



Who said ... a Recording Engineer's Life is Dull?

By Gordon Sherman, Recording Engineer
KMOX-St. Louis

KMOX has made approximately 30,000 records during the past eleven years. Many of these recordings were made under unusual circumstances in the field.

Today at KMOX we have four permanent recording channels and four field units. These field units consist of every type of recording equipment, including disc, wire and tape. Since 1936, however, practically all field records have been made with our disc equipment.



Gordon Sherman

These field assignments have taken me into 25 states, Mexico and out on the high seas. It would be difficult to pick out any one assignment as the most interesting, as practically all involved different subjects and different technical problems.

In the summer of 1937, KMOX inaugurated a society page of the air and the field department was assigned to cover summer resorts frequented by prominent St. Louis citizens. Marvin Miller, former KMOX announcer, and I visited a number of exclusive Michigan beaches. At each location we set up our equipment on the beach. Miller, attired in a bathing suit and with a mike in hand, waded into Lake Michigan to interview St. Louisans at play.

The same year, Dan Donaldson, also a former KMOX announcer, and I were assigned to cover the erection of the Alton (Illinois) Dam, reporting various phases of construction and interviewing the workers on the job. At one time, my recorder and I located on a ledge no more than four feet wide and about 500 feet in the air. Danny, suspended in a basket by cable and swinging in mid-air, shouted to workmen nearby and received their shouted replies to his queries.

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WBKY-University of Kentucky "FM" station records a University Round Table discussion. Pictured left to right are Dr. Arnold Anderson, Dr. Amny Vanderbosh, Glenn P. Morrow and Dr. Howard Beers. Inset—Gloria Hedges and Rudolph Landin handle the recording equipment in the control room.

WBKY, University of Kentucky's "FM" Station Uses Recordings In Three-Fold Capacities

By Elmer G. Sulzer, Radio Director
UNIVERSITY OF KENTUCKY
Lexington, Ky.

The plaintive strains of Barbara Allen, sung by the Kentucky mountain girl, and accompanied on a home-made dulcimer, will not be lost to posterity, because of an activity which has been carried on for

Top Dailies to Conduct Regional Script Awards

Interest High in Writing Competition

Many leading newspapers will conduct preliminary contests in the 1947-48 "Scholastic Writing Awards," Mr. William D. Boutwell of Scholastic Magazines, sponsors of the yearly writing competition for high school students, announced recently. "Among some of the papers who have agreed to offer their services in promoting our writing awards," Mr. Boutwell said, "are: the Birmingham Post, Knickerbocker News (Albany, N. Y.), Dayton Daily News, Detroit News, Hartford Courant, New-

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a number of years now by WBKY, the University of Kentucky's Frequency Modulation station. As often as opportunity permits, well-known performers of Southern Appalachian Balladry are brought to the University's studios and their entire repertoires recorded. Usually three copies of each record are made—the original which reposes undisturbed in the station files; a copy of which is used on programs; and another copy which is usually dubbed at 78 RPM and given to the performer.

As a result of this policy, the University of Kentucky's FM station is accumulating a definitive set of American folk records that some day will be priceless. Among the performers brought into the studios are John Jacob Niles

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audio record

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Recording and The Small Market Station

By John Alexander, General Manager
KODY-North Platte, Neb.

Every small market station in the United States, interested in covering the special events of its own territory, will find their recorders of inestimable value. Truly, they are worth their weight in gold!



John Alexander

At KODY we have five recorders. All of them are put to good useage practically every day. Our equipment consists of two portable transcription recorders, two tape recorders and one wire recorder. If other small market stations are similar in operation to KODY, they do not have large program budgets. Money for direct lines and loops throughout our territory simply is not available. Consequently, our recorders are on the job night and day. At KODY, we have a policy of covering every special event that has significance in our area. Eighty per cent of these coverages are accomplished with discs, wire or tape.

At KODY, we carry a heavy schedule of commercial network. Consequently, recordings must be utilized so the various special event programs can be delayed to periods of time that are available. Example: In the winter, we cannot carry the Basketball Games at the time they are actually played due to commercial network commitments. We transcribe each game in its entirety and replay later the same evening.

