This is to say a V_{in} , DC or audio voltage, measured at the input of the opamp, will pass through the opamp and be presented at its output at the same voltage level and in the same polarity as its input. This configuration is used to isolate two separate circuits or to present a stiff source to the next stage in succession.

At this point, it would be good to say something about the maximum voltage that any one opamp may be able to handle. For the most part, in bi-polar supplied opamps, the RMS or average maximum level can be easily determined by the following method: $+V - 2.4 \times .7 = \text{RMS maximum voltage output}$. For example, if we are dealing with an opamp being powered by $\pm 18 \text{ VDC}$, then our RMS maximum voltage output would be $18 - 2.4 = 15.6 \times .7 = 10.92$ volts, which is approximately $+22 \text{ dBv}$. This means that this opamp could produce as much as ± 10.92 volts before clipping at its output terminals into a resistive load at which it has been rated. Most chips are only maximum rated into a load of 2K or above. However, there are a few devices, such as the Signetics NE5534 and the Analog Systems MA332, that are capable of

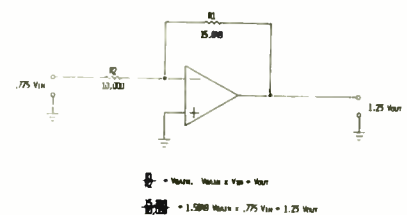
FIGURE 3



driving a 600 ohm load and discrete devices can sometimes drive as low as 75 ohms.

In Figure 3, we see a non-inverting voltage gain situation. For discussion purposes, we will assume the V_{in} to be an audio signal of .500 volts RMS. In a non-inverting circuit, the voltage gain is calculated by $\frac{R_1}{R_2} + 1 = \text{Vgain}$ or voltage ratio. The output voltage is then determined by $\text{Vgain} \times \text{Vin} = \text{Vout}$. With R_1 and R_2 both equal to 10,000 ohms, then $\frac{10,000}{10,000} = 1 + 1 = \text{voltage gain or voltage ratio of 2}$. To determine the V_{out} we multiply $\text{Vgain} \times \text{Vin}$ which is $2 \times .5 = 1$ volt output. Simple, isn't it. If you look at the tables in Figure 7 under voltage ratio, you will see that a gain of 2 equals 6dB of audio gain. Another method of determining the amount of gain, expressed in dB is with the following formula: $\text{Vgain (ratio)} \log \times 20 = \text{dB}$. One must have a calculator with a log function, or use math tables easily found in any library or book store. In our Figure 3, the $\text{Vgain} = 2$, therefore $2 \log = .30103 \times 20 = 6.0206$ or 6dB.

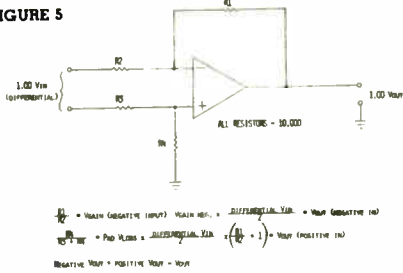
FIGURE 4



In Figure 4 we are confronted with an inverting signal, which is to say the V_{out} will be 180 degrees out of polarity when compared with the V_{in} . The Vgain is computed by $\frac{R_1}{R_2} = \text{Vgain}$. With $R_1 = 15,849$ ohms and $R_2 = 10,000$ ohms, the Vgain is $\frac{15,849}{10,000} = 1.5849$. Therefore, $1.5849 \text{ Vgain} \times .775 \text{ Vin}$ equals 1.23 Vout or $+4 \text{ dBv}$. If you will look under voltage ratio in table 7 and find 1.5849, you will see that this voltage ratio is equal to a $+4 \text{ dB}$ gain. Remember that the output voltage in this case is reversed 180 degrees polarity. This configuration is used many times in buffer situations, summing circuits and other circuits where a 180 degree reverse or a virtual ground current source is needed. The negative input to an opamp is a virtual ground.

In Figure 5, we find a differential amplifier circuit. The name is derived from the word "difference" because the amplifier responds to the "difference" between the negative input and the positive input. This circuit is found in console line-in applications and similar situations. Let us assume all resistors to be 10,000 ohms and a differential V_{in} of 1 volt. That is to say each leg carries $\frac{1}{2}$ of the total voltage and they are 180 degrees out of

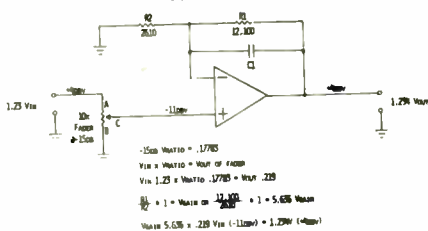
FIGURE 5



phase with each other, such as in a balanced line. R2 negative has a $-.5$ volts at its input and R3 positive a $+.5$ volts. The voltage at R2 is responded to by the feedback resistor R1. Referring back to Figure 4, we find the V_{gain} formula for an inverting opamp to be $\frac{R1}{R2} = V_{gain}$. Therefore, $\frac{10,000}{10,000} = 1 \times .5$ volts which equals $.5$ V. out, 180 degrees reversed. Now, the $+.5$ at R3 is first divided in level by the voltage divider or L pad, R3/R4 combination. The voltage loss is calculated this way: $\frac{R4 (R \text{ shunt})}{R4 + R3} = V_{gain} (\text{loss})$. See Figure 8. Since R4 (R shunt) equals 10,000 ohms and R4 + R3 equals 20,000, then $\frac{10,000}{20,000} = .5$ Vratio. Now, the voltage ratio, $.5 \times$ the V_{in} of $.5$, equals a $+.25$ Vout. This $+.25$ volts is then amplified by the non-inverting formula of Figure 3. R2, for all practical purposes, is connected to ground as far as the positive input is concerned. Therefore, $\frac{R1}{R2} + 1 = 2$. So, a voltage gain of $2 \times$ the $+.25$ volts equals $.5$ volts. Now, when we add the two formula answers together, $.5V + .5V$, we have a 1.00 volt output, no longer in a balanced configuration.

An easier approach to Figure 5 is as follows: if $R1 = R4$ and $R2 = R3$, the voltage gain of the entire opamp can be calculated by the same method as Figure 4 alone. This circuit can be made to accept gain or loss by simply changing the ratios between $R1/R2$ and $R3/R4$.

FIGURE 6



In Figure 6, we have a voltage input of 1.23 volts or $+4$ dBv which is standard studio operating level and a nominal fader setting of -15 dB. In other words, the signal presented to the opamp is 15 dB lower than that presented to the fader input, or -11 dBv. Looking at the tables in Figure 7 we find that the voltage ratio of -15 dB is 0.17783. Therefore, $V_{in} \times V_{ratio}$ equals $1.23V \times 0.17783 = 0.219$ volts. Therefore, using the formula in Figure 3, $\frac{R1}{R2} + 1$

equals $\frac{12,100 \text{ ohms}}{2,610 \text{ ohms}} + 1$ equals a V_{gain} of 5.636. The V_{gain} , 5.636 times the -11 dBv voltage which is 0.219, equals 1.234V output, or approximately $+4$ dBv.

FIGURE 7

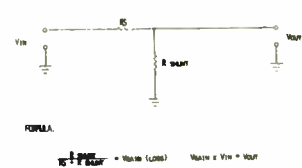
GAIN (dB)	VOLTAGE GAIN		
-50	00416	0	89125
-45	00562	1	100000
-40	01000	2	112202
-35	01778	3	125893
-30	03162	4	141254
-25	05623	5	158489
-20	10000	6	177828
-19	11220	7	199526
-18	12589	8	223872
-17	14125	9	251189
-16	15849	10	281838
-15	17783	11	316228
-14	19953	12	354813
-13	22387	13	398107
-12	25119	14	446684
-11	28184	15	501187
-10	31623	16	562341
-9	35481	17	630957
-8	39811	18	707946
-7	44668	19	794328
-6	50119	20	891251
-5	56234	25	1000000
-4	63096	30	1778279
-3	70795	35	3162278
-2	79433	40	5623413
		45	10000000
		50	17782794
			31622775

The fader in Figure 6 is actually a voltage divider or L pad. (See Figure 8.) The total resistive element of the fader is 10,000 ohms or 10K. Therefore, to determine the exact fader position for a -15 dB attenuation, we simply reverse our formula for calculating pads. The -15 dB voltage ratio in Figure 7 of 0.17783 \times the 10K fader value equals the R shunt of 1,778.3 ohms. The R shunt subtracted from the 10K total equals

the RS, or 8,221.7 ohms. We have now established from the input of the fader (point A) to the wiper position (point C), the resistance value is 8,221.7 ohms, and from point C to signal ground the value is 1,778.3 ohms.

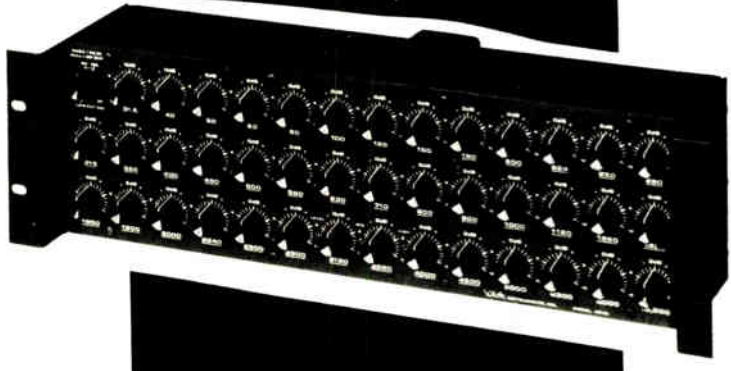
Also, just to keep you safe, the capacitor (C1 in Figure 6) is to roll off the high frequency response of the amplifier to a safe level below slew limiting or slew induced distortion. This is to say that an amplifier has a rated power bandwidth of a certain KHz, most usually around 100 KHz. This capacitor is called phase lead compensation and restricts frequencies above its maximum power bandwidth preventing the opamp from badly clipping or distorting. In technical terms, this clipping is called triangulation because of the way a sine wave signal becomes a series of triangles when viewed through an oscilloscope during slew induced clipping. This capacitor may be calculated by $\frac{1}{2 \times \pi \times R \times C}$ equals the frequency at the -3 dB down point.

FIGURE 8



Any gain from unity to the opamps closed loop maximum rating may be obtained by resistor selection and the voltage tables I have given you. Practice designing some of your own circuits and see how you come out. Lots of luck. ■

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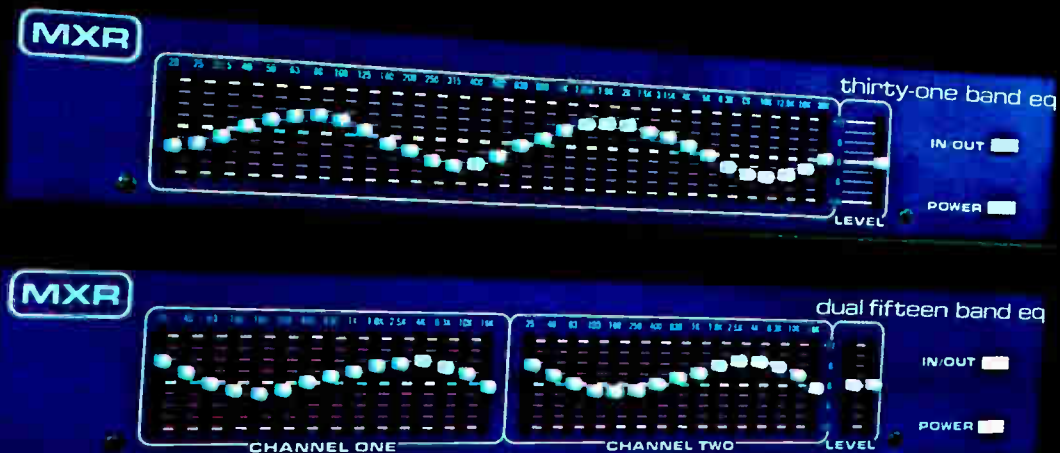
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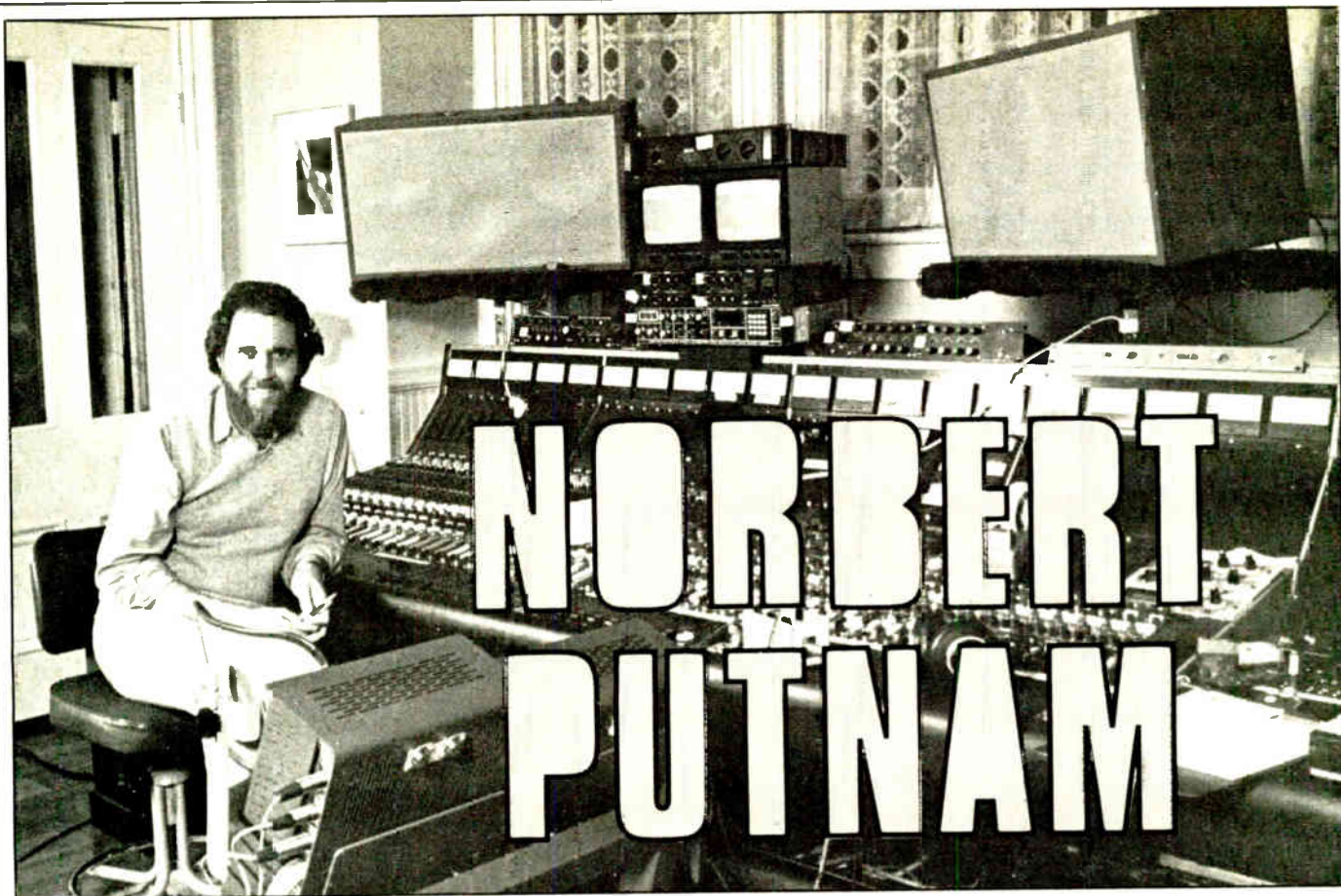
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NORBERT PUTNAM

Bringing It All Back Home

by Sam Borgerson All photos by Beth Gwinn

After practically living in the studio for 20 years, Norbert Putnam finally decided it might be more practical to move the studio into his home. So he bought the Bennett House, a classic Victorian brick townhouse in Franklin (7.5 miles from Nashville), restored it to its original elegance, furnished it with antiques and original art works, moved his residence into the spacious second story and deposited a 48-track studio on the ground floor. It's a home-studio deluxe, not your average home, not your average studio.

This mixer's dream home was made possible by a decade of successful production efforts for Joan Baez, Buffy St. Marie, the New Riders of the Purple Sage, Jimmy Hall, the Fousette Dart band, Kris Kristofferson, Jimmy Buffett, and Dan Fogelberg—just to skim the cream off the top.

Putnam was born and raised in Florence, the largest of four small cities in the Muscle Shoals region of Alabama. He was recruited into a rockabilly band in the mid-fifties when some high school buddies spied an acoustic bass sitting in the corner of the Putnam living room. As the only one with access to the needed instrument, he was pressed into the role, learning the basics from his father, a former semi-pro country out-slepper.

Putnam switched from acoustic to Fender Precision as the band evolved from rockabilly to R&B, passing through rafter like the Rhythm Rockets and Dan Penn and the Pallbearers. Keyboardist David Briggs and drummer Jerry Carrigan came in along the way, and these three then became the original rhythm section for Rick Hall's Fame Studio. After backing up Arthur Alexander, Jimmy Hughes and Tommy Roe on their early hits, in 1964 the trio migrated to Nashville, lured by the bigger bucks of union scale.

During the latter part of the sixties, the three Alabamians became established as Nashville's premier "contemporary" rhythm section, playing with Elvis and Roy Orbison among others. Putnam and Briggs also served as members of the legendary but short-lived Area Code 615.

At the turn of the decade, Briggs and Putnam opened their first home sound studios, which refined through the '70s as Nashville's top independent studio. About the same time, Putnam began turning from bass to production, a transition now virtually complete.

As a producer, Putnam is a democratic perfectionist. He pulls in all members of the team—engineer, musicians, the solo artist—to participate in the creative process, yet still keeps the reins firmly in his hand. He likes to create on the edge of chaos, with serious recording never straying in the way of raucous fun. Or vice versa.

• • •

You were part of the original Muscle Shoals rhythm section. How did that whole scene get started?

Well, at that point I was about 18 or 19 years old. And I'd been playing in those F&F bands for a couple of years. Rick Hall decided he was going to cut a record with Arthur Alexander—he was a bellhop at the Muscle Shoals hotel. Rick wanted to see if anything could happen with him, so he got some money from his father-in-law, I think, and put together a little studio. He found some space in a warehouse over in Muscle Shoals near where Ford City was supposed to be built. He walled off a area for a room.

Above: Norbert and his Trident TV monitors for parlors and drum room.

tol room, just plain wallboard, and he had a Fender Bassman cabinet for a monitor speaker. He had a four channel mono mixer, something like those little Shure ones with no EQ that you use for PA, and two Berliner Concertone mono recorders, which were really pretty good machines. He had four microphones. He had a crystal mike for overhead on the drums that picked up everything. It had a very odd high frequency response to it—a great hi-hat sound, but everything else was pretty awful. He had one Telefunken U-47—I don't know where the hell he found it—for his primo microphone. The other two were dynamics, probably.

What was the studio set-up like?

Well, there was that one crystal mike over the drum, one mike on the upright piano, one mike for both the guitar and bass amps, with the cabinets V'd toward each other. If he wanted more bass, I'd just turn up my amp. The U-47 was used for the vocals, and if there were backup singers, they'd stand on the other side and sing at the same time. We'd lay down a mono track like that. Then the overdubs would be done by bouncing from one mono machine to the other, mixing in the overdubs in real time.

What was the first record you did with Alexander?

The first one we did with Arthur was "You'd Better Move On." And that was a hit record! It might have even been top 10. I know that he flew up to Philadelphia to do the Dick Clark show. That was about 1961, I think.

Was the studio work pretty steady back then?

Yeah, I was in the studio all the time. I took 2 or 3 days to cut a single. In truth, our musicianship was pretty poor. We were not great players. It took us a long time to learn the songs, and an even longer time to get them into acceptable form. We'd play the same track for 12 or 14 hours, then come back and do it some more the next day. It was all mono, so if one person screwed up, that was it. And you had to get the feel right.

Why did you decide to move to Nashville?

We came here about 1964 or '65, mostly because the Nashville producers were coming down to Muscle Shoals—Felton Jarvis, Bob Beckham, and Ray Stevens who was in Muscle Shoals for a while but moved back to Nashville. At the time it was a non-union situation at Muscle Shoals, so I was getting about \$5 an hour to play on top 10 records. We were being told these stories about the union in Nashville and how much money you could make in 3 hours. And these producers also told us we were good, and that we played a very unique style. So we decided to give it a try.

Who were you working with?

Oh, I did just about everybody for Fred Foster at Monument Records. We did Boots Randolph, some of the Roy Orbison sessions, though Charlie McCoy played bass on most of the hits. We did "Polk Salad Annie" with Tony Joe White—anything that called for a rock 'n' roll feel. Then Chet Atkins started to use me on some country sessions.

Did you have much of an influence on

the sound of those records?

Yes. Nashville sessions in those days allowed the rhythm section a tremendous influence on the arrangement of the record. That's what Nashville was famous for—and I guess it still is now. A producer would bring an artist in, play the song down, and then give all the rhythm section a free hand to collaborate on an arrangement. In the end, the producer would be judge and jury, deciding if that arrangement came close to his idea.

Most of the great producers in Nashville followed that trend. Foster was like that. He would hand pick a rhythm section because of a pre-conceived idea of how this bass player or that drummer would sound on a song. That was pretty much his role as a producer, and he made a lot of great records. Now, Owen Bradley was a different kind of producer. He would come in and totally dictate the arrangement. He would sit at the piano and call the rhythm section around. He'd say, "We're going to do it in the key of D, the intro will be four bars, I want Grady to play the first two bars in D, then Pete take the steel on G and A, then on the first verse..." and so on. Then, as we ran the song down he'd be talking, telling everybody what to play where. He'd go through the song like that once, then say, "Let's do it," and it would be totally right!

Who are some of the country acts you cut with?

