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Tape Goes Back To School

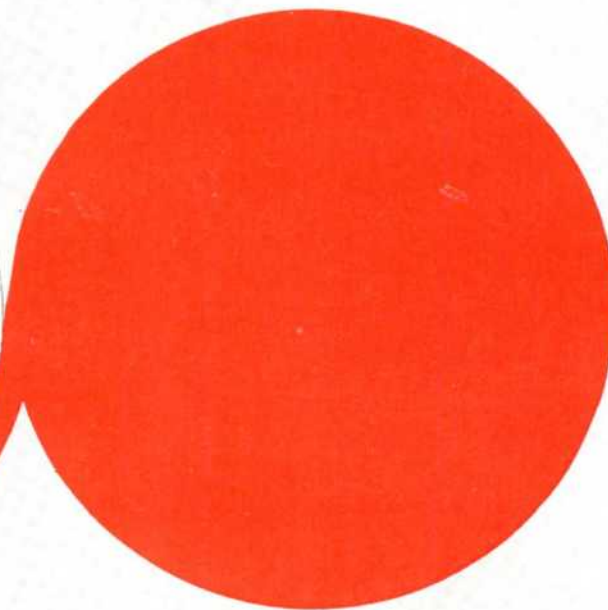
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tape

recording

JULY-AUGUST 1965

VOLUME 12 No. 4

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tape

TIPS FROM THE PROS Tape Splicing by Joel Tall

Once you start recording on tape—whether you tape from AM or FM radio, tv, or work live—you're going to be faced with the need for making a decision. You can either accept everything that is on the tape including commercials, unexpected background noises, hums, whistles, pops and crackles—or you can decide that being an amateur isn't for you.

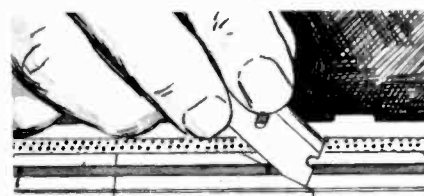
To change your tape you must do two things: cut the tape, remove the section or sections you don't want, then rejoin (splice) the cut sections. This combination of cutting and splicing makes you realize that sound can be as elusive and hard-to-grasp as a rising column of cigarette smoke.

Splicing tape is easy. Professional tape editors use a splicing block such as the EDITall. Note we said splicing—not editing. It is the editing that separates the true hunters of sound from the fugitives from tv receivers.

How do you edit? The first step—and this is really at the bottom, the very bottom—of a tremendous staircase, is to recognize sound, to listen to it, just as though it were the first time for you. For many, it may very well be.

Now let's start implementing. Record some speech using a marked passage out of a book or newspaper. Keep this passage because you will need it for reference. Play the tape once at normal speed and listen to it. Now turn the reel by hand and you're suddenly in a world of sound that's different. You have the copy

(Continued on page 43)



With tape in the groove splice by pulling the blade toward you.

Tape Recording

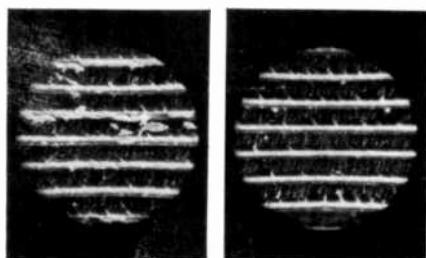
Some plain talk from Kodak about tape:

Slitting accuracy and skew angle

Tape is made in wide rolls which are slit to width— $\frac{1}{4}$ " for most audio tapes. There are three main considerations in this process: cleanliness, dimensional accuracy and trueness of cut. Cleanliness cannot be given too much consideration. When the tape is slit, particles of the oxide and the base can flake off. This condition arises from poor oxide adhesion and poor quality-control standards on slitters. Slitting dirt is virtually nonexistent in Kodak tapes because of our "R-type" binder and our unique slitting techniques.

Tape dirt clogs the recording gap and prevents the tape from making intimate contact with the head, thus causing dropouts and high-frequency losses. Oxide dirt can also cause a phenomenon known as re-deposit. During a normal tape transport operation, gummy oxide dirt can actually re-deposit on the magnetic layer and fuse in position. Just imagine Main Street strewn with giant boulders. Well, that's the way re-deposits appear to your recorder heads. Pleasant thought, isn't it?

To get some idea about how Kodak tape slitting compares to ordinary slitting, take a look at these two photomicrographs. The dirt you see between the turns on the left is oxide dirt. Compare it to the virtually spotless edges of KODAK Sound Recording Tape on the right.

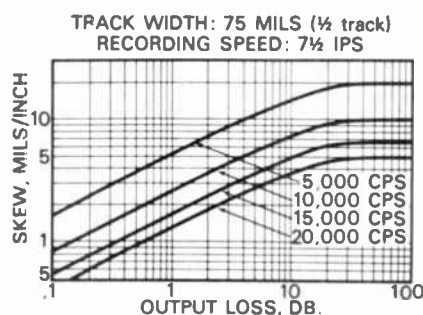


It's like splitting hairs, only more critical

From our 42-inch-wide master web, we have to cut 160 quarter-inch ribbons of

tape — each almost two miles long. That's a lot of total mileage, especially when you think how straight and true those edges must be to assure optimum tracking on your recorder. In terms of slitting accuracy, the standard specs call for a tolerance on width of $\pm .0020$ inches. We decided that that was just about double what it really should be, so we hold ours to $\pm .0010$ inches.

But the really critical part of slitting is a bad guy known as weave. When a tape weaves, it passes the head at a continuously changing skew angle. Look at the graph.



Note how losses pile up as skew angle increases. And as you would guess, the losses are in proportion to the frequency. Higher frequencies, higher losses. Same principle, really, as an azimuth loss.

The patterns of tension set up within the roll when the tape is wound are quite interesting. Normally, the tension at the outside of the roll will decrease until it reaches a point of zero tension about $\frac{1}{3}$ of the way from the core. Beyond this point the tension increases, but the direction of that force is reversed. Near the core the tape is in a state of compression. It's just the opposite with the outer layers. They're clockspringed.

Proper tape tension is also important if you want to prevent "stepping." Stepping usually takes place at the point of zero tension. You can visualize

it as a lateral shearing of a roadway during an earthquake. Shades of old San Francisco. This sets up stresses which cause fluted edges and prevent proper head contact. From winding billions of feet of motion picture film, Kodak has developed some pretty specialized tension-control techniques. The end result, of course, is that when you get Kodak tape on a roll, you know it's wound properly: not too loose, not too tight. Just right. Our Thread-Easy Reel is part of the story, too. Because it is dynamically balanced, we get a good wind right off the bat, and you get a good rewind, too, when you run it on your tape deck.



KODAK Sound Recording Tape in a complete variety of lengths and types is available at most tape outlets: electronic supply stores, specialty shops, department stores, camera stores . . . everywhere.

FREE! New comprehensive booklet covers the entire field of tape technology. Entitled "Some Plain Talk from Kodak about Sound Recording Tape," it's yours on request when you write Department 8, Eastman Kodak Company, Rochester, N.Y. 14650.

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Now is the TIME to check your tape head!

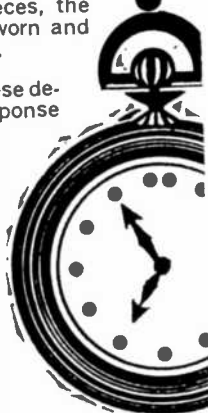
Tape heads do wear out because of the abrasive action of the tape as it passes over the head face. When this occurs, the finest equipment cannot deliver top performance, and the brilliant realism of tape is lost.

Check your tape head for these obvious defects:

- Groove worn into head by tape... causes severe loss of highs, uneven gain between channels.

- Look for the gap. If you can see a vertical black line dividing the pole pieces, the head is definitely worn and should be replaced.

If you find any of these defects, optimum response and maximum listening enjoyment can be restored to your tape equipment with high quality easy-to-install tape heads by Nortronics.



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tape

LETTERS TO THE EDITOR

A P.O. San Francisco
I have received my first copy of the new TAPE-RECORDING magazine, and also your letter of familiarization and introduction. I thank you very much for your kind consideration, in the matter of honoring prior subscribers.

I have read through the new magazine, and I think it is an excellent magazine, both from the information about tape-recording, etc., and the general interest standpoint. There is one section of the magazine that I feel is of outstanding interest and benefit. The section I am referring to, is the one that was in the old TAPE-RECORDING Magazine, listing names, addresses, etc., of people all over the United States and the world, who desired to correspond with other people by means of tape-recording. This was an excellent means of communication with many peoples, and a means to derive a world of pleasure and experience from the vehicle of tape-recording. I for one, considered it a definite drawing card for the magazine, among its other varied qualities. It would be great if this could be reinstated in the new magazine also. I'm sure it was something that everyone who subscribed to the magazine, looked forward to in every issue.

Appreciatively yours:
Robert L. Schacht

Right you are. See page 49. Editor

Racine, Wisc.

You are a welcome sight here in my home today, long time no see. TAPE RECORDING Magazine is better than ever. Sure glad to see it again.

Robert Meltesen

Montreal, Quebec

We wish to congratulate you for the new TAPE RECORDING Magazine, which seems to be the best ever published. We will do anything to

help getting new subscribers to your magazine.

We are planning to start another Creative Recording Contest in the near future. Will you cooperate in publishing our news about it? Would you consider an article about creative recording?

I will be looking forward to hearing from you in the near future.

Tapefully yours,
J. Maurice Roussel,
President
Club Magneto-Vox
7915 des Erables
Montreal 35, Que.

Yes. Editor

San Francisco, Calif.

I must, with well-meant humor, cite the fact that in your April, 1965, issue of TAPE RECORDING there was a complete schedule of the remaining few "Met" broadcasts, listing the number of acts and giving the complete timings of each, for people wishing to tape "live" music from the radio. Thumbing further through the magazine one comes across the article, "INTERNATIONAL TAPE UNDERGROUND" which voices the concern the Metropolitan Opera Company and other individuals have about their works being recorded.

In reference to the "what if" game that was cited in your article, it is a fairly exciting game if played by the proper people. For example, "what if there had been a recording of Melba's farewell concert?" It may interest your readers to know that there is such a recording which several people include in their library of "great musical events." Or "what if there had been a complete TRISTAN with Melchior and Flagstad?" To that also, there is. The endless "what ifs" could be counted on at least ten pages of single spaced lines and I know of several such lists all different in content that exist, having
(Continued on page 38)

Tape Recording

tape

TRAVELING RECORDER

Traveling to the Orient even with today's high-speed jet aircraft, is still a long and dizzying journey. However, the route via Hawaii offers an extra opportunity for the tape buff.

When your jet lands in Honolulu for an overnight stop, you'll want to be ready to record the first word you're likely to hear stepping off the plane . . . "Aloha." It means 'hello,' 'goodbye' and a half-dozen other things, including 'I love you,' depending on how its said.

Honolulu is a modern city with traffic sounds similar to those heard anywhere else in the states. It's the Hawaiian language and the pigeon English spoken by so many natives that's so colorful and interesting to the folks back home.

If you remain in Hawaii during the evening, try to arrange a visit to a typical Hawaiian night club such as Duke Kaahanimoka's. The array of talent will probably surprise you and the tapes you record will have the flavor of Hawaii and probably much less background noise than a nightclub on the mainland.

In the morning, you'll most likely want to be on the beach recording the world's most famous surf. A top spot for this would be Diamond Head Point. Depending on the tides, numerous surfers may be congregated at Waikiki Beach. By all means, record their cries and perhaps interview a few.

A guided tour in a rented car is an excellent way to capture the flavor of Honolulu quickly. Record your guide as he points out the places of interest and you'll have a delightful tour of the islands to accompany any photos you may take.

A drive to Pearl Harbor is basic for tourists. The guided tour is a recording must since there is so much historical significance for all Americans.



Do you own one of these fine tape recorders?

If you do — and you don't own a set of Koss Stereophones — you've got a lot of fun still coming!

Koss phones are perfect for monitoring and editing in either stereo or monaural. Now you can group your favorite selections on one tape with no disturbance to or from others in the room.

Check the chart for the Koss phone which plugs directly in to your own recorder. If you don't see your recorder below, write us for a complete listing.

And for playback listening — well, prepare for an emotional lift! Just plug your Koss phones into your recorder's output jack and you'll be soaring on a solo flight of perfect sonic bliss. You'll hear every sound with startling clarity and a new "up-closeness" you've never experienced before.



SP-3X, SP-5NS, SP-5VW
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PRO-4 STEREOPHONES
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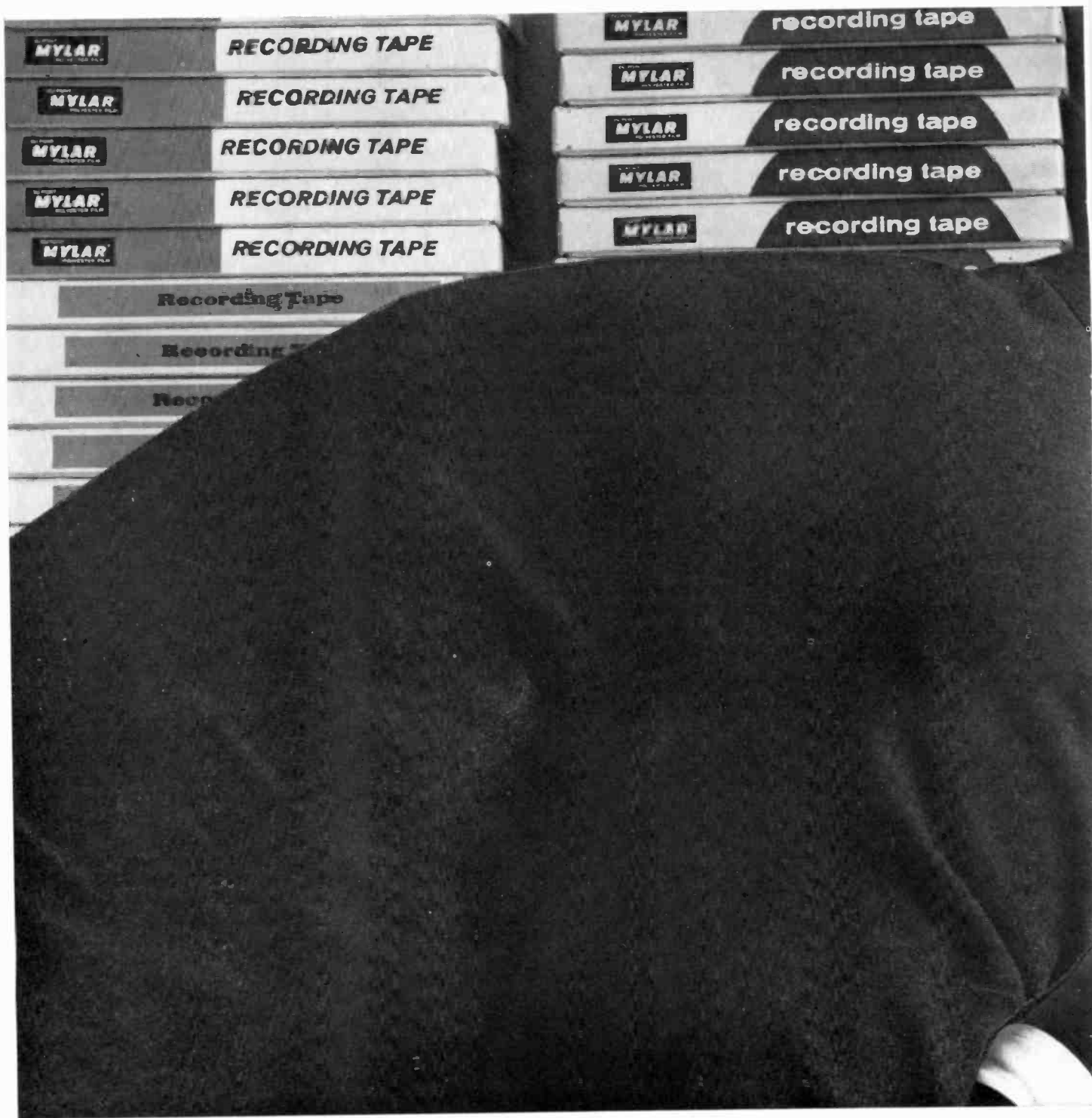
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SP-5NS
or SP-5VW