Like many other stations today, we find the wire and tape recorders of tremendous value in obtaining up-to-the-minute news. Practically all our locally-originated newscasts carry one or more recorded statements from local officials, celebrities visiting our city, or people who are in the news.

At KODY, we look upon our recorders as a great asset to our Program De-

partment. We promote them and publicize the things we are able to accomplish with their help. We have displayed and demonstrated our wire and tape recorders before innumerable civic clubs and organizations in KODY-land.

It has been a profitable move on our part to invest in good recording equipment and the finest in discs, wire and tape.

Papers to Promote Script Awards (Continued from Page 1)

ark News, Newport News Daily Press, Arizona Republic (Phoenix), St. Louis Star Times, Pittsburgh Press, Binghamton, N. Y. Press, and the Washington, D. C. Star. (These papers will offer special awards for winning entrants in their respective regions.)

"In addition to the great interest shown by the press this year in the "Writing Awards," Mr. Boutwell added, "student and teacher enthusiasm is greater than ever before. This may be due in part to the fact that we have several new classifications for students to choose from. Among them, of course, is Radio Script Writing (the classification which is sponsored by Audio Devices). With so many students interested in entering the radio field, it is almost a certainty that we will receive thousands of entries in this classification alone.

"And speaking of the radio script classification," Mr. Boutwell remarked, "teachers of students who plan to submit entries in this classification are reminded to advise their pupils that scripts which can be readily used by other schools in class plays or that can be adapted for use on Thanksgiving, Christmas or other holiday programs are especially welcome. And then, too," Mr. Boutwell went on, "scripts need not all be serious in structure. Although many fine scripts of this type will be received, those of a humorous nature will certainly be welcome also." (Teachers also are reminded that Audio Devices will award special prizes to those scripts found suitable for publication.)

More complete detailed information on the Radio Script Writing Classification in this year's "Scholastic Writing Awards" (rules and awards) may be obtained by writing Scholastic Magazines, 220 East 42d Street, New York 17, N. Y.

ATTENTION

The Editors of Audio Record welcome contributions from its readers. Any news concerning your recorded programs or other recording activities, that you believe will be read with interest by recordists, can be used. Photographs, drawings, or graphs needed to illustrate your material will be appreciated also. Address all contributions to:—The Editor, Audio Record, 444 Madison Ave., New York 22, N. Y.



for the Recordist

By C. J. LeBel, Vice President
AUDIO DEVICES, Inc.

TRACKING PROBLEMS

Last month we began a study of conditions for good reproduction from lateral cut discs: the conditions under which the reproducing stylus will faithfully track the groove contour. In its most simple form, we discovered that



C. J. LeBel

when the effective radius of the stylus tip was large compared to the wavelength of the groove, poor tracking would result. This is an oversimplification of the problem, and we now take the matter up in more detail.

There are three factors which

govern tracking:

1. Reproducing stylus tip must be positively coupled to the groove walls. Such positive coupling can be achieved by having the spherical portion of the stylus tip ride on the straight side walls of the groove. This is easily achieved, when desired, by using a slightly larger radius for the reproducing stylus tip than was used for the cutting stylus tip. Incidentally, this mismatch increases the unit area pressure on the area in contact.



Fig. 1 Stylus-Groove Relation for Proper Tracking

To be sure that our recording lacquer will withstand this pressure increase, Audiodisc wear tests for years have been run with such a radius difference. Positive coupling is no longer a problem.

2. Pinch effect When the groove lateral velocity is high, the width of the groove diminishes. Pierce and Hunt¹ showed that this effect produced a second harmonic distortion in the vertical

Much Recording Activity At Syracuse U's Radio Center

Discs—Tape—Wire Used

Equipped with both a wire recorder and two large recording tables for cutting discs, Syracuse University's Radio Center is kept busy transferring sound to groove and wire.

The uses to which recordings are put at the New York School are in general two-fold; for broadcast and for instruction. Regular program series are transcribed in the Radio Center studios and pressings made of the discs which are sent throughout New York state. "Forestry Journal" is one of such programs, which is cut every two weeks and used on 17 stations. The program is done by the College of Forestry and is aimed at education in conservation and better forestry.