Well, I played on some of those early Willie Nelson records for RCA, back when they were trying to cut him as a straight country act. I played on some Waylon Jennings things later on, but not on that many mainstream country acts. We were playing more contemporary stuff.

Most of those late Sixties and early Seventies records you played on had this amazing full, fat and round bass sound. How did you get that?

At that time I had a Fender Precision, about 1960 vintage, with Fender flat wound strings. At that time the strings were about 6 or 7 years old. Tommy Cogbill had these same kind of strings. A lot of bass players would get these strings and never replace them. As they'd get older, the string would lose all its harmonic quality, and it would get this rich, deep, thuddy bass tone. It became more like a gut string acoustic bass. This was due to age and the fact that there was so much moisture and dirt in the strings. It was an incredible R&B sound. I played that bass until somebody stole it, and I think they took it to get the strings. It was at the point where people would offer you a lot of money for them, because the only way you could get that sound was to put the strings on your bass and wait for five years, playing them every day.

The keyboard parlor, Bennett House.



PHOTO BY BETH GWINN

Was miking the amp part of that sound?

Yeah, we would do that sometimes. It would all depend on the engineer. Some would, some would take direct. Jim Malloy had a great technique using a Neumann U-87 and an old Teletronix limiter. He'd hang the mike in front of my Ampeg B-15 and produce the most gorgeous sound. Al Pachuki would do the same thing.

How did you get involved in the Presley sessions?

Felton Jarvis was producing him at the time, and he knew us from the earlier Tommy Roe records, which he'd also done. Elvis' career was slumping—that was his Dean Martin period, I guess. So Felton wanted to try something different. He called us in as the rhythm section, and Elvis liked us! That was in the late Sixties, and we made a lot of records with him.

Weren't you in on those last sessions at Graceland just before he died?

Among the last, yeah. I went to Graceland twice, both times near the end.

Did you suspect the end was near?

Well, he was very overweight. He looked much worse. I remember when I first saw Presley in the mid-Sixties, the first time I was called to one of his sessions. I was so scared, I was thinking, "Oh God! Can I handle this?" I felt so much insecurity because this guy was the king of rock 'n' roll, he invented it. If there had been no Elvis, I wouldn't even be in this business. He created an industry that I fell into as a kid. I can't tell you how I felt that first time. I wanted to call my mother and tell her, "Hey can you believe this? I'm on an Elvis Presley record!" At that time he was so together. He must have been about 32, and he had the body of a 19 year old. He had an amazing physique, amazing charisma. He would walk in the room and there would be a chill instantly. He was godlike. We were just in awe of him. And everytime I saw him, it was the same—even years later.

Well, I thought of that at Graceland. I saw him overweight, and I knew he just wasn't the same man he was a decade before. And of course it worried all of us.

You were pretty close to Kris Kristofferson back in his first days of recording, weren't you?

Yes. In fact, I've just finished a new album with Kris, the first time I've ever produced him. We cut most of the tracks up at Caribou Ranch because I wanted to get him out of L.A. and Nashville, to get away from friends and hangers-on. It's called *To The Bone*, and most of the lyrics were inspired by the breakup with Rita. "Good Love Gone Bad,"

's the theme. Some classic country songs.

How did you get to know him originally?

Well, we got to be friends when he was working over at CBS studios as the go-fer and editor. Kris would come up and say he wanted to do something on a Saturday—this was when we were really successful and working 3 or 4 sessions a day Monday through Friday—and he'd ask us to do something on weekends. For some reason they had such charisma about him that we said we'd do it. So we'd get a bottle and go down to Music City Recorders. He'd have to have a few drinks to approach the microphone because he knew he wasn't a great singer, in fact he knew he wasn't even a good singer. We'd all go down there and do demos with him, and we'd all end up being really drunk. His earliest albums were mostly made up from demos, with the voices done again. There were a few unken mistakes all through them.

You were a member of Area Code 615, the only country-rock instrumental group of any consequence. How did that happen?

That all got started when a bunch of us went out on a fishing trip with Wayne Moss. We were talking about how much fun it would be to get a band together with all our studio friends. But we needed something to make it different, not just another instrumental album. So somebody said, "Why don't we take a contemporary rhythm section and new rock songs and put in all those traditional instruments like harp, steel and banjo, since we know all these characters who can play them so well." I don't remember whose idea it was—Wayne's or Kenny Buttrey's maybe, it wasn't mine. But [producer] Elliot Mazer went out and got a deal with Polydor to do it, so we all went out to Wayne's garage studio where he had an 8-track Ampex and an old United Audio tube board and some 4310's. We did this album in five days, and a lot of people really liked it. It didn't sell a lot, but we can't blame that on the record company. The problem was us—the band. We were all successful studio players, and when Polydor called us and asked us to go on the road, we got together and said "No, we don't want to do it."

But didn't you play one gig at the Fillmore in San Francisco?

Yeah. I think Elliot or somebody at Polydor had talked to Bill Graham. I guess they figured if Bill called us we would agree to do something. Well, they were right. But the funny thing was, a week before we went, we realized we had to rehearse for it. We did that record totally ad lib, and by the time of the Fillmore trip we'd forgotten all the songs. So we had to take the record home and re-learn all the arrangements.

Didn't you start building Quadrafonic about that same time?

That studio came in around '69 or '70. David Briggs and I decided to get into writing, so we formed a publishing company and decided to build a little demo studio. We bought this old house on Grand Avenue, down near Music Row, and we were going to put in an 8-track. Well, at that same time Elliot Mazer was in town producing Linda Ronstadt.

As a matter of fact, I played on "Long, Long Time" with Linda. A great record, one of the best I've ever had anything to do with. We did that, basically, with two musicians. I played bass, Pete Wade played the acoustic part, and Linda sang live. We called up Buddy Spicher and Weldon Myrick to do fiddle and steel overdubs, and I added a little harpsichord thing. That was it!

Anyway, I was telling Elliot about our little demo studio. He said, "Hey, you know what Nashville needs—and you could do it. If you put in a 16-track, I could give you a lot of business." We got to thinking about it, and Elliot was bringing a lot of business into town, so David and I said, "What the hell, let's do it." So Elliot brought Neil Young in to do *Harvest*, then everybody came in. It was a funky old house, it had a dead room, and it had Nashville's first drum booth. It was a phenomenon. In two or three years it became Nashville's top independent studio, and it remained that way for years.

I understand you first moved into production with a Joan Baez record. How did that happen?

Well, I introduced Kris [Kristofferson] to her at CBS, and they became good friends. Maynard Solomon (of Vanguard Records) had been bringing her down for two or three records, which I'd played on. David and I were just finishing up *Quad* when she called and said she was coming down, and she asked me to get together some musicians. I suggested we record at our new place, and she said that was fine. I asked who was producing, and she said, "Kris is producing." Well, they came down to *Quad* the first day and Kris says "Norbert, I gotta talk to ya." I say, "What's up?" and he says, "I can't do this record." I ask him why not and he said he'd been in the control room and he looked at all the lights and knobs and couldn't figure it out. "I've talked to Joanie," he says, "and we've decided we want you to produce the record." Who, me? God. I'd never produced *anybody!* But I said I'd love to do it. The first thing we cut was "The Night They Drove Old Dixie Down," which sold a million singles.

You told me once that Clive Davis was the one who hooked you up with Dan Fogelberg. Why did he send him to you?

Well, that Baez record sold very well, and apparently Clive was quick to pick up on that. He was always high on producers who could do something unusual, and I guess he thought it was great that I could cut a pop hit with a folk singer who never sold a lot of records. Anyway, he called me up and said, "Who would you like to produce at CBS?—Anyone you want." Well, I couldn't think of anybody off-hand, but he ended up sending me a lot of people, among them Dan Fogelberg.

Was Irv Azoff with him back then?

Yeah, and Irv had gone to Clive, and then Clive asked me if I'd like to meet with Irv and Dan. They came down to Nashville and played their demo, on which Dan had played all the instruments, and it was great! They'd done it in some little studio in Peoria, but it was better than anything on the radio at the time. So Dan moved down to Nashville. Kenny Buttrey came in for the sessions, and we cut the tracks as a trio, Dan did the overdubs,

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then we went out to L.A. to do the strings. That was *Home Free*, and I still think that was Dan's best album. It's the raw essence of everything he is.

What was Joe Walsh's "moosical" contribution on "Face the Fire" from the *Phoenix* album?

Well, it was more energy than anything else. He came in and played on the original track, but there was a technical problem that kept us from using it. We cut that track with two electricians, Joe and Dan, with amps in isolation booths. Russ Kunkel was on drums, and I was in the control room playing bass. It sounded great on the date, but later on we heard some weird distortion, so Dan went back and duplicated Joe's part. But there's a feeling that comes off Joe Walsh—well, that's the reason there is a Joe Walsh.

I notice that *Phoenix* was done in a half a dozen different places. How do you pick your studios?

Well, with Dan it was usually the geographic location that limited the choice. Where did we want to go at that time of year? Sausalito was great in the winter, and the Record Plant there had a great old discrete API board. And we'd also go to Caribou Ranch, which had an old discrete Neve at the time. So Dan would choose the location where he'd be comfortable, then I'd try to influence the decision, perhaps because of a console or a studio that I thought was more together. Then we'd come back to Quad to do the vocals, and we'd always mix at Quad because that was the one monitoring system that I was sure of. That's the final determining factor. You've got to be sure of the sound of the mix. The major difference, in all the different studios I've worked at, is always the monitoring. What you can do is based on what you can hear. I'm convinced that, if you assembled all the great consoles under a single monitoring system, you'd come out with pretty much the same sounding record, no matter which board you used.

Let's talk about Jimmy Buffett. How did you end up producing his records?

I knew him from when he was living here in Nashville, just hanging out. We were splitting a bottle of wine one night and he said: "I'd like to talk to you. I'd like to change what I'm doing." He'd been recording with Nashville studio musicians but at that time he was playing with a rock band, the Coral Reefers. They were doing a concert out at the lake here, and he asked me to come out. So I went, the band came on like gangbusters, Jimmy was screaming away, and the energy was incredible. So after the concert he said, "Can you get me and my band on tape?" I said I think so. And Buffett, like Fogelberg, has certain places he likes to hang out. He likes the sun and surf, so we went to Criteria in Miami, rented a house on the bay, got a sailboat, and went into the studio every day. I brought in a couple extra people just in case—Kenny Buttrey from Nashville and Mike Utley from California. We did *Changes in Latitudes* in about 10 days. I think it cost \$50,000 total, including all mixing and travel.

Didn't you also do some of that LP at Quad?

I think we did one 3 hour string date and one

percussion session with Farrell Morris at Quad. Then we mixed it there.

Did the success of that album surprise you? A little bit. I think it surprised Jimmy, too. But it was *real*, and it was the first time the public heard the full impact of his lifestyle and his band. Now that's one thing that people will still spend their money on. You want to go out and buy as much reality as you can. And that record was full of it!

You just finished the new Buffett LP, mostly recorded at Muscle Shoals. Why there?

Well, I asked Jimmy where he wanted to record, and he said: "I don't want to record in New York or L.A. or Nashville because I have too many friends in those places and they'll drive me crazy with all night parties. So I've got to go someplace where I'm sort of a stranger." So we agreed it had to be either Muscle Shoals or Caribou Ranch. Well, he'd just heard Seger's record, a lot of which was done in Muscle Shoals, and since it was only a hundred or so miles from Nashville, it made a lot of sense. And the studio was beautiful—it was practically flawless.

What's the new LP called?

Coconut Telegraph. It's another year in the life of Jimmy Buffett. His records have become diaries, his traveling journal. It's like, "Well, let's buy this Buffett record and see what he did last year."

Let's switch to your overall approach to production. How would you describe your "production philosophy?"

What I try to do is make a record that is true to the artist. I like to present the artist as he is, with all the influences he has had that brought him to the point he has reached—so that all his roots come out. My job as a producer is to pass along all the knowledge I've picked up along the way—and that's more technical knowledge than anything else. If he's a young artist just starting out, he's brought into a very foreign environment. A recording studio is really the most bizarre foreign environment in music. It's very cold, very technical, and all these things seem to take precedence over his music. It wasn't at all what he had in mind when he first had an emotional response that made him create the song. Suddenly there he is, facing an aluminum stand with a microphone hanging in front of his face, he's totally sealed off from the world by a set of headphones—I don't know how in the hell they do it! God, what a situation! So the best thing a producer can do at that point is to help the guy understand the studio, to relax, and handle that situation.

What about mixing at your new studio? Has it been difficult adjusting after all those years at Quad?

Yes, the Bennett House is totally different. The acoustic design, after all, was done in 1874. It's quite different from what you get today. It's not live end/dead end, it's live end/live end. The control room is in the old dining room, and I had to deaden it down a bit by putting up foam baffling and cylindrical diffusers. We stopped the mid and top end reflections, but we still had some standing waves. We solved that by using near field monitoring.

But you haven't done anything to the

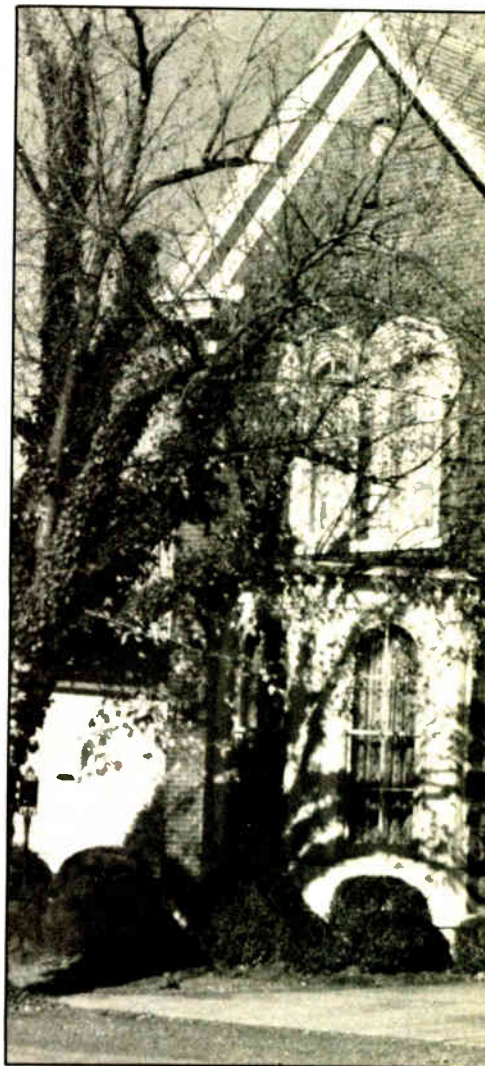
front rooms where you're actually recording. They must be very live.

Yes, and that was one of the things I'd been thinking of for a long time. I felt that we've lost a lot of the sound in dead rooms with total separation. The drum leakage into the piano, the cymbals into everything, the toms across the room into the vocal mike—those are sounds that made rock 'n' roll exciting, like those early Elvis and Roy Orbison records, for example. I was looking for that kind of live room. The Bennett House must have 3 or 4 seconds of decay in the front two parlors, and that's with the oriental rugs on the floor. If I take the rugs up, I can use the front parlors as a live echo chamber on mixes. I did an echo send into a JBL 4310 and set up two Sennheiser 414's, one about 10 feet away, another about 20 feet away. So I get a nice stereo delay effect in there.

But I notice you've got the drums in this little room back here.

Yeah. I use a third room as a drum and bass room because, in the end, I just couldn't control it enough. But it's still a very live little room. And in the front parlors, with electric guitars, we move the microphones to get the sound we want. If we want a live sound, we move the mike back 3 or 4 feet. It's a great rock 'n' roll room.

Let's talk about your equipment selection, starting with the console.



The console is a Trident A Series, made about 1975. I bought it used from Le Studio in Montreal. In my opinion, it may be the finest recording console ever built, and they only made about a dozen of them. It's a discrete class A component board, and it's almost impossible to build one today because of the cost factor. I looked around for a long time trying to find one.

There's a noticeable difference with this Trident when compared to a lot of current consoles. You can put a microphone out, lift the fader, and hear a vocal that sounds *good*. All you have to do is just touch the EQ—we'll add maybe 3 dB at 15 KHz to a vocal, and it'll be perfect. Try that on any modern console built with IC's. You'll lift the fader on the U-87 and the vocal will be dull. You'll add 6 to 9 dB on top, you'll add 3 to 6 dB in the mid-range just to make it workable. Then the quality of your sound will depend on how good your equalizer is. This Trident makes everything sound good, so we don't have to fool around as much.

But what about automation?

I'm holding off for now. I'm looking for a system that won't degrade the sound. I'm waiting for somebody to show me a system—be it digital or VCA—that gets the same warmth on the bottom and the super top end that I get on my Penny and

Giles hard wire fader. I guess that's what everybody in the industry is waiting for.

And how do you like your new tape machines?

I've got two 24 track MCI transformerless machines that sound beautiful, with an incredible top end. We haven't ascertained any clipping at all, and we put super levels into them—I'm talking about plus 12 or plus 15. We use the MCI sync system, which has performed beautifully. Loading up the machines, I haven't gone beyond 32 tracks on anything so far. It's more a convenience than anything else. I don't like to play the master tape a lot, because I'm convinced that, as you play it over and over, you lose oxide and lose the sound. So now I can bounce the basic tracks onto the slave tape, save the master for the mix, and use the bounced tracks while doing the overdubs. That makes a lot of sense to me.

Your monitors are something fairly new. I don't think I've seen them before.

These are K&H monitors, very high quality tri-amped speakers with amps inside the cabinet. They're made in Germany, and they're the best I've worked on so far.

Photo Below: The Bennett House, Norbert Putnam's classic Victorian brick townhouse with a 48-track studio on the ground floor.



I notice your console is English, and most of your outboard gear—AMS and Scamp for example—is also English. Is that a coincidence?

No, I don't think it's a coincidence entirely. The English are very concerned, technically, with the quality of their equipment. I think some of the American manufacturers are too concerned with offering more workability, where the English concentrate on the purity of the sound. The English consoles aren't as manageable in some respects as, say, a Harrison or an MCI. But they seem more concerned with the initial sound, rather than offering more sends or fancier EQ.

What about digital? Are you looking forward to it in the near future?

Well, the stuff I've heard so far doesn't sound good. The top end is not true. The sampling rate isn't high enough to catch a snare drum or a tambourine perfectly. However, there's a chance that the new Buffett album will be mastered through a digital device. I've mixed the album on a 1/2-inch two track Ampex ATR 100, which really increases the signal to noise. Anyway, for disc mastering, Ampex has come up with a digital preview system which is like a delay unit. So the playback head becomes the preview head for the disc mastering computer, and the cutting head is driven by this delay device. Glenn Meadows has one down here at Masterfonics. He called me a few months ago and said, "I've got two channels of digital that *works!* Come down and hear it." So I went into the studio, took a tambourine, recorded it at about minus 20, brought it in to him, and it sounded absolutely real. The top end did not sound brittle or chopped. So it can be done.

Your latest project is a band and an album both called *Nashville*, with most of the musicians being studio regulars. Is this Area Code 615 re-born?

Well, yes and no. It was a band put together to express local music. We've all felt that, in some ways, Nashville has been bad-rapped because of the success of country music. The image that is portrayed to the world, the hayseed image, is not really true. Young people here are pretty much the same as kids anywhere else. They're listening to, and playing, the same music as kids in L.A. and Chicago and New York. So we wanted to put together a group and write some original music to give a more accurate image of what is going on here. The people in the band are living here, and struggling with the day to day dilemma of being contemporary musicians in a town that is labeled as country only. It should make an interesting story.

But what about you? You're primarily a pop-rock producer. Why haven't you left Nashville for New York or L.A.?

I couldn't stand the excitement. And I don't like to be that close to the music business. I do my best work away from the company executives and the lawyers and the accountants. As basically a pop-rock producer, nobody bothers me here. Several times I've considered moving to California, then I'd go out there for a few weeks and say, "Hmmm... no. I don't think so." I couldn't stand the pace. I was born in the South, and I'll probably die in the South. I understand this part of the country ■

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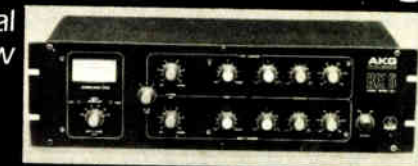
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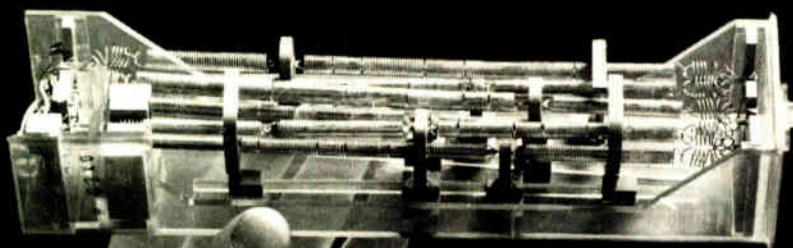
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PROGRESSIONS

digital

by Larry Blakely

STANDARDS

Any new kind of technology takes time to become a significant factor in an industry. The audio industry is no exception. The first stereo phonograph records were cut by Bell Labs in about 1932 and it wasn't until the middle of the 1960's before stereo records were a strong commercially viable product, a lapse of some thirty years. Many pioneers developed different systems for stereo, however most of these proposed systems "bit the dust" and the industry standardized on the format that is utilized today.

Stereo tape recording also took some time to realize its full potential, time for some "false starts" to get out of the way. There also needed to be time for the dust to settle from all the enthusiasts running around screaming, "This is it!"

But what happened between the inception of stereo tape recording and today's established formats illustrates our present situation. In the professional and consumer Hi-Fi industries, it has been necessary for a *Standard Format* to be established. The 4 channel disc fiasco provided an all too graphic example of what can happen with the lack of a standard.