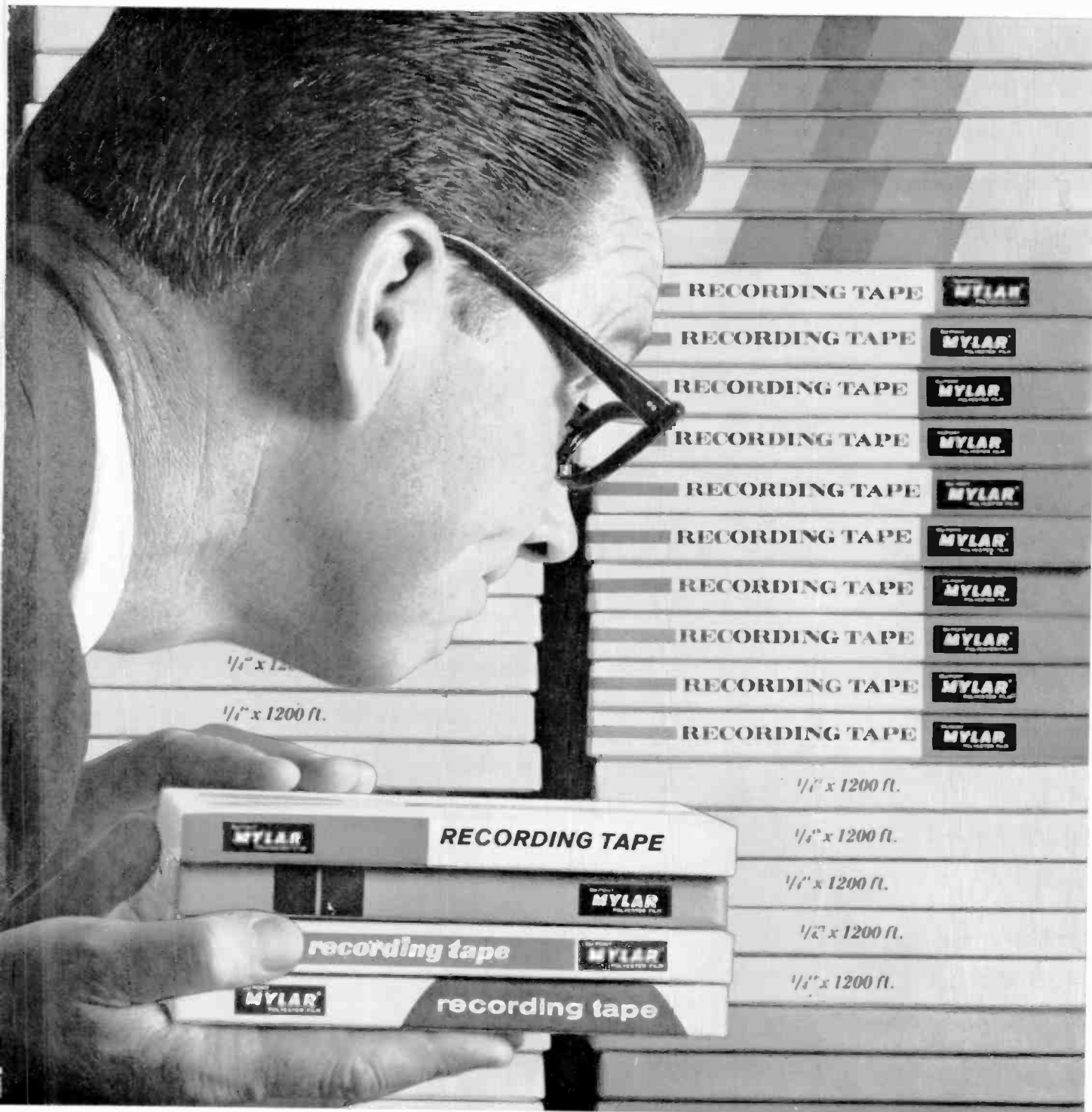
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For good reasons.

Brittleproof MYLAR can't dry out—it's protected

against time, moisture and temperature. It can be stored almost anywhere without fear of deterioration. Year after year. And super-strong MYLAR can't split or stretch under normal use.

So if you care at all about your recordings, look for the tape manufacturer's brand name . . . his guarantee of first-rate quality. And insist on the reliable tape base that will assure your valuable recordings the protection they deserve. Play it safe. Be sure with MYLAR.



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*DU PONT'S REGISTERED TRADEMARK FOR ITS POLYESTER FILM.



Tape Goes Back To School

by Robert Angus

Not so many years ago, the college freshman who owned his own typewriter was the envy of every other kid in the dorm. The typewriter was a status symbol. It was also a key to getting better grades from instructors who considered neatness when they marked exam papers. During the past several years, the typewriter has become an indispensable part not only of the college scene but of the apparatus of many a high school sophomore or junior as well.

Somewhat the same thing is happening these days with tape recorders. In 1963, the battery recorder was just coming into its own as a medium-priced recording unit of some reliability. Some students could afford to buy them and tote them along to class to record lectures, or practice with them in the dorms or at home. Some collegiate hi-fi buffs had been using recorders in the dorms for some time to provide "music to study by"—or to practice language pronunciation, dates, chemical symbols and the like.

Then came 1964 and a general lowering of recorder prices combined with improved reliability. Suddenly there were recorders no larger than a textbook which could turn themselves on and off as the professor spoke, which were unobtrusive, quiet and above all reliable. It was possible for students to record entire lectures, then take them back home or to the dorm, transfer them to large reels, editing out unimportant material and studying at the same time. To prepare for finals, the student had only to listen to the larger tapes.

Where the technique sprang up is anybody's guess. But by the end of the school year, it was in use on college campuses from Harvard to Stanford; from Northern Michigan University to Baylor.

What's involved in studying with tape? In the classroom, the idea seems to be to record lectures either in their entirety or at least covering the major points. This means using lightweight, reliable recorders—preferably with a minimum of controls or with remote controls. The recorder can be concealed under a classroom seat while a lapel microphone clipped to a shirt pocket or lapel takes down all the necessary information. Students say it is important to keep the recorder unobtrusive so as not to draw undue attention which might provoke an instructor.

In the dorm, larger recorders are becoming more common. They can be used for practicing a language, reciting chemical symbols, and so on. They are also used for combining the essentials from classroom tapes onto a single large reel, for review. If the student pays attention while selecting portions of the lectures for transfer, and uses this electronic transfer as a part of the learning process, it makes later study that much easier. A single seven-inch reel of long-play tape can hold all of the highlights of a semester's worth of History 104 or Sociology 101 when recorded at 1½ ips. Since maximum fidelity isn't a consideration, slow-speed recording is an important consideration when

selecting a recorder for study. In transferring tapes from battery portable to larger recorder, it's a good idea to use cables supplied by the manufacturers of the recorders. Battery-operated portables are notorious for bad sound when played through their own speakers, so recording through speakers and a microphone tends to magnify all the defects in both systems. In addition, students may pick up the ambient sounds which are constant in any active house or dormitory.

Although the electronic tutor has yet to put in an appearance, it's possible to use tapes supplied by Roberts, Ampex, Linguaphone and a variety of others to bone up on first-year French, Spanish, Italian, German or what-have-you. These recorded tapes are occasionally available at the college bookstore; are almost certain to be sold anywhere large quantities of recorded tapes are to be found. With a recorder that features sound-with-sound, the student can practice pronunciation on the same tape with a recorded instructor. Most of these tapes were originally intended for tourists rather than students. As a result, they're more often longer on vocabulary than on grammar. But pronunciation generally is authentic and well worth the six to 12 dollars these tapes may cost.

The tape recorder at school isn't all work and no play. One of the earliest uses to which recorders were put on campus was providing entertainment at fraternity parties or in college dorms. Entertainment ranged from providing background music or dance music (taped off the air, from records or from commercial prerecorded tapes) to parodies of professors or do-it-yourselfers who tamper with TV commercials, telescoping several to make them even more ludicrous than usual. One group of students at Yale Law School recently tape recorded a mock court trial in which a Yale theatre major played the local prosecuting attorney against a professor allegedly accused of indecent exposure on campus. The professor's voice and answers were in his own voice, having been dubbed from a series of classroom tapes. The so-called defense attorney was played broadly by another talented student who affected both a lisp and a stutter. A local girl with a southern drawl played witness and accuser. Her descriptions of the professor's actions and his dubbed responses were considered hilarious as the tape passed from one group of students to another on campus.

For simple entertaining, however, most collegians prefer to use their tape recorders to record easy-to-listen-to music. Those planning to make tapes of music to study by, are usually interested in recorders with speeds slower than 7½ ips. While the faster speed is desirable for serious listening, it requires more frequent interruption to change tapes than does the 3¾ ips speed. We were told by some students who studied to tapes made at 1⅞ ips, that after a while they began to feel tired. Something indescribable seemed to hap-



This clever girl who tape recorded the history lecture has suddenly become very popular.

pen, particularly with less expensive recorders. We can only surmise that this might have been listening fatigue, and it can creep up on you even though you're not really listening to the music.

The music students select for background to study by depends upon their musical tastes. But as a general rule, vocals require more attention than instrumentals, and are less suitable for studying. It's a good idea to keep study music—whether it be mood music, cool jazz, baroque or symphonic—lively.

Recorders suitable for student use can be had for less than \$100 in cord models, down to \$30 for some capstan drive battery portables. Reliability is particularly important in the case of battery recorders to be used for recording classroom lectures. If the batteries give out, or the machine becomes temperamental in the middle of a lecture, you're out of luck. For this reason, better portables—in the \$79 and up price range—are a better bet for most students than the less expensive models. Some of these offer features likely to be useful to students seeking the maximum in convenience. The Norelco Carry-Corder, for example, utilizes a cartridge which eliminates the need for threading. The same machine and several others feature a start-stop control on the microphone. Some students prefer voice actuation to start and stop the tape and Concord has recently made this feature available as an optional accessory for its battery portables.

In cord machines, any reasonably good, inexpensive monaural machine is adequate for most study needs. However, for more involved requirements (like practicing French pronunciation with a recorded tape) the sound-with-sound feature is needed.

What about the problems of using recorders in the classroom? In one state—California—it is illegal to use any recording device in a public school or state college classroom without the permission of the instructor. In all other states, such use is legal—but many individual institutions and professors have their own requirements regarding their use. A typical situation is the one which prevails at Yale University, where professors don't object to the use of recorders provided they don't interfere with the conduct of classroom lectures. This means, one professor explains, that students in his classes aren't permitted to thread or rewind their recorders once the lecture has begun.

With high school and college instructors relying more and more on electronic aids such as tape recorders to help instruct the growing number of students, and with students themselves also using tape recorders to aid in study, is the day coming when a classroom will consist of one cord tape recorder addressing 50 battery-operated models with no one there? "I dreamt about it one night," an Indiana educator told TAPE RECORDING. "It was some nightmare!"

Hipster's Guide to Electronic Cheating

by Hamilton C. Carson

During the last few weeks, a TAPE RECORDING research team has been scouring the nation's campuses for new and possibly ingenious means of tapping the world of electronics to aid students in passing examinations. We've found that electronic methods of cheating are beginning to replace those time-worn mechanical methods that enterprising—if not entirely honest—students have been using for years.

Many hip students have found that using a miniature tape recorder is a handy way of transcribing lectures in the classroom without the bother of writer's cramp. Later these recorded lectures are played back from hidden recorders during an exam to be inscribed verbatim in those ominous little blue exam books at the end of the semester.

One of the most blatant uses of electronics for cheating on exams was reported by Dr. Amos Funk of a midwestern university. "More than half of the class showed up for the Shakespeare final wearing what I took to be hearing aids," Dr. Funk told our interviewer. "Did they think I was stupid enough to believe that an epidemic of deafness had broken out among college sophomores? The next thing I noticed was all these students fidgeting with their shirt pockets. I learned later that they were frantically trying to find the text of Mark Anthony's funeral address on their pocket tape recorders. At the time I believed the boys might be tuned in to the Phillies game.

"I kept asking what the score was and everyone looked at me like I was crazy. That really bugged me." Dr. Funk added that the attempt at electronic cheating might have gone undetected except for some amazing test scores by members of the football team. "I mean, could you have believed it?"

"There was one paper from a student on which key phrases were omitted from statements I had made over and over. When I grilled her in my apartment later, she admitted that dropouts in the cheap, white box tape she was using prevented her from deciphering everything I had said."

An investigation launched by the college revealed that one student's father was in the electronics business. The student had supplied the pocket recorders together with the necessary tips on their use. "We wouldn't have got caught if that chick hadn't bought cheap tape," complained the ringleader.

"The biggest single problem you have when you use a tape recorder to cheat on finals is finding the

piece of information you want," says Oliver Moody, a junior at Zephyrills College, Zephyrills, Fla. "You can get over an hour's worth of solid information on a single reel of tape. But to find what you want may require flipping back and forth during most of the exam. Not only is this time-consuming, but it does tend to draw the instructor's attention." Accordingly, Moody and a friend who proved to be music major, came up with a unique idea: setting the Declaration of Independence and the Bill of Rights to music. "It was a great idea. We came up with some real groovy tunes. When you flip the recorder into fast, you can pick out the tune you want, then slow the tape down until you can hear the words. Trouble was, I forgot which tune covered the Federal Reserve System and which was the theme for the independent regulatory agencies. I flunked, but my friend got an A+ in music composition for the background music he wrote."

It seems likely, under the circumstances, that the following news items may crop up in campus newspapers sometime next year:

- A student in English Literature 202 was flunked yesterday when his final exam was termed "rambling, garbled and poorly organized" by his professor after the ingenious student had given a verbatim answer taken from a tape recording of the professor's lectures.
- A co-ed in False Alarm, Iowa, was promoted to the honors list last week after scoring a 97 in her Psychology 101 final. She told a campus reporter that she had inadvertently played back a Sociology tape stuffed in her girdle during the exam.
- Mike Bursitus, a football star at Rutabaga Tech., will be back on the varsity for the seventh year, after flunking his final exam in Tag 305. It seems that Mike put the wrong tape on the recorder he concealed in his size 16 athletic socks, and his professor was not satisfied with the bawdy limericks Mike transferred to his little blue book. The prof, however, has signed Mike to entertain at a series of faculty smokers next semester.

The moral of this story dear, hip students, is that the tape recorder, as a means of cheating in exams, may prove to be a mixed blessing. Who knows, you may find that in the long run, it's easier to stuff the answers in your cuffs, commit to memory long verses about girls from Trenton or maybe even—perish the thought—do some actual studying!

Sleep Learning-Four Systems

by Paul Edwards

Take a tape recorder, fit a continuous loop tape to it, set up an automatic timer, slip a slim metal-encased speaker under your pillow, and Presto! Sleep Learning. This, in effect, is the basic mechanical phase of the not-so-new, but relatively unknown medium of education and self-improvement via tape—as you sleep. Is it the answer to the prayers of today's hard-pressed students—or just another wishful dream?

A study of four different sleep-learning systems offered from firms in as many sections of the country pointed up many similarities of approach to the subject of sleep learning. It also turned up some dissimilarities.

From Sleep-Learning Research Association, Olympia, Washington came this basic definition: "As its name implies, sleep-learning is the act of acquiring knowledge while asleep. Although the principle is old and recognized by psychologists, the application in use today is relatively new and goes as follows: If you speak or whisper into the ear of a sleeping person, the words that you speak are heard and retained by the sleeping person's subconscious mind. When this material is repeated over and over, many people are able to recall it when they wake up. This is possible, psychologists maintain, because the subconscious mind never sleeps but is always awake and receptive to spoken words and suggestions.

"Since it is impractical to whisper into someone's ear, a better method of conveying and repeating material to the sleeper must be devised. This is accomplished by using a phonograph or a tape recorder equipped with a small loudspeaker . . . which conveys the spoken material directly to the ear of the sleeper. An automatic electric timer . . . turns the recorder or phonograph on and off at various preset hours of the night while the experimenter is asleep. Repetition of the material is accomplished by setting the phonograph to replay a record over and over. In the case of a tape recorder, a special endless tape repeating mechanism . . . repeats the material over and over."

This outfit does not limit unconscious learning only to periods of sleep. It states that the same equipment may be used to good advantage to help a person learn while he is awake by using the principle of repetition. "Memorization can result when a course on a phonograph record or tape is played over and over again during the course of the day even though the listener may be occupied with other pursuits," the firm's mailing piece states. In addition, it goes on, many are successful in memorizing material played back in bed prior to falling asleep, a period known as "reverie," when the mind is more relaxed and receptive to learning.

A variety of sleep-learning tapes are sold by SLRA.