Thomas Keiser (left) and Robert Pierce shown cutting half-hour program on two Syracuse University Radio Center recorders.

Among its recording functions, the Syracuse Radio Center cuts commercial discs for advertising agencies, records its own shows for playback on AM stations, WFBL and WSYR, when time is not available for live pick-up, and makes recordings for community groups for use by them.

Students also find recordings to be extremely helpful in performance courses. In Radio Announcing extensive use is made of recordings. Students in Radio Production cut entire dramas, music shows, etc., for playback to the class and criticism.

The equipment is used in making disc recordings synchronized to motion pictures for later transferral of sound to combined print of sound on film.

Another important function is the documentation of special events and University activities. Among the work done in this line were the recording of the entire day's ceremonies at the installation of Dr. Paul H. Appleby as Dean of the Maxwell School of Citizenship and the day-long celebration of Spring Weekend, both of which have been retained as historical university material.

Who said . . . a Recording Engineer's Life is Dull?

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On several occasions, the recording department was requested to furnish unusual, authentic sound effects.

On one occasion, I had to set up my equipment in the bottom of a lead mine shaft and run a mike and cable several hundred feet to a portion of a shaft that was being dynamited. Dressed as a miner, I had to do some crawling in a low, dark section of the mine—the only light coming from the miners' lamp on my cap—to get to the spot where the mike had to be installed.

The mike was placed in a small cavity of the shaft to protect it from flying debris. When the dynamite went off, the recorder, even though quite a distance away, lifted a full inch off the bench it was on. By careful dubbing back at the studio, we produced an authentic record of a dynamite blast, with all of the accompanying reverberations heard in a mine. The record is still in the sound effects file, carefully guarded.

One of the oldest and best programs on KMOX is the "Land We Live In." A great deal of work and expense are put into this show to keep it the best St. Louis production. For an episode on the story of Bagnall Dam, a complete musical score was written and special musical effects simulating the turbines and generators was to be used. The field department was asked to bring back all of the authentic sounds heard in the various sections of the dam and the generating rooms.

We recorded every large separate piece of mechanical equipment and even had the operators of the dam open the water locks so that we could record the water rushing over the locks. From these sound effects, three musical arrangers designed a musical score that was indeed unusual and authentic.

In the summer of 1945, our news editor and I set out for Camp Kilmer, New Jersey. We were assigned to cover the return of the 86th (Blackhawk Division) from Europe. At Camp Kilmer, we set our equipment up on a Coast Guard cutter and put out to sea. Several hours out, we met the transports. While our cutter crossed the wake of these ships, we recorded at close range the return of the boys to U. S. ports.

We stayed with the G. I.'s and returned with them on a troop train to Jefferson Barracks in St. Louis, Missouri. Whenever the troop train stopped for water we would jump out, find an a.c. outlet and start recording interviews with the boys.

In Pittsburgh, the train started pulling out in the middle of a recording.

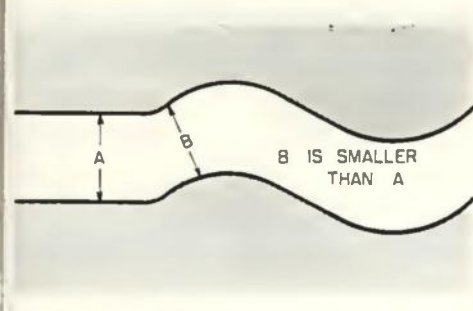


Fig. 2 Groove Width Decreasing at High Groove Velocity

direction, which would cancel out in lateral reproduction only, if the reproducing stylus could lift freely without giving electrical output. This lift is an extremely minute amount; in phonograph record reproduction with an ordinary steel needle the needle can often flex enough to produce the lift without record damage. When reproducing from Vinylite this is not enough, and vertical compliance must be engineered into the design. All modern transcription pickups are so designed, and at least two high fidelity home phonograph pickups have this feature. In short, pinch effect is no longer a problem.