The formats for multitrack analog tape recording in the professional industry have always been relatively simple. The "half-track" format was established in stereo recording and the industry used the same track size as the number of tracks increased. There were 2 tracks on 1/4" tape, 4 tracks on 1/2" tape, 8 tracks on 1" tape and 16 tracks on 2" tape. Then someone came along and said what about 24 tracks on 2" tape? A format was designed by making the individual track width smaller so that 24 tracks fit on 2" tape. Most professional tape recorder manufacturers simply adopted the same format.

Today, a recording artist or client can record basic tracks in one studio, strings in another and brass in yet another. It is also common to record parts of a tape in the United States and the balance in Europe or somewhere else outside the country, and vice-versa. The professional recording industry has become very accustomed to operating this way by using standard formats.

What does digital, in its current stages, do to this "modus operandi"? At the present time there are a number of formats proposed by professional audio manufacturers. Various manufacturers are proposing or building digital audio tape recorders that are generally not compatible.

What does this incompatibility do? It now means that a digital recording client will be locked into a given studio to complete an entire project, unless they can find another studio which uses the same digital recording format. This deprives the artist of a great deal of the flexibility they have come to take for granted. The artist basically has three choices: complete the entire project in one studio, take the time to look for studios with particular sounds that have compatible digital recorders, or use analog tape recording.

What about disc mastering? It is now necessary for the digital tape recorder to go to the disc mastering studio with the master tape and often a digital tape recording engineer to see that everything works properly. To expect that a disc mastering outfit would purchase all of the available format machines is pretty remote, though it is not inconceivable for certain operations to accommodate one or another format until standards are established.

There have been attempts to establish digital tape recording standards but none have been fully successful to date. And I must point out that there are still some digital standards committees working on the problem. Meanwhile back at the ranch, all of the major tape recorder manufacturers are busy doing their own thing by designing and/or building non-compatible digital tape recorders.

It is my feeling that digital cannot come into full bloom unless there is something done about standardization. The doubtful alternative would be for the professional recording industry to completely change its method of operation in order to accommodate the digital tape recording manufacturers of the world.

I see that we can have a standard digital

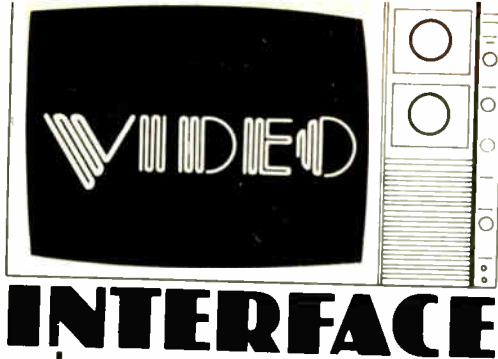
tape recording format by one of two ways:

1. By all concerned manufacturers and users working together in the early stages of the development of digital audio tape recording.

2. By having all of the various digital formats introduced into the market and letting the industry pick the format which they prefer. This is a dangerously expensive method for many, since a lot of studios would end up purchasing one or two additional digital tape recorders before it became clear what the standard format was to be. At some \$150,000 for large multi-track digital recorders and even some very significant figures for the digital recorders utilizing two or four tape tracks, this presents obvious drawbacks.

Will the lack of standardization be the death of digital tape recording in the recording industry? There are certainly a lot of strong opinions on the subject. Many of the larger studio owners claim that they will refuse to purchase any of these machines until it is very clear what will be the standard format. It is also possible that a number of each type of machine will be purchased by a small number of studios who have clients happy to remain in house. These studios can then make some provisions for disc mastering in their particular digital format. It is obvious if this is the route that digital takes, that it will not likely become a widely accepted industry practice. Or, as stated earlier, as time goes on and more and more purchase digital machines, it may be found that one format may become far more popular than the others. If so, we would then have a digital format by default.

Another very important additional issue is that of price. Until mass production brings the unit cost down significantly, many studio owners will avoid the cash outlay. If studios have to raise their rates \$25.00 or \$50.00 an hour to justify the digital investment, there is currently little confidence that record labels will authorize such expenditures, especially under current budget tightening by the labels. In the short term, it looks like only the superstars and 'one take' artists can cover the financial end of digital. ■



INTERFACE

by Ken Fay

Stereo television sound in the Eighties? Most television industry professionals when asked about stereo television sound will reply that it's coming... but a long way off. Some doomsayers say that it won't work at all... something about a six foot audio spread and a 19" picture, and where do you put the speakers and do we pan the hoofbeats left to right with picture, and so on. Surprise folks, on December 8, 1980, a premium entertainment network called Bravo (similar to Showtime and HBO) went on the air in full stereo. The marketing concept of one upmanship on the competition was the inspiration to action.

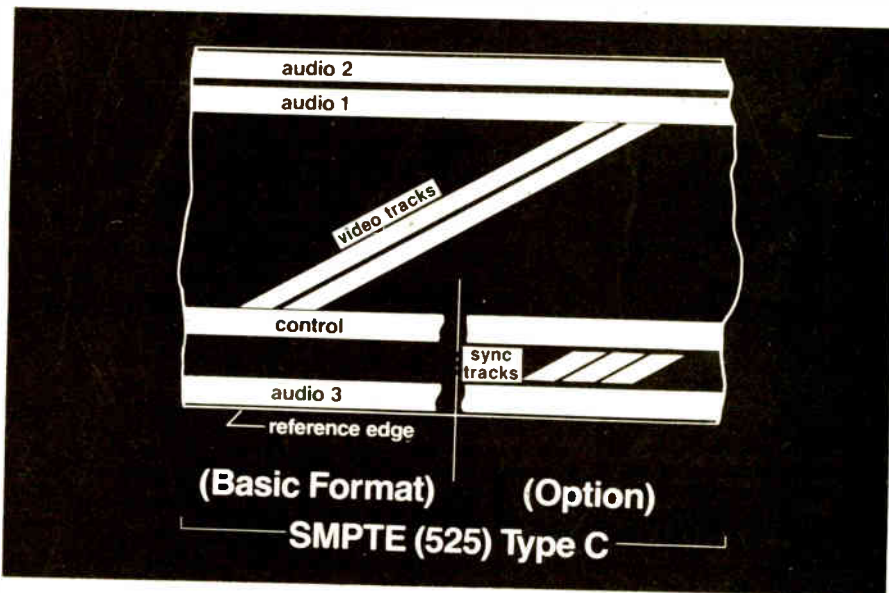
Why stereo? There are a lot of problems with transmitting stereo, right? I mean quad recorders are mono, right? Nobody's using more than one channel on those one inch machines, right? Wrong monaural breath! The audio on television is transmitted exactly the same way as FM radio, with less deviation and with an appropriate loss in signal-to-noise as a result. Traditionally 2" quad recorders have been mono but within the last five years PBS has modified these machines by splitting the audio track to get two channels. By the way, these one inch machines have three audio channels (two that have a 56 dB s/n and 15 KHz bandwidth and the third with a 50 dB s/n) and the European standard will be four audio channels.

Audio quality on a video tape recorder? You bet! But how can you get an acceptable s/n on tape that has vertical grain? You would be unable to if the grain was vertical; but in the 1" formats the grain is horizontal because the heads have been reoriented to the horizontal. The tape is then wound around a drum at an angle (described as a helix) and voila, we have a helical scan recorder with great audio.

A company called IVC came up with the "9000", a two inch helical scan recorder. Although this wasn't the first helical scan machine, it was the first with broadcast quality. Using their helical scan method, video signal-to-noise was improved greatly, as was audio. Gone were the banding problems (remember, a quad took sixteen passes of the head to get one frame. If the levels of those heads were not exact you could see sixteen horizontal bands on your picture.) Unfortunately, this was in 1976 and the world had already installed 2" quad recorders at about the same relative cost as the IVC machine.

Sony also introduced a helical scan system called the Umatic Video-cassette SystemSM. This system was small, lightweight and inexpensive. Very inexpensive! Only \$2000, when a professional quad machine sold for approximately

And Now... Stereo Television



\$100,000. You could tuck this system under your arm and it required no threading. It was an instant success, but it was not broadcast quality.

Both Sony and Ampex began working on broadcast quality systems. Independently they decided on one inch tape and from that point on they went their separate ways. Both recorders were great, though incompatible (IVC's problem, also).

Meanwhile, a one inch machine was being sold in Germany by Bosch-Fernseh, based on what was called the "B" format. This machine had superior picture and audio quality, as compared with quad. It was even a bit cheaper. An industry professional when asked why the Bosch-Fernseh machine didn't sell well in the US remarked, "Well, think of someone trying to sell you a video tape recorder who sounds like your Mercedes mechanic and you know what he's been doing to you for years."

These one inch machines were eventually presented to the networks for evaluation, the Sony and the Ampex being significantly cheaper than the Bosch-Fernseh. The networks balked. CBS refused to purchase any one inch machines

until they were compatible. The other networks concurred.

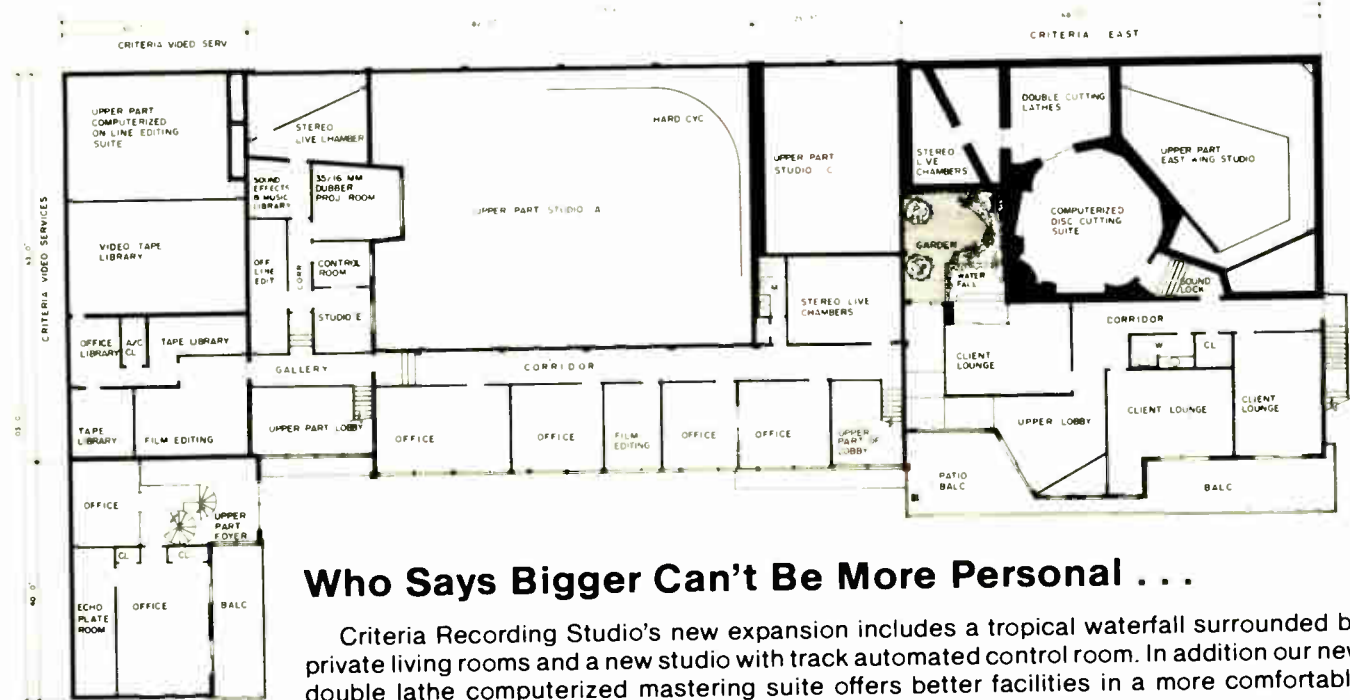
Suddenly you have three incompatible machines that your largest customers won't buy. What do you do? Bargain. But how? Call SMPTE quick! The Society of Motion Picture and Television Engineers set up a standards committee with Sony, Ampex, Bosch and the networks to arrive at a format that would satisfy all involved. The result of this committee was the SMPTE Type C Video Format: 1" tape, helical scan and three audio channels.

In 1976 three audio channels on a professional video tape recorder were standardized, with two being of reasonably high quality.

These men of vision made it very easy for groups like Bravo to give us stereo. Stereo TV a couple of years off? Nope, it's here today.

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Next month: A look at how Bravo uses those three Type C audio channels and how they will get stereo into your home. Also: the story of John Mullins' incredible find, the magnetophone. ■



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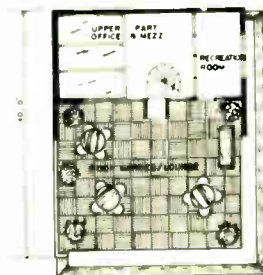
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RAY

A Legend In His Spare Time

by David Goggin

Ray Stevens is familiar to all of us as one of the top men in the comedy recording field, but he is also one of the most respected artists in the "serious" music business. He is a singer and a songwriter, an award winning arranger, a highly competent producer, and a musician with amazingly varied talents. He has also built several recording studios and has a very good working knowledge of the actual recording process.

Ray was born and grew up in the South. As a teenager, he landed a recording contract and worked in what he calls the "teenage jewelry" genre of singer/songwriter. It wasn't until he released a novelty record, "Sergeant Preston Of The Yukon," that he made a name for himself. The record sold 100,000 copies and was immediately pulled off the market. Ray had failed to get permission to use the character "Sergeant Preston" in his song, and although that record died, he realized which musical doorway had opened for him. His next release, "Jeremiah Peabody's Polyunsaturated Quick Dissolving, Fast Acting, Pleasant Tasting Green and Purple Pills," was a national hit and paved the way for "Ahab the Arab," "Harry The Hairy Ape," "The Streak," and many other novelty classics.

Concurrent with his steady stream of comedy records, Ray has built a solid reputation in more serious areas. He received a Grammy for arranging "Misty" in 1975. He has had hits with "Everything is Beautiful," Kris Kristofferson's "Sunday Mornin' Comin' Down," and other works which have gained him ever wider audiences. Today, Ray Stevens is a very active member of the Nashville music scene. He appears frequently on television, oversees his publishing companies, maintains his own recording studio, is an active touring and recording artist, and has just moved into the field of scoring major films. In the light of all his success, he is still a down-to-earth, softspoken guy who continues to bring a healthy sense of humor to the music business.

During one of his visits to the West Coast, Ray shared some of his musical philosophy and anecdotes with us.

I was listening to your "Shriner's Convention" comedy album today... enjoyed it quite a bit...

Well, thanks. You're in bad trouble; you need a psychiatrist.

Besides being well-recorded, it's right up there alongside your classic comedy work. I know you don't want to be typecast in that field, but there you are... you're one of the legends.

Just a legend in my spare time. It's true I don't want to be typecast as a comedy singer. I'm not puttin' it down, but I refuse to be stuck with strictly that image. In the minds of a lot of people I've overcome that typecasting, but many don't know me for other things than comedy records. Now I think I could probably jar their memories with "Everything Is Beautiful" and a few things like that... They'd say "Oh, yeah..." but I've had too many comedy hits, not to have a slight problem in that area. I'm hoping to correct that. As a matter of fact, my latest record on RCA, "Night Games," is doin' real good.

When I put on your "Shriner's" album I started to listen to the song "Put It In Your Ear." I thought "Great, here's a really good Ray Stevens song where he doesn't go crazy." Then it got to the part where you went crazy.

The song wasn't originally written like that. I just wanted to make it conform to that comedy album, and so I just stuck that bit in.

Without that comedy bit, I would have said "that's a hit song." It's really a pretty song, really well done, good lyrics... all the elements of a really good pop song. Did you ever think about that song seriously as a single release... without the extra stuff?

No, I always think of songs as single releases when I first hear them and want to record them... otherwise, I wouldn't record 'em. Then as I hear them over and over again, they have to stand my own personal test of time, so to speak. That song did not hang in there. Now I'm not saying I'm right, but I've got to go with how I

STEVENS

feel, and my experience over the years has told me that that song would not be a hit single by me.

As opposed to a song like "Mr. Businessman"?

That was a long time ago. That wouldn't be a hit today either. I wouldn't cut it today... it might be a hit, but I wouldn't cut that song now. Timing is very important.

Do you think you're better now at being able to gauge and project how things are going to react with the public?

Yeah... not much, but a little. I think anybody would have to get better if they're studying what they do and trying to do it well.

A lot of artists burn out, or at least feel that they've tapped themselves. I think you're in a different position than a lot of writers, because you have access to a number of different styles. Do you find that you refresh yourself by changing styles so often?

Well, what you're saying is a good point. I haven't really thought about my own reasons for changing styles... that could be one of them. I feel that good material is where you find it, whether it be a comedy song, a "Mr. Businessman," or whatever. And if the time is right, if you can feel timely with it... that's the main thing.

This consideration of trying to establish an identity, enlarging on your image as a humorist... is it causing any schizophrenia problems? It sounds like you have made up your mind to clarify the distinction between your humorous side and your serious side.

I've been hit over the head so many times that I feel like I have to make a distinction between the two. I used to make albums and some of the songs would be comedy songs and some of the songs would be love songs and people couldn't relate to that. It was confusing them and I didn't understand why. I finally figured it out. That's what they want, that's what I'll do. I'll make a comedy album, and then I'll make an album without any comedy songs... and hopefully that'll work.

As far as schizophrenia... and I know you didn't mean that seriously, but I think I know what you mean... I don't think that is really any problem at all, with me anyway.

What kind of response do you get from the record company when you turn in one batch of material that's novelty tunes, and then the next album is something totally different?

Well, it depends on the record company. RCA, the record company that I'm with now... we had meetings up front and discussed it. They're aware of what I'm trying to do and they're in accord with it. They're supporting it very heavily and I feel fortunate to have them in my corner all the way, understanding what I'm trying to do.

Why do you record in Nashville... are you more comfortable there... do people there understand you better?

Not necessarily. I record in Nashville because I've always recorded there and I've lived there since 1962. Naturally, I feel more comfortable there, but I wouldn't feel uncomfortable in L.A. or anywhere else. It's just that I know what I can get out of the pickers in Nashville, and it's a lot easier for me to record there.

Would you describe what a record date is like for you in Nashville... say, your last album... How did it come together?

I pretty much use the same formula that I've used for the last four or five albums. That is, I hired a drummer, a bass player, a rhythm guitar player, and I played piano. I got an engineer and we cut a basic rhythm track. The engineer I use is also my bass player, Stuart Keithley. He plays with me on the road and he really knows the board well. We do a lot of overdubbing and punching in, and he



is great at that... 'cause he's an excellent musician. He usually sets all the knobs on the board and doesn't have to ride anything on the basic tracks. Once he gets the levels set, he plays bass direct in the control room. The drummer was Jerry Kroon, and I used Jerry Carrigan on some of the tracks... both excellent drummers. Kroon played with me on the road for several years, and then he got so busy in the studio that he left the road group. I'm using a new drummer now, who is also great, but I haven't recorded with him yet—Randy Cullers. The guitar player was Mark Casstevens, who also played with me on the road for several years.

Was this all done at your own studio?

Right. After we put down the basic rhythm track, we'd overdub an electric guitar or a few little things... guitar licks or things that we hear after we listen to the basic rhythm track with only the four pieces.

How many string players do you use?

On the last session I used eight: six violins and two cellos. I haven't used any violas lately, 'cause I can get the sound I want with the cellos and

the violins. It's easier for me to record cellos and violins; violas are a little weird sometimes. Maybe that's my own shortcoming.

So you basically do your own production?

Oh yeah, I do all the production.

What is your studio like?

It's a little studio. It has a new Sphere console and the Allison computer for mixing.

Was it hard for you to get used to automation?

No, that was so easy to get used to.

What kind of tape machines do you have?

An MCI 24-track, and I have three stereo Ampex 440 B's. I have two stereo EMT's and a Lexicon 224 for echo and reverb.

You get a very nice sound for a small studio... a lot of separation, and a very clean sound. Do you have any special miking techniques?

I sing in a Neumann U-87. I use Neumann U-84's on the piano, a Beyer on the bass drum, a Neumann on the snare, and a bunch of those Shure SM-57's on the tom-toms. Then I have a U-87 on the cymbals, hanging between, open all the way around, between the crash and the ride cymbal. I use another U-84 on the high hat. We use a Sony mike on the rhythm guitar. It was a cheap mike. I bought it years ago... it's about the size of a cigar. It's got a little battery, cost a hundred bucks. It was a very inexpensive mike... works great on the rhythm guitar.

Do you put your drums in an iso booth?

Yes, they're in a room by themselves... bass traps around, no walls parallel, carpets on the walls. It's a pentagon shaped room. We experimented to get it the way we wanted. Four feet of insulation above in the ceiling; a big, deep bass trap all the way around the bottom of the room about knee high off the floor.

As a writer, producer, performer, you've worked in other people's studios and then decided to build your own. Some people can't seem to handle that freedom and spend a lot of time coming up with nothing. How did the change effect your work?

I think that's a trap that everyone falls into when they get their own studio. I was that way until I realized that I did *not* have unlimited time because there were other things in this life that I wanted to do besides becoming a studio mole. So you start putting time limits on yourself. I do spend more time than I should, but it's nowhere near what it used to be.

Do you prefer to be your own producer rather than have someone do it for you?

So far. That's not to say that I wouldn't one day get into having a producer... but right now I like to produce myself.

Forgetting about the distinction in your work between humorous and serious music, what is the one song you are most proud of?

It wasn't a hit. It's called "Get Crazy With Me" and right now I'm proudest of that. Two hours from now I might change my mind.

How do you feel about your record "Misty" now?

I really like "Misty." That was a fun record... and it was an accident. We were rehearsing in the studio for a TV show at the New Opry House and during a break we started playin' around with "Misty"... with the fiddle and the steel guitar, because it was so ludicrous... "Misty," the classic jazz piece with all the major seventh chords, and it started sounding good. We just miked everything and cut it in about an hour.

And that was the version that was released?

Yes, that was it.

