

Audiotape Development

By William C. Speed, President
AUDIO DEVICES, Inc.

A little over a year ago, Audio Devices, along with several other companies, was invited to Washington by the Dept. of Commerce to examine various pieces of captured German electronic equipment. We were much impressed with the Tone-scriber and several rolls of German plastic base magnetic tape.

Several weeks later, we returned to hear a demonstration by Col. Ranger of the Magnetophone. Samples of tape were made available to us by Mr. E. Webb of the



William C. Speed

Commerce Dept. Reports from Germany by ear witnesses were so impressive, Audio Devices decided to duplicate and if possible improve on the Magnetophone tape. Our research laboratory, under the direction of Ernest Franck, was instructed to put this study high on its priority list.

Research and development went hand in hand. First, a suitable magnetic oxide had to be produced. Then, a tough, non-tearing, moisture resistant base on which to coat the oxide. Finally, we had to design and build a high quality recorder and reproducer in order to test the results of our experiments.

Exhaustive experimentation on magnetic iron oxide included tests on many hundred samples from our own laboratories as well as from others, tests which included signal to noise checks, distortion measurements and relative frequency response, finally convinced us we had surpassed the Germans in the oxide part of our work.

At present, we are using a vinyl film as the base or support for the oxide dispersion. We chose this material because of its free flowing character; a limp highly flexible tape is essential for proper contact with the magnetic heads. Vinyl is also dimensionally stable in spite of changes in humidity, a state unachieved by paper or acetate. Stretch or shrinkage of as little as 1/2 of 1% would be ruinous in a half hour of broadcasting. Finally, we chose a film which is highly tear resistant, a property of great importance both for amateur or professional. However any base is at best a compromise and we feel sure that in due

(Continued on Page 3)



In the control room of Fordham University's FM radio station, WFUV, the cast of a school production listen while a student engineer plays back a recording of the program. William A. Coleman (second from left), Chairman of Fordham's Radio Division, is possibly the most ardent listener.

Radio Students at Fordham University Seeking Professional Careers Rely Heavily on Records

Students who hope to make the grade as announcers, actors or producers on Fordham University's FM broadcasting station, WFUV, must come up to professional standards: and the best method of perfecting their talent is a maximum use of recording facilities, according to William A. Coleman, Chairman of the Radio Division, Dept. of Communication Arts.

Common practice in classes such as Voice and Diction at the New York school is to record each student at the beginning of the course and again at the end of the course, at which time the correction of defects and general improvement should be obvious.

Tom O'Brien, NBC staff announcer who teaches Microphone Technique on the Bronx campus, makes continuous use of tape-recording equipment to permit students to hear themselves as they read commercials, attempt tie-in announcements, and render dramatic narrations. When a student is considered of professional calibre and wishes to apply to a commercial station for work after graduation, he is assisted in cutting an audition disc for submission to his prospective employer. Similarly in the course in Acting for Radio, taught by Clay-

ton "Bud" Collyer ("Superman" of the air waves), a particularly good actor or actress will be encouraged to put on a record the characters in which he or she excels.

Ernest Ricca, well-known free-lance Director ("Helen Trent", "Evelyn Winters", etc.), whom Mr. Coleman has teaching the course in Radio Direction and Production at Fordham, is emphatic about the necessity of students hearing their directorial attempts played back. "Until they are proficient enough for air work", he says, "students must work hard at improving. This means a constant process of directing, listening, and learning."

High fidelity RCA recording equipment in the studios of WFUV is augmented by several portable tape recorders and "Educator" type record cutters, the latter restricted principally to classroom use.

Many Fordham programs which would otherwise be impossible are arranged by

(Continued on Page 4)

audio record

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Writing for Radio

By **Jerrold Sandler, Student**
NEW YORK UNIVERSITY
New York, N. Y.

There are countless high school and college students who are interested in radio writing. In some schools the student's work has a chance to travel beyond the classroom; unfortunately, this is not the case in many instances.

For the past few years, high school students have had the opportunity to compete for prizes in an annual radio script contest conducted by SCHOLASTIC MAGAZINES. (Audio Devices is acting as co-sponsor of the contest this year). Cash prizes are given for the three best scripts, and commendations given to promising writers. This competition gives the student an outlet for his talents, and a chance to be commended for his efforts.