Six language courses are priced at \$9.95 per tape. A three-tape English-vocabulary course is offered at \$8.50 per tape, as well as a Morse code course at \$9.95. A self-improvement course of eight tapes is sold at \$8.50 per tape singly, or at \$7.50 each in groups of three or more. A personality improvement course runs \$98 without equipment, and \$130 with timer, speaker, bound text and progress report. A hypnosis course costs \$6.50. A sexual harmony course is \$8.95.

Also making available pre-recorded tapes for sleep-learning is the Kimball Foundation of Human Engineering, Brentwood, Missouri. Its system is called "Auto-Conditioning," and employs largely several programs ranging from five-session semesters (each consisting of five tapes) at \$23.80, to a "complete 18 hour personality engineering course" at \$225. "The latter," the catalog states, . . . "may be obtained from the counsellor in your area, from your therapist, or psychiatrist, or direct from the Kimball Foundation."

Arts and Science Research Foundation of Lexington, Kentucky, is another organization that offers pre-recorded tapes in what it calls "Transitional Sleep" courses. These tapes, covering such subjects at Attention, Concentration, Memory, Will Power, etc., are list priced at \$15. (In a recent promotion the tapes were specially priced at \$10 each for a stated period of time.)

Unlike the three preceding organizations, Self-Development Research Foundation, New York City, does not issue pre-recorded tapes or recordings (except conversational language courses). SDRF states "It has been firmly established that the most effective and beneficial messages are those you record in your own voice, and which contain the particular language and emotional appeal to which your subconscious will most readily respond. (The preceding all underscored) in the case of children, the familiar sound of a parents voice is comforting and reassuring."

SDRF provides instructions for the preparation of learners' messages, so that each is specifically tailored to individual requirements. It was pointed out that this method is "extremely inexpensive" in that when there was no further need for the information recorded on the Audio Educator Cartridge the firm sells it could be erased with new material recorded over it.

In addition to pre-recorded tapes, two of the four firms sell phonograph records for direct use with an automatic phonograph, or for transcribing onto tape in the learner's own voice.

SLRA sells phono records on such material as Business Courses, Self-Improvement, Yoga, Mental Conditioning, and Sexual Instruction.

SDRF has 17 different conversational language courses on 12-inch long-play records at \$3.98 per language. Each course is recorded by native instructors

and the instruction book with the record is supplemented with complete instructions for conscious language study and sleep study.

Each organization provides tape recorders and other equipment for interested persons. (One spokesman indicated frankly, "We have to sell equipment in order to make a living and stay in business.")

SLRA has a variety of "packages" of equipment, ranging from \$139 to \$249, each complete with electric timer, under-pillow speaker, microphone and continuous tape. Recorders are also available without the accessories at lower prices. The units are standard production models from domestic producers as well as from import firms. Also for sale is an automatic phonograph with or without accessories and personality integration course.

Kimball's "Slumbertalker" complete with 18 hours of Slumbertalk recordings is \$595.

ASRF sells a two-speed tape recorder at \$110, with time clock at \$17, and a pillow speaker at \$13.

Two Audio Educators are sold by SDRF, one at \$126.70, the other at \$177.50, each complete with timer, microphone, pillow speaker, tape, earphone and connector cords. The recorders are made in Japan.

In addition to tapes and records, each sleep-learning organization makes available a variety of related books. Some cover the principles of sleep learning. Others cover such subjects as hypnotism, self-hypnosis, "Synchronantics" (the process of integrating the body and mind in one unit), health, mental power, prayer and "wisdom from the world beyond," the latter the experiences of psychic researchers.

One of the main facets of sleep-learning appears to be a proper frame of mind and body, to help remove "blocks" that would prevent or partially incapacitate the experimenter from attaining his objectives. Some of the literature, tapes and phono records are devoted to this phase of the learning program.

Strongly evident in the programs is the use of auto-suggestion, self-hypnosis, or outright hypnosis (the latter, of course, in "difficult" cases and supposedly under the guidance of a doctor or psychiatrist).

In fact, a book sold by SDRF entitled "Sleep and Learn" by David Curtis states, in a chapter on hypnosis and sleep-learning, that one Theodore X. Barber of the Department of Psychology of American University conducted tests in 1956 comparing suggestibility during sleep and hypnosis, and found that his subjects were as suggestible in one state as the other.

"Since many professionals equally endorse hypnotism and sleep-learning and sleep-therapy, the results of the experiment bear out even further the claims and theories upon which sleep-education is based," Curtis writes. He concludes that:

"And since there is so much similarity between the

two states, it follows that much of all of what can be accomplished by hypnosis may also be accomplished by sleep-learning and sleep-therapy."

Rex De Laney, author of "Health Through Transitional Sleep," explores the question: what is the difference between hypnosis and transitional sleep? "The difference is mainly technical and deals with induction and administration, for if it can be achieved with hypnosis it can be accomplished with ease and equal precision through transitional-sleep methods," Mr. De Laney writes.

Further on Mr. De Laney states "Hypnotic processes opened the doors not only to sleep education, but to the revolutionary transitional-sleep method of self-realization as well."

SLRA in its "Sleep Learning and Hypnotism Catalog" notes that "since relaxation is a vitally important factor for success in the method, the recordings on relaxation and hypnosis are particularly recommended for the beginning experimenter."

Kimball Foundation denies any substantial link between sleep-learning and hypnosis. "There is no relationship between Slumbertalk and that which has been termed hypnosis except in the fact that both use sleep as the state in which they work. There the similarity ends."

Regardless of the system, auto-suggestion (a form of self-hypnosis) seems to play a strong part in the pitch for sleep learning and self-improvement while asleep. It may be supplemented or implemented by tapes which have strong overtones of hypnotic suggestion, or direct hypnosis.

Do all the elements add to happy end results? Do experimenters actually derive strong educational and self-improvement benefits from sleep-learning in its various forms? Where results have been claimed have they been lasting?

TAPE RECORDING MAGAZINE has not had first hand contact with the sleep-learning system(s) and therefore cannot properly evaluate it (them).

However, a perusal of literature and reprints of articles submitted to TRM would have one believe that the results are substantial. Each organization can supply many testimonials on the efficacy of its particular system, some of them embracing well-known personalities such as Jose Ferrer, Efrem Zimbalist, Jr., Jan Sterling and Red Buttons.

Ironically, the preceding names, along with others such as Rudy Vallee, Gloria Swanson, Alexander de Seversky, and Art Linkletter are used by one of the organizations to plug the concept of sleep-learning generally, rather than its own specific system.

The subjects handled by some of those offering testimonials to sleep-learning are broad. Flyer Alexander de Seversky is claimed to have cured his Russian accent; Rudy Vallee (and many other actors

and singers) are alleged to use it to learn lines and lyrics; an actress claims she lost 31 pounds in three months; Art Linkletter supposedly learned Mandarin Chinese, said to be the most difficult language of all, while asleep; Chrysler Corp. employs Self Confidence courses during sleep as a means of bolstering the effectiveness of its salesmen and the editor of the New York Post is alleged to have used sleep learning for many years to acquire facts and information necessary to run that newspaper.

Arts and Science Research Foundation states that "Today about 92 per cent of all users experience positive results. Some gains are small, others border on the spectacular."

SLRA answers the question of the effectiveness of the method by saying that it depends upon the individual experimenter, how he conducts the program, the equipment used, and other factors that must be considered such as age, health, attitude, ability to relax, etc.

Editor's Note:

Intrigued by the possibilities inherent in the concept of sleep learning we contacted the department of Psychology at Columbia University. They had no information but recommended that we contact the Department of Psychology at the University of Michigan in Ann Arbor. We wrote to them but at the time we went to press we had not received a reply.

We next contacted the Department of Psychology at N.Y.U. We spoke to a Dr. Fiss who said that electroencephalogram tests seem to indicate that no real learning can take place while the subject is sleeping.

Anything learned apparently is done during periods of "uncontrolled waking." Dr. Fiss does feel, however, that some types of primitive conditioning can take place while a subject sleeps. He feels that results showing sleep learning to have taken place come about through poorly monitored studies.

The American Psychiatric Association in Washington, D.C. had no written material on the subject.

Another authority to whom we were referred was Dr. Joe Kamiya at the Department of Psychiatry, School of Medicine, University of California at San Francisco. Dr. Kamiya wrote:

"In reply to your letter re sleep learning, unfortunately I do not have any published material on this subject. What little I have done in this field can be summarized in a nutshell. So long as the electroencephalogram indicates the individual is sleeping, he does not remember verbal material played to him by tape recorder or any other method for any length of time. We find that individuals have difficulty remembering a simple word for more than about a half minute of sleep. I believe that one is safe in labelling as [questionable] all of the commercial advertising now touting the advantages of learning while asleep. This is especially true in light of the claim that the ma-

terials learned during sleep are complex verbal materials. Of the several investigators in this field Dr. Segundo at the University of California at Los Angeles Brain Research Institute, Dr. David McDonald of the University of Missouri School of Medicine in St. Louis, Dr. Charles Simon of 1035-F Fifth St., Santa Monica, California would, I am quite sure, agree with me that such complex verbal learning is not yet possible with present methods. There seems to be some suggestion of very simple conditioned responses and of heightened attention during sleep but this is not yet firmly established."

We also contacted Dr. Charles Simon and William Emmons at the Rand Corp. in Santa Monica, Calif. who are alleged to have done the most definitive and well-controlled studies on the subject. We were still awaiting replies to our letters to these two gentlemen as TAPE RECORDING went to press.

However, as we were becoming increasingly skeptical, the following news item arrived from South Africa.

Johannesburg—Surgery staffs in hospitals here have been warned to keep silent during operations. It has been proved that patients "listen in" during operations—via their subconscious.

The strange phenomenon has been studied by a local surgeon, Dr. B. W. Levinson, and is described in the current issue of the journal *Medical Proceedings*.

Levinson recalls an operation on a woman for the removal of a lump from her lip. When the 40-year-old woman was anesthetized, the surgeon exclaimed: "This may not be a cyst at all, but cancer."

The woman remembered nothing when she came to. But she was severely depressed, made little recovery and lost weight.

The cause was not found until Levinson hypnotized her several times. During one session, the woman told the surgeon she had heard him talk about a "malignant lump" in her lip. She was cured from her depression by counter suggestions during hypnosis that the lump was harmless.

Levinson recalls a "listening" surgery patient who heard a doctor say during his operation: "Look how black that lung is. Have you ever seen anything as black as that?"

The patient only remembered the actual remark after sessions of hypnosis, but had known with a "strange certainty" that something was wrong with his lungs.

Levinson recommends that tape recorded music and comforting remarks be played into the ears of patients undergoing surgery. Experiments have shown this speeded recovery.

If sleep-learning is as big a medium of self-improvement as the four organizations studied herein would have us believe, we feel certain that many readers have experimented with it, or may even be actively involved with it.

To give other readers of TAPE RECORDING the benefit of their experiences, we invite those who have tried sleep learning or are currently using it to write to us indicating how they fared. We will present a wrapup of the results in a forthcoming issue.

The Case For Sleep Therapy

by Dr. Edward Kramer

There have been repeated experiments to reach the lawbreaker with psychological and psychiatric means with varying measure of success. The main barrier, of course, was the difficulty in gaining the cooperation of the inmate. In all attempts to reach the subconscious, the willingness of the subject is needed.

It remained for Public Defender John Locke to initiate an experiment in sleep therapy for a long enough period to indicate that this may well be an effective medium. The results certainly are worthy of the attention of those interested in criminal and delinquent problems. It may lead to new fields of experiment for others who need to apply corrective measures through reaching the subconscious motivation through the medium of tape recording.

The greater acceptance of hypnosis in the medical and psychological fields has led to the discovery that the pattern of the conscious mind is not always a prerequisite to reaching the subconscious mind. Relaxation, drowsiness, and natural sleep are conditions that deactivate the conscious mind and permit entry into the inner mind.

The possibility intrigued John Locke, an attorney in Visalia, California, who was Public Defender of Tulare County. Locke is a dedicated religious man, an avid student of rehabilitation. He finally got the green light to go ahead. The County Board of Supervisors were satisfied with his initial experiments and agreed to support his efforts.

There was no cost to the taxpayer. The Visalia Kiwanis Club and the Tulare County Peace Officers' Association agreed to help share the cost. The Kimball Foundation supplied some of the sleep therapy tape recordings that were to be used at the Woodlake Camp. Some were made locally. These were to be "played" every night after the inmates had retired at preset intervals through individual earphones. The messages were inspired and inspiring. They alerted the auditor to his God-given potentials, assured him of his innate capacity to be and do that which best served his family, his community, his country and himself.

The experiment began. A questionnaire of some 100 questions was used. Each inmate had an opportunity to vent his troubles, his hostilities, and his

experience. Later a dramatized version of "What Say Ye Mortals," based on the life of Albert Schweitzer, was given to stir the hearts of the audience. A group discussion followed. Then they were apprised of the sleep therapy experiment by tape recording. They were invited to participate. Most of them agreed to cooperate. The therapy was carefully administered and results were tabulated from 1957 to 1962. The therapy still continues although John Locke has been elected to a judiciary position.

The overall results in Tulare County for this five-year period were delivered in a report to the California Probation and Parole Corrections Association in San Diego on May 17, 1962 by John Locke. It was titled "SLEEP THERAPY—A Constructive Approach to Corrections."

During the period of this report there has been nominal increase in the population of the county—15.9% greater than the State of California as a whole. Yet, there was a 21.6% decrease in arrests for misdemeanors and felonies during the use of sleep therapy while the state as a whole was showing a 2% increase.

Early studies indicated that inmates felt they were materially benefitted by the program as follows:

Average length of incarceration	Inmates benefitted
116.3 days	72%
77 days	59%
42 days	52%

A number were helped to solve a problem of alcoholism. "A recent check," adds Mr. Locke, "indicates such cures were lasting."

However, the unexpected results accredited to this period was in the reduction of juvenile delinquency for the first time in Tulare County history. While the state was showing a marked percentage increase from 1958 to 1961, Tulare County was showing a drop of 36.8%.

Juvenile authorities in Tulare County can suggest no reason for the unprecedented downward trend of juvenile delinquency. Of course, the juvenile program is improving.

Mr. Locke suggests that this unexpected decrease in new filings is an indirect result of sleep therapy. No juvenile delinquent has participated directly in

the sleep therapy program because of its experimental character, although sleep therapy, I am sure, will prove twice as effective with juveniles as with adults.

However, 4,576 former inmates of Tulare County's road camps have participated. Tulare County has an estimated 43,576 families. Most of these prisoners have families. The inmates who participated in sleep therapy had, at most, 4,576 families or 10.5% of the families in the county. The true figure is, of course, somewhat less. Such families, as a rule, breed more than their statistical share of potential delinquents.

That the drop in new juvenile delinquency filings occurred in the last three years of sleep therapy and not the first year was to be expected. About this period of time would be required for the change in the father to work its beneficial effects on the youngsters in the family.

We may safely accept the figure of a 500 reduction in jail bookings. Disregarding the county's population acceleration affords more than sufficient guarantee against error. A one-year drop could have been a fluke, but not three years in a row.

The 500 less incarcerations means a considerable savings to the taxpayers of the county. Sentences should range from a few days to the usual state prison maximum of 18 months. Three months would be more than a fair average in view of the fact that repeaters are generally dealt with more severely the next time around. Thus the taxpayers' saving for the four years is approximately \$150,000.

Every person retrieved from a life of crime over normal expectations means a tremendous savings to the taxpayers. It costs \$1,200 a year per inmate at a road camp, and \$2,000 a year at the state prison. A criminal may cost the taxpayer any amount up to \$100,000 during his lifetime. The FBI estimated that crime cost the people of the United States 22 billion dollars in 1962.

A total assault on crime in the entire United States by sleep therapy would cost approximately a million dollars a year and the effect can be expected to snowball as the foregoing shows. (A detailed method of application and the tape recorded Slumber talks are available without cost to all penal institutions interested in making a similar experiment in crime

prevention from the Kimball Foundation of Human Engineering, Brentwood 17, Missouri.)

Over 65 to 70% of all inmates have a problem of alcoholism and this phase of the program offers a field of study most susceptible to ascertaining the results of sleep therapy. A criminal may not commit another crime for a period of time, but an alcoholic generally returns to the use of liquor upon his release from jail. Alcoholism is estimated to cost United States industry one billion dollars alone in lost man-hours annually.

The effectiveness of sleep therapy can be doubled or tripled by placing a correctional officer in charge of the entire program. Such officer could handle the group and individual counseling on a full-time basis. He would conduct the meetings of inmates in groups of 20. If such a man is dedicated to his purpose, the effectiveness of the program can be immeasurably heightened.