And that got you a Grammy for arranging...

Yeah, it was a hit arrangement. It was really lucky. Usually you don't even get a rhythm track in an hour.

That's the kind of thing that can work when you connect

two concepts that people wouldn't normally imagine together. It creates a whole new, fresh piece...

It was really exciting to do that album. We did "Indian Love Call" and "Over The Rainbow," one of the favorite things I've ever done. It was more fun to record than anything else. We had a country blues type fiddle playin' counterpoint to the melody and I was singing with tom-toms in the background. It was really weird... I can't explain it, you just have to hear it.

Thinking back on your formative years... who are your musical godfathers? Artists that you knew from the radio as a child... composers... people in the business that affected you...

Well, I was affected by many artists that I never met. I wouldn't point at one in particular, but it was certainly rhythm and blues. I grew up in a mill village north of Atlanta, a little bitty town. Most of the music there was country music and in the summertime all the kids used to hang around the swimming pool, because that was *it*. They had a juke box and played Kitty Wells, Lefty Frizzell, Eddy Arnold, and Ernest Tubb... records like that. Lot-ta steel guitar. When I was ten we moved to Albany (pronounced ALL-BENNY), in South Georgia. Albany is really close to Plains, but I lived there for seven years and never heard of Plains... but anyway, probably nobody's ever heard of Albany. There was a lot of R&B and I really got into the Clovers, the Drifters, the Midnighters... and Ray Charles. Legend has it that Ray Charles was born in Albany, but I never saw him.

How did the humour get into your music?

Well, I started recording in '57. We moved back to Atlanta where I finished my last year of high school. I met a music publisher there, Bill Lowry, who was just getting started in 1957. He encouraged me to write, and the first song I wrote, I took to him. He liked it and he knew Ken Nelson at Capitol Records, who was hot as a firecracker with Tommy Sands and Sonny James... "Teenage Crush," "Young Love," ...Ferlin Husky's "Gone." He'd just cut a whole bunch of big hit records and he gave me a recording contract when I was 17. I said "whoopee" and went to Nashville to record my song, which was a teenage jewelry song called "Silver Bracelet." The first and last of its kind. It was not a hit, needless to say. I recorded for Capitol, and a subsidiary label called Prep Records.

From there I went to NRC Records, a local Atlanta label that Lowry had started. Then I went to Mercury, and I had screwed around for about four years and didn't have a hit. I wanted to do something to attract attention, so I wrote a song called "Sergeant Preston Of The Yukon," which had a dog barking on it. It was takin' off like a rocket, but we had neglected to get permission from King Features Syndicate, who owned the character "Sgt. Preston." They sent us a real legal letter and told us to pull the record off the market. We had sold 100,000 records, but we had to pull it.

It really broke my heart, but I knew the route I had to go. I had to write silly songs to get attention, because they wouldn't play "Silver Bracelet." So I wrote a song called "Jeremiah Peabody's Polynaturated Quick Dissolving, Fast Acting, Pleasant Tasting Green and Purple Pills." This was in 1961. Sure enough, I did get attention again, but this time I didn't get sued. I followed that with "Ahab The Arab," and "Harry The Hairy Ape," and a bunch of other weird songs.

How did you like recording when you got your own studio?

Well, if you want to be in the studio business, and you're not aspiring to be a songwriter/publisher/singer/performer/recording artist/producer... great. Studios are great, but back in '71, when I built my first studio, things were a lot cheaper. I bought one of the best consoles around for about \$70,000. I had 24 tracks, all kinds of microphones... it was built really nice, and it made money. With the price of equipment now, I don't see how people make money, but obviously some do. Meanwhile, in those days, there was always something going wrong, there was always something to deal with... and it was just sappin' all my time. I had to get rid of it, so I sold the studio, and I would never own another studio that was in the business of renting out time to other people. I do own a studio now, but I only use it myself. I don't want the headaches of anybody else in there.

I built my present studio in '73, 'cause I couldn't get in the one I had originally built. The new studio was a combination demo/pro studio, but I could cut masters in there if I wanted to. I had a really simple little board. People would look at it and say, "That's not a real board, ya know." The first record I cut on it was "The Streak," and it sold five million records. Eventually, though, I wanted a more sophisticated board, so I bought a Sphere about a year ago.

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Do you produce other acts besides yourself?

No, not much. I don't have the time, but I love to produce records. I did do a single with Chet Atkins. Chet's a friend of mine, and he wanted to experiment and make a record with him singing. He's such a famous guitar player, we thought it might be interesting to have him sing. It was a lot of fun and I think the record turned out good. It's called "I Can Hear Kentucky Calling Me."

In dealing with your own studios at all these different levels... did your accountant say it was a good idea?

No, it was something I wanted. He didn't want me to have them, because it was a big headache for him, too. But I loved the idea. I saw pictures like this [Ray points to a *Mix Magazine* cover] and I said, "Boy, I gotta have that. Look at all those knobs and lights." I had to have it and it was always a problem... but no more problem than any other studio. I think studios in general are very complex things and you have to mess with 'em.

What instrument do you use when you're composing?

Piano.

When you're working on the demo for a tune, how do you go about it?

I usually hire a drummer and rhythm guitar player. Stuart plays the bass and runs the board.

Do you play a lot of instruments yourself?

Mainly piano. I'm a keyboard player mainly, play all the synthesizers, you know, but they're all activated by keyboards.

What kinds of synthesizers do you have?

I have an ARP 2600, an ARP Pro Soloist, a Prophet 5. I have a whole bunch of little things. I have one of those little plastic keyboards that you blow into: a Melodica. I love that... if you play it just right, it'll sound just like a country harmonica. I also have a Clavinet, a Fender Rhodes, a Wurlitzer electric piano...

And these are all permanent keyboards in your studio?

Oh, yeah. I have vibes, and a Hammond B-3. I have a Celeste that I bought from RCA when they sold their studio in Nashville. I bought it for fifty dollars... you can't even find 'em anymore.

Do you find that a lot of old friends show up at your door wanting to cut records?

Every now and then. And I usually say "Fine, go ahead." It's not a big parade, but once a year maybe somebody'll say they need to do something and I'll tell 'em to c'mon over and do it.

Have you worked a lot with live orchestras?

I've recorded with big orchestras, lots of strings. It's a lot of fun. I write all my own arrangements. I've worked with full orchestras out here in Los Angeles for TV shows and things like that.

You had a TV show in 1970 called "Andy Williams Presents Ray Stevens," didn't you?

Well, it was actually the "Andy Williams Presents *Who Is Ray Stevens?*" show... to describe it better.

How did you get along with television?

I was scared and inexperienced, but other than that I was great... Naturally, I think anybody could handle TV better with a little experience. I didn't have a lot back then, but I enjoyed it and it was an experience. Looking back, I see a lot of mistakes I made that I wouldn't make now.

THIS JUST IN: At this point our conversation was interrupted by a messenger who brought an award announcement from *Record World*. Ray had won the Annual Country Award as Top Novelty Artist...

Is this award for your "Shriner's Club" album?

Well, I don't know for sure. Let's take it all the way back to "Sergeant Preston Of The Yukon"...

That "Shriner's" album is an amazingly complicated sounding production: all the crazy voices, sound ef-

fects, music; and you maintained a momentum, a funny flow... was it a difficult album to produce?

Most of it was relatively easy to dovetail; some of it had to be done over and over again to get the timing right. The only rough spot was where all the characters are blessing each other... the "bless your heart, bless your heart" part.

I've always wondered who did the tap dancing on your "Bridget The Midget" single.

I did. I just got a pair of my daughter's dancing shoes and beat 'em on the floor.

Did you overdub those strange lip sounds on "Hey There?"

No, I sang it that way. That was a fun record... an easy record to do... a quickie. You just do it.

How long did your latest album (*Night Games*) take to record?

It took a long time. I figured that if I had not owned the studio I would have spent over \$50,000... which isn't really a lot of money for an album these days. On the other hand, *Shriner's Convention* was a very quick album... we did it in two weeks.

What's the story on "In The Mood" by the Henhouse Five? [Ray recorded this song under the Henhouse Five alias.]

I just had an idea to do it. I hired a drummer and a rhythm guitar player, and Stuart... and we cut a track and put a tenor sax on. I did all the chickens and we put it out.

Was Spike Jones ever an influence on your music?

No, my records are not very much like his, although I really enjoy his work. My first influence in that area came from The Coasters... Lieber and Stoller... "Yakkity-yak" and songs like that.

Let's hear about Nashville...

Nashville is a great place. I'm in love with it and I've lived there for over eighteen years. The musicians there are great and you can get any kind of sound you want. Whenever I want horn players I call George Tidwell. George is one of the most commercial thinking trumpet players I've ever heard... he's a dynamite player. George has a group of guys and you can get any combination of horns you want. Dennis Solee is one of the players... he plays sax, flute... piccolo. Lisa Silver is one of the finest fiddle players around. She plays on the road with me, and sings background with Diane Tidwell and Sherry Kramer. They have a great sound. There are so many great musicians in Nashville...

There is a growing interest in Country music lately... rock stations changing their format to Country and things like that. Since you've lived in Nashville for eighteen years, you would notice the changes there. Have people moving in from the outside affected the city adversely?

No, I don't think so. Nashville has always been on a pretty even keel. I think that most of the people that have moved in have helped Nashville... certainly the ones that I've met have added a lot to what's available there when you want it: talent to make a record, musicians, singers, engineers, producers...

A lot of people have been moaning and groaning in the last year about declining sales in the record industry. How do you see the future?

Well, this industry is in the same boat that a lot of other industries are in. We're part of the national economy on the whole and the economy is in trouble. The record industry has to suffer as well as a lot of other businesses.

Are you more conscious of costs when you put together an album now?

You have to be. Things cost more, and record companies have tightened up. They've dropped a lot of artists. I don't think I'm in danger of not having a record label to record for at this point but still, there are a lot of

talented people who can't get a deal right now. It's scary when you look around and see this happening

Do you think what's happening in video discs and cassettes will figure strongly in the record business?

Well, I don't think you're going to be able to market a whole heck of a lot of video discs or cassettes of somebody just singing a song. My interest lies in the area of what's already been done... providing music and sound for film, for legitimate stories; not psychedelic pictures or beautiful ocean scenes while somebody is singing a song.

What about animation to go along with some of your novelty tunes?

Well, that's interesting... if somebody were to do it with the production quality of say, Disney, that's a whole new ballgame. But when you're talking about record companies making video discs on a day-to-day basis, it just doesn't seem feasible right now.

You're scoring part of the film, *Cannonball Run*... have you done much of this type of work?

A little, but not anything this big. I'm looking forward to it... I think it'll be a lot of fun. I'll try to create some songs for the film, that have sounds to complement the visuals.

What's the film about?

It's about a race from the East Coast to the West Coast. Anybody can join, and there's only one rule. You have to punch a clock at the start and then at the end. Whoever has the shortest time wins. You can drive anything you want, you can carry anybody with you that you want, and you can go any route that you want.

Will the soundtrack be Country music?

No... there may be a song or two leaning into the Country sound, but not too much, because it's been done so much with "Smokey and the Bandit," "Convoy," and things like that.

Who's in the film?

Burt Reynolds, Farrah Fawcett, Dean Martin, Sammy Davis... Roger Moore, Peter Fonda, Adrienne Barbeau... I met with Burt, and Hal Needham, who directed it. I was around when they were shooting some of the scenes.

Who wrote the screenplay?

Brock Yates, and he worked on it with Hal and Al Ruddy, the producer. Brock has kept this race going... it was started back in 1919 by a race driver named Cannonball. The race really exists... and some wild things have happened.

When is it scheduled for release?

Spring.

Do you have any advice for people getting started in the music industry... as engineers, producers, musicians...?

Well, I think that if you're going to make it in this business, you don't have to ask. I think you'll just love it so much you'll do it... and you'll feel it. I think George Burns said, "If you have to ask, you'll never make it." When I started out in this business there wasn't any question in my mind.

So it's just a matter of finding your own way?

Well, I didn't ask anybody how to make it. I asked 'em other things like how to make a certain sound... I wasn't concerned with "making it" in the business... I was having a big time whether I made it or not.

Are you still having a big time?

Yes. Well, we've all got our problems... but any of my problems have not been caused by this business, that's for sure.

Say five years from now... do you anticipate yourself doing pretty much the same kinds of things, or do you have a plan to move into other areas...?

I don't have a plan. I've just gone from hand to mouth my whole life. ■

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STUDIOSCOPE

Insuring Your Success

by Dennis Buss and Chris Haseleu

The recent fire that totally destroyed Bradley's Barn recording studio in Tennessee points out the need for studio owners/managers to be properly and fully insured. Like many small business operators, recording studio owners often feel that buying insurance is like gambling against yourself. They may try to minimize their coverage and costs. But it is the potential loss due to fire or civil suit that must be kept to a minimum. The thoughtful owner/manager realizes that insurance is protection for the hard work and money that must go into a successful operation. Insurance can not only pay off after the fact of a fire or suit but it can help the studio protect itself before the worst happens. Insurance companies are happy to help the policy holders minimize their risk. Properly written insurance can also help to retain and protect the studio employees. Following is a look at the types of insurance available and how they apply to the studio.

There is one type of insurance that is mandatory, being required by law in most states. This is Workmen's Compensation. Basically Workmen's Compensation protects both the employee and the employer. The employee is insured for medical costs that would arise from injuries sustained on the job. In addition there is usually some form of payment to the employee for the loss of salary during a recovery period. For the employer this insurance acts as sort of a liability insurance on his employees. If the studio is organized as a corporation, the officers of the corporation are also usually required to be covered by Workmen's Compensation. The cost of this type of insurance is based upon the size of the payroll. A rate of \$2.00 per \$100.00 is typical.

Workmen's Compensation only protects the employee while he or she is on the job. Additional insurance is part of an employee's benefit package. This package can include health and life insurance, long term disability and retirement programs. These types of insurance are relatively expensive. The rates will depend on the age of the employee and the amount of the coverage. On the other hand they provide a means to protect and hold important and valuable employees. These types of insurance can be cheaper for the studio and better for the workers than a pay raise. It should be remembered that salary increases also cost the studio increases in Social Security and Workmen's Compensation payments, while the take home pay is often eaten up by increased income tax. On the other hand increases in health or life insurance are proportional to the cost increase.

One additional application of life insurance

should be considered. Many studios are organized around a partnership. The partnership agreement usually spells out the financial responsibilities and obligations of those concerned. However, state laws may not allow a limit on the liability of one partner for debts incurred by another. Also, partnerships are often more than just a financial arrangement. A studio's success may depend on the combined talents of the partners. In the case of the death or disability of one partner the others may find themselves with debts and/or a sagging business outlook. To prevent such an unpleasant situation the partners can insure themselves with the studio or the other partners as beneficiaries.

Having reviewed the protection necessary for the studio's investment in its human component, the next step is to look at the protection available for the capital investment. This protection can be divided into three categories. There is the studio itself. The entire building if owned, or the tenant's improvements if the studio is in a leased building, should be covered. The studio equipment also needs to be covered, even if leased. The third category is called special agreement insurance terms. This covers such things as valuable papers (contracts, accounts, mailing lists, etc.), property held (musician's equipment, master tapes) and such things as glass, fixtures, gold records, etc.

Fire is the main menace to the studio and its equipment. Fire insurance will cover the damage that results from the fire, smoke and usually the water necessary to put it out. There are two ways to insure against fire damage. The difference is in the amount of coverage purchased. There is the replacement cost which is usually figured at 80% of the full value. Then there is the depreciated amount or cash value policy which gives less coverage. The rates on fire insurance are basically dependent on the location of the studio in relation to the nearest fire department. Of course the greater the amount of coverage the larger the cost.

The property protected under the special agreement category must be spelled out in the policy. Protection for other people's property held by the studio must be detailed. Under the normal agreement, coverage of masters would only include the cost of the tape and not the cost of the production recorded on the tape. Coverage of recorded material would probably have to be negotiated with a specialty carrier such as Lloyds of London.

Additional considerations on fire insurance include who is named as the beneficiary. In most cases the studio will have leased its equipment and/or borrowed money from a bank. The bank

then should be listed on the policy. Another consideration is the revenue that would be lost if the studio has to shut down for repairs. Some fire insurance includes payments for revenue loss so that the studio can pay the bills until it's up and making money again.

In various areas of the country the studio may need to protect itself from other calamities such as earthquakes, tornados, hurricanes and floods. These types of insurance, if available, are issued in a manner similar to fire insurance. There is also insurance against theft. Theft insurance can be relatively inexpensive if the studio is protected by alarm systems and/or security services. Theft does not seem to be a major problem in most studios, however.

To the protection against the acts of mother nature must be added protection from the acts of civil courts. Liability insurance is a must for any studio. There are two types of liability insurance that a studio would normally need. Simple liability covers the studio for accidents that occur on the premises. The rates on simple liability depend on the square footage of the area covered and the amount of coverage.

The second type of liability insurance, errors and omissions, is like malpractice insurance for the studio. It protects the studio from suits that result from problems or mistakes in fulfilling a client's contract. In many professions, such as medical and legal, this type of insurance is offered by a trade or professional organization. Until one of the audio organizations puts together such a package the studio owner will have to buy this insurance from a specialty company. That this type of insurance is necessary can be seen in the recent trade press. There is at least one suit in the courts now that resulted from some erased tracks on a master. Errors and omissions insurance could help protect the studio by providing legal aid and covering part or all of the costs if the suit is lost. The rates of this type of insurance will vary with the amount of coverage.

When it's time to buy insurance, professional advice is a must. An insurance salesman will either be an agent or a broker. The agent works for one or two companies and is more or less an employee of these companies. The broker is an independent businessman who can buy from any company. When looking for a broker, try to get a recommendation from another studio owner or from a private insurance salesman. Make sure the broker is used to writing commercial policies.

The broker and the owner/manager should have a close working relationship. The more the broker understands the studio business the better he or she will be able to meet the studio's needs and maintain coverage at an affordable cost. ■



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Dream Come True

Ardent Recording

by Rose Clayton

The Memphis home of Ardent Recording, Mastering and Productions is an impressive building of New Orleans/French design.

Once inside, the brick sidewalks extend past the reception and office areas through a pair of wrought-iron gates leading to a glassed-in courtyard. A running fountain, lighted during the all-night shift, is the focal point of the atrium, surrounded by an array of plants and a few iron benches. Two additional courtyards connect the executive office and the new Studio C. Greenery is abundant throughout the building. Lounges, decorated with Oriental rugs, cable television and furniture of cane, cushions, chrome and glass, are available to clients. The 11,000 square foot studio is located within walking distance of Overton Square, the city's live entertainment and tourist hub.

To owner John Fry, Ardent is the realization of his boyhood dream to work one day in the recording business.

Fry recalls how he and his pals John King, now a nationally-known pop music critic, and Fred Smith, who later founded Federal Express, prophetically came up with the name Ardent and started their own mini-budget record label in Fry's garage.

Just as the home studio was beginning to take off, Fry had to leave for college. When he returned home, his parents informed him that they were selling the house. Their decision pressured Fry into choosing whether to tear out the home studio or to relocate and go formally into business.

Fry found a small, vacant store in East Memphis and began re-modeling it to resemble a studio. He had always been as much of a technology fan as a music fan, so he welcomed the opportunity to experiment and even built some of the equipment himself.

When the studio was completed in 1966, Fry equipped it with the first 4-track recording machine in town. In 1968, Ardent introduced the first 8-track system in Memphis, followed by the first 16-track recorder and the first Dolby noise reduction in the area by 1970. The next year Ardent moved to 2000 Madison Avenue, expanding to two studios under one roof, another first. A mastering department was opened in 1975, and the following year Ardent gained a 24-track recorder.

The recent addition of a third studio with 46 track capabilities in the same plant makes Ardent not only the city's largest recording facility, but the largest studio in Tennessee.

But size alone does not make a good recording studio. Only hit records do that. During the '60's and '70's many hits were being cut in various studios throughout Memphis. Sun, Stax, Hi, and American were giving the city's independent studios an international reputation.

While these studios were becoming world-famous, Ardent quietly did its part. Most of Stax' artists, the Staple Singers, Otis Redding, Isaac Hayes, Rufus and Carla Thomas, the Bar-Kays, and Booker T. and the M.G.'s did their overdubbing and mixing at Ardent. Chip Moman's products on the Box Tops, and Willie Mitchell's classics were skillfully polished at Ardent.

At that time Ardent was the only studio in the city catering to rental work. The others were production studios where the acts created and produced their own products backed by the house band. Ardent was often used after the basic tracks were laid to help accommodate the other studio's heavy schedules.



Bill Ham (left) producer of Z... and Point Blank, relaxes with owner of Ardent, in studio co...

Ardent and Fry developed a reputation for dependability, the peace of mind that allows the artist and producer to create to the fullest potential. Ardent had a clean, crisp sound that revealed flaws undetected in the studios where the original tracks were laid. Equipment breakdowns, so costly in time, were almost non-existent at Ardent where Fry understood his machines almost as well as those who built them.

When disaster struck the music industry in Memphis, as record companies began to close down and musicians and producers began to move away, Ardent alone remained as productive as ever.

Stax' premiere engineers William C. Brown and Robert Jackson, who had also worked with Elvis Presley, B.B. King, Leon Russell, Luther Ingram, and Little Milton, moved to Ardent and added even more credibility to the staff's professional reputation.

Fry is more proud of his state-of-the-art staff than his state-of-the-art equipment. "This is a service business," he says. "The people, the working atmosphere, quality service and musicians are what bring clients into the studio, not equipment. When you talk about a state-of-the-art studio, you usually find pretty much the same equipment. We have all the bells and whistles."

Studio A (25' x 40' x 16') is the largest and is used for laying tracks, and Studio B (25' x 35' x 16') is used for custom jobs and demos. Each is equipped with a Spectra Sonics 24-track console. Each control room has a monitoring system consisting of JBL 4350's, JBL 4311's, and Brauns, Audicons and Auratones are also available as secondary monitoring systems in each studio.