3. Needle radius and groove radius—This portion of the problem is more mathematical in nature, but it may be appreciated by considering the effect of trying to follow minute groove convolutions of small radius with a stylus tip of larger effective radius. This is an oversimplification of a problem which is pro-

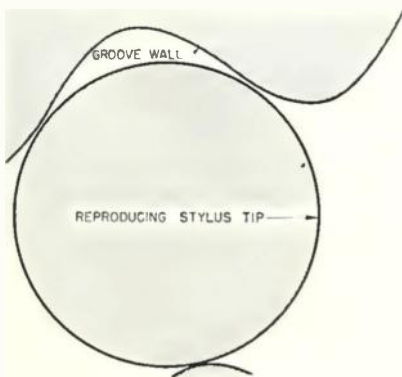


Fig. 3 Reproducing Stylus of Large Radius Failing to Follow Small Groove-Radius-of-Curvature

foundly mathematical in nature, but it is nevertheless an apt illustration. A complete treatment has been given by Pierce and Hunt¹ and Lewis and Hunt².

Brief consideration will show that if we are to faithfully reproduce high frequency tones at high velocity—which combination occurs when using NAB pre-equalization—we require a very small stylus tip. Unfortunately we cannot reduce the tip radius ad finitem, for a number of problems arise:

A. There is a lower limit to the radius which the lapidary can produce
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The recording continued until our cable slack gave out, and then, with the train picking up speed and with the aid of several helping hands, the cable was reeled back into the coach.

Yeh, who said a recording engineer's life is dull?

WBKY, U. of Kentucky "FM" Station Uses Recordings in 3-Fold Capacities

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and Tom Scott, both nationally known collectors and performers of American folk music; the famous Ritchie sisters of Viper, Kentucky, and numerous mountain individuals and ensembles whose fame may be only local, but whose musical interpretations have great value for the student.

Not only balladry is recorded by WBKY. The final commencement address of a retiring University president, the 'round-the-world broadcasts on the "V" days, and many similar occasions have been recorded for possible programs in the future.

But it is not only for the preservation of material that recording services are valuable. A potential radio performer can realize more of his defects by listening to an audition recording, than by hearing hours of verbal criticism. Therefore, we record all doubtful portions of proposed programs so the performers can hear and study the dubious parts.

Of direct training value is the use of recordings in our classes. We have three courses in radio speech at the University of Kentucky—Radio Announcing, Advanced Radio Announcing, and Radio Drama, respectively. In all of these courses at the first of the quarter, each student must record certain material. At the end of the quarter, he does an additional recording, and a careful comparison between the two recordings forms a factor in the grade he gets.

Our third use of recordings is in the transcription of programs to be used by other stations, for in addition to the operation of WBKY, the University of Kentucky radio studios provides innumerable programs for Kentucky's commercial stations. At various times during the year, a single recording, such as Founders' Day Program, may be dubbed and sent to fifteen or more stations. The University broadcasts eight live programs a week over WHAS—Louisville, but recorded stand-by programs are kept at WHAS to be used in emergencies caused by line failures or other causes. Even on its own station, WBKY, transcriptions of its talent may be used when the time the talent can perform doesn't coincide with the time available on the air.

Disc Data

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whilst still retaining other tip dimensions at their correct values.

B. The unit pressure on the reproducing tip rises to an excessive value, producing rapid stylus and record wear, unless the total stylus force is also reduced. The smallest total stylus force so far commercially available, 15 grams, is about half the minimum available before the war.

C. Processing problems may arise.

Nevertheless some consideration will undoubtedly be given to all these factors by the various subcommittees just formed by the NAB.

References:

1. J. A. Pierce and F. V. Hunt, Distortion in Sound Reproduction from Phonograph Records, J.SMPE, vol. 31, no. 2, pp. 157—186, Aug., 1938.
2. W. D. Lewis and F. V. Hunt, Theory of Tracing Distortion in Sound Reproduction from Phonograph Records, J.ASA, vol. 12, no. 3, pp. 348—365, Jan., 1941.

BSRA Welcomes New Members

Applications for membership in the British Sound Recording Association are now being accepted from interested persons in this country. Further information concerning the BSRA and its aims can be obtained by writing W. W. Lindgren, 309 Longfellow St., N. W., Washington, D. C.

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