Of course, rehabilitation is like locking the barn after the horse is stolen. Perhaps we should direct our attention to "habilitation." The juvenile delinquent is the criminal of tomorrow. Both juvenile delinquency and crime can be sharply lessened by "habilitation." Sleep therapy can do more in the early stages of the formulating mind than it can to one who has arrived at the rehabilitation stage.

Perhaps another ten years will be required. Time will prove it one of the great developments in the field of penology.

IN THE NEXT ISSUE

- Andy Warhol on Tape
- Recording Children
- Taping From Records
- New Product Roundup
- The Latest on Home Videotape
- Six Test Reports
- Tips From the Pros
- Basic Tape Library

Tape In Your Car

By Richard Ekstrut

If there's a Ford in your future, chances are there may be a stereo tape cartridge system in it. At least that's the current prediction of Jim Gall, marketing director of the Lear-Jet Corp. It seems his firm recently signed a contract with the Ford Motor Company in which Ford will be offering a Lear-designed combination radio-stereo cartridge player made by Motorola as optional equipment with all new Ford products beginning in the fall. The unit is no larger than the standard size auto radios you now get with your new car.

There's reason to believe other major auto manufacturers will also be offering stereo cartridge units this fall and Gall predicts sales of his firm's unit to new car buyers next year of 2,000,000 tape cartridge players—one fourth of the entire new car market!

RCA Victor apparently believes in the eight-track Lear-Jet Cartridge system, too. The record company will release 150 new cartridges containing some of the most popular albums in the RCA catalog in September. This is RCA's first move into the auto cartridge market. Several other record companies will be releasing music for the Lear-Jet system, also.

The only problem with all the excitement over the Lear-Jet system is that this eight-track cartridge player is not compatible with all the other automobile cartridge systems now on the market. Most of the available car tape players feature the Fidelipac cartridge which has been mighty successful over the past year.

There were little more than half a dozen manufacturers marketing auto tape players at the beginning of 1965. At our last count, there were 14 and the number is increasing almost monthly. All but two of these use the Fidelipac cartridge, an endless loop of tape wound around a single hub and packaged in a rectangular plastic box. When the unit begins operation, a pinch roller pops up from the player through a hole in the cartridge. The tape then feeds out from the hub, past a head on the player and feeds back on the outside of the tape packed around the hub. The roller and capstan pull the tape past the playback head. One variation on this cartridge is used by Orrtronic with a cartridge that tilts the tape 90 degrees as it passes the head.

Car cartridge buyers have no problem with pre-recorded tapes. While in the early days of tape recording, users had to be satisfied with relatively

unknown artists such as the Graz Philharmonic, Lenny Herman and Hack Swain, today they can choose selections recorded by major artists on Dot, Westminster, United Artists, Mercury, Command, ABC-Paramount, Warner Brothers, Reprise and other major labels. The largest suppliers of music on tape today are Mad Man Muntz of Los Angeles, who claims to have approximately 2300 titles listed in his catalog, all of them from major record catalogs and Auto Stereo in Van Nuys, California. These cartridges can be played on all but two of the systems now on the market. (See chart on next page.) Also recording interchangeable cartridges are Craig Panorama (from Mercury, MGM and United Artists catalogs), Metra (MGM, Dot, Impulse), Quality Audionics, Martel Electronics, Viking and Trans-World. The prices of the cartridges are based on the amount of playing time they contain ranging from \$3.95 to \$6.95 for 30 minutes worth of stereo music to \$20.95 for an eight-hour program. A new development is a "quickie" five-minute cartridge—the tape equivalent of the 45 rpm pop single—to retail for about 99 cents. Both the Audio Spectrum and Telepro units will play the stereo tapes monaurally.

RCA Victor, Dot, Mercury and Command have promised music for the Lear-Jet system to date. This is RCA Victor's first go with car cartridge players. Capitol Records has made no commitment as yet and is waiting to see which system will be victorious. Therefore, there are no Capitol cartridges available yet for car players.

Capitol president Alan Livingston feels that unless the automobile and recording equipment manufacturers jointly establish industry-wide mechanical standards and specifications now, there is the risk of another "Battle of the Speeds," similar to the costly and wasteful transition from 78 rpm records to 45 rpm to 33 $\frac{1}{3}$ rpm. "Such a battle of the speeds in the newly emerging automobile stereo-tape field can only penalize the public," Livingston told Tape Recording.

"As record manufacturers, we are in effect makers of blades for razors," he added. "We don't really care what form the blades take. They can be plastic discs, 12 inch discs, reel-to-reel magnetic tapes, tape cartridges or any other medium desired by the public. However, if five different automobile tape cartridge

systems are developed, we shall find ourselves issuing the same Beatles performance, for example—in five different “blade” configurations just to satisfy the automobile tape market. No manufacturer can afford to make the same entertainment in a wide variety of different mechanical forms—a Ford cartridge to fit only Fords, a Chevrolet cartridge to fit only Chevrolets, and so on. Whatever the playback system agreed upon, I believe it essential that a tape cartridge which fits a Ford should also fit every other make of car.”

Bill Lear of Lear-Jet agrees and says he will license any and all comers. Telepro Industries, holder of the Fidelipac patent, is suing Lear for patent infringement.

ment.

The stakes are even greater than one might guess at first. Whichever system wins the dashboard sweepstakes is likely to win out in the living room also. Listeners can't be expected to pay \$6.95 for a Beatles cartridge for the car and then hand out another six dollars for a reel-to-reel version to be played on a home unit. Car cartridges will have to be interchangeable not only among various makes of car players but among varieties of home equipment as well.

Discs are out for car use for two reasons. The tone
(Continued on page 48)

CAR CARTRIDGE PLAYER GUIDE

<i>Manufacturer & Model Manufacturer & Model</i>	<i>Price</i>	<i>Includes Install.</i>	<i>Includes Spkrs.</i>	<i>Tape Speed</i>	<i>Mono</i>	<i>Stereo</i>	<i>Type Cartridge</i>
Audio Spectrum	\$ 69.95	yes	yes	3%	x		Fidelipac
Automatic Radio	\$129.50		yes	3%		x	RCA
Auto Phonic		yes	yes	3%		x	Fidelipac
Auto-Sonic		yes	yes	3%		x	Fidelipac
Auto Stereo MP 6	\$ 89.95	yes	no	3%		x	Fidelipac
Auto Stereo MP 8	\$139.50	yes	yes	3%		x	Fidelipac
Auto Stereo MC 8	\$159.50	yes	yes	3%		x	Fidelipac
Craig Panorama C501	\$ 99.50	yes	yes	3%		x	Fidelipac
Craig Panorama C502	\$119	yes	yes	3%		x	Fidelipac
Lear Jet Corp.	\$179.95 with radio	yes	yes	3%		x	Lear Jet
Martel Electronics ST 400	\$139	yes	yes	3%		x	Fidelipac
Metra Electronics MTP5	\$149.95	yes	no	3%		x	Fidelipac
Metra Electronics MTPC	\$169.95	yes	no	3%		x	Fidelipac
Muntz Stereo-Pak C1	\$ 99.95	yes	yes	3%		x	Fidelipac
Olson Radio	\$79.98	no	no	3%		x	Fidelipac
Orrtronic, Inc.	\$ 89.95	yes	no	3%	x		Orrtronic
	\$150	yes	yes	3%		x	Orrtronic
Quality Audionics	\$129.95					x	Fidelipac
Telepro Industries	\$ 69.95	yes	no	3%	x		Fidelipac
Trans-World Inc.	\$119.50	no	yes	3%		x	Fidelipac
Viking of Minneapolis	\$150-160		yes	3%		x	Fidelipac



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Use the Attaché any way you like—wear it, pin it to your lapel, hide it in your hand or pocket. Or, mount it on a stand, a boom, a gooseneck...even hang it from the ceiling—all in seconds without time-consuming modifications. Supplied with built-in, 15-foot spring-loaded, indestructible cord and handsome carrying case. As with all quality University products, the Attaché carries the exclusive University 5 year warranty! For details, write Desk TR LTV/University, 9500 West Reno, Oklahoma City, Okla.



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Popular Music and Jazz

By Ann C. Eisner

Summer comes and everything moves outdoors—tennis rackets, swim suits, sleeping bags, picnics, barbecues, theater in the park and suddenly there's music everywhere. Music spreads to the beaches faster than bikinis, filters through the smoke at the barbecue, surrounds the quiet fire at the end of a day of camping and even hides on buses where just the other day I saw a man with a portable Aiwa, earplug in ear, blissfully unaware of the jostling crowds or the heat.

Jazz provides a touch of sophistication for a patio cocktail party. Teens frug, monkey and jerk at the slightest provocation—everybody gets into the act. In fact, music could well be termed our newest outdoor sport. Tape recorders put music just about anywhere and with thousands of tapes available, the only question that remains is what to choose for summertime listening. Listening outdoors is different than listening indoors where walls and ceiling act as resonators, enclosing and controlling the sound, so it's best to bear a few points in mind when choosing tapes for outdoor listening.

Stick to brass and the warmer woodwinds as much as possible. Strings have a tendency to get swallowed up outdoors and you might end up straining for a lost violin section. Instrumental tapes such as Miles Davis' *Kind of Blue* (Columbia CQ-379) or *Quiet Nights* (Columbia CQ-608), Frankie Carle's *Show Stoppers in Dance Time* (Victor FTP-1264), David Carroll and his orchestra's many selections on Mercury (ST-6022, ST-60027, ST-6000, ST-60152) or Joe Harnell and his *Bossa Nova Pops* (Kapp L-41050) are all excellent examples of tapes that provide easy listening outdoors.

Solo guitar provides top outdoor listening, and flamenco moods go well on the beach, at a casual bull session or with a cool Vodka Collins in the backyard. Take a listen to Carlos Montoya on RCA Victor, the *Flamenco Festival* (Hi Fi 811) or Jose Greco and his dancers wildly clicking castenets to *Flamenco Fury* released by MGM. Music of this sort is good background atmosphere for any type of party and creates a mood all its own. Food and drinks served can be of Spanish flavor—easy enough when you barbecue in the backyard.

Not all guitar need be flamenco. Chet Atkins treats his guitar as a jack-of-all trades, goes the range from teen rock (Victor FTP-1017), to Caribbean bongo beats (FTP-1144) to jazz (Victor FTP 1169) all of which provides excellent listening as well as a wide variety of moods. Another favorite of mine is Tony Mottolla with many tapes available on the Command Label.

Piano, too, comes across well outdoors—if the pianist has a light, facile technique that emphasizes

clarity and rhythm instead of chords. Carmen Cavallaro (Decca) and Roger Williams (Kapp) are two very good examples. The new Roger Williams release (Kapp KTL-41096) which includes "People" from the musical *Funny Girl* and "The Girl From Ipanema" is good listening.

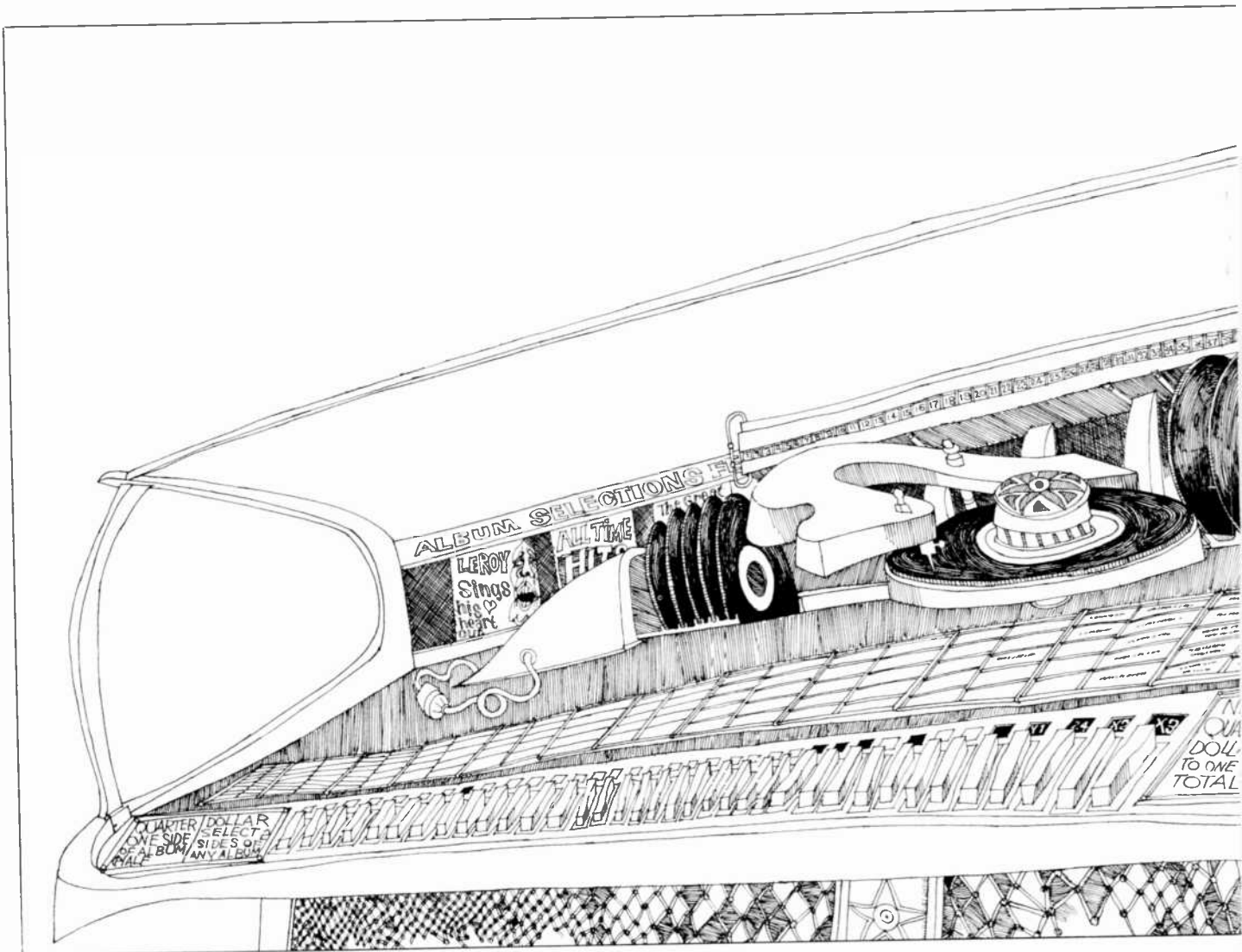
If you lean towards vocalists, you have your own favorites, but I recommend Eydie Gorme who has some excellent releases on Columbia—among them a new tape *Great Songs from the Sound of Music and Other Broadway Hits* (CQ 723) on which she presents favorites like "Shall We Dance," "Climb Every Mountain" and "Just One of Those Things" with bright new arrangements and a strong beat. Perfect for a hot afternoon lift. Other artists I like are Connie Francis on MGM, Rosemary Clooney on Victor and Ella Fitzgerald who'd come across anywhere. Some good Ella selections are *These Are The Blues*, *Ella and Basie* and *Ella Swings Lightly* (Verve C-309, C-300, C-222).

Male voices are a little more difficult to select and require more care for the simple reason that the lower the tone the less clear and the more likely to be diffused when played outdoors. Frank Sinatra is always good and there is a whole catalog of Sinatra tapes to choose from. Both Capitol and Reprise have good selections. My preferences lean toward the familiar *Only the Lonely* (Cap ZW-1053) and the lively *Ring-a-Ding Ding* (Reprise RSL-1701).

Robert Goulet, Tony Bennett and new Italian import Sergio Franchi all have excellent tapes. Exceptionally fine are Goulet's *Without You* (Columbia CQ-661), Bennett's *I Left My Heart In San Francisco* (Columbia CQ-493) and a new release by Franchi, *Sergio Franchi Live At the Cocoanut Grove* (Victor FTP-1294) which gives an amazing variety of selections ranging from an operatic aria to "Shenendoah" and a "Hootenany Medley." Franchi is at his best by far in the old standbys ("Stella By Starlight," "I Wish You Love," "In The Still Of The Night," "This Is My Beloved") but the whole performance is high quality and it makes for romantic listening under the stars.

As far as other vocalists are concerned, it's best to follow this general rule of thumb: stay away from the mumblers, the deep chesty singers—both male and female. Julie London may be quite an experience indoors, but that whisper of a voice is likely to get lost in the wind when you bring her into the great open spaces.