Studio C (25' x 35' x 14'), equipped with a MCI 542 console 42 in x 35 out with automated mix-down capabilities, is used for overdubbing and mixing. There are three control room monitor systems, Audicon, JBL 4311, and Braun.

Each studio has BGW and Crown amplifiers and an assortment of other equipment including Neve, dbx, ADR, Fairchild, UA, and EMT compressor/limiters; Neve, Orban, ADR, and Pultec equalizers; Kepex and ADR Noise Gates. Echo, reverb and delay systems include EMT 140's, 3 acoustic chambers, (2) Eventide H949 Harmonizers, and other Lexicon, Allison, Eventide, Marshall and ADR units.

There are (3) MCI JH 1624 24-track recorders; a 3M M56 16-track; (3) MCI JH 110 2 tracks; a 3M M79 2-track; (2) 3M M64 2-tracks and (3) Scully 280 2-track machines.

All multi-tracks are equipped with Dolby A and all rooms are tuned with UREI filters and a B&K spectrum analyzer. Extras include two isolation booths in each room, an MCI SMPTE synchronizer, and a mastering room equipped with Neumann VMS-70 lathe and Zuma digital computer.

"Actually our three studios represent three levels of competency," says Fry. "We have three different rate structures. Those who rent the room they need for a particular function save themselves a chunk of money."

Dave Rasmussen, studio manager, says that the addition of the third studio has increased the capacity and flexibility of the facility to such a point that Ardent is now almost completely booked 24 hours a day, seven days a week.

Unisound Productions, owned by the Bar-Kays

nd their producer Allen A. Jones, has been adding business to Ardent's books by acquiring record deals for three of their acts: Ebonee Webb on Capitol, Kwick on EMI/America, and Shirley Brown on 20th Century. The Bar-Kays are continuing to cut at Ardent, where they have produced four consecutive gold albums despite recently purchasing their own studio.

"We took all the recording equipment out of our studio," Jones says. "We are very satisfied with Ardent's facilities. We plan to continue recording here and to use our studio to develop routines and for rehearsals."

In order to gain maximum use of the plant to serve their clientele, Rasmussen and Fry counsel with clients to determine their needs and try to help them

Engineer Profile: William C. Brown, III

Ardent engineer William C. Brown III has engineered and/or mixed records on the Bar-Kays, Con Funk Shun, the Commodores, Johnnie Taylor, the Staple Singers, the Emotions, Albert King, the Dramatics, Little Milton, Sly Stone's sister Rose and Elvis Presley, as well as Isaac Hayes' Grammy winning *Shaft*.

"The most important thing in being a successful engineer, to me, is personality," says Brown in a recent interview. "50% of an engineer's job is making a person feel comfortable in the studio. Any engineer knows how to get sound, but taking a stranger and being able to give him confidence, if he needs it, is important."

"Another thing, it can be helpful for an engineer to be a musician or a singer so he will know what's happening on the other side of the glass," says Brown, who was once a singer for the Mad Lads. "If the headphones aren't right, and the singer throws them on the floor, I can go and listen and know what he's talking about and why he's frustrated."

"An engineer, along with the producer, is the spinal cord of a record to me," Brown says. "If they link up well, they can make anything happen. That's what it's all about. Making a singer think his record can be the hit of a lifetime."

"I try to pattern myself after Tom Dowd and Tom Nixon," Brown says. "They are the best engineer/producers I've ever seen. These

plan the best way to develop their project.

"We've always tried to stay close to the custom jobs," Fry says. "What you have to remember is everybody starts some place. The guy who wants four hours now may be recording on a major label in six months. We believe in trying to help people on the entry level. It takes more time," he admits, "but I feel the time is worth taking."

"We service a lot of people who are using private resources to develop something that they feel is worthwhile, and they are important to us."

An example of successful independent projects that have been cut at Ardent is Keith Sykes' "I'm Not Strange, I'm Just Like You." The album, which was originally produced on Memphis Records by Jerene Sykes, Keith's wife, was picked up a year later for distribution by Backstreet Records.

Fry believes the custom jobs are what has helped to keep Ardent's recording trade healthy despite the industry's ailing economic condition. "The studios that were really hurt the most," says

guys can take nothing and make it great. They are true state-of-the-art, the greatest, and it doesn't take them a year to do it.

"I like to think of myself as a producer/engineer, but the producer part is free. I just want the product to be so good they'll want to come back."

When Brown is asked if he thinks poor mixing is one of the reasons that record sales are suffering today, he nods affirmatively. "People don't mix true stereo any more. The reason for this is people are trying to cut back on having two mixes, one for the radio and one for home. The only person I know of right now who still mixes true stereo is Don Nix. If his record gets played on the radio, he comes back and re-mixes it."

"What I do is mix basic instruments in the center so when played mono, they will have a good sound, but when played stereo, they will have a wider, broader sound. That's the only thing I can do to compensate for the compatibility of stereo or mono when played either way. If it were left up to the engineer," Brown says, "it would really be more stereo and better records, not in production, but in better sound."

William Brown (left) with producer Clarence McDonald.



Fry, "were those that depended entirely on major label production."

According to Fry, Ardent's mastering, which accounts for about 20% of its business, has dropped to some extent. "I think it's because the practice of sending a duplicate or back-up sets to the plant has been curtailed, and, at one time we were getting tapes from everywhere, places you wouldn't believe," he says.

The real advantage of the mastering room, however, is self-serving. "I feel like there is a double advantage of Ardent's in-house mastering facility," says Larry Nix, who runs the mastering department. "The studio helps the mastering and vice versa. It's a time saver."

Nix has earned a distinguished reputation in his own right by mastering such artists as Jesse Winchester, Paul Butterfield, Willie Mitchell, the Bar-Kays, Shirley Brown, Robin Trower, ZZ Top, Funkadelic, the Amazing Rhythm Aces, Anita Ward, and Isaac Hayes' award-winning *Shaft*.

In 1979 two production companies were founded to expand Ardent's creative input and output. "We felt there were countless talented and deserving people in Memphis who didn't have proper representation," says Joe Hardy, a staff engineer, in charge of production. "So, based on that feeling, we founded Ardent Productions to produce and place primarily local artists."

"The first person we produced, we placed, which encouraged us to proceed," Hardy says. "That artist was Jack Holder, a former member of Black Oak Arkansas, who was signed with the WEA label in England and Carrere in the U.S. We're now cutting masters for several other artists."

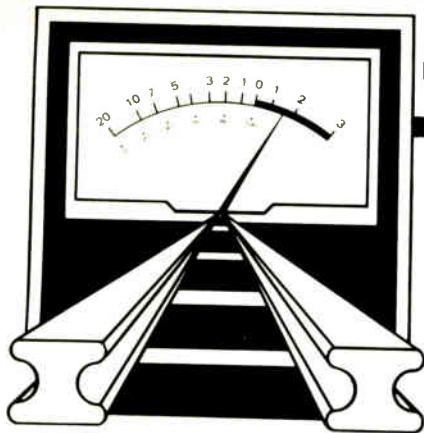
Ardent Productions can provide engineering assistance and company musicians at the client's request. Available musicians include John Hampton, drums; Hardy, bass; and Ed DeGarmo, keyboards, all of whom played on Sykes' latest album. Other company musicians are Dana Key, guitar; Chad Cromwell, drums; and Holder, guitar and background vocal arranger.

Due to the increasing popularity of contemporary Christian music, Mint Productions, also housed in Ardent, was formed by Hardy, DeGarmo, and Key. "Our aim is to make Christian records sound as good and technically be as good in addition to having the mass appeal of secular artists," says Hardy. "With the help of John Fry we're meeting that goal."

Hardy, who joined Ardent as an artist/songwriter in 1971, has been a full-time staff member since 1977, engineering most of the country and rock sessions, including working with such artists as Don Nix, Shaun Cassidy and Mylon LeFevre.

Coming to Ardent to explore their musical possibilities is as varied a group of acts as any studio could hope to get. Too Tall Jones, the Bar-Kays, Point Blank, Shirley Brown, Ebonee Webb, Rocky Hill, Kwick, Randy Brown, Gary Chapman, Denise LaSalle, Joe Simon, Ann Peebles, Mylon LeFevre, DeGarmo and Key, and ZZ Top are all booking time at Ardent.

"It's a fine studio," says Bill Ham, who is completing an album for Point Blank on MCA. "You look for a studio where you can get the right sound and be treated right. John Fry has been tremendous about helping me, servicing the client. That's the exact reason we come here." ■



Other Side of the Tracks

RAGING ROCK

by Mr. Bonzai

Field trips are an excellent way of building studio morale and staff unity. We had been working our butts off ever since the construction of our new control room, so we closed down for a day to attend a conference at the Bilton Hotel in downtown Anaheim. Titled "Neo-Future Media," the gathering was hosted by Cashboard World magazine.

You can never tell who will show up at these conventions. At one of the EAS shows I met the Finnish rock group "BABA" and got a personal demonstration of their Liquid Harmonizer—four years before they decided not to manufacture it. "BABA" (named after the four vocalists: Bibi, Aalbert, Bjorn, and Ax) is a megabuck phenomenon in the rock business. They not only own all of their own publishing, but they also have a controlling interest in Baba Bubble Gum, Finland's largest corporation. In other words, there is big money at these conventions, and a sharp studio manager can use it to subtly promote business.

I wore a three-piece business suit with a hard hat. Across the front of my helmet I had stencilled: "Construction Finished at Ryan Recording." Cart Ryan, Smilin' Deaf Eddie, and Layla wore Devo-type jumpsuits with discreet, sequinned studio logos. We piled out of the courtesy tram and strode energetically into the Bilton.

The agenda looked promising. At ten AM there would be a demonstration of the Home Entertainment Center of the 80's. At noon there was to be a concert entitled "Modern is Timeless." At two PM we could attend an unveiling of a new portable video recorder with 40-track audio. The finale of the day's media festivities would be the debut of "Raging Rock," a new rock opera.

It's a full time job staying ahead of the game of technology and product, but a good studio manager has to be prepared for changes in the industry. While the staff had coffee, I investigated a couple of the promotional suites to see what the vendors were hawking. I was exposed to an assortment of gadgets ranging from wireless microphones that can be surgically implanted, to clock radios that sing the time, the day, your blood pressure, and "Keep On Truckin'" as you wake up. I saw excerpts from all the latest rock promo films and was given many hearty handshakes by a conga line of suave foreign businessmen. The Bilton was kind enough to provide shopping carts for all the brochures I collected.

At five minutes to ten I rejoined the staff for a demo of the future Home Entertainment Center. Forget the sagging record industry and get ready for the software/hardware renaissance. The Average Joe of the 80's will have a lot more than a Trinitron and a Bud to keep him happy. He will have a living room full of various videodisc and cassette machines, digital audio discs, floppy discs, laser cartridges, maxi-screen viewers, studio monitors, and a computer hooked up to his mood ring to automatically program his troubles away. On his head he will wear a satellite dish receiver and quadraphonic Skullphones. We pop consumers are definitely going to be "in touch," as Hugh Downs recommends.

The next event was the noontime concert performed by the mixed-media rock group, The Nu-Beams. Their tunes explored the futuristic theme "Modern is Timeless," and their style might best be described as a haunting mixture of techno-ballads and New Wave polkas. As they sang a medley of their standards, they incorporated electric mixers, garbage disposals, and exploding percolators in the instrumental passages. Their encore, "Men Like Pie," featured a chimpanzee in an apron serving smoking apple pie to the band.

After experiencing the intense visual message of avant garde rock 'n' roll, we strolled off to check out the new portable video recorder with 40-track audio. Larry Zuzzman of Protopromo Labs was just unveiling his new unit as we entered the crowded and hushed ballroom. Larry showed us a cardboard mock-up of his "Magma-Cam," which only weighed four ounces and would record 24 hours of audio/video on a 25¢ Teflon chip. This machine could literally put television in the hands of everyone! Larry confidently informed the audience that he expected to have his "Magma-Cam" on the market by early 1982 or late 1987.

We mulled around the courtesy wagon quaffing freebie Heinekens and struck up a conversation with Archie Singleman, a wiz-kid video artist from Brooklyn. He had been very successful on the Omega TV channel in Flatbush with his animal talk show, "My Pet, My Self." Archie interviewed the pets of famous people and had his little brother, Ike, do the voices of the animals.

As we were leafing through our brochures and discussing reverberators, VCR's, CRT's, VTR's, video exciters, and digital marital aids, the hotel loudspeaker announced that "Raging Rock" was to commence in five minutes. The convention horde moved off to the central ballroom, and judging from the various World Tour logos on the satin baseball jackets, I knew we were in the company of many global roadies.

We took our seats and perused the program. "Raging Rock" was a complete video rock opera revolving around the theme of Big Business Meets Big Artist. We saw provocative photos of David Cassidy as the protagonist, "Every singer." (David had put on 80 pounds over the past six years in preparation for the role.) Other shots depicted John Belushi as Milton John, the Satanic chairman of Omniglot Records.

"Raging Rock" opened with a series of musical episodes showing "Every singer's" rise from his days as a singing valet to the top of the pop charts. In the final scene of the opera, "Every singer" meets the Omniglot executive in the boxing ring to settle a contract dispute.

As Cassidy landed a couple of haymakers on Belushi's bloodshot nose, he scored 20% recording royalties and future software rights. Belushi countered with a gut punch that earned him perpetual producer credits and the book deal for all concert diaries. The contender and the champ duked it out for fifteen musical rounds in the most gruesome industry squabble ever seen. Ten seconds before the final bell, the referee (George Burns) sang that the fight was being postponed until a final videodisc format was chosen. The screen went black.

"Raging Rock" certainly expressed many of the frustrations of the recording industry, but the unresolved heavyweight parable left the audience with an uneasy sense of the future. As the crowd muttered their way out of the "Neo-Future Media" conference, I realized the disquieting state of flux that the hardware, the software, and The Arts are causing in the industry. The real fight has just begun. ■

The situations and characterizations in this column are purely fictional and do not reflect anything relating even vaguely to reality, living or dead.

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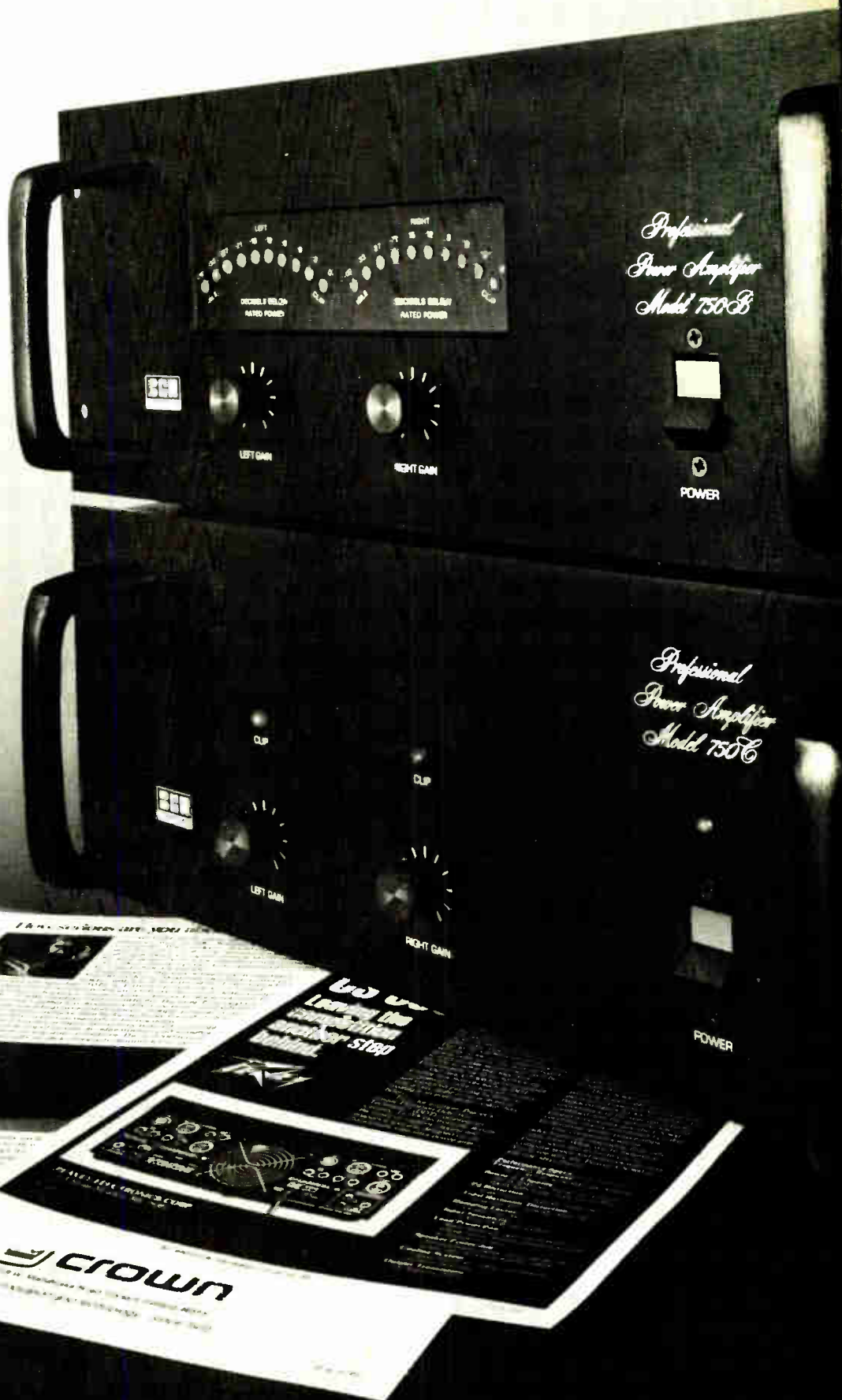
You already know BGW is pre-eminent in discos... recording studios... and on the road. Tough, demanding applications. But, BGW is chosen for even tougher assignments.

Consider the 1980 Winter Olympics. Future Sound, Inc. of Weston, CT was faced with providing PA, background music and network feeds for the Alpine events on Whiteface Mountain. The four amplifier sites were inaccessible by road. The only access was by snowmobile or on foot. Temperatures are, at their mildest, bitter. Naturally, Future Sound selected 20 BGW 750's because of their proven reliability.

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827 Thomas, Memphis, TN 38107
(901) 525-0540
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Studio Manager: William E. Giore

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also REMOTE RECORDING
133 Walton Ferry Rd., Hendersonville, TN 37115
(615) 824-2820
Owner: Clyde Beavers
Studio Manager: Roger Holmes

•• JESSE BOONE PRODUCTIONS
319 Highland Ave., Albany, GA 31701
(912) 436-8508
Owner: Jesse Boone

•• CARLTON RECORDING COMPANY
also REMOTE RECORDING
4229 Elvis Presley, Memphis, TN 38116
Owner: Gary, Marvin, Mike Carlton
Studio Manager: Gary Carlton

•• COLEY'S ISLAND
10 Harris St., Carrollton, GA 30117
(404) 832-0616
Owner: Phil Coley
Studio Manager: Phil Coley

• CREATIVE REDIFFUSIONS AUDIO & VIDEO
7019 Big Daddy Drive, Panama City, FL 32407
(904) 234-3793
Owner: Paul Bailey
Studio Manager: Mike Bailey
Engineers: Paul Bailey (video), Mike Bailey (audio)
Dimensions of Studios: 12' x 28' (audio), 20' x 40' (video)
Dimensions of Control Rooms: 6' x 10', 8' x 12'
Tape Recorders: TEAC 3440 4 track, Pioneer (custom modification) 901, 2 (1/2) track, RCA (quad video) TR-60A 2" mono Panasonic (editor) video 9600 3/4" mono, Panasonic (slave) video 9600 3/4" mono
Mixing Consoles: TEAC (2 custom modification) Model 3's, 16 in x 4 out, Shinafron (video switcher and special effects generator) 8 in x 2 out
Monitor Amplifiers: Custom (2)
Monitor Speakers: E.V. Auratone, and custom
Echo, Reverb, and Delay Systems: Thompson TAD-4, custom Sony tape loop DDD
Other Outboard Equipment: 4 limiters, 2 compressors, 2 gates, 4 parametric EQ's, 2 graphic EQ's, 2 flangers, 3 head phone mixers, RCA TK-660 color studio cameras, Hitachi color ENG cameras
Microphones: Sennheiser MD-421U, Electro-Voice RE 20 Shure SM 54, SM-81's, SM 57's, SM-58's, SM 330
Instruments Available: Custom polyphonic computer controlled synthesizer, Rhodes stage piano, custom strings
Rates: Audio only \$18.50 \$14.50 in 20 hour block Video 3/4" cassette \$60.00 Video quad 2" reel \$90.00

•• ELECTRIC MOUNTAIN SOUND RECORDING STUDIO
also REMOTE RECORDING
2021 12th St., Sarasota, FL 33577
(813) 366-2622
Owner: Terry F. Donato
Studio Manager: Terry F. Donato

•• FLOWERS RECORDING STUDIO
also REMOTE RECORDING
Rt. 1 Box 120A, Swoope, VA 24479
(703) 885-3309
Owner: Charles A. Flowers
Studio Manager: Charles A. Flowers

•• FXL SOUND STUDIOS, INC.
7766 N.W. 44 Street, Sunrise, FL 33321
(305) 741-7766
Owner: Frank X. Luonto
Studio Manager: Frank X. Luonto

•• GULF SOUND STUDIOS
1434 Balboa Ave., Panama City, FL 32401
(904) 763-1434
Owner: Jerome & Dwight Lebowksi
Studio Manager: Jerome Lebowksi
Engineers: Dwight Lebowksi, Tom Collins
Dimensions of Studios: 38' x 33' with an 8' x 12' drum booth also 8' x 6' vocal booth. The studio has a ceiling height of 20'
Dimensions of Control Rooms: 17' x 16'. The control is on the second floor overlooking the studio
Tape Recorders: Otari MX 5050 8 track, Otari MX 5050 2 track
Mixing Consoles: Tascam Model 10, 8 in
Monitor Amplifiers: Crown D 150A amplifiers
Monitor Speakers: Electro-Voice Sentry V in the studio and the control room
Echo, Reverb, and Delay Systems: Orban 111B reverb
Other Outboard Equipment: 2 UREI 1176LN limiters, Electro-Voice 10 band EQ
Microphones: Sennheiser 421, Electro-Voice RE-16, AKG 200E
Rates: Call for rates

•• HAYES RECORDING STUDIO
also REMOTE RECORDING
2406 South MacDill Avenue, Tampa, FL 33609
(813) 837-6384
Owner: Paul T. Hayes
Studio Manager: Paul T. Hayes

•• THE HOBBIT HOLE
919 Hughes Dr., St. Albans, WV 25117
(304) 722-2787
Owner: Marcel Lazare Jr.
Studio Manager: Marcel Lazare Jr.