However, until the present time, the college student has not had the opportunity to partake in similar activities. Now, at last, they are being given their chance. Under the auspices of the Association for Education by Radio, college students in the United States can compete in a national radio script contest. As in the high school contest, several co-sponsors, one of which is Audio Devices, will award cash prizes to the three best written scripts. In addition, a collection of those scripts best adaptable for home and school use, will be put in booklet form, and the writers will be amply rewarded. Speaking as a college student of radio broadcasting, and one who has done some work with educational and professional groups, I believe this contest will be welcomed by the college students.

In writing a radio script, choosing a subject is perhaps one of the most difficult problems. So I will outline here a few suggestions which may prove helpful although these suggestions are in no way to be construed as official.

1. *Original dramas.* In this classification, an endless amount of imagination can be utilized. The world of fantasy, if presented in an intelligent manner, always makes for good radio. On the other hand, the writer can get original ideas from newspapers, magazines, the people he meets, the places he sees, etc.
2. *Adaptations.* Short stories, novels, biographies and plays can be adapted for radio, and can make excellent

scripts. Wherever possible, use only those stories or books "in the public domain", i.e. those pieces of literature not under any copyright. (If an adaptation from a copyrighted story is done, and it is reprinted, royalty fees must be paid.)

3. *Programs of local or national interest.* These may include programs to commemorate the birthday of a great American, famous holidays such as Halloween, Thanksgiving, etc., the anniversary of a famous event, or some sports event. The Documentary and "Public Service" dramas are popular forms of presenting the above ideas. These programs of local or national interest could be tied in with the student's work in the classroom e.g. for Washington's Birthday, the student might write a script instead of a composition.
4. Since many of these dramas will be used by schools and home groups, perhaps a short script concerning family life (approximately five minutes long) would make an interesting radio play. Many amusing yarns are ideally suited to script adaptation.

These are some general ideas for prospective radio scripts. There are a few things to guard against. Light scripts have an important place in the contest, since the best scripts will be used by schools, community groups and in homes all over the country. However, that does not mean a serious minded script or well done adaptation or documentary does not also have its place.

In regard to the school presentation of good student scripts, here is some news. In New York City, there is a high school group called "The All-City Radio Workshop" consisting of students interested in radio acting, announcing, writing and production. This group is under the very able guidance of James F. Macandrew and an excellent staff. I was fortunate enough to have worked at their station, WNYE, (The N. Y. Board of Education Station) for about a year and a half. Now, many of the alumni of the Workshop are attending colleges in and around New York. The alumni decided to get together and produce a series on some local non-commercial station. Plans are now being laid for the presentation of last year's prize-winning scripts of the Scholastic competition.

Perhaps in the future the students of this country will help make radio broadcasting a regular part of their education. This can be accomplished only if the students take part in projects such as these radio script contests. Writing radio scripts will not do the job by itself, but it certainly plays a major role in Education by Radio.



By **C. J. LeBel, Vice President**
AUDIO DEVICES, Inc.
MEDIAEVAL CRAFT OR
MODERN PROFESSION

Introduction

At the risk of losing half our readers, we are changing from the usual dry technical discussion to the even drier field of philosophy. The time seems ripe for some philosophizing, albeit only in subminiature doses.

Mediaeval Crafts



C. J. LeBel

In the Middle Ages most technical knowledge was used by craftsmen engaged in the various trades. Organized in tightly closed guilds, these "mysteries" were disclosed only to fellow members and their apprentices. Since craftsmen could not read, transmission of knowledge was verbal. Since guilds were only citywide in scope, general diffusion of knowledge was citywide only. Journeymen traveled from city to city, providing a limited verbal method of further spreading information.

The few engineers then existent could write and draw, of course, but their knowledge was generally acquired verbally, or by personal experiment. Leonardo Da Vinci, a leading military engineer of the next later period (early Renaissance), developed his science by thousands of experiments. There being little incentive for exchange of knowledge, his results were written in private notebooks, fated to be lost in obscurity for hundreds of years.