Most people like to relax in the summer. Listen to songs whose words are familiar and not too complicated. Show music can be lively summer entertainment but it can also turn into a garble of unintelli-



gible lyrics. If this is your pleasure choose things like *My Fair Lady* which boasts the lovely clear voice of Julie Andrews on the original cast recording. (Columbia CQ-310). *Oklahoma* and *Carousel* are two old favorites that also blend well with summer afternoons. Both original soundtracks are released by Capitol. One way to enjoy show tunes outdoors and get rid of the problem of lyrics is to select from among the many instrumental versions. Percy Faith plays selections from *Camelot* on a Columbia release, *Gigi* and *South Pacific* are available on the Richmond label, played by the London Theatre Orchestra and there are various renditions of *Showboat*, *Sound of Music* and *Porgy and Bess* to name only a few. Then there are movie soundtracks which never did have words in the first place. Try the original soundtrack of *Exodus* (Victor FTO-5007) or the haunting score from *Gone With The Wind* (W.B. C-1332). That's music for the hammock, a cool drink and memories.

Music outdoors lends itself to all sorts of summer occasions. For the patio party you want a variety of music. Early in the evening jazz sparks the mood and the Dave Brubeck Quartet, with Brubeck at the piano and Paul Desmond on the sax, is good accompaniment for the first few drinks. Try *Time Out* (Columbia CQ-437) and *Time Farther Out* (Columbia CQ-515). Other favorites of mine are Miles Davis *Sketches of Spain* (Columbia CQ-348) Woody Herman's *Swing Low Sweet Clarinet* recorded for Philips (PT 600-004) or Charlie Mingus *Blues & Roots* (Atlantic C-1909). George Shearing is always right for background music at a party and has many releases, all on Capitol.

I think most people outdoors prefer listening to jazz selections played by solo instruments. Miles Davis and Woody Herman, mentioned before, have several excellent tapes. Al Hirt (Victor FTP-1219, 1166, 1278) plays a mean horn and has a wide range that



seems to please almost everyone. Other tapes worth investigating include the heavy rhythms of Art Blakey (*Jazz Message*, Impulse C-310), John Coltrane's saxophone in *African Brass* (Impulse C-302), Herbie Mann recorded at the Village Gate (Atl. C-1919) or Thelonius Monk (Columbia CQ-625, CQ-644). One tape, *Jazz Giants* (Col. CQ-548), features a variety of artists and moods ranging from Brubeck to Carmen McRae.

Later, dance music is in order. Capitol has released several tapes recorded at $3\frac{3}{4}$ ips instead of the usual $7\frac{1}{2}$ ips and these are ideal. The fidelity is good, there is no noticeable difference when played outdoors. One reel of tape can provide a lot of unattended music. Capitol's Y4T-2201 release with Paul Weston and his orchestra includes "Laura," "Autumn Leaves," "Tenderly," "Bali Hai," "April in Paris," "I'll Be Seeing You" among others—good variety and the single reel contains almost $2\frac{1}{2}$ hours of continuous,

romantic music.

For teenage parties Capitol has released the Beatles, MGM has released the Animals, the Rolling Stones are on London and on and on.

By now, I hope this article has stimulated your thoughts and suggested many more combinations for summer listening than we've offered here. Possibilities are endless. Mixing and matching is fun. For example, if you're planning a Spanish evening, try following Carlos Montoya's *Flamenco Festival* with Miles Davis' *Sketches of Spain*. You won't break the Spanish mood and it will provide an interesting departure from flamenco.

Or, if you've got a sing-a-long going with a taped choral group, a popular folk tape will keep the sing-a-long alive while providing a change of pace. Popular music and jazz are ideally suited to the relaxed atmosphere of summer. There's plenty of time to get serious again after Labor Day.

The Lowdown on Tape Recorder Servicing

by Lee Brooks

Your tape recorder presents the average serviceman with more problems than any other piece of home entertainment equipment he handles. That's the view of several of the nation's leading servicemen, who point out that the typical tape recorder has more electronics than a television set plus the problems inherent in a mechanical device. "In fact," says David Muirhead of Audio Workshop in New York, "the mechanical headaches in servicing tape recorders are the big ones."

The fact that there are more than 120 different brands of tape recorders on the market now in the United States, many with several models to their credit, doesn't ease the servicing problem. No single

pay even better, such as recording engineers and factory sales engineers."

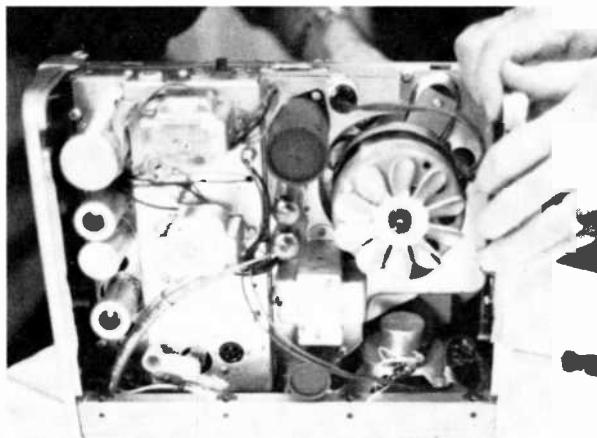
For the recorder owner living outside a metropolitan area served by a factory authorized service station, there usually are only two choices—take the recorder to the local TV serviceman or crate it up and send it back to the factory, once it's out of warranty. The city dweller, at first glance, would seem to be somewhat better off. The current Manhattan telephone directory, for example, lists 66 organizations which claim to service tape recorders. Yet many a New Yorker complains that he has trouble getting his unit fixed.

"When your recorder is in warranty," says Muir-



service technician could hope to stock all the parts necessary to service so many recorders, even if he had the know-how to do the work. There's a world of difference between a \$19.95 transistor portable and a \$600 stereo unit with automatic reverse and all the other de luxe features.

"The result," says the service manager for one manufacturer, "is that there are no more than 200 really competent tape recorder service organizations in the entire United States. These expert servicemen make up to \$200 a week, which is an extremely high salary in the service trade. By the time they reach that figure, they're able to go on to jobs in other fields which



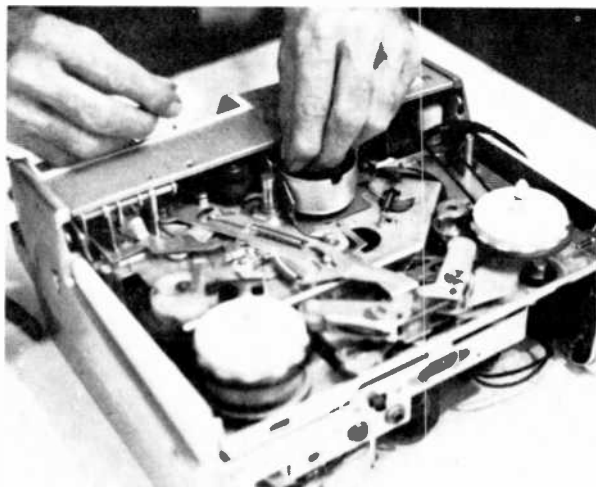
head, whose service organization no longer handles recorders because of the complex problems they present, "you have no problem. You can ship the unit back to the manufacturer and because it's new, he's got the parts for it. Your problem starts when the warranty expires, or when you have to deal with somebody local."

Most factory service managers urge their customers to take their recorders to a local service station recommended by the factory. "I realize that not all of these authorized stations are good," says one service manager. "But they're the best we can do. If we had as many recorders in the field as Emerson or RCA

have television sets, we could demand a lot more of the service people. But as it is, we have to make the best of what we've got. Some of our authorized stations are excellent. We know that others overcharge, or don't know what they're doing." Says another, "Our service station network is small but very good. Our big problem is with older machines. If you have one of our machines that's more than three years old and it needs a part, the serviceman pretty well has to make his own."

Servicing in theory is based on the amount of time it takes a man to locate and fix any trouble that develops in your recorder. As in other service businesses, there is an hourly rate—which varies anywhere from the \$7.50 a television serviceman may charge to \$12 for a specialist in tape recorders. The hourly rate really is meaningless, most servicemen agree, because you've got to figure in a number of extraneous things—listening to the customer's complaint in the first place, taking the recorder apart, locating the trouble, explaining to the customer on the phone what the trouble is and why the bill will be \$45, finding out whatever else may be wrong with the machine, then cleaning it and putting it back together, and finally explaining it all over again to the customer when it's picked up.

"Even such a thing as dirty heads can run the cus-



tomers \$25 and up," says Muirhead. "When the customer brings it in, he complains that 'it doesn't sound good.' We can take a look at it and see right away that the heads are dirty. Chances are if he's neglected it in that way, there may be something else wrong. So we take frequency response checks, and check the bias and equalization. That's how a simple cleaning job can cost as much as \$25, even though the frequency response, bias and equalization are perfect."

Dirty heads, most servicemen agree, are the most common fault in recorders brought in for servicing. "At least one-third of all the recorders we get have dirty heads," says Arthur Pikas of Sigma Electric

Company in New York, one of the nation's largest factory authorized service stations. He points out that careful, regular cleaning with a proper cleaning fluid can often eliminate many of these service problems. "To clean heads you need an applicator like a Q Tip. Soak it in the cleaning solution. Then use a separate swab to dry the head and remove any dissolved oxide and gunk. The cleaning fluid used most commonly in proprietary preparations is xylene—and for most recorders, it's an ideal cleaning solution. But xylene can dissolve the plastic on the erase heads of some recorders such as the Norelco. For those machines, alcohol is the recommended cleaning solution. Denatured alcohol, however, is almost as dangerous to some other machines as xylene is to the Norelco. The denaturing agent gums up the heads and makes matters worse instead of better. It may also dissolve the glue holding the pressure pads. Where the heads of your recorder are concealed, you may have to mash the Q tip before using, or use a plyers to hold the end to provide maximum cleaning service. I remember one idiot who recommended cleaning tape heads with Bon Ami. Can you imagine that?"

"Cleaning includes not only the heads, but the oxide which gathers on the capstan, tape guides and pinch roller. In the case of horizontally-mounted



decks, dirt which gathers on the roller or capstan can drop down inside the recorder itself, producing a squeal while the recorder is in operation. Squeals are more likely to be caused by friction between tape and a dirty guide post, or by gunk in your recorder's innards than by electronic difficulties."

Failure to read the instruction book is a second big cause of service calls, Pikas feels. "You'd be surprised how many people bring in a recorder claiming it won't record, who are unaware that you have to depress the record lock as well as the record button. There are a lot of complaints about inability to tape off the air when all that's wrong is that the cables

aren't connected properly. We have many such problems daily which can be straightened out simply by reading the explanation to the customer from the instruction book."

Another source for service headaches are the cables which connect the recorder to other pieces of electronic equipment—the microphone, component amplifier or receiver, or a television set. These cables consist of a hot line, around which an insulated, braided shield is wound. The braided shield acts as the ground. It's not uncommon for one of these wires to break, usually at the point where it's soldered to a plug. As a result, you get hum instead of sound, or no sound at all. The trouble isn't actually in the recorder at all, but in the cable. A touch of solder or, if you're not a do-it-yourselfer, a new cable, will clear up the trouble.

"Many customers buy machines that have been 'oversold.' That is they have been sold on specs that aren't real. This is especially true in the case of portables. Soon the customer visits us wanting to know why his speeds are off or his motor is bad," says Pikas. "It's not improper use—it's the recorder."

He listed a number of other common problems which bring him customers and are not the fault of the machines. "We get complaints from people who simply don't know how to thread a recorder properly; they may have put a half twist in the tape. We get people who put a three inch reel on a seven or 10 inch machine and complain of wow being very high. We get complaints about dropouts which are actually caused by cheap, white box tape. These tapes should only be used with non-capstan drive recorders. And it's hard to convince some customers that certain recorders work better with 1800 or 2400 feet of tape on a reel rather than 1200. The machines were designed for thinner tapes."

Other common reasons for recorders winding up at the repair depot are belts which stretch and cause skipping on the tape counter, over-lubrication of machines that require only an occasional few drops of oil and recorders overheating after being operated on a rug or other soft surface which prevents proper airflow. "Shifting speed when the recorder isn't running can cause the belt to flip over and a shift in the pulley," says Pikas. "Two speed machines that require a belt change should be left on the lower speed when not in use."

He cited the case of the woman who came striding into his shop with a recorder under her arm berating him furiously in a heavy Russian accent. "Dis machine doesn't vork," she screamed. Together they turned it on. He threaded the reel. The meter lit up. "See," cried the woman. "The book says the meter should flutter and it don't." "Lady, you're supposed to talk into the microphone," he told her.

What about preventive maintenance—the idea of bringing a recorder in at regular intervals for a check-up? There's a difference of opinion among service experts, but most agree that heavy users should try to have their recorders inspected at least once a year.

"If you use your recorder a lot, it'll need head realignment, a bias check, equalization and calibration check, a testing of all the tubes and a look at the drive mechanism, plus a thorough cleaning inside and out even if there's nothing really wrong," Muirhead explains. "A job like this may seem expensive but it can cut down more expensive repairs later." Other servicemen argue that the average home user might just as well wait until something really goes wrong. "Then you can have everything fixed at once, for very little more money than the overhaul would cost." Minimum service charges average five dollars.

Servicemen charge an hourly rate for their services, but most feel this is no indication of total cost or value. The TV repairman charges you \$7.50 an hour, while a good New York City serviceman specializing in quality tape recorders charges \$10 to \$12. On the surface, the TV repairman would seem like a better buy. But it may take him several hours to locate the trouble before fixing it. The experienced audio serviceman knows where to look first, so he may take less time on the job. Actually, for bookkeeping purposes, either serviceman includes not only the time it takes him to fix whatever is wrong with your unit, but also the time you take telling him about it, the time it takes him to pinpoint the trouble, the time it takes to take the recorder out of its case and put it back together, the time it takes to explain what is wrong and why it costs so much and finally the time it takes to demonstrate the finished job and explain the charges to you all over again. The TV serviceman, if he does the job in your home, also charges you for the time it takes to come and go between your home and his shop.

A favorite stunt of some newspaper reporters interested in exposés in the early days of television, was to pull a wire inside a TV set, then call servicemen to come up and fix the set. Charges ran anywhere from five dollars to \$100 and more. In some cases, the servicemen were flagrantly overcharging, in the assumption that the customer didn't know any better. These series also exposed a number of quacks who really didn't know what they were doing. But even some conscientious servicemen submitted bills of \$25 and more, based on the amount of time it took to locate the trouble. "You can pull a wire like that and you know where the trouble is," one of them told the *Toronto Star*, but I have to try several possibilities before I find it."

Because tape recorders aren't as common as television sets, the number of quacks engaged in tape recording servicing is fortunately low. But there seem to be a large number of only nominally competent service people—and recordists in many parts of the country don't even have access to them. They must make do with the local TV repairman, or attempt to do

(Continued on page 48)

tape

REVIEWS

Schumann

Symphony No. 1 in B Flat Major, Opus 38, Symphony No. 4 in D Minor, Opus 120, Berlin Philharmonic Orchestra, Rafael Kubelik, conductor. Deutsche Grammophon Gesellschaft DGC 8860, \$7.95

Music ◆◆◆
Performance ◆◆◆
Recording ◆◆◆

This is the first of the DGG tapes to reach this reviewer. The sound is remarkably similar to the DGG discs: rich, mellow, but with occasional clouding of detail due to excessive resonance. The tape processing is excellent, and both performances are wonderfully refined. Kubelik's conducting these days is better than ever: steady, well-organized, poetic. His attention to orchestral balance is highly commendable, and he frequently focuses on interesting details that many rival conductors fail to illuminate.

Kubelik brings his best qualities to these two Schumann scores. Compared to Szell's high-powered interpretation, Kubelik may appear sedate. But too often, Szell over-intensifies the music, flying over sections that Kubelik bends and molds in a manner all his own. In the Fourth Symphony, the Czech conductor is entirely successful, adding the same sombre eloquence that marked Furtwangler's superb disc performance.

Altogether, this is an auspicious beginning for Deutsche Grammophon's tape series. You get two of Schumann's finest works on one tape, without the dark, heavy sound that muddies the Szell recordings. A distinct bargain. —P.T.W.

July-August 1965

Schumann

Piano Concerto in A Minor, Opus 54; Introduction and allegro appassionato for piano and orchestra (Konzertstück), Opus 92, Rudolf Serkin, pianist. The Philadelphia Orchestra, Eugene Ormandy, conductor. Columbia MQ 707, \$7.95



Music ◆◆◆◆ (Concerto)
 ◆◆◆◆ (Konzertstück)
Performance ◆◆◆◆
Recording ◆◆◆◆

This latest version of the A Minor Concerto is a stereophonic remake of Serkin's highly dynamic performance, recorded some years ago with Ormandy and the Philadelphia. Temperamentally, it is closer to Fleisher than to Cliburn. That is, it has great heroic strength and bravado, rather than the languid romanticism Cliburn injects into the score. The first movement is precise, angular, and somewhat cool. Serkin brings greater warmth to the succeeding movements and, throughout, his playing is magnificent.