•• HORIZON RECORDING
170 Kenner Avenue, Nashville, TN 37205
(615) 297-6210
Owner: Richard Owens
Studio Manager: Richard Owens
Engineers: Richard Owens, Charles Debray, Larry Simon, Mike Bridges
Dimensions of Studios: 18' x 25' main studio, 25' x 25' live studio with piano, 6' x 8' drum booth, 5' x 5' vocal booth
Dimensions of Control Rooms: 8' x 15'
Tape Recorders: Tascam 80-8 8 track; Sony TC-854-4 4 track, TEAC 3340SX 4 track, TEAC 3300 2 (half) track Sony TC K711 cassette 2 track, TEAC A360 cassette
Mixing Consoles: Tascam Model 3, 16 in x 8 out; (modification and interface allows 8 mic drum mix, 4 stereo effect sends, separate monitor, A or B cue mix, 7-band EQ per channel, and solo in place)
Monitor Amplifiers: Phase Linear 700 (350W/ch), Sony TA-3200F (100W/ch), Marantz 1030 (15W/ch for cue mix)
Monitor Speakers: JBL L-100 (2 pair stacked); studio JBL custom L-200 design, mixdown Auratones
Echo, Reverb, and Delay Systems: Ursa Major SST 282 Space Station (digital reverb), Lexicon PCM 41 digital delay
Other Outboard Equipment: 12 ch dbx 124 noise reduction, (4) Gain Brain limiters, (4) Kepex noise gates, Phase Linear 1000 auto correlator, 2-ch TEAC GE 20 octave graphic EQ, Soundcraftsmen 20 12 octave graphic EQ, 8-ch audio control 5-band EQ, (2) TEAC Model One 8x2 mixers, 224 point patch bay
Microphones: Sennheiser MD421's, Sony ECM 33P's, ECM 22P's, Shure SM57's
Instruments Available: Fisher grand piano, Lyon and Healy Troubador harp, mandolin, Martin 12 string, Epiphone 6 string, Garcia 6 string, Mellotron with strings, flutes, full choir, oboe, brass, boy's choir, Mini Moog, Camco drums, complete traps, temple blocks, chimes, glockenspiel, Oberheim CPS-2 analog sequencer, Sinder Systems 64 note digital sequencer, Aries VC phasor, dual ADSR, dual LFO, SH, balanced modulator, Premier & Ludwig tympani, Yamaha CS60, H voice synthesizer
Rates: 8 track \$20/hr, 4 track \$15/hr

•• INGRAM RECORDING STUDIO
also REMOTE RECORDING
Route 1, Box 251A, Charleston, WV 25312
(304) 343-0608
Owner: Gary W. Ingram
Studio Manager: Gary W. Ingram

• LOST RIVER RECORDING STUDIO
631 N. 9th St., Paducah, KY 42001
(502) 444-7594
Owner: Clyde Wood
Studio Manager: Andy Wood
Engineers: Laddie Wood
Dimensions of Studios: Studio A 14' x 12', Studio B 12' x 7'
Dimensions of Control Rooms: 9' x 12'
Tape Recorders: TEAC 3340S 4 track, TEAC 3300S 2 track, TEAC A 170 cassette, Panasonic HS 808 8 track cartridge
Mixing Consoles: Tapro (4 mixers in 6' console) 6000 R series, 24 in x 4 out, TEAC/Tascam Model 1, TEAC meter bridge MB 20
Monitor Amplifiers: Crown D-60
Monitor Speakers: Custom built, also Cubes
Other Outboard Equipment: dbx 155 (4 track) dbx 152 (2 track), Dolby (8 track tapes), Tapro 2200 graphic equalizer, TEAC PB 64 patch bay, (6) AKG K 140 headphones
Microphones: Audio Technica AT 813, Shure 585 Electro-Voice DS 35, Barcus Berry 1355 guitar transducer
Instruments Available: Baldwin acrosonic piano, Fender Rhodes piano bass, synthesizer, electric piano, small organ, Leslie tone cabinet, Fender Bandmaster amp, Fender Bassman amp, two Sunn amps, 6 & 12 string Alvarez acoustic guitars, bass guitar, Gibson classic steel guitar, violin, conga drums, percussion (All instruments in studio)
Rates: Call or write for prices

•• MAUW-BOGGS LABORATORY
667-669 Hawthorne St., Memphis, TN 38107
(901) 278-5003, 278-3680
Owner: Bobby Davis, Vikki Davis, Tom Davis
Studio Manager: Bobby Vikki, Tom Davis
Engineers: Bobby Davis, Steven Cox
Dimensions of Studios: 16' x 20' x 9', isolation booth 8' x 10' x 9'
Dimensions of Control Rooms: 12' x 18' x 9'
Tape Recorders: Tascam 80 8 track, Dokorder 1140 4 track, Tascam Master 3300 SX half track 2 track, Sony 366 2 track, Sony cassette TC 186 SD 2 track
Mixing Consoles: Modified Tascam Model 3 8 in x 8 out, Shure Audiomaster 4 in x 2 out
Monitor Amplifiers: L'alayette LA 475 SR 202, Superscope H 340-B
Monitor Speakers: Ardent 2 studio monitors, mini Ardent 3 mixdown monitors, BBI custom built monitors, Beyher head phones
Echo, Reverb, and Delay Systems: Maestro Echoplex, Pioneer reverb
Other Outboard Equipment: MXH limiters, compressors, Nikko graphic EQ's, BSR frequency EQ's, DeArmond square wave generators, 8-channel dbx noise reduction

Tape Recorders: MCI JH10, 16 track, Ampex 300 4 track; Scully 280B 2 track; Scully 280 mono
Mixing Consoles: Opamp Labs custom, 16 in x 16 out
Monitor Amplifiers: Yamaha PM 2200
Monitor Speakers: Altec biamped with White filters
Echo, Reverb, and Delay Systems: BX 20E, Lexicon, plate
Other Outboard Equipment: UREI 1172 limiters, dbx limiters, Gain Brains, Kepex's, Cooper Time Cube, VSO, Eventide phase shifter, Countryman phase shifter, PEQ, graphic EQ
Microphones: AKG C-60, D10, Beyer 210, E.V. 635, RE-11, Neumann U-87, U-47, RCA 77DX 44, Sony 22P, Shure 45, 46, direct boxes
Instruments Available: Baldwin grand Hammond organ w/Leslie Wuritzer electric piano guitar and bass amps, Ludwig drums, percussion goodies etc
Rates: \$65/hr (min. 3 hours) for 16 track, over ten hours \$50/hr 2 track, demo \$35/hr (3 hour min.) Reduced rates for producers

... LAMON SOUND STUDIOS
also REMOTE RECORDING
5732 Susan Dr., Charlotte, N.C. 28212
(704) 568-8100, 537-0133.
Owner: Dwight L. Moody, Jr.
Studio Manager: David Moody

... LEMCO SOUND STUDIO
2518 Southview Dr., Lexington, KY 40503
(606) 277-1184
Owner: Cecil Jones
Studio Manager: D.D. Miller

... LYN-LOU STUDIOS
1518 Chelsea, Memphis, TN 38108
(901) 725-1400
Studio Manager: Leon Sides

... MEGA SOUND STUDIOS
Main Street, P.O. Box 188, Bailey, N.C. 27807
(919) 235-3362
Owner: Richard H. Royall
Studio Manager: Richard H. Royall, Bernie Peteway

... MIAMI SOUND STUDIO
2819 N.W. 7 Ave., Miami, FL 33127
(305) 635-4890, 4891
Owner: Carlos Diaz Granados
Studio Manager: Carlos Diaz Granados
Engineers: Carlos Diaz Granados, Juan G. Covas, Paul Khoury
Dimensions of Studios: 17' 6" x 13' 8" x 28'
Dimensions of Control Rooms: 17' x 10' x 15'
Tape Recorders: MCI JH16 16 track, Ampex 440 B 2 track Studer/Revox 2 track, Scully 2 4 track
Mixing Consoles: NEVE 802R 24 in x 16 24 out
Monitor Amplifiers: McIntosh 2400 2105 255
Monitor Speakers: JBL 4343 (Gauss), JBL 4311 Auratone SC Tannoy

Echo, Reverb, and Delay Systems: Echo delay tape, 2 EMT 140 echo chamber
Other Outboard Equipment: Eventide Harmonizer, Scamp Hack, UREI Teletronix, LA2A limiters, LA3A limiters, Pulter equalizers compressors, NEVE limiters, vocal doubler, all effects possible any outboard equipment upon request
Microphones: Neumann U87's U67's KM84's, AKG 451 E.V. RE 20, Sennheiser, Shure 57, Sony C37P, RCA 77DX
Instruments Available: Yamaha grand piano, Fender Rhodes Roland synthesizer chimes vibes congas timbales Synare Rhythm Box Harmonizer Slingerland drums Hammond B3
Rates: Rates upon request including block time
Extras: Complete Scully mastering room, stampers, record pressing and shipping, complete art dept. for jacket, label and logo design. In-house producers, arrangers and musicians, Colombian coffee, Latin food and lounge, with color TV. Also drum booth. Totally newly furnished lobby, w/relaxation room and stereo system
Direction: Studio Philosophy: Simply that our engineers strive to treat every recording as if it were their own. Aspiration: To be categorized as a hit making quality studio. Logo: "We've got the sound you want."

... THE MISSISSIPPI RECORDING COMPANY
107 N. State St., Jackson, MS 39205
(601) 354-0857
Owner: Jerry Puckett
Studio Manager: Lane Dinkins

... QL MOBILE RECORDING
also REMOTE RECORDING
314 Romano Ave., Coral Gables, FL 33134
(305) 446-2477, 665-3487
Owner: Rob Burr
Studio Manager: Rod Ball
Engineers: Rob Burr, Chief Engineer
Dimensions of Studios: A 20' x 14' B 14' x 14'
Dimensions of Control Rooms: Mobile truck
Tape Recorders: New Generation Tascam 85 16 1" 16 track

16 TRACK



QL Mobile Recording
Coral Gables, Florida

Otari 5050 1/2 track, Technics M 85 MKII metal cassette deck
Mixing Consoles: Soundcraft (customized) Series II 16 in x 16
Monitor Amplifiers: BGW 250
Monitor Speakers: JBL 4343 Auratones Super C ADS 800, others available
Other Outboard Equipment: Compressor/limiters (Gain Brain, Kepex, etc.) Any outboard equipment is available
Microphones: Neumann, Sennheiser, Sony, AKG, Shure F.V. any and I mics on request. Phantom powered active direct boxes
Instruments Available: Yamaha electric grand Rhodes clavinet B Leslie Prophet 5 Moogs ARP's steel drums marimba bamboo assorted percussives guitar amps and pedals drums etc
Rates: 16 track Record \$75/hr (on location) (5 hr min.) \$100/hr 16 track mix \$40/hr 2 track record (4 hr min.) \$250/hr
Extras: Our "at home" private facility provides relaxed atmosphere. Our location is actually a well kept secret. Award winning rhythm section available. 4 and 1 video tape production with 16 track SMPTE lock up in house or on location. Comfortable lounge with TV, phone, mini kitchen. Strategically located in Coconut Grove—THE place to stay in Miami. We can arrange lodging and travel accommodations for our out of town clients.

... SEABIRD STUDIO
also REMOTE RECORDING
Edgewater, FL 32032
1-800-521-3546
Owner: Conti Organization
Studio Manager: Dick Conti

... SHOOK SHACK STUDIO
802-18th Ave. S., Nashville, TN 37203
(615) 327-4040
Owner: Jerry Shook
Studio Manager: Jerry Shook

... SIGNAL SOUND STUDIO
2310 Marietta Blvd. Ste. D, Atlanta, GA 30318
(404) 355-0909
Owner: Skyheart Inc.
Studio Manager: Dick Roberts
Engineers: Dick Roberts—staff. Maintenance Engineering Trackside Engineering, Les Duncanson
Dimensions of Studios: 25' x 40' x 14'
Dimensions of Control Rooms: 18' x 18' x 14'
Tape Recorders: MCI JH 10 16 track, TEAC 4440 4 track, Ampex ATR 700 2 track
Mixing Consoles: Trackside Engineering 16 in 16 in x 16 out
Monitor Amplifiers: AB System, 1.5 Dynaco ST 80
Monitor Speakers: FV Sentry III's, BOB
Echo, Reverb, and Delay Systems: Master Room Super Eventide Harmonizer H 410

Other Outboard Equipment: Orban parametric equalizers (2), dbx 160 comp/limiter (2), Kepex, 16 tracks dbx; Echoplex, ass't flangers & phasers, TRS-80 computer handles track logging and information storage interfaced with Eventide's 1/2 octave frequency analyzer
Microphones: Beyr M-500, AKG 414-EB, 451's, 505's, 707, Shure SM-57's, SM-58, Sennheiser 421
Instruments Available: Studio upright piano, Mini Moog, string synthesizer, steel guitar, Martin D-35 acoustic & Gibson 150 guitars, ass't percussion
Rates: Upon request

... SOUND OF BIRMINGHAM
also REMOTE RECORDING
3625 5th Ave. So., Birmingham, AL 35222
(205) 595-8497
Owner: Don Mosley
Studio Manager: Don Mosley

Extras: SFX library, reel to reel duplication.
Direction: Absolutely full service production house serving music & advertising communities. Albums, demos, jingles, radio, TV, a/v & film voiceovers, custom v/o talent & scriptwriting, creative consultation services. Catch us on the networks!

... THE SOUND ROOM, INC.
also REMOTE RECORDING
325 Patterson Avenue, Fort Oglethorpe, GA 30742
(404) 866-2432
Owner: Corporation Steve Mullinax, President
Studio Manager: Steve Mullinax

... SOUND-TREK RECORDING STUDIO
P.O. Box 12422, Pensacola, FL 32582
(904) 434-0052
Owner: C. B. Fowler
Studio Manager: Glen Fowler

... SOUND TRAX, INC.
1626 Glenwood Ave., Raleigh, N.C. 27608
(919) 832-9953, 832-9954.
Owner: Corporation
Studio Manager: Verne Critz

... STRAWBERRY JAMM STUDIO, INC.
3964 Apian Way, W. Columbia, S.C. 29169
(803) 356-4540
Owner: Strawberry Jamm, Inc.
Studio Manager: Bob Curlee (AES), Mary Curlee Business Manager

... STUDIO FOUR
also REMOTE RECORDING
1918 Wise Drive, Dothan, AL 36303
(205) 794-9067
Owner: Jerry Wise
Studio Manager: Steve Clayton
Engineers: Jerry Wise, Steve Clayton
Dimensions of Studios: 30' x 22' x 15' with 10' x 10' x 10' drum room.
Dimensions of Control Rooms: 20' x 15' x 10'
Tape Recorders: MCI JH 16 16 track, Ampex ATR 700 2 track, Tascam 80 8 track, TEAC 4305 2T 2 track, BIC T 4 cassette
Mixing Consoles: Tannoy 4216 24 in x 16 out, Maze 100B 24 in x 16 out
Monitor Amplifiers: Nikko Alpha I, Peavey CS 800
Monitor Speakers: JBL 4333 Klipsch La Scala Auratone SC
Echo, Reverb, and Delay Systems: Orban/Parasound 611B EMT 140 plate, Eventide Harmonizer 910, Loft analog delay
Other Outboard Equipment: dbx limiter/compressor, 160 Omni Craft noise gates, Mutron bi-phase, Bi Amp graphic EQ
Microphones: Neumann U87, Sony ECM 22, Shure SM 57, PE 50 545, Sennheiser 421U, 441U, Electro Voice RE 20, DS 45 RE 16, PL 76 PL 91, 1710 1751
Instruments Available: Yamaha grand piano, Fender Rhodes electric piano, Hohner clavinet, Roland 3000 synthesizer, Univox Mini Korg, Ludwig drum set, Hammond B 4 organ, Peavey Artist guitar amp, Woodson guitar amp, Ampeg V 4 guitar amp, con gas Fender Precision bass, Fender Telecaster guitar, Guild acoustic guitar, Yamaha 112 guitar amp, Wuritzer MDI 140 electric piano
Extras: Audio Technica ATH5 headphones, Sennheiser 414 headphones, separate lounge with closed circuit TV, video taping of session up on request, live concert sound system rental, high speed cassette duplication

Rates: 16 track \$60/hr 2 track \$30/hr Mixdown/edit \$40/hr Reel to reel dubs \$750 Cassettes dubs \$5.00 8 tracks \$6.00
Direction: Working toward independent production of artists and establishing own record label

... TANDEM RECORDING STUDIO
13 Moore St., Bristol, VA 24201
(703) 466-8675
Owner: Tandem Records Inc.
Studio Manager: Joe Deaton

ASHLY

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SC-50
299 List

SC-55
499 List

For loudness enhancement, clipping prevention, speaker protection, control of vocal levels, elimination of overmodulation, musical instrument sustain . . . Whatever your limiter application, check out the Ashly SC-50 (mono) or SC-55 (stereo) Peak Limiter-Compressors. You'll find incredible versatility, super packaging, and state-of-the-art design. You'll be amazed at the freedom from noise and distortion and the clean, transparent sound. Features like balanced inputs, stereo-tie connections, detector patch point, and high-current output stage are all standard. All this at a cost low enough to embarrass a lot of high-priced competition. Ashly limiters . . . clean, quiet, powerful control designed and built by people who still care about quality and reliability.

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Customer Service**

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16 TRACK

••• **TRACK RECORDING**
also *REMOTE RECORDING*
P.O. Box 857, Summerville, SC 29483;
(edge of Charleston, SC)
(803) 873-0607
Owner: Flack-Ramos
Studio Manager: Tommy Flack

••• **TRACK-16 RECORDING STUDIOS**
also *REMOTE RECORDING*
118 Constitution Avenue, Lexington, KY 40508
(606) 253-0588
Owner: Gilbert James, Inc.
Studio Manager: Thomas D. Tandy
Engineers: Thomas D. Tandy
Dimensions of Studios: 44' x 36'
Dimensions of Control Rooms: 12' x 20'
Tape Recorders: Scully 100 16 track, Scully 280 2 track, Scully 280 2 track, Revox A77 2 track, Pioneer 700 2 track
Mixing Consoles: Spectra Sonics custom 16 in x 18 out
Monitor Amplifiers: Crown, Spectra Sonics, Cerwin Vega, McIntosh

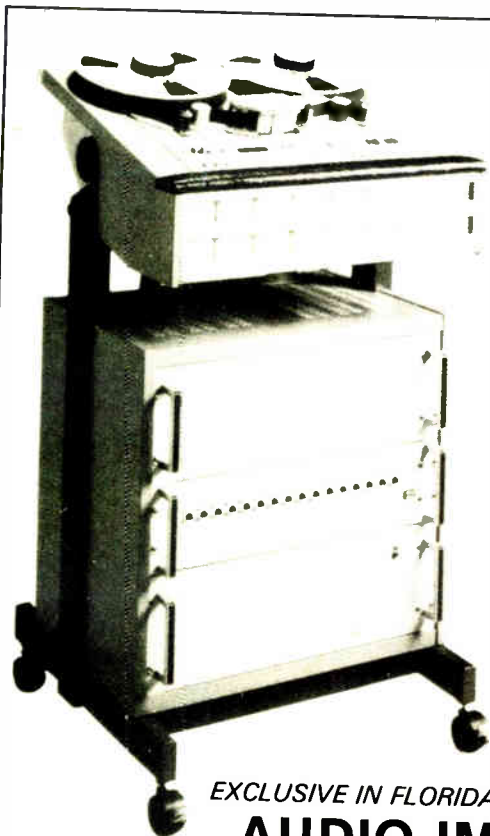
Monitor Speakers: UBEI Advents
Echo, Reverb, and Delay Systems: Loft dical, AKG reverb
Other Outboard Equipment: UBEI limiters, Orban parametric EQ's, Eventide Phaser, Pultex EQ's, White EQ's, Kepex, dbx comp/plate
Microphones: Electro-Voice RE 11, RE 16, RE 20, RE 10, RE 15, Neumann U87's, KM 84's, Sennheiser MD421's, Sony 22P, 33P, AKG C 451F
Instruments Available: Baby and Howard Baldwin, Fender Rhodes, Hammond C-4, Rodgers drum kit, tympani, full complement of misc. percussion, Fuzzay and Fender amps
Rates: 16 track weekdays \$60/hr. after 7pm and weekends \$70/hr., 8 track weekdays \$45/hr. after 7pm and weekends \$55/hr., 2 track weekdays \$30/hr. after 7pm and weekends \$40/hr.

••• **TWELVE OAKS RECORDING STUDIO**
3830 South Cobb Dr. Ste. 100-A, Atlanta, GA 30080
(404) 435-2220, 435-2221
Owner: Sonny Lallerstedt, Nancy Bugar
Studio Manager: B. Bugar
Direction: Therefore take no thought saying, 'What shall we eat?' or 'What shall we drink?' or 'Wherewithal shall we be clothed?' (For after all these things do the Gentiles seek.) For your heavenly Father knoweth that ye have need of all these things. But seek ye first the kingdom of God, and His righteousness, and all these things shall be added unto you. Twelve Oaks is a Jesus-centered music production facility.