Mysteries Become Rational Knowledge

With the growth of printing this was all changed. Learned societies became interested in "natural philosophy". Books were written and circulated widely. Secrecy disappeared with the decay of the guilds. With free exchange of knowledge, science and engineering developed rapidly. We had the Industrial Revolution, and thence the Industrial Age of today.

Disc Recording — A Mediaeval Craft

Like other parts of the audio field, disc recording engineering today bears a curious resemblance to a mediaeval craft. It has to be learned verbally, or by personal ex-

(Continued on Page 4)

Audiotape Development

(Continued from Page 1)

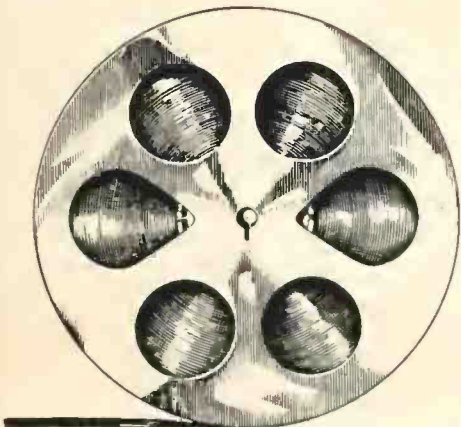
course of time a still better film can be developed which will have all the properties of the best German tape without the disadvantage which apparently they were unable to overcome, i.e., loss of dimensional stability when subject to heat.

Audiotape (trade marked) was chosen as the name for our product and is in our opinion a very proud and suitable companion for Audiodisc. (See cut.)

Audiotape virtually has no surface noise. Under ideal conditions, the signal to noise ratio is something more than 60 db. Equally important is the phenomenally low noise behind signal, probably equal to or superior to the best German efforts.

Frequency response depends on the particular machine used and of course the linear speed of the tape. This is simply to say the "tape" itself has no frequency response. The measurements are relative only, depending upon various factors.

Audiotape, when run at $7\frac{1}{2}$ " per second, is substantially flat to 7000 cy. When run at 18" per second, that is at the speed of motion picture film, it is flat to above 9000 cy., and when run at Magnetophone speed of 150 ft. per minute, is flat to above 15,000 cy. which is required for F. M. Broadcasting. These measurements are all about 2000 cycles better than other tape now available.



Audiotape

Distortion measurements are still more difficult to make because every type of tape has a critical bias. Intermodulation tests indicate extraordinary satisfactory results, however more work is still to be done before final figures can be obtained. Nonetheless measurements for harmonic distortion indicate a figure not above $\frac{1}{2}$ of 1%.

Audiotape is being made available in limited quantities for test purposes. However, within a few weeks we expect to be in full production and as in the case of Audiodiscs, distribution will be carried on by our present distributors.

Audiotape is wound in 1275 ft. lengths on lightweight 8" diameter aluminum reels, made especially for Audio Devices, and on 4700 ft. aluminum flanges, $1\frac{3}{4}$ " diameter,

R— Transcription

By Aaron S. Bloom

Treasurer, Director, Commercial Dept.
KASPER-GORDON, Inc.
Boston, Mass.

The old adage that "you can't teach an old dog new tricks" has been blasted as thoroughly and as effectively as were two Japanese cities by the A-bomb. Many long-time advertisers have discovered the practicability of the transcribed radio program, both custom-built transcription series built specifically for their own use, as well as the open-end syndicated transcribed program series.

The "discovery" was made the hard way, insofar as transcription producers are concerned, for transcription companies found it difficult to educate advertisers on the many advantages the transcription program had and has over the network and regional program—advantages with which no network or regional show could possibly compete. But the radio advertiser knows now, and legion indeed are the number who now use the e. t. program.

For example: can't clear time on a network? So what? Put the show on discs and select the best available time in the markets you wish to cover. What's that? You can't buy a split network? You must buy time in some cities you don't want, or where you have no distribution as yet? Don't let that bother you. Just put the show on discs and select the markets you wish. Then again, must you be saddled with a particular station your dealers just don't feel partial to, but which you must use because it is part of the network? Don't pull your hair out by the roots. Disc the show and buy time on the stations you want.