The *Konzertstück* is a new addition to the catalog. It contains enough pyrotechnics to satisfy any pianist, but it lacks real musical interest and is hardly a comparable filler, say, to Fleisher's performance of the Grieg Concerto on the Epic tape. The recording is not spectacular. The piano has a metallic twang, although this is partly true of Fleisher's instrument. In both cases, the orchestras sound marvelously expansive, exactly right for the dramatic impulse of the readings.

The competition is variable. Backhaus gives a respectable but severe performance, coupled with a cumbersome "Waldszenen." Katchen is flaccid, skimming over the score without any personal involvement. Cliburn's performance is honest, lovable, but without the intellectual drive and tensile strength of either Serkin or Fleisher. My preference is Fleisher. Although his big robust manner is not quite successful in the smaller-scaled Grieg Concerto, his recording is still the best bargain. —P.T.W.

Puccini

Tosca, Maria Callas, Carlo Bergonzi, Tito Gobbi, Paris Conservatoire Orchestra, Georges Pretre, cond. Angel Y2S-3655, \$9.98

Music ◆◆◆
Performance ◆◆◆
Recording ◆◆◆

The most noteworthy fact about this tape is that Angel has released it at 3¾ ips instead of the usual 7½ ips. The slower speed allows the whole of the opera to be included on a single reel of tape, providing almost uninterrupted listening, and it cuts the price down to that of the disc set.

The process used by Angel in the recording disturbs the fidelity so little that only those with top professional equipment should notice any difference between this and the faster speed.

As to performance—Maria Callas presents an excellently delineated Tosca dramatically if not vocally. Unfortunately, she does not top the performance she recorded for Angel a number of years ago and leaves the listener a bit wistful. Tito Gobbi also repeating the role he sang on the old Angel, fares better and produces an inimitably evil chief of Police. Carlo Bergonzi sings a beautifully lyric Cavaradossi, but has a tendency to get lost in the dramatic backwash of his two formidable cohorts. The musical line is well-conceived and beautifully executed—but alas the lover is not.

Georges Pretre conducts well though he has a tendency to muddy the clear line of the music—especially in the Te Deum at the end of the first act.

The tape, on the whole, represents a dramatic tour de force—however I suggest looking at the Price, DiStefano, Taddei tape conducted by Herbert Von Karajan which RCA released not long ago before making a selection—and definitely keep your eyes open for more Angel 3¾ ips releases. —A.E.

Saint-Saens

Violin Concerto No. 5 in A Minor, Opus 37, Vieuxtemps; Violin Concerto No. 3 in B Minor, Opus 61, Arthur Grumiaux, violinist. The Lamoureux Orchestra, Manuel Rosenthal, cond. Philips PTC 900061, \$7.95

Music Performance ◆◆◆◆
Recording ◆◆◆◆

This is Grumiaux's second recording of the Saint-Saens. The first performance, on an early Epic disc, was well-received, but this one is even better. It seems almost impossible for this excellent violinist to turn in a bad performance. His interpretations are admirably straightforward; his technique smooth and flawless without being spectacular. Although this is the only version of the Saint-Saens on tape, it is interesting to compare it with

Milstein's disc. Instead of Milstein's pyrotechnics, Grumiaux substitutes smooth lyricism. His approach gives this rather ostentatious concerto more refinement than it deserves, but it does increase the listening interest.

There is the same cool approach in the Vieuxtemps. Here Grumiaux faces competition from Heifetz, who has created his own highly personalized and super-charged account of the concerto. While Heifetz is truly exciting, Grumiaux is more relaxed. He lets the music sing without strain. In both cases, Rosenthal gives excellent support and the recording is warm, full, with fine balance between soloist and orchestra. An enjoyable release. —P.T.W.

Beethoven

Symphony No. 6 in F Major, Opus 68 (Pastoral), The New York Philharmonic Orchestra, Leonard Bernstein, cond. Columbia MQ715, \$7.95



Music Performance ◆◆◆◆
Recording ◆◆◆◆

There are some fine elements in this new recording, although the finished performance appears to be more Bernstein than Beethoven. Throughout, Bernstein strives for drama, with spectacular recording making moments like the Storm Scene very exciting. But the pace is hectic, particularly in the opening movement. Here is no leisurely country stroll, but a mad gallop in a coach and four. The

Scherzo, with its lovable country dance, loses all its pastoral flavor. Everything is too streamlined, with none of the thick peasant tread brought to us by Furtwangler . . . "Lifting heavy feet in clumsy shoes, earth feet, loam feet, lifted in country mirth/mirth of those long since under earth/nourishing the corn."

Among rival versions, Boult's Sixth and Seventh Symphonies are clear but pedantic. Reiner brings remarkable inciveness to the music, but the results are rather hard. Ansermet couples the Pastorale with the Seventh Symphony for a London twin-pak; with the First for a regularly priced tape. He is highly successful, maintaining great evenness, producing superb orchestral colors, illuminating all three scores in a way many notable Beethoven conductors fail to do. The London recording is excellent.

If the buyer is looking for a two-symphony tape, either of the Ansermet versions is recommended. There remains one other recording, however, by Bruno Walter. It is one of the wonders of recorded music. Marvelously genial. Beautifully recorded. An inspired, incandescent performance by a conductor totally in sympathy with the mood and manner of the composer. No other recording really comes near it. —P.T.W.

Bach

Magnificat in D, BWV 243; Cantata, "Jesu, der du meine Seele," BWV 78 Maria Stader, Ernest Haefliger, Dietrich Fischer-Dieskau (in the Magnificat), Ursula Buckel, John van Kesteren, Kieth Engen (in the Cantata), Hertha Topper, Munich Bach Choir, Munich Bach Orch. cond. Karl Richter. Archive C 3197, \$7.95

Music Performance ◆◆◆◆
Recording ◆◆◆◆

It's high time that these two masterpieces made their appearance on tape. They're done splendidly in this recording, with the Magnificat stealing a slight edge on the Cantata. Much of the credit is due to conductor Richter, who has inspired the chorus (which includes some boy sopranos and altos) and the orchestra

to turn in really inspired performances. Note in particular the boys' voices in "Suscepit Israel," and the full-bodied climaxes to Verse 7 and the Doxology. The recording is, without doubt, one of the best of any choral music on tape. One hopes that other Archive recordings of Bach cantatas will follow this auspicious beginning. —R.A.

Strauss

Der Rosenkavalier, Marianne Schech, Irmgaard Seefried, Rita Streich, Dietrich Fischer-Dieskau, Kurt Boehme, Dresden State Opera Chorus, Saxon State Orch. cond. Karl Bohm. Deutsche Grammophon R 8040, \$21.95

Music Performance Recording

Let me preface my remarks on this tape by admitting a personal bias—I'm hopelessly in love with Angel's recording of the opera, starring Elisabeth Schwartzkopf and conducted by Herbert von Karajan. One of the highest compliments I could pay the DGG set is to report that it's nearly as good—and so it is. Neither set is new—Angel's was one of that label's first stereo efforts, and this recording was made in Dresden sometime in 1959. Both sets thus lack the stage presence of more recent operatic recordings, although both reproduce singers and orchestra sharply.

Rita Streich as Sophie is the star of this recording, for my money. Her tender characterization of the role is just a shade more subtle than that of Teresa Stich-Randall on the Angel set, and her singing is superb. Dietrich Fischer-Dieskau's Baron Ochs sings splendidly as Herr von Faninal—but he seems too urbane, too polished for the role. All of the other singers turn in polished, professional performances that just barely miss the mark set by Karajan's soloists.

If DGG hadn't had the bad luck to have to compete with the Angel masterpiece, this would be a set recommended as a cornerstone of every tape library. The recording is complete on two reels (three interruptions) as opposed to four LP discs (seven breaks). —R.A.

Bellini

Norma, Joan Sutherland, Marilyn Horne, John Alexander, Richard Cross, London Symphony Orchestra and Chorus, cond. Richard Bonyngne, RCA Victor FTC 8010, \$21.95



Music Performance Recording

Well, which "Norma" is it to be—Sutherland's, or Callas' on Angel? For many opera lovers, the name of the diva alone is enough to determine the choice, and it's a fair way of judging the RCA and Angel tapes. Where Callas is a fine singing actress, who can transform Bellini's pasteboard heroine into flesh and blood, Sutherland is pale, insipid and unbelievable. On the other hand, there's no question that it is Sutherland who has the finer voice and can sing a bel canto line with just the proper flourish. Of the conductors on the two sets, I prefer Angel's Serafin, who conducts it in the Italian style. On the other hand, Serafin has made several small cuts in the score which are included in this tape. The supporting cast, particularly tenor John Alexander, provide able assistance; although Marilyn Horne gets off to a rocky start at her entrance. However the duet "Mira O Norma" sung by mezzo Horne and soprano Sutherland is as fine as you will hear. The two voices blend so beautifully they become two edges of the same voice following the

intricate bel canto line with breath-taking precision.

The tape was recorded in the Walthamstowe Town Hall in London, reputed to be one of the finest natural recording studios in the world. This tape backs up the contention and London has certainly used its facilities well. The sound is superb, stereo separation is fine, and one can envision the action on stage as the singers move back and forth between the loudspeakers. Any choice between the two versions should be made only after a thorough listening to both. —R.A.

Hollywood Bowl Symphony

Espana/Nocturne, Music by Ravel, Rimsky-Korsakov, Albeniz, Grieg, Massenet, Schumann, Schubert, Debussy, Wagner, Brahms, etc. cond. Felix Slatkin and Carmen Dragon. Capitol Y2P 8613, \$9.98

Music Performance Recording

How best to review a tape like this one is something of a puzzler. It's a good collection of popular classics, obviously intended for background use. At the same time, it's an excellent way to add such standards as Ravel's "Bolero" and "Alborada del Gracioso," Rimsky-Korsakov's "Capriccio Espagnol," the Schubert "Serenade," Brahms' "Cradle Song" and other favorites to your tape library at surprisingly low cost. These are the type of selections you're likely to find in the bargain bins, usually recorded by pick-up orchestras in Europe at amazingly low prices. Because Capitol gets nearly 82 minutes' worth of them on this tape, it can match any bargain price around. The performances don't stack up with the finest interpretations around, but they're more than a match for most of the "bargain" versions we've heard. The recordings aren't new, either—they date back to stereo's earliest days. But the sound is adequate, and the 3¾ ips recording seems to have lost none of the fidelity of the disc originals. We'd certainly recommend looking it over if this repertory is your cup of tea. —E.B.

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Verdi

La Forza del Destino, Leontyne Price, Richard Tucker, Robert Merrill, Giorgio Tozzi, Ezio Flagello, RCA Italiana Opera Orchestra & Chorus, cond. Thomas Schippers, RCA Victor FTC 8011, \$21.95

Music Performance Recording ◆◆◆◆

The only rival to this set is London's 1958 recording with Renata Tebaldi and Mario del Monaco. While it is outclassed in many respects by the new recording, it has several appealing features—notably Fernando Corena's ingratiating comic characterization of Fra Melitone, as opposed to a somewhat more sober performance by Ezio Flagello for RCA. But any thoughts about selecting the old set in preference to the new should be set aside by the clear superiority of RCA's Richard Tucker over his hammy rival on London, and by RCA's spacious, luscious sound. Personally, I prefer London's Renata Tebaldi and Giuletta Simionato to RCA's women, but the difference is a matter of taste and interpretation. Robert Merrill, on RCA, is Don Carlo and turns in his usual splendid performance. Victor's Rome studios have produced several beautifully-recorded operas in the past few years. This set is up to the high technical standards the company set in the past —R.A.

Dick Hyman

Keyboard Kaleidoscope, Dick Hyman at the Lowrey organ. Includes *Fiddler on the Roof*, *Who Can I Turn To*, *Love Me Do*, *Goldfinger*, *That's A Plenty*, etc. Command RS 4TC875, \$7.95

Music Performance Recording ◆◆◆◆

Easy listening is the clue to this album. Hyman puts the Lowrey organ in a highly favorable light as a solo instrument with a wider-than-usual capability under his imaginative fingers. In some spots you feel you are listening to a pipe organ!

Whistling and other tastefully-used sounds add bright touches, highlighting some too-frequently-played items like *Under Paris Skies*, and lifting them to new interest levels. Choral accompaniments on several items are effective, resulting in some intriguing byplay with the dominant instrument. Two outstanding selections are the brilliantly conceived *Some Day My Prince Will Come*, and *That's A Plenty*, featuring top-notch banjo and a remarkable Dixieland feeling.

—F.P.

Bob Dylan

Bringing It All Back Home, by Bob Dylan, includes *Subterranean Homesick Blues*, *Maggie's Farm*, *Outlaw Blues*, *Gates of Eden*, etc., Columbia CQ 729, \$7.95



Music Performance Recording ◆◆

Followers of Bob Dylan may grab at this one. Others may find it tedious gobbledegook, despite moments of subtle humor, touches of poetry and interesting liberties with the English language. The question this reviewer kept asking was "What's he trying to say?" On the one hand, Dylan projects the idea that he is profound—but close listening reveals that some of the involved, fine-turned phrases, and ideas couched in colorful language don't add up to much.

For example, take apart the apparently profound "It's Alright Ma,"

Tape Recording

and you find it's words, words, words, nicely strung together but signifying little. Fadeout endings are monotonous. Fine harmonic and guitar work are rescuing elements.

The recording leaves much to be desired: Subterranean Homesick is especially bad, hardly intelligible. NIX! —F.P.

Nancy Wilson

Nancy Wilson with the George Shearing, Cannonball Adderley Quintets, *Capitol 12T 2256*, (3¾ ips) \$9.98



Music Performance Recording ◆◆◆◆

This splendid twin album tape was among the very first 3¾ speed tapes to arrive from Capitol-EMI. Attached to the cover is a golden star with the words "New Biononic Process". Whatever "Biononic" may mean, the sound is remarkably good for this speed. The high frequencies are limited, but there is plenty of bass and the orchestral parts are well-defined. The first side of the tape offers 37 minutes playing time; the second side, 35 minutes playing time.

The implication is that the tape is meant for quiet, late-night background music. However, I defy any jazz lover to just hear rather than listen to these performances. Nancy Wilson is one of the most vibrant vocalists now recording. Her technique and emphasis are perfect, and she gets superb backing from Shear-

ing, and especially Adderley. Her numbers with Adderley have more life: "Save Your Love For Me," "Happy Talk," "Unit 7." But Shearing adds his own persuasiveness to "The Nearness of You," "Born to be Blue" and "Lullaby of Birdland." My advice is to buy this tape at once, sound unheard. —PTW

Les and Larry Elgart

The New Elgart Touch and Command Performance, *Les and Larry Elgart, includes Caravan, Why Don't You Do Right, And The Angels Sing, Woodchoppers Ball, etc., Columbia CQ 720 (double play), \$11.95*

Music Performance Recording ◆◆◆◆

Great tunes, great arrangements, and superb stereo with proper separation put this tape right at the top.

Most of the 24 tunes date back as many years, and have come to be standards in the pop and/or jazz categories. The Brothers Elgart have updated the selections with sparkling, rhythmic, big-band arrangements, again proving the axiom that a good old song can almost always be made to sound fresh and new again.

Kudos to Columbia and all those involved in this recording project! —F.P.

Ray McKinley

Glenn Miller Time, 1965, *The Glenn Miller Orch. directed by Ray McKinley, includes Elmer's Tune, Moonlight Cocktail, Hello Dolly, Pennsylvania 6-5000, Chattanooga Choo-Choo and others. Epic EN 631, \$6.95*

Music Performance Recording ◆◆◆◆

Let's get one thing straight at the outset—this album may be the product of men who worked with the late Glenn Miller, such as leader Ray McKinley, arranger George Williams and trumpeter Bobby Hackett, but the result has none of the Miller magic. There's big band sound here, spa-

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ciously recorded by Epic; and there are plenty of Glenn Miller favorites, with a few new titles thrown in to bring the package up to date. What's lacking is the spontaneity and freshness Miller brought to his recordings. If you dig Hackett's trumpet, you may want the tape. He's heard in virtually every number, and he's great. Epic has provided no program notes.—E.B.