••• **THE WAREHOUSE RECORDING STUDIO**
also *REMOTE RECORDING*
2071 Emerson St. Unit 21, Jacksonville, FL 32207
(904) 399-0424
Owner: Tom Markham, Skip Osmundsen
Studio Manager: Carolyn Markham

••• **WILDWOOD STUDIO & PRODUCTION**
also *REMOTE RECORDING*
Rt. One, Box 157, Pineville, NC 28134
(704) 588-2324
Owner: Wildwood Studios and Prod. Inc.
Studio Manager: Hector Branch, Asst. Pat Carpenter

••• **WILLOW CREEK STUDIOS**
also *REMOTE RECORDING*
2228 Redmond Circle, Rome, GA 30161
(404) 232-6954
Owner: Morgan Ayers
Studio Manager: Morgan Ayers



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TEAC Professional Products Group
85-16

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3685 N. Federal Hwy. Pompano Beach, FL 33064
(305) 943-5590

24 TRACK

•••• ALPHA AUDIO™

also REMOTE RECORDING
2049 West Broad St., Richmond, VA 23220
(804) 358-3852

Owner: Alpha Recording Corporation
Studio Manager: Eric Johnson
Engineers: Carlos Chaitin Nick Coleran Joe Horner Joe Sheets Bob Tulloh
Dimensions of Studios: Send for information
Other Outboard Equipment: Anything worth having
Microphones: 88 types—some of just about everything
Instruments Available: Send for information
Direction: Professional (in the true sense) Records CBS Warner MCA Capitol, Polydor et al Commercials Best Products (national), Family Circle (national) Live shows Busch Gardens Network TV (BN ABC NHC PBS Currently com pleting Studio IV with live end dead in control room. Member of SPARS

•••• APOGEE RECORDING STUDIOS

125 Simpson St. NW Atlanta, GA 30313
(404) 522-8480

Studio Manager: Mike Greene
Engineers: Thomas Race John Schroeder
Dimensions of Studios: Studio A 32' x 52'
Dimensions of Control Rooms: 20' x 24'
Tape Recorders: Ampex 1200 24 track (2), Ampex ATR 100 2 track
Mixing Consoles: Harrison 3232 Audtronic Allison Com puter Series 65K
Monitor Amplifiers: SAE MK 25600 BGW 250 B Crown D-150, D-60
Monitor Speakers: Westlake, JBL
Echo, Reverb, and Delay Systems: 2 live chambers 2 EMT plates 2 Master-Room, AKG
Other Outboard Equipment: Full Dolby and dbx noise reduction systems, Marshall Time Modulator Dynaflinger Eventide Phaser Eventide Digital Delay Lexicon Prime Time Eventide Harmonizer, ADR Vocal Stresser Coopercube's Kepex's, Orban dynamic sibilance controllers Allison Gain Brans, Teletronix LA 2S UREI 1176S UREI LA-3S dbx's
Microphones: Standard array constantly updated inventory
Instruments Available: Bosendorfer and Yamaha concert grand pianos, Rhodes 88 Wurliizer electric pianos, Musser vibes Hammond B-3 Leslies ARP Odyssey Fender Series amps
Extras: Jacuzzi whirlpool bath and complete sauna
Rates: Upon request
Direction: SOS Band Kenny Loggins Commodores, Hamilton Bohannon Kansas, Ted Nugent Molly Hatchett Outlaws, Wet Willie, Mothers Finest etc

•••• ARDENT RECORDINGS, INC.

also REMOTE RECORDING
2000 Madison Ave., Memphis, TN 38104
(901) 725-0855

Owner: John Fry
Studio Manager: Dave Rasmussen
Engineers: William C Brown Robert Jackson, John Hampton Eddie Degarmo, Dana Key, Joe Hardy Larry Nix Louie Switt Terry Manning, Bo Bohannon
Dimensions of Studios: Studio A 25'W x 40'L x 16'H, Studio B 25'W x 20'L x 16'H, Studio C 25'W x 35'L x 14'H, Mastering 15'W x 20'L x 10'H, Each studio with two isolation booths



Ardent Recordings, Inc.
Memphis, Tennessee

Dimensions of Control Rooms: Studio A 16'W x 25'L x 10'H, Studio B 16'W x 25'L x 10'H, Studio C 18'W x 25'L x 10'H
Tape Recorders: (3) MCI JH 1624 24 track, 3M M56 16 track, (3) MCI JH 110 2 track, 3M M79 2 track, (2) 3M M64 2 track, (3) Scully 28G 2 track
Mixing Consoles: MCI 542 42 in x 32 out, Spectra Sonics 24 16 28 in x 24 out, Spectra Sonics 22 16 24 in x 24 out, Mastering room equipped with Neumann VMS-70 lathe
Monitor Amplifiers: BGW Crown
Monitor Speakers: JBL 4350 Audicon, JBL 4311, JBL 4340, Auratones Advent Braun
Echo, Reverb, and Delay Systems: 3 EMT 140 3 acoustic chamber 2) H949 Harmonizer Lexicon Allison, Eventide Marshall ADF
Other Outboard Equipment: Limiters and compressors Neve, dbx ADF Fairchild UA EMT Equalizers Neve, Orban, ADR, Pultec Noise gates Kepex ADR All multi-tracks and two tracks equipped with Dolby A (dbx optional for two tracks) All rooms tuned with UREI filters and B&K spectrum analyzer Studio equipped with MCI automation
Microphones: Neumann U87 U67 U64 M249, KM86, KM84, AKG C-414 C-451 D224 D12, D-200, Sennheiser MD 421 MD 441, Electro Voice RE 20 RE 16 Shure SM-53, Beyers M201
Instruments Available: Steinway grand Yamaha grand, Chickering grand, ARP 2500 Hohner clavinet, Hammond organ, Fender Rhodes 88 Gretsch drums, Fender HiWatt, Acoustic Ampex amplifiers
Extras: MCI SMPTE synchronizer, cable television kitchen, two lounges
Rates: Upon request
Direction: Clients Denise LaSalle, Porter Wagoner, Joe Simon, Homer Banks Randy Brown ZZ Top Bar-Kays Parliament/Funkadelic Robin Trower, Led Zeppelin Memphis Horns, Emerson Lake & Palmer Anita Ward, Amazing Rhythm Aces, Bootsy's Rubber Band Shaun Cassidy, Point Blank Commodores Leon Russell Isaac Hayes Cheap Trick, Black Oak, Roy Clark, Memphis Horns Photons, a member of SPARS

•••• ARTISAN RECORDERS, INC.

REMOTE RECORDING
5077 N.E. 13 Ave., Ft Lauderdale, FL 33334
(305) 491-3132

Owner: Peter J. Yanilos
Studio Manager: Scott Strawbridge
Engineers: Peter Yanilos, Richard Hilton
Dimensions of Studios: Home Studio
Dimensions of Control Rooms: GMC Motorhome, 27' long, 8' wide, 10' high
Tape Recorders: (2) MCI JH16-114 24 track; (2) MCI JH110-14 2 track, optional 8 and 16 track head configurations; (2) Technics M65 cassette
Mixing Consoles: MCI JH 400 Series 24 x 24 light metered desk, accompanied by 16 x 8 submixer patchable to any of 24 tracks giving a total of 40 microphone inputs to 24 busses with 24 track monitor
Monitor Amplifiers: Crown D-150
Monitor Speakers: JBL 4311
Echo, Reverb, and Delay Systems: Orban 111B, MXR DDL
Other Outboard Equipment: UREI LA4, Allison Gain Brain, and Inovonics 201 limiters, Eventide Omnipressor and Phaser, Allison Kepe's, UREI 545 parametric EQ's, closed circuit TV system, Clear-Com communications system
Microphones: Neumann U-87, AKG C-414, C-412, C-451, D-224, D-140, D-200 D-12, Sennheiser 435, 441, 421, Sony ECM 56, Schoeps CMT 26, E.V. DS-35, RE-20, 635A, Shure SM-57, SM-58, SM-81, Beyers M-101, DI boxes with Sescorn and Jensen transformers
Rates: Upon request
Extras: Live album recording, live broadcast mixing, television specials, film soundtracks, and stationary album production
Direction: The Artisan Recorders Mobile unit was developed nearly four years ago for uncompromising recording and broadcast of live performance. It is still the only mobile unit in its class in Florida. Now, with a list of credits which defies our mere four years in business, we have gained recognition for our experience in a wide variety of remote situations. Artisan Recorders is more than an outstanding recording environment on wheels—it is a crew of artists in their own right, who have great pride in their work and an understanding of music. Some of recent clients are the Bee Gees, Pat Benatar, Roy Clark, the Commodores, Crosby, Stills and Nash, George Martin, Willie Nelson Wayne Newton, Jaco Pastorius, the Police, Lou Rawls, Kenny Rogers, Linda Ronstadt, Leon Russell, Supertramp, and Weather Report

•••• AUDIO MEDIA RECORDERS

808 19th Ave. South, Nashville, TN 37203
(615) 327-9301

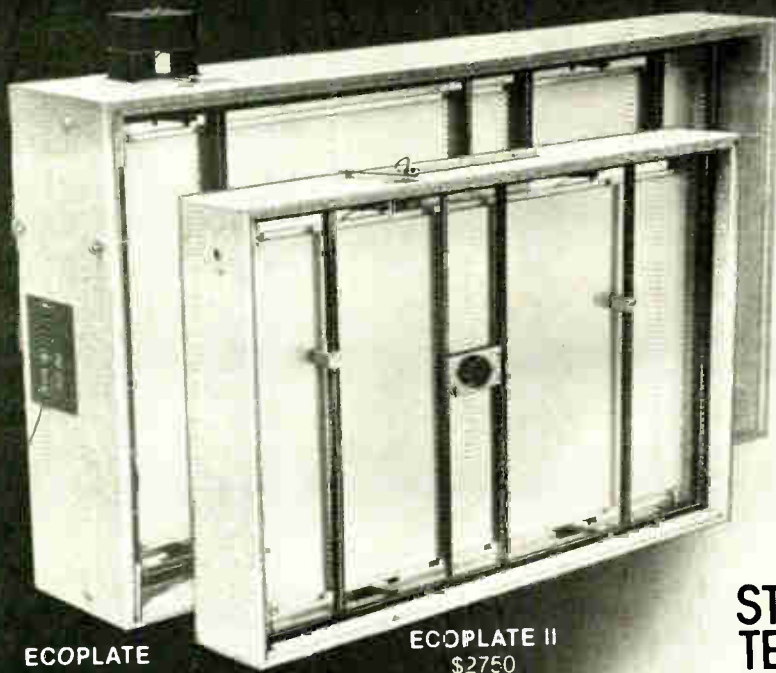
Owner: C.E. Jackson, Paul Whitehead, Doug Yoder, R.C. Patnick
Studio Manager: Paul Whitehead
Dimensions of Studios: #1 30' x 28'; #2 14' x 13'
Dimensions of Control Rooms: #1 22' x 16'; #2 13' x 16'
Tape Recorders: #1 Studer A-80 24 track, Studer B-67 2 track, #2 Studer A-80 24 track, Studer B-67 2 track
Mixing Consoles: #1 Harrison 3232C, 28 in x 28 out, #2 Harrison MR-2-28
Monitor Amplifiers: BGW, Phase Linear
Monitor Speakers: Westlake TM 1 JBL 4310, and Auratone in both studios
Echo, Reverb, and Delay Systems: (3) EMT stereo units Lexicon 102
Other Outboard Equipment: Eventide Harmonizer, (6) dbx 160s, dbx 165, Dolby noise reduction, UREI 1176LN's (2), (2) LA3As, stereo Orban EQ, Pultec EQ, Accu Punch, Accu Sync
Microphones: Shure SM-57's, Sennheiser 421, Neumann 87 FET, 47 FET, 67s, 249s, 84s, AKG 414s, 451s, 202E, C-60, E.V. RE 20s, RE-15s, 635s; Studer Schoeps SKM5s
Instruments Available: Yamaha 9' grand, B3 organ, Fender Rhodes, Hohner clavinet, Wurliizer electric piano, ARP Axse and Omni, Pearl drum set, 50 percussion instruments
Rates: Supplied on request and based on volume

•••• AXIS SOUND STUDIO

1314 Ellsworth Ind. Dr., NW Atlanta, GA 30318
(404) 355-8880

Owner: International Music Marketing, Inc
Studio Manager: George Pappas
Engineers: George Pappas, Greg Webster Les Horn
Dimensions of Studios: 40' x 60' x 24', 12ea 20' moveable panels, semi-floating floor
Dimensions of Control Rooms: 40' x 25' x 12'
Tape Recorders: Studer A-80 24 track, Studer A-80RC 2 track, Studer B-67 2 track, Ampex 440 4 track Ampex 440 2 track
Mixing Consoles: Neve/Necam computer automation 8068, 32 in x 24 out
Monitor Amplifiers: Crown, McIntosh, Studer
Monitor Speakers: JBL, MDM, Auratones
Echo, Reverb, and Delay Systems: EMT 140 plates (2), Eventide Digital Delay, DeltaLab DL2
Other Outboard Equipment: Sontec parametric EQ, Harmonizer, Neve compressor/limiters, Marshall Time Modulator, UREI limiters, Kepex rack, dbx compressors, Fairchild tube compressor
Microphones: Neumann tube U-47's U-87, KM 86, KM-84, Sennheiser 441, 421, AKG 452, 414, D-12, E.V. RE-20, Shure, Studer SKM-54
Instruments Available: Yamaha grand piano, Hammond B-3, Fender Rhodes, clavinet, Fender amps Mini Moog
Rates: \$150/hr, daily rates negotiable

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Studer A-80 VU II 24 track with 16-track capability, Studer A-80 RC 2 track, Studer B-67 2 track, Ampex AG-440B 4 track Studio A
Mixing Consoles: Harrison 3232 A/B (Studio A), Harrison 3232 C (Studio B), Harrison MR11 (Studio C)
Monitor Amplifiers: Altec BGV Crown McIntosh Sony
Monitor Speakers: Studio A: Modified JBL 4333 with Gauss woofers, Studio B THE ONES All systems hiamp Sierra (Studio C)
Echo, Reverb, and Delay Systems: EMT 140 stereo plates, (2 per studio), Quad/Eight spring reverb acoustic echo chambers (2 8' x 10' x 35' chambers with nonparallel walls)
Other Outboard Equipment: Dolby (24 tracks in all studios), DDL, noise gate, Harmonizer Phaser Flanger Vocal Stresser limiter/compressors digital metronome, bass and guitar amplifiers, Prime Time
Microphones: AKG Electro Voice Neumann PZM RCA, Sennheiser, Sony, Studer, Superscope
Instruments Available: Fender Rhodes electric pianos (3), Wuritzer electric pianos (3), Hammond B 3 and C 3 organs, clavinet, Celeste, Chickenna grand piano (Studio A), tack piano (Studio C), Steinway grand piano (Studio B), tympani, congas vases, marimba, orchestra bells Mini Moog harpsichord, Steinway grand piano (Studio C)
Rates: 24 track \$165/hr 16 track \$125/hr
Extras: Pre-set string alcove (Studio A), 15 and 30 ips capabilities in all studios. Other instruments and equipment may be available upon request—ask us!
Direction: To maintain a comfortable creative atmosphere conducive to cutting hit records

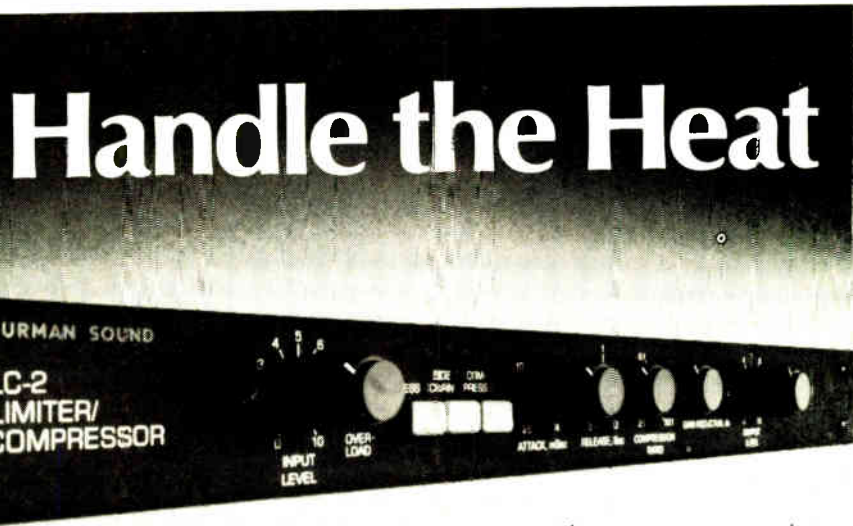
•••• THE SOUND LAB
 1708 Grand Ave., Nashville, TN 37212
 (615) 327-4744
Owner: David Kent
Studio Manager: Jim Cotton

•••• SOUNDSHOP, INC.
 1307 Division St., Nashville, TN 37203
 (615) 244-4149
Owner: Soundshop, Inc
Studio Manager: Craig Deitschmann

•••• SOUND STAGE STUDIOS
 10 Music Circle So., Nashville, TN 37203
 (615) 256-2676
Owner: 8 Owners—Incorporated
Studio Manager: Pat Meyer
Engineers: Warren Peterson Chief Engineer Brent King, Steve Fralick; Keith Odle Maintenance Engineer
Dimensions of Studios: 48' x 30', 30' x 20'
Dimensions of Control Rooms: 15' x 30' 24' x 24'
Tape Recorders: (2) Studer A-80 24, (2) Studer A 80 2 track, Studer A-67 2 track, Studer B 67 2 track (2)
Mixing Consoles: Trident TSM 12 in x 32 out Neve R068, 32 in x 16 out
Monitor Amplifiers: BGV Revox Crown AB Systems and McIntosh
Monitor Speakers: Westlake TM 1, MDM 4, Boliver, Yamaha, Auratone
Echo, Reverb, and Delay Systems: EMT 140 (4), EMT 240 Gold Foil, EMT 251, Lexicon Delta T Lexicon Prime Time Cooper Time Cube (UREI)
Other Outboard Equipment: Eventide Harmonizer, UREI and dbx limiters, Scamp Rack (compressors and parametric EQ) Orban D'Esser, Pultec EQ UREI parametric EQ, Orange County stressor/compressor, parametric EQ, Kepex/Gain Brain rack
Microphones: Neumann M249c, U 47 U 87 KM86 KM-84, AKG C 414, 451 452 D-224 D-12E, 202, Sennheiser 421, 441, Sony ECM 50 ECM 22, ECM 33, C 38, Beyer M 69, M 260, Studer SKM 5, SKS 501, PZM plates; E V RE-16 RE-20
Instruments Available: 9 Hechstein, 7 Steinway, Rhodes H8 & 73, Hohner clavinet, Wuritzer B 3 Hammond organ, Leslie 122 Startack piano
Rates: \$130/hr

•••• SOUNDTRACK RECORDING STUDIO
 2830 Dogwood Place, Nashville, TN 37204
 (615) 297-2239 or 269-0394.
Owner: Wayne Edmondson
Studio Manager: Wayne Edmondson

•••• SOUTHERN TRACKS RECORDING
 1224 Fernwood Cir. N.E., Atlanta, GA 30319
 (404) 231-9319, 231-9489
Owner: Bill Lowery
Studio Manager: Mike Clark
Engineers: Doug Johnson Mike Clark Janet Synder
Dimensions of Studios: 22' x 58'
Dimensions of Control Rooms: 20' x 16'
Tape Recorders: Ampex 1200 24 track Studer A 80 2 track, Ampex 440 2 track, Ampex 440 2 28 in x 24 out
Mixing Consoles: Harrison 2824 28 in x 24 out
Monitor Amplifiers: Crest BGV, AB, Crown
Monitor Speakers: JBL 4320, 431-1, Auratones
Echo, Reverb, and Delay Systems: Lexicon 224 digital EMT Lexicon Prime Time
Other Outboard Equipment: Orban parametric Vocal Stresser, Eventide Harmonizer dbx 165's and 160's limiters White and UREI EQ's, Kepex's, Ilançe, Godwin exciter



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 a hot band on your hands—but
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24 TRACK

Microphones: Neumann U-87's, U-47's, U-84's, U-88; AKG 414's, 452's, Sennheiser 441's, 421's, Shure 57's, 53's
Instruments Available: Ludwig drums, Rhodes Mark II, clavinet, Wurliizer Yamaha grand Prophet 5, Mini Moog, percussion instruments
Rates: \$135/hr, block booking rates on request



*S.R.S. Solid-Rock Sound
Birmingham, Alabama*

**** **S.R.S. (SOLID ROCK SOUND RECORDING STUDIO)**
also REMOTE RECORDING
536 Hoffman Rd., Birmingham, AL 35215
(205) 833-6906
Owner: Noah L. White
Studio Manager: Noah L. White
Extras: Recording Institute of America engineering course taught, custom record and tape orders
Direction: Fully equipped 24 track large production facility. Quality Christian productions serving the needs of the Christian recording industry