But then—suppose you don't want to build an expensive custom-tailored show to test a product in a certain market, or group of markets. In that case, there are many good open-end transcribed syndicated shows to use—programs which cost a lot of money to produce, but which the individual sponsor in any market may purchase (lease) to make the test—shows which range from gospel songs to musical variety, from sports programs to mystery drama,

adaptable to either Magnetophone or the several variations now coming on the market.

In conclusion, Audiotape will do many things impossible to realize with discs. For editing, assembling, etc., tape has no peer, on the other hand, one must bear in mind the skill, training and ability of the operator is of first importance if the complete benefits of tape work are to be enjoyed. In our opinion, Audiodiscs and Audiotape are natural complements, each will augment and assist the other in bringing fine recording to the home and studio.

from adventure to juvenile fairy stories. There are shows with well-known names which cost the advertiser only a fraction of the expense of a custom-built program—even shows without the so-called "big names", but which have a proven record of success in the building and holding attention of listeners, and in selling merchandise. Actually, many such shows without those "big names" have pulled greater results per dollar of expenditure for time and program, than have some of the more costly "big time" shows with the so-called "stars". The payoff isn't always in the "big name", or even in the ratings. It's in the jingle of the sponsor's cash register. And currently, sponsors are looking more critically at those "ratings". They are finding that the "cost per point" for expensive shows is two, three or even four times as much as for more moderate productions.

Yes—the transcribed show is here to stay—and nothing more need be said to justify the recorded program than to point to the hundreds of sponsors of national importance, and the thousands of regional and local advertisers, who now use transcriptions on radio stations throughout the U. S., Canada, and all foreign countries where commercial programs are accepted.

In many instances, the syndicated transcribed show is an even better "bet" for sponsors to use, than some locally produced "live" talent programs, especially insofar as smaller markets and stations are concerned. Aside from the fact that the syndicated transcribed show costs less, there is usually less worry about the talent available in local markets, production of the show, and certainly no concern about script, rehearsals and timing of the transcribed program. It's all completed! The sponsor knows in advance how the 15th or 50th program in a series will sound, because it's all there on disc for him to hear.

Too, reputable syndicated program producers are as careful of the production that goes into their various packages (as a rule) as are network producers. They have to be. It's their money they are gambling. And they depend upon the success of a series for a sponsor, so that they can sign the same client up for a continuation of the series, its use in other markets, or for another show—whether syndicated or custom-built.

The use of the word "reputable" is not meant to include the "producer" who records two programs as samples, sets out on a selling expedition in the hope of signing enough business to warrant investment in a series of 26, 52, 78 or even 130 or 260 programs in the series. The reputable producer finishes his series before offering it, or has earmarked enough money to complete the number of shows offered, whether one sponsor or 100 signs. The "2-sample producer" who doesn't sign enough individual markets to finance production of the entire series, and therefore never com-

pletes all the programs and therefore never delivers them, generally exits quickly from the syndicated field. But while he is in it, he does it little good. As the oldest syndicated transcribed program producer in the United States (more than 16 years) we have seen them come and go with monotonous regularity.

There's a lot more to this business of syndicated transcriptions than merely producing a series of transcriptions and offering them for sale. The producer must be prepared to make a huge investment, and then take his chances on getting it back. He must know every market in the United States (as well as foreign countries where his programs are adaptable) and how much to expect per program for each market, considering the population, power and rates of radio stations, and cost of production of the program series.

The producer must assist the sponsor in working out promotional campaigns, be ready to supply publicity material, small space ad mats, teaser spots, merchandising and exploitation suggestions. And lots of other things of which there is no space to mention herein.

Be that as it may, the advantages of the transcribed programs — both custom-built and open-end syndicated shows — are making themselves felt more and more. The results as far as the producers and pioneers are concerned may not be as sensational and as sudden as was the atomic bomb. By that I mean that the producer doesn't see his sales and business skyrocket, with wealth rolling in for his efforts overnight. But who wants to break down sales resistance and destroy the customer at the same time? The transcription business has been built step by step — and it's always better to have a solid foundation for anything.