Lester Lanin

I Had A Ball, highlights, played by Lester Lanin. Philips PTC 600165, \$7.95

Music Performance Recording ◆◆◆◆

This collection of highlights from "I Had A Ball" is largely for the ballroom dancer to whom the beat is all, and the music secondary. The ar-

rangements—in the Lanin tradition—are, unfortunately, on the shallow side.

One wonders on hearing this album all the way through its mediocre sameness, if the dancers, who danced it all the way through, wound up as bored and as fatigued as those who only listened. The recording has a slightly edgy quality. —F.P.

Werner Muller

Werner Muller plays Leroy Anderson, includes Fiddle Faddle, Belle of the Ball, Sleigh Ride, Syncopated Clock, Blue Tango, etc., London LPL 74057, \$7.95

Music Performance Recording ◆◆◆◆

Leroy rides again, courtesy of Werner Muller, and in a very noble

fashion, indeed. Superb strings, dazzlingly inscribed, embellish moments of nostalgia—as in *Forgotten Dreams*—and set the pace where the movement is presto—as in most of the other works recorded here.

Characterizing the brisk-tempoed items is a frothiness that makes listening a delight—and which is likely to invoke memories of the first belle of your own first ball.

Muller's insight into Anderson's musical intent is evident everywhere in this set. Where the mood is tenderness, Muller brings it out; where it is light-heartedness, it comes out light-heartedness; where it's bounce, there's lots of Muller's ounce.

Especially notable is the grand touch Muller and his men give to *Sarabande* and *Blue Tango*. —F.P.

The Swingle Singers

Anyone for Mozart? *Eine Kleine Nachtmusik, Sonata No. 15, Fugue; Sonata Philips PTC 600149, \$7.95*

Music Performance Recording ◆◆◆◆

"We need something hip for the college crowd in the September release, *Matty Baby*."

"Well, the longhairs are on a Baroque kick these days, and cool jazz is still in the first houses, Sid."

"Hey! I got a great idea! We get a cool jazz group, see, and we turn them loose on that Baroque stuff."

"It's been done, Sid."

"The college crowd really digs Mozart, right? Suppose we take Mozart, turn it over to a jazz group to improvise—"

"The greatest, Sid. Like, there's this *Eine Kleine Nachtmusik*, see? That means 'A little night music'."

"You mean like Jackie Gleason and his orchestra? That's so far out it's almost ready to come back in."

"Not exactly. We turn that and some other Mozart hits over to this swinging group I have in mind—"

"Something like the *Modernaires*?"

"Not exactly, *Matty*. We call them the *Swingle Singers*, see?"

"Because they swing, right?"

"Well, they *do* swing. But the cat

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who heads the group is an old fraternity buddy of mine named Ward Swingle."

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Smothers Brothers

Tour De Farce American History and Other Unrelated Subjects, includes, "Siblings," "That's My Song," "Mediocre Fred," "The Measle Song," "Since My Canary Died," "The Put-On Song," "She's Gone Forever," etc., Mercury STC 60948, \$7.95

Music Performance ◆◆◆
Recording ◆◆◆

The Smothers Brothers are regarded as the clowns of the folk music revival. For the most part, any humor they might generate is lost through imbalance, either in the brothers' original programming (this is a live performance recording) or in the selection of material for the tape. There is too much of the same kind of routine—that of the "normal" brother trying to straighten out the "not so smart" brother but usually himself getting caught up in the maze of confusion. Even the two straight songs, "That's My Song" and "She's Gone Forever," although creditably performed, slip by almost unnoticed because of the inane introductions.

—F.A.H.

Bob Brookmeyer

Bob Brookmeyer and Friends, featuring Stan Getz, Herbie Hancock, Ron Carter, Gary Burton and Elvin Jones, includes Jive Hoot, Misty, Skylark, Bracket, Who Cares, etc., Columbia CQ693, \$7.95

Music Performance ◆◆◆
Recording ◆◆◆

This release can be summed up easily: it's a gem. And like a gem, it displays some highly polished facets. In this case they consist of a "blendship" that totally pervades every selection; a magnificent range of quality solos; and great material.

July-August 1965

The set marks the reunion of Getz and trombonist Brookmeyer. Despite the passage of a decade and a going of their individual artistic ways, their old empathy is intact—and it shows here admirably. —F.P.

Andre Previn

The Popular Previn, Andre Previn, piano, with orchestra conducted by Marty Paich. Includes One Note Samba, People, Bluesette, Kiss Me Stupid, Girl From Ipanema, Good-bye Charlie, etc. Columbia CQ719, \$7.95



Music Performance ◆◆◆
Recording ◆◆◆

This one is hard to evaluate. On the one hand the album sums up as an exercise in brilliance—brilliant arrangements, brilliant material and brilliant playing. On the other, it tallies up primarily as a too-obvious showcase for Previn, with the other elements incidental. Either way, it adds up to some very pleasant and varied listening.

Actor Jack Lemmon is responsible for the tongue-in-cheek liner notes which suggest that Previn has a real problem; since he is brilliant as a composer, conductor and performer, "there is nothing left—he must be miserable." —F.P.

Boston Pops

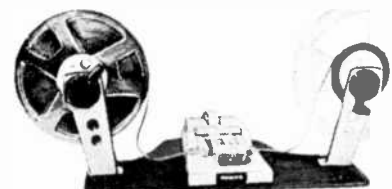
Grand Canyon Suite (Grofe), Overture to Candide (Bernstein), Oda-lisque (Mason), Prelude and Fugue in Jazz (Press), Boston Pops Orchestra, Arthur Fiedler, RCA Victor FTC 2189, \$8.95

Music Performance ◆◆◆
Recording ◆◆◆

The major work here—one of the great "warhorses"—gets a crisp, straightforward reading by Fiedler and the Pops in a sonically satisfying performance.

More interesting are the short pieces. Candide is a brisk, brash, tuneful item with a slightly Offenbachian flavor and a toe tapping beat. The melodic Oda-lisque with its exotic flavor shows off the Pops string section exquisitely. The Prelude and Fugue in Jazz is an amusingly overblown tour-de-force quite appealing in its involvements. It's a great show-piece for the hi-fi buff. —F.P.

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EQUIPMENT REVIEWS

Dynaco Beocord 2000

The Dynaco Beocord 2000 is manufactured by Bang and Olufsen in Denmark and is imported and distributed in the United States by Dynaco of Philadelphia. It is a completely transistorized, three headed, quarter track stereo recorder with a built in mixer utilizing rather unique slide potentiometers. Both European and RCA type input and output connectors are provided. The recorder will accept reels up to seven inches in diameter. Three operating speeds are provided, $1\frac{1}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ inches per second. Some of the extra features are switchable sound on sound and echo connection, automatic stop within a reel through use of foil tape, available remote accessory for remote pause control and a synchronizing control box for triggering automatic slide projectors.

The manufacturer cautions against operating the recorder vertically, though it can be operated at moderate angles from the horizontal. The speed selector and on/off switch are combined into a single control centrally located between the reels at the top of the deck. Since this is a puck drive machine, placing the speed selector in the off position disengages the pucks and insures that indentations are avoided. A separate switch is provided in case it is desired to use just the electronic portion of the recorder, as for example when it is to be used as a portable public address system, or to check levels without starting the mechanism.

Tape loading is straight slot, but care is required to see that the tape is threaded around the auto-tension tape guides located at the extreme sides of the tape path.

A deliberate double functioning of



controls is required to get into record—as a safety feature—and a nice one. The microphone volume control operates to control the gain of both microphone inputs simultaneously, and if it is desired to control the microphone input separately it is necessary to replace the phonograph preamplifier card with another microphone pre-amp card. A separate button is available to provide echo, for either stereo or mono recording. The manufacturer cautions against utilizing the loudness control when making “echo” tapes, for this would mitigate the quality of the echo achieved. A switchable sound on sound control is another among the many versatile features of the Dynaco Beocord 2000.

The syncro-playback feature is unique. It provides for monitoring from the record head rather than the playback head and this will allow perfect synchronization when recording on the opposite track. Because of the versatility and consequent complexity of this recorder a complete and detailed instruction book is an imperative and Dynaco is to be complimented on the completeness of their instruction book. The rewind time for a 1200 foot tape on a seven inch reel was one minute and 31 seconds. Fast forward time with the same reel was

one minute and 30 seconds. Wow and flutter at $7\frac{1}{2}$ inches per second tape speed was .1%, at $3\frac{3}{4}$ ips .125% and at $1\frac{1}{8}$ ips .26%. On playback of an NAB $7\frac{1}{2}$ ips tape the response on the left channel was minus three db @ 15 kc, minus 2.5 db @ 12 kc, minus 1.75 db @ 10 kc, minus .1 db @ 250 cycles and plus 4.7 db @ 70 cycles. On the right channel the response was minus three db @ 15 kc, minus two db @ 12 kc, minus 1.25 db @ 10 kc minus .25 db @ 250 cycles and plus 5.9 db @ 70 cycles. On overall frequency response run at 15 db below normal record level as indicated on the recorder's level meters, the left channel at $7\frac{1}{2}$ ips tape speed was minus 3.1 db @ 15 kc, minus one db @ 12 kc, minus 1.75 db @ 10 kc, zero at 1 kc, plus 1 db @ 300 cycles and plus 2.75 db @ 70 cycles. The right channel checked under identical conditions was minus 3.5 db @ 15 kc, minus .9 db @ 12 kc, minus 1.1 db @ 10 kc, zero at 1kc, plus .25 db @ 300 cycles and plus 3.1 db @ 70 cycles. Response checks at the $3\frac{3}{4}$ ips speed recorded 15 db below normal record level as indicated by the recorder's level meters gave the following results: on the left channel minus 2 db @ 10 kc, minus 2.5 db @ 6 kc, minus 1.25 db @ 4 kc, zero at 1 kc, plus 1.6 db @ 300 cycles and plus 2.8 db @ 70 cycles. The right channel: minus 2.3 db @ 10 kc, minus .1 db @ 6 kc, plus .1 db @ 4 kc, zero at 1 kc, plus .5 db @ 300 cycles and plus 2 db @ 70 cycles. Response checks at the $1\frac{1}{8}$ ips speed, recorded 15 db below normal record level as indicated by the recorder's level meters gave the following results: on the left channel minus 2.5 db @ 5000 cycles, minus four db @ 4000 cycles, minus 1.25 db @ 2000 cycles, zero at 1000 cycles, plus two db @ 500 cycles, plus 3.5 db @ 300 cycles, and plus 5.8 db @ 70

cycles. On the right channel, minus 1.75 db @ 5000 cycles, minus .5 db @ 4000 cycles, minus .5 db @ 2000 cycles, zero at 1000 cycles, plus 1.8 db @ 500 cycles, plus 2.9 db @ 300 cycles, and plus 4.5 db @ 70 cycles.

The Dynaco Beocord 2000 is basically a sound recorder and a very versatile one, too. To quote from the instruction book, "its uses are limited to the imagination of the user."

Uher 4000 Report-S

For the tape recording enthusiast to say that the Uher 4000 is interesting is almost an understatement. It is not that the Uher 4000 is superb in any respect, but that it is so versatile in so many ways. Obviously the manufacturer has given much thought to making this recorder do many things capably. The Uher 4000 Report-S is a two track, 12 transistor, battery/AC combination portable that will operate at any one of four speeds. It comes equipped with a dynamic microphone that includes a remote start/stop switch. It has become popular with the news departments of radio stations for on-the-spot news interviewing, though not for music applications.

The Uher 4000 Report-S has been improved over the earlier Uher 4000 in that it now has an electronic motor governor system and the dynamic range of the record/reproduce amplifier has been improved. It may be powered with a good grade of standard flashlight cells, by a nickel cadmium battery, from automobile power (through use of a special adaptor cable) or from the AC mains through an available accessory power supply, which will double as the charger for the nickel cadmium battery.

The Uher 4000 Report-S will accept five inch reels and operates at speeds of 15/16, 1/8, 3/4 and 7 1/2 inches per second. Operating times (with double play tape-in one direction) are as follows: 15/16 ips—four hours, 1/8 ips—two hours, 3/4 ips—one hour and 7 1/2 ips—1/2 hour. The recorder may be operated with the cover closed and the reels in place. It is also possible to operate the recorder in the carrying case accessory. The microphone supplied has a

built in pause control. All this combines to make the Uher 4000 Report-S extremely well suited to field use.

The instruction book is clear and well written in three languages—English, French and Spanish. Step by step instructions are given for most of the uses to which the recorder might be put.

Among the tests of this recorder were use tests. Earballing the tests of live recordings it was found that they were very good, with slight loss of highs at the two slower speeds. Winding time for 600 feet of tape on a five inch reel was one minute and 35 seconds in fast forward and one minute and 30 seconds in rewind. Record/



playback wow and flutter measurements were as follows: @ 7 1/2 IPS .35%, @ 3/4 IPS .45%, @ 1/8 IPS .5% and @ 15/16 IPS .55%. We note that the manufacturer's specification states "at audible frequencies only" and wonder if this is meant to exclude frequencies under 20 cycles per second. If so, it excludes any measurement of wow, which we did not do. Wow content @ 7 1/2 ips was .32%, @ 3/4 .38%, @ 1/8 .4%. Signal to noise ratio measured from the zero VU level indicated by the recorder's level meter was 40 db @ 7 1/2, 42 db @ 3/4, 46 db @ 1/8 and 48 db @ 15/16 tape speed. The input sensitivity at the radio/phono input was 34 millivolts, certainly more than adequate. The microphone sensitivity was found to be less than 200 microvolts, more than adequate for any microphone. Distortion when measured at zero level record/playback was 5% @ 7 1/2, 7% @ 3/4, 8% @ 1/8 and 6% @ 15/16 ips tape speed. Distortion when measured at minus 10 VU, which is more nearly the normal operating level, was found to be 3.2% @ 7 1/2, 3.2% @ 3/4, 4% @ 1/8 and

3.5% @ 15/16 ips tape speed. The output from the preamplifier at zero VU playback level was one volt @ 7 1/2, 1.1 volt @ 3/4, one volt @ 1/8 and .75 volt @ 15/16. Preamplifier output from a minus 10 VU tape was .23 volt @ 7 1/2, .35 volt @ 3/4, .35 volt @ 1/8 and .3 volt @ 15/16 tape speed. Frequency response, recording at minus 15VU, at 7 1/2 ips tape speed was minus two db @ 50 cycles to plus three db at 20,000 cycles. Any way you slice it, that's darned good. At 3/4 ips speed the frequency response was minus 1.25 db at 50 cycles to plus 3.5 db at 12,000 cycles and plus one db at 15,000 cycles. At 1/8 speed the frequency response was minus .8 db at 50 cycles to plus 2.75 db at 6000 cycles and plus 1.75 db at 8000 cycles. At 15/16 ips speed the frequency response was minus 3.5 db at 50 cycles to plus 2.25 db at 2000 cycles and minus 2.1 db at 4000 cycles.

It is fairly obvious that the manufacturer of the Uher 4000 Report-S intended this recorder for use as a field recorder of more than average capability, which it is. Though it costs more than most field recorders now on the market, it gives fair value for the money and it is packed with features. While it tends to be somewhat on the high side with respect to wow, flutter and distortion, it is passable. And further improvement in these areas would be very costly. We think anyone would be well pleased to own a Uher 4000 Report-S.

Tandberg 64-B

The Tandberg 64B is a tape deck, including record and playback electronics, mounted on a teakwood base. One thing we learned early in testing this recorder was that it must not be allowed to rest on a carpet or other dense material that will shut off ventilation through the bottom opening in the case otherwise it will overheat.

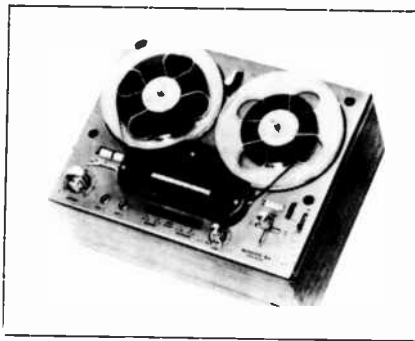
The Tandberg 64B is a three speed, quarter-track stereo machine, driven by a single hysteresis synchronous motor. The electronics are the vacuum tube type. Level indication is through use of two "eye" tubes. It has three heads and separate record and playback electronics. The separate

electronics permit monitoring from the tape, but noticeably missing is an earphone jack, which means that monitoring must be done with the power amplifiers, an inconvenience when doing "on location" recording. Record gain controls are at the left of the control panel, as are the microphone input jacks. Located above them and just to the left of the head covers are the level indicator eyes.