**** **STUDIO ONE**
3864 Oakcliff Industrial Ct., Doraville, GA 30340
(404) 449-5147
Owner: Buddy Buse, Bill Lowery, Jr., Cobb
Studio Manager: Rick Maxwell
Engineers: Rodney Mills, Greg Quessel, Rick Maxwell
Dimensions of Studio: 30' x 50' x 20'
Dimensions of Control Rooms: 20' x 30' x 10'
Tape Recorders: Studer A80 24 track; MCI JH 110 2 track; Scully 280 2 track
Mixing Consoles: Harrison 3232, 32 in x 32 out
Monitor Amplifiers: B3W 750, 500 and 250
Monitor Speakers: JBL 4350, 4313; Visonic Little Davids, D-60's
Echo, Reverb, and Delay Systems: Lexicon 224 digital delay, 3 natural chambers, EMT plate, Lexicon Prime Time, Eventide Harmonizer, Marshall Tube Modulator
Other Outboard Equipment: UREI 1176 limiters, dbx 162 limiters, ADR Vocal Stressor, Aphex Aural Exciter, Orban parametric EQ, UREI parametric EQ, Orban stereo synthesizer, Space Echo
Microphones: Neumann U-87, U-47, U-84; Sennheiser 441, 421, AKG 451, 452, 414, Beyer M-500; Shure SM-56
Instruments Available: Yamaha grand, Hammond B-3
Rates: \$145/hr Block time available

**** **TELSTAR RECORDING STUDIO**
2074 17th St., Sarasota, FL 33580
(813) 365-0337
Owner: Rick C. Moulton
See photo in next column



*Telstar Recording Studio
Sarasota, Florida*

**** **TRAKS INC. RECORDING STUDIOS**
1943 N.E. 148th St., Miami, FL 33181
(305) 940-4848
Owner: Roland Hanneman
Studio Manager: Robert Kutchera

**** **TRIAD RECORDING STUDIOS, INC.**
also REMOTE RECORDING
5075 N.E. 13th Ave., Ft. Lauderdale, FL 33334
(305) 771-1431
Owner: Douglas Weymark, Michael Laskow
Studio Manager: Michael Laskow
Engineers: Vince Oliver, Michael Laskow, Robert Cotti
Dimensions of Studio: 45' x 23' x 20'. Pyramided roof sound diffusion system
Dimensions of Control Rooms: 21' x 14' x 13' diffused to 9' at console
Tape Recorders: MCI (2) JH 110-L 2 track, MCI JH 114-24 24 track, Technics cassette recorder 9900, JVC KD-85, Technics 1506 4 track
Mixing Consoles: MCI JH 528B with plasma displays, 28 in x 24 out
Monitor Amplifiers: IBL 6233 "Ice Cubes", McIntosh 2100's Crown D-60
Monitor Speakers: UREI 813 Time Aligns, JBL 4311's, IBL 4333's, Auratone S-C Cubes, Mini Reds
Echo, Reverb, and Delay Systems: Lexicon Digital Reverb 224, Lexicon 93 Prime Time, 2 live echo chambers, 11' x 13' x 15.9' slope to 20', MICMIX stereo Master-Room
Other Outboard Equipment: dbx 165, dbx 160 compressor/limiters, UREI LA4 and LA2A tube limiter, Eventide Harmonizer, Eventide Omnipressor, Kepex, Gain Brains, Dolby noise reduction, Orban parametric EQ, UREI 527-A graphic EQ's
Microphones: Neumann U-87, U-47, AKG 414-EB; Sennheiser 441, 421, Sony ECM 56P, ECM 50, ECM 33P, Electro-Voice 635A, RE-20, Shure SM-57, SM-54E
Instruments Available: Yamaha 74" grand piano, Ludwig drum sets, Amplifiers, guitars, etc. upon availability but any instruments through rental
Extras: Total privacy, racquetball courts with Jacuzzi, nearby restaurants, hotels, beaches, fishing, 'Ai-Lai,' and boating
Rates: Upon request
Direction: Credit: Neil Young, Marshall Tucker, Eddie Money, R. Montrose, Melanie, Helen Reddy, Pat Travers, Terry DeGano, many others

**** **TRI-STATE RECORDING CO.**
2006 E. Center St., P.O. Box 3860, Kingsport, TN 37664
(615) 246-9701
Owner: Tiltford Salyer
Studio Manager: Rick Salyer
Engineers: Rick Salyer, Chief Engineer, Bobby All, John Wheeler, Randy Manis
Dimensions of Studio: 23' x 45' x 14', 10' x 10' isolation booth
Dimensions of Control Rooms: 17' x 24' x 10'
Tape Recorders: MCI JH 114 16 and 24 track; Ampex AG-440 2 track, Nakamichi 1000-II cassette 2 track
Mixing Consoles: MCI JH 416, 24 in x 24 out
Monitor Amplifiers: (2) McIntosh 2100's Crown D-60 for Auratones
Monitor Speakers: JBL 4331's tuned by The Company, John Gardner, Auratone 5C's, Altec A7's and AR used for comparison
Echo, Reverb, and Delay Systems: EMT (plate), Eventide DDL, AKG (spring)
Other Outboard Equipment: Eventide H949 Harmonizer, UREI limiters and compressors, White Graphic EQ, various phasers, flangers and other effects, additional 2 track recorder for 7 1/2 ips copies; Hughes Aircraft oscilloscope with memory for waveform analysis
Microphones: Neumann U-87, U-47 tubes (original), U-47 Nuvisitors, KM-84; RCA 44BX, 77DX, Sony C-22's, C-37P's,

ECM 50, 150, Shure SM-57's, E-V RE-10, RE-55; AKG D-1000, D100, Beyer M-100; over 50 altogether.
Instruments Available: Ludwig drums, Hammond RT3 concert organ, Yamaha grand piano, Wurliizer electric piano, Deagon vibes, ARP Omni 2, Hohner clavinet, Fender Precision bass, plus a complete staff of house musicians with more available instruments
Rates: \$85/hr for 24 track, \$65/hr for 16 track, \$25/hr for 2 track
Extras: Complete production staff available. Can contract musicians for sessions of all sizes. Radio and TV commercial production. Snack bar, record-pressing plant, tape duplication plant on premises
Direction: We're up here at the mountains with great equipment, facilities, and the people who know how to use them right. We offer lower rates, and most of all, cooperation with our clients to produce the sound that they're looking for. We've been here 16 years, so we know what we're doing

**** **WEB IV RECORDING STUDIO**
2107 Faulkner Rd. N.E., Atlanta, GA 30324
(404) 321-5993
Owner: Ilene Berns
Studio Manager: David Powell
Engineers: Ed Seay Chief Engineer, Richard Wells, Tommy Cooper
Dimensions of Studio: 30' x 70' x 18'; 1000 sq ft of hardwood floors, 1100 sq. ft. of carpet floors
Dimensions of Control Rooms: 19' x 18'
Tape Recorders: Studer A80 w/dbx noise reduction, 24 track; Studer A80 VU, 15/30 ips, 2 track; Studer A80 RC 7 1/2/15 ips, 2 track; Ampex 440B 7 1/2/15 ips w/Dolby A & dbx, 2 track; Revox B77 3 3/4/7 1/2 ips 1/4 track
Mixing Consoles: Sphere Eclipse Type-C w/Allison Automation, 32 in x 24 out
Monitor Amplifiers: Crest P-3500, Studer A-68, AB 410, AB 105, McIntosh 2105, Yamaha P 2200
Monitor Speakers: JBL 4350, JBL L100, ROR, Auratone, IBL 4313 Beyer headphones
Echo, Reverb, and Delay Systems: EMT 250 digital reverb, delay, chorus, echo w/built-in send delay and EQ, mono in, 4 outputs, EMT plate mono in stereo out, 2 live chambers 7' x 11' x 8', Eventide Harmonizer H949, Marshall Time Modulator 5002, Lexicon Prime Time, Lexicon 102-B digital delay, Eventide Instant Phaser
Other Outboard Equipment: 3 UREI 1176's, 2 LA3A's, ADR Vocal Stresser F769X-R, Orange Country vocal stresser, 2 Kepex's, dbx 165, 160 (2), 162; Pandora LM 402, 2 Gain Brains, Audio Arts 4200 parametric EQ, Orban/Parasound parametric EQ, Orban/Parasound sibilance controller S16, Pultec EQP-1A3 EQ, UREI 527-A graphic EQ
Microphones: Neumann U-87's, U-89's, U-47's FET, KM-84's, KM-86's, KM-88, AKG 414's, 451/452's, C-24 stereo tube, D-224's, D 1000, Sennheiser 421's, 441's, Shure SM-57's; E-V RE-20's, RE-15, RE-10, 635; Schoeps (Studer) SKH54U
Instruments Available: Baldwin 9' concert grand piano (enclosed), Chickering 9' concert grand piano, 2 Fender Rhodes 73 stereo electric pianos, Wurliizer electric piano, RMI electric piano, Hammond B-3 organ, Yamaha Electone organ, Hohner D-6 clavinet, Hohner Pianet, Oberheim OB-X polyphonic synthesizer, ARP Odyssey synthesizer, ARP Pro Soloist synthesizer, Syntrons, marimba, vibes, misc. percussion
Rates: Please call for rates (404) 321-5993
Extras: Outboard equipment and instruments available at no extra charge, lounge and refreshment machines, color TV, pinball and video games
Direction: Paul Davis, Nigel Olsson, Peabo Bryson, Melissa Manchester, S.O.S., Brains, Brick, and Sea Level

**** **WISHBONE RECORDING STUDIO**
also REMOTE RECORDING
Webster Ave., Muscle Shoals, AL 35660
(205) 381-1455
Owner: Terry Woodford, Clayton Ivey
Studio Manager: Lee Daley
Engineers: Lee Daley, Terry Woodford
Dimensions of Studio: 1360 sq ft
Dimensions of Control Rooms: 576 sq ft
Tape Recorders: MCI JH 100 with locator and VSO, 24 track; Ampex ATR 100 with locator 2 track, MCI JH 110A with locator 2 track, Scully 280 2 track, Pioneer and Kenwood cassettes
Mixing Consoles: MCI 600 w/500 automation, 28 in x 24 out
Monitor Amplifiers: BGW 250's (2), 750, 100's (2), Crown 150, 60
Monitor Speakers: Westlakes, JBL 4311, Auratones
Echo, Reverb, and Delay Systems: EMT 140 TS stereo plate with remote stereo acoustic chamber buried out back of studio
Other Outboard Equipment: 2 UREI 1176N compressor/limiters, 2 UREI LA3A leveling amps, 4 Allison Gain Brains, 4 Allison Kepex's, UREI filter set, Eventide Harmonizer, Eventide Flanger, ADR Vocal Stresser, 2-channel Orban parametric, Lexicon Prime Time, Orban sibilance controller
Microphones: At least 2 or more of each: Neumann 87, 47, KM-88, KM-84, AKG 224, 414, 451, 109, CS-15, Shure SM-7, 545, 555, Sony ECM 33P, Electro-Voice RE-20, RE-25, RE-10, 1751, Sennheiser MD-421
Instruments Available: Hammond C-3 and M-3 organs with Leslie, Yamaha grand piano, stereo Rhodes piano, Wurliizer electric piano, Hohner D-6 clavinet, Quad syndrums, Musser vibes, Rogers drums, Pearl concert toms, Fender and Music Man amps, Acoustic guitars, Fender jazz bass, percussion instruments, MXR,

24 TRACK

Mutron, Echoplex devices

Extras: Affiliates: Sona Tailors Music Company (BMI), I've Got The Music Company (ASCAP), Flying colors (video production co.), Flight Log Cabins Motel located adjacent to the studio, open to the public, tennis courts, horseshoes, children's playground, porch swings and Wishbone branch offices in Nashville and Los Angeles

Direction: Rhythm section is one of the tops in the country: F.C.C., Hank Williams Jr., Mat McAnally, Robert Byrne, Hot Roy Orbison, Millie Jackson, Thelma Houston, Lenny LeBlanc, Vicki Sue Robinson, Muscle Shoals Horns—acts that have recently recorded here

WOODLAND SOUND STUDIOS

also REMOTE RECORDING

1011 Woodland Street, Nashville, TN 37206
(615) 227-5027

Owner: Ernie's Record Mart, Nashville, TN

Studio Manager: Glenn Snoddy

Engineers: David McKinley, studio supervisor, Russ Martin, Rick McCollister, recording engineers, Denny Purcell, mastering supervisor, Hank Williams, mastering engineer; Jim Pugh, R&D Director, Kerry Kopp, Technical Supervisor, Mike Porter, Technical Engineer, Steve Ham, Recording Engineer, Ema Jean Bean, Traffic Mgr.

Dimensions of Studios: A: 45' x 35' x 22'; B: 36' x 24' x 16'
Dimensions of Control Rooms: A: 22' x 17' x 79'; B: same as A

Tape Recorders: (2) Studer A80, 16 and 24 track, (2) Studer A80-R, 2 track, (2) Studer A80 RC, 2 track, Studer A 67 1/4 track, Studer B-67, 2 track, Studer A 80 pre-listen, (2) Ampex 440, 4 track, Ampex 440, 8 track, Ampex mono

Mixing Consoles: Neve 8048, 24 in x 24 out, Neve 8078, 36 in x 24 out

Monitor Amplifiers: AB systems 410, McIntosh MC2200, MI75, Crown DC300, Altec 128B

Monitor Speakers: THE 1, MDJ-4, Westlake TM1, Auratones, Altec 9845

Echo, Reverb, and Delay Systems: Echo EMT, AKG, Delay Prime Tune, DDL

Other Outboard Equipment: UREI digital metronome, Harmonizers, Pandora digital time line, UREI 1176s (5 A, 4 B), Even tide Clockworks Instant Phaser, Orban D'Esser 1-50 or 60, crystal syn. pulse generator, 14KC Signal generator sync (for film use), Nakamichi 700 III cassette deck, Nakamichi 1000 II cassette decks, 66 channels Dolby, 56 channels dbx, (4) UREI LA4As, ADR Vocal Stresser, (2) Lexicon Prime Times

Microphones: AKG C414 FB, C452 EB, D224 F, Altec M 49; Electro-Voice RE 11, RE 15, RE 16, RE 20, RE-50, 635-A, 668, 1751 & 649, Neumann U 87, U-47, U-67, KM 86, M 249B, RM-84, Sennheiser MD 421II, Shure SM 56, SM-53, SM 54, SM 7, Sony ECM-50, ECM-22P, C-55, Studer SKM5-U

Instruments Available: Steinway grand pianos, Hammond organs (B 3, C3), Wuritzer electric pianos, Fender Rhodes pianos, Hohner clavinet, Allen electronic harpsichord, Celeste, electronic chimes, IS, vibes, tack piano, latin percussion, congas, ARP String Ensemble, set of orchestra bells, studio drums, Fender guitar amps

Rates: On request

Extras: Editing room, editing tape copies, album assembly, speed change, cassette copies, disc to tape transfer, etc. 2 disc mastering studios with Neumann lathes SX74 cutting head, tuned Westlake monitor systems, Studer playback & copy machines

Direction: Current records: Conway Twitty & Loretta Lynn, Freddie Hart, Eddie Rabbit, Margo Smith, England Dan (Dan Seals), Brenda Lee, Charlie Daniels, Barbara Mandrell, The Oak Ridge Boys, Jerry Fuller, John Conlee, Billy "Crash" Craddock, Conway Twitty. Gold records on Slim Whitman, Kansas, Ronnie Milsap, Neil Young, Nitty Gritty Dirt Band. Platinum records on Charlie Daniels Band, Kansas, Carroll Baker. Triple platinum on Kansas. Woodland stresses quality of equipment, mixers and maintenance. Two full time maintenance engineers available to compliment the highest quality consoles and tape recorders. Fair dealings with our clients over 12 years has established Woodland as a professional facility with a home-like atmosphere.

YOUNG'UN SOUND

114 17th Ave. South, Nashville, TN 37203

(615) 244-5656

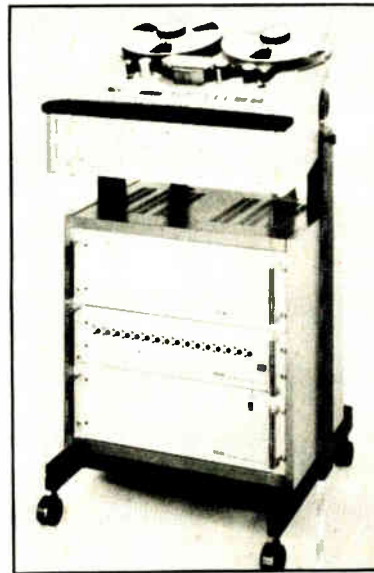
Owner: Chip Young

Studio Manager: Chip Young

Engineers: Chip Young, Stan Dacus, Glen Ruel

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Ardent Recording—Mastering 2000 Madison Avenue,
Memphis, Tennessee 38104 Phone (901) 725-0855

Dimensions of Studios: Studio P P 36 x 30, including drum booth, vocal booth and string porch. Studio T T 20 x 15 under construction.

Dimensions of Control Rooms: Studio P P 18' x 15'. Studio T T 12' x 13' under construction.

Tape Recorders: Ampex MM1200 24 track. Ampex MM1100 24 track. Ampex ATH 1001 2 track. Scully 4 track. 3 Ampex 440 2 track.

Mixing Consoles: Sphere Eclipse C 40 in x 52 out. Budweiser Special tube console custom 20 in x 24 out.

Monitor Amplifiers: McIntosh 2300 on bottom, 2100 on top.

Monitor Speakers: Westlake, room design by Valley Audio.

Echo, Reverb, and Delay Systems: Lexicon digital reverb, EMT 141 mono plate, Quad Eight springs.

Other Outboard Equipment: Lexicon Prime Time, Marshall Time Modulator, Eventide Harmonizer, Jbx limiters, UREI limiters, tube limiters, filters and additional EQ.

Microphones: Neumann AKG, Sony, Sennheiser, Electro Voice, Shure.

Instruments Available: DD Baldwin grand piano, Allen harp, Wurlitzer electric piano, Hohner clavinet, Fender Rhodes, chimes, Celeste, marimba, vibes, guitar & bass amplifiers, full set Pearl drums.

Rates: \$125/hr. plus late. Nooyer bar rate, blank booking and freelance engineer information (615) 244-8650.

♦♦♦ F.E.A. RECORDING
1208 Eastview St., Jackson, MS 39203
Cable FEAMERICA
(601) 969-3717

Studio Manager: Marc Frascogna

Engineers: Chris Walker

Dimensions of Studios: 30' x 20'

Dimensions of Control Rooms: 20' x 20'

Tape Recorders: MCI JH 114 24 track, MCI JH 110B 2 track

Mixing Consoles: MCI JH 636, 28 in x 24 out

Monitor Amplifiers: Crown DC 150's

Monitor Speakers: JBL 4320, JBL 4310

Echo, Reverb, and Delay Systems: Master-Room echo

Other Outboard Equipment: UREI LA3A limiters, Dolby

chorus echo, Harmonizer

Microphones: Neumann U 87, Sennheiser 421, AKG 414,

D224E, Shure SM 56, SM 57, Sony ECM-22P, AKG D160E,

D202E, Electro Voice RE-20

Instruments Available: Yamaha baby grand piano, Rhodes

piano, complete drum set, various percussion instruments

Rates: 24 track recording time \$100/hr., 24 track mixing time

\$75/hr., 2 track recording time \$40/hr.

Direction: Freedom (Malaco Records), Sho Nuff (Stax Fantasy

Records), Peggy Scott (Polydor Italy), Ampex Golden Reel

Award for Ronnie Prophet "Just For You", Valerie Walker

(Polydor International), Norma Jordan (Ciao Records Italy),

Mississippi (Ciao Records Italy). FEA Recording is devoted to serv-

ing its in-house production needs as well as those of local pro-

ducers.

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feedback
appeal

Dear Mix,

The December 1980 issue of Mix quotes Gerry Block, the designer of the new Compu-disc cutting system, saying "... one client compared all of the New York mastering systems... Compu-disc gave him 3 dB more level than any-one else." This statement implies that the Compu-disc system is the best in New York, which strikes me as a bit unscientific. There is a world of difference between a laboratory controlled evaluation of a cutting system and the results of a client walking into several studios and making comparisons.

To my knowledge there does not exist any scientific evaluations of any of the current micro-processor pitch/depth control systems: Compu-disc, Zuma, CBS Diskcomputer, Newmann VMS-80 or others. I would certainly welcome such a paper.

Here at Masterdisk we have four cutting engineers. If a client were to have each engineer work independently on his project he would most certainly walk away with four discs that were differing from each other in some ways. Having once been Vice President of another New York disc cutting studio, I assure you that the same would apply there as well as any cutting studio in the world. Disc mastering is an art, the person operating the equipment makes a great deal of difference. Most likely, every major cutting engineer could cite an instance where he did a superior job when compared to another engineer who had access to similar or even better equipment.

Finally, I would like to point out that recently CBS required that all of their records play without skipping on a BSR 25CX turntable. The 25CX has a ceramic cartridge in a heavy tone-arm with zero anti-skating compensation. Even technically perfect grooves will often mis-track on BSR's bottom-of-the line turntable. While not commenting on the virtues of this corporate decision, who cares how tightly one can now theoretically accommodate this lowest common-denominator turntable.

Robert Ludwig
Chief Engineer
Masterdisk Corp.

Dear Mix,

Congratulations on what I think to be your best issue yet, MIX December, 1980. I found it to be enjoyable and quite informative. I especially enjoyed the article on Leon Russell's Paradise Studios. It's about time someone got out there to check out Leon's unique facility.

I also enjoyed the information on mastering and discs, and I wish you would consider a story on Dave Gold and Stan Ross at Gold Star Studios! Stan & Dave have been cutting here at Gold Star for 30 years. In this business, that's impressive. Otherwise, thanks for a fine issue.

Johnette Hartberg
Administrative Assistant
Gold Star Studios

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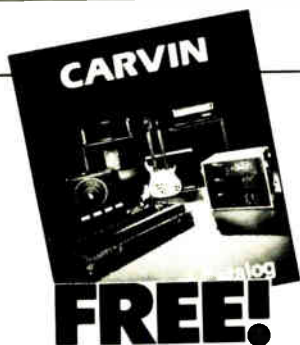
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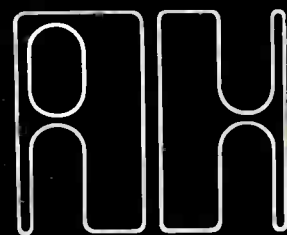


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