Fordham Station Disc-Minded

(Continued from Page 1)

having them recorded at a time convenient to the persons scheduled to broadcast. Thus, Faculty members who might have a conflict between the program, "The Faculty Speaks" and a regular class are permitted to be heard by both audiences simultaneously. In the case of Godfrey Schmidt, "The Story Teller", a busy Industrial lawyer is able to double as a broadcaster of delightful fairy-tales, by the simple expedient of having him record five stories for the week during a single Saturday cutting session. The success of this program was such that WNBC-New York now airs the Attorney-turned-Story Teller each Thursday evening.

Finally, by means of recordings, Fordham University's WFUV is taking steps to better international understanding. Under the Rev. Richard F. Grady, S. J., Manager of the station, a series featuring American folk songs with appropriate language commentary is being recorded for distribution to



GOES WEST

Alan H. Bodge, for a year and a half a member of Audio Devices' New York Sales Department, has been appointed manager of the company's new west coast office at 844 Seward Street, Hollywood, Calif. Prior to joining Audio in the spring of 1946, Bodge, a Dartmouth graduate, spent fifty-three months in the radar division of the Army Signal Corp.

Radio Eire, the French State Radio, and the broadcasting networks of other countries.

"Radio may be only a year old at Fordham," Mr. Coleman says, "but both in classroom and on the air, New York's first Educational FM station is doing a bang-up job ... on the record."

Disc Data

(Continued from Page 2)

periment, for there is a tremendous gap between written material and actual practice. We have a vast background of acoustic, electroacoustic, and electronic science, but it is not organized into a form usable for audio engineering purposes. Even our colleges pay little attention to the fundamentals of the subject. Much that has been written is either inaccurate or obsolete.

When disc recording began, there was reason for such a situation, for the competent recordists could be counted on the fingers of one hand. It was then an occult art, but that time has long since passed. Now we have more to gain by converting an art into engineering, than by not.

In visiting various recording rooms we see signs of the logical result of present practices. The simplest problem will have scores of solutions — a different one in every recording room. Endless time is spent solving and re-solving the same problems. We need the force of many cooperative minds applied to finding the best solution of our common problems.

Converting an Art Into a Profession

A number of steps will be necessary before we have a full fledged profession:

A. We will have to develop the habit of free discussion of common problems.

B. We will have to develop an organization for cooperative attack on common problems.

C. We will all have to realize that there is no single magic "secret" which makes recordings marvelously superior. Good recording is the result of the summation of many factors, of taking infinite pains. The magic secret perhaps existed back in the old acoustic recording days, when the art was much more simple, but it is certainly non-existent today.

D. To execute these steps we will have to develop a tradition of general publication. The doctors have made such extensive progress in a much more complex subject only because every new idea is quickly published and studied. The individual contributes only his own single idea, but he gets back in return everyone else's ideas — a yield of a thousand for one.

In the past, general audio publication was badly hindered by lack of a suitable medium. We have had a suitable journal available for several months, and other audio engineers are beginning to write more freely. Disc recordists need to follow the example so set.

E. Still missing is a suitable professional organization to sponsor regular audio engineering meetings, but steps are under way to remedy this.

F. It will also help greatly if publication carries more prestige. Progress in the radio-frequency field has been greatly helped by the fact that publication carries with it improved professional standing. In the more progressive organizations in the audio field this is also true, but in too many places publication is regarded as a laborious chore rather than as an opportunity to make friends in print. It is very pleasant to arrive in a strange city and find that you are not a stranger — for your writings have already made you known.

Editor's Note: Mr. LeBel will be pleased to have recording engineers' comments on the above ideas. What do you think?

ATTENTION Student Radio Writers

Audio Devices is co-sponsoring the 1948 "Scholastic Writing Awards" (Radio Script Writing Classification), for high school students and also the 1948 AER National Radio Script Contest for college students. Valuable cash prizes are to be awarded writers of best scripts, and supplementary awards will be made to those writers submitting scripts suitable for publication in booklet form. For complete details write: (for high school students) William D. Boutwell, SCHOLASTIC MAGAZINES, 220 East 42nd Street, N. Y. C. (for college students) Dr. S. P. Lawton, AER Script Contest Chairman, U. of Oklahoma, Norman, Okla.