When playing commercially recorded tapes the Tandberg 64B leaves little to be desired. When recording at the fast speed the Tandberg 64B sounded as though it rolled off a bit on the high end and this correlated with the test results. At the intermediate speed ($3\frac{3}{4}$ ips) there was distinct roll off on the high end and very noticeable roll off at the slow speed ($1\frac{7}{8}$), which is to be expected. When recording from a multiplex FM receiver without any pilot carrier filter in its output, and into the filtered input of the Tandberg 64B, there remained a trace of pilot carrier that beat with the bias. When used with a proper multiplex tuner, having filters in its output, no doubt the beat would be undetectable. Recordings with microphones were most satisfactory and completely natural with separation almost wholly dependent on the microphone placement.

Performance tests of the Tandberg 65B gave the following results: Fast forward time for 1200 feet of tape on a seven inch reel was 86 seconds. Rewind time for 1200 feet of tape on a seven inch reel was also 86 seconds. In playback of an NAB tape the frequency response @ $7\frac{1}{2}$ inches per second, on the left channel, was down 2.25 db at 15,000 cycles and up 3.5 db @ 50 cycles. On the right channel 15,000 cycles was down 2.5 db @ $7\frac{1}{2}$ inches per second tape speed, and up 3.5 db at 50 cycles. The preamplifier output level from the standard reference level on the NAB tape was .5 volts on both channels. Overall frequency response at $7\frac{1}{2}$ ips recording at 15 db below normal record level as indicated by the tuning eye level indicators was minus one db at 15,000 cycles, minus 1.5 db at 4000 cycles and plus .75 db at 250 cycles on the left channel and minus 2.5 db at 15,000 cycles, minus 1.3 db at 5000

cycles and plus 2.5 db at 250 cycles. Overall response at $3\frac{3}{4}$ ips: minus 2.5 db at 10,000 cycles, plus 2.25 db at 7500 cycles, minus .5 db at 250 cycles and minus 3.2 db at 70 cycles on the left channel, while on the right channel 10,000 cycles was down 2.75 db, 7500 cycles was plus one db, 250 cycles was plus 1.1 db and 70 cycles was down 1.8 db. At the $1\frac{7}{8}$ ips tape speed on the right channel 5000 cycles was flat, 250 cycles was down 1.7 db and 70 cycles was down 3.8, on the right channel 5000 cycles was down 2.25 db, 250 cycles was down 1.1 db and 70 cycles was down 2.4 db. Total harmonic distortion, recording and playing back at levels with the eye



indicators just closed, was 2.2% on the left channel and 1.8% on the right channel. Signal to noise ratio measured down from the 3% total harmonic distortion point at 400 cycles was 57 db for the left channel and 52 db for the right channel. Sensitivity for the standard line inputs @ 1000 cycles, to just close to the eye indicator (for normal record level) was 100 millivolts on the left channel and 100 millivolts on the right channel. For the multiplex filtered inputs 115 millivolts on the left channel and 110 millivolts on the right channel. For the microphone inputs 2.15 millivolts for the left channel and 1.8 millivolts on the right channel.

Wow and flutter on the Tandberg 64B is exceptionally low. We measured .05% combined wow and flutter at $7\frac{1}{2}$ ips tape speed, .06% at $3\frac{3}{4}$ and only .09% at $1\frac{7}{8}$ tape speed. A good many high priced professional recorders would be hard put to equal that kind of flutter performance.

Since the Tandberg 64B provides for monitoring during recording it is possible to notice such things as bias

getting through the record amplifier when the recorder is in the record mode. Considerable bias was getting through on the right channel of the instrument we tested, necessitating rewinding when measuring signal to noise ratio. This would not have been worth comment, except that the other channel was relatively clean of bias, suggesting that both should have been and that some damage may have occurred in shipping.

The Tandberg 64B is a far better than average recorder and of course it sells for a better than average price.

Norelco Continental 95

The Norelco "Continental" 95 is a compact $3\frac{3}{4}$ inch per second tape machine that provides up to three hours of playing time. It is a dual (half) track machine, with an automatic record level control. For this reason it is ahead of many other low-priced machines on the market. Automatic record level control is certain to make those who own one of these machines capable of producing consistently good, or at least better than average, recordings. It is regrettable that there are no stereo recorders available today with this feature, although the complexities of automatic record level control would increase by much more than a factor of two.

The Norelco 95 has simple push buttons for record, play, wind, rewind and pause. Control is provided to turn off the automatic record level control, if desired. Adjustable controls are provided for power switching, volume and tone. A counter is not part of this unit, but a reference scale is provided on the top of the recorder so that reference points can be found with relation to the amount of tape wound on the reels.

The pause control is a locking type with a separate release button. A record interlocking system, requiring the use (deliberately) of two controls to go into the record mode protects against accidental erasure. The Norelco 95 operates from the AC mains, in case you might have at this point the impression that it is battery operated.

One unusual feature of the Norelco 95 is the fact that it has been "tropi-

calized." All connections are made to a European DIN connector. A microphone of the dynamic type is supplied with the recorder. Playback is through the built-in four inch dynamic speaker or the unit can be connected to an external power amplifier. The input stage to the amplifier is a low noise transistor. The power rectifiers are solid state devices, but the rest of the electronics are vacuum tubes. The level indicator is of the tuning eye type.

All of the controls work with ease and reliability and the recorder is very satisfying to operate. Tape loading is straight slot. The pause control allows for mechanical editing of the program during recording. This is very handy for eliminating the unwanted comment of disc jockeys when recording from radio.



One thing must be borne in mind when recording live with the automatic record level control functioning: it is that the automatic record level control does not change or modify the characteristics of the microphone. Improper use of the microphone, such as having it too far from the sound source, will be quite obvious on the played back recording.

Winding time for a five inch reel of standard tape (600) feet was one minute and 55 seconds in both directions. Wow and flutter measured .175%, indicating that this recorder was designed principally for voice recording. The recorder has more than ample gain when used for recording with the microphone that is supplied.

The manufacturer makes no claim that the "Continental" 95 is a high fidelity recorder and its features and performance characteristics indicate that it is most suitable for voice recording. It would make a fine stu-

dents' recorder, for lectures or language practice and would certainly be adequate for recording the music which is so popular with the younger set. It offers considerable potential as a business machine, too. It is a fine, compact, low-cost unit that operates easily and offers some of the most advanced features.

Cipher Model VI

The Cipher VI is a quarter track stereo recorder complete with power amplifiers, microphones, and speakers. The speakers forming the carrying case cover are detachable so they may be placed for greatest convenience and/or maximum stereo effect.

The electronics of the Cipher VI are of the vacuum tube type and are "switchable," i.e., the same amplifier is used for the functions of record or playback, one at a time. Thus there is no provision for monitoring from the tape while recording. Monitoring of the signal being fed to the record head is provided, however, and is available at the speaker and earphone jacks.

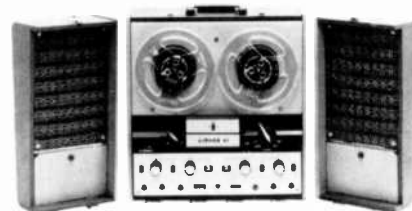
A switch is provided to mute the speakers during recording to avoid acoustic feedback. The electronics may be used as a small portable public address system. Extra speaker jacks are provided on the rear panel for (if desired) two additional loudspeakers. Also to be found on the rear panel are two "phono" jacks for preamplifier output to a high fidelity preamplifier.

The record/playback preamplifiers are electrically divided, so that each may function independently. This increases the number of operating controls, but also increases the operating flexibility, making possible sound with sound recording. The speaker muting switches, volume controls, record/playback switches, tone controls, volume meters and inputs and outputs are symmetrically arranged in an easy to learn arrangement. The Cipher VI electronics can be used with a stereo tuner or record changer (having proper post-emphasis equalization) to form a complete low cost music playback system.

The mechanical arrangement of the recorder is common, but it may be operated either vertically or horizon-

tally. The erase and record/playback heads are easily accessible beneath the removable decorative head covers. Pressure pads are used to insure intimate tape to head contact. The speed selector switch is located to the left (too close, in our opinion) of the head covers and function control knob (again, too close) on the right. Nearness of the speed shift and function control knobs hinder easy tape threading. The mechanical unit handled the tape gently enough and wound it in a smooth even pack. The "tape break" switch is located to the right of the heads and contributes nothing to ease of tape loading.

Rewind and fast forward were found to be moderate and very gentle on tape. Winding time for 1200 feet of tape (both directions) was three minutes and 33 seconds.



When using the recorder it was noted that the level meters were small and require care in reading. The tone control functions only in playback and frequency response readings were taken with the tone control at mid position. The manufacturer's instruction book did not give instructions regarding tone control settings, other than to adjust for most pleasing results.

The Cipher VI represents a good value for the money when one considers that it is a very versatile, nearly complete sound system.

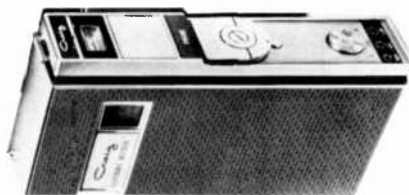
Craig TR 490

This compact recorder is referred to by the supplier as an Electronic Notebook. It is a half track monaural, tape pack loaded machine, featuring a built-in microphone plus an accessory microphone with remote start/stop switch, an accessory carrying case

and an optional extra battery charger for charging nickel cadmium batteries (if the recorder is equipped with them.) Otherwise it operates from four penlite dry cells.

The unit weighs about 2½ pounds, is 6½ inches long, 3¾ inches high and 1¾ inches wide. The recorder utilizes five transistors. Power output is 250 milliwatts into the built-in 2¼ inch PM dynamic speaker, or to the external earphone jack.

Nowhere in the literature is there any reference to tape speed. Since the tape pack can only be run on the 490 or on similar units made for Channel Master and Westinghouse in Japan we were unable to tell what the speed actually is. Recording time is 32 minutes total (both directions) for the tape pack. Bias and erase are DC, something one rarely sees in a re-



recorder these days. The level meter serves to indicate proper recording level, as a check on the condition of the batteries and as a means of checking the motor speed. Operation is controlled by a single knob on the operating control panel and controls the functions of rewind, stop, play and record. There is also a pause control located just above the main control knob. The accessory microphone also is capable of remotely (by switch) controlling start/stop operation. The volume control (for both record and playback) is located below the main operating control.

The tape pack and driving system of the Craig 490 are of unusual interest. The tape pack is one of few that can be wound in both directions. It is a plastic enclosure containing two 2¾ inch diameter reels, side by side on a common spindle on which each reel can rotate freely when the brake spring is bowed by a plunger to release them. Each reel has on its

inner flange, outside edge, a rubber tire which is engaged by the capstan to drive the reel and pull the tape. Tape drive in the record mode is accomplished by tilting the drive motor so the capstan shaft drives the upper reel. To rewind, the motor is tilted in the opposite direction to drive the lower reel.

One would expect that this system would result in much wow and flutter and it certainly does. On the other hand this is supposed to be an electronic notebook and the recordings are sufficiently clear for that purpose. The Craig 490 Electronic Notebook should prove a handy tool for students and people on the go.

Tips From the Pros . . .

(Continued from page 6)

in front of you, reading it, yet how many sounds can you recognize? Possibly some sibilants. Don't try to do a whole sentence. Instead, see if you can locate the beginning and ending of a single word, preferably of just one or two syllables. Yes, it's going to take patience, but with practice you'll be able to hand-roll yards of tape and identify every word. You'll soon learn that words aren't just letters that are strung together; that the inflection of your voice, its timbre, its tone, its emphasis, all affect the sound. Palindromes (words spelled the same way, forward or backward) such as mam, huh, hannah, oho, madam, sound one way going and quite a different way coming.

Part of the problem in tape editing is to get rid of the preconceived notions you may have about sound, and also to modify or to change your sound training. Strangely enough, you hear as much with your brain (including your memory) as with your ears. You've learned to associate certain sounds with certain words, and so, logically enough, you hear what you expect to hear. That's why you should occasionally run your tape, by hand, backwards. In this way you'll be able to defeat the word-sound recognition pattern your brain has set up for you.

After you have practiced both reverse and forward listening, you will

begin to associate sounds with combinations of letters. When you can do this with confidence, then you are really ready to try your hand at the very fine art of tape editing. Using an EDITall block, take a two syllable word and see if you can slice it into syllables. If you pass that test successfully, see if you can cut single letters out of a single word.

But will your ability to do this make you into a tape editor? Not quite. Tape splicing mechanic will be a better description. Speech (yours, ours, that of the young lady next door) isn't just the vibration of vocal chords. There's much more to it than that. A part of a person is in everything he says. To separate the human being from his speech, would be to deprive speech of its essence, its personality, its uniqueness. That's why a tape editor watches nuances, delicate shadings of speech, emphasis, mood, aspiration. All of these things are as integral a part of speech as the sounds of which the words are composed. When you edit, then, you must listen for those inflections which add their own identifying characteristics to sound. Deprive speech of those characteristics and you will have speech that is flat, dull, uninteresting—without life.

How do you join tape that has been cut? Butt joint the ends tightly and then keep them together permanently with the help of an Editab. An Editab is a small die-cut section of Mylar adhesive tape in an easy-to-use sandwich. Avoid overlapping, badly aligned splices and ordinary household-type adhesives. They'll take the fun out of what should be enjoyment.

Joel Tall taught tape-recording editing at New York University's Radio Workshop, was a consultant in the detection of falsified recordings and is the inventor of the EDITall Magnetic Tape Splicing Block. He has written numerous articles on the subject of tape recording, including "The Art of Tape Recording," "The Music Menders" and "How to Splice a Diphthong." Mr. Tall is a member of the Acoustical Society of America, the Society of Motion Picture and Television Engineers and the Cornell Laboratory of Ornithology.

Translating Baby's Cries

by Renato De Groff



No matter how doting a parent you may be, or how rabid a tape enthusiast, chances are you never recorded the first cries of your children. A man who has recorded more than 3000, however, is Dr. Samuel Karelitz, an internationally-known pediatrician serving on the staff of Long Island Jewish Hospital in New Hyde Park, N.Y. Dr. Karelitz is more than a casual tape hobbyist. His Ampex 601 and cardioid microphone are as much a part of delivery room equipment as are forceps and sutures. They can predict an infant's capabilities to an accuracy of 90 per cent, according to a hospital spokesman.

Usually, baby's first cries bring smiles and approving nods by the attending doctors and nurses. But there are times when they don't. Something in that first wail, its tone or an irregular waver, warns of possible trouble ahead. Through new techniques, a baby's cry has assumed a new and important diagnostic role. In his first utterances to the world, the baby may be telling his doctor that he needs help. He may be brain damaged, retarded or suffering from cerebral palsy.

It's for this purpose that Dr. Karelitz' recorder, tape and microphone are on hand. A stocky, jovial man, Dr. Karelitz has spent much of his professional life listening to babies' cries. Now, with some 3000 recordings and graphs to back him up, he's certain he can tell within the first few hours of life whether or not a baby is normal. "And those first few hours are important," he explains. "Take the case of a severely retarded baby with an IQ of 20 (100 is considered normal). If this baby's retardation were the result of an enzyme defect, it would be possible—if we knew early enough—to correct this defect by special diet and raise him to a normal IQ. If several months pass before discovering the defect, it's too late for treatment."

More than 20 children whose retardation or deficiency was discovered by their cries now are under therapy, he said. Over a three-year period, there were many cases where a problem was suspected and most of these cases were verified later by doctors using traditional diagnostic means. The new recording procedure has added a colorful activity to the hospital scene. Delivery room nurses catch the babies' first cries with sterile microphones and in the nurseries and on the pediatric floor, yellow-pinafores volun-





Dr. Karelitz listens to infants cries while nurse positions mike.



Dr. Karelitz points out an interesting peak in chart which compares cries of normal and mentally retarded babies.



Working with statistics is a vital part of the job, relating and summing up findings.

teer workers hustle about with microphones to catch the wails and cooings of older babies whose cries are being followed up.

In the doctor's office, the shelves are stacked high with recording tapes. On the walls hang dozens of stylographic charts which tell the story. The cry of a normal infant, when graphed, shows a regular grouping of valleys and peaks. The cry of an abnormal baby shows pronounced irregularities that result from neurological problems. The type and number of irregularities help the doctor to determine where the problem lies.

This constantly growing "cry library" is the result of Karelitz' studies, which began in 1924 when he was fresh out of Yale Medical School. His interest was aroused when he found that a brain-damaged baby of 11 months had the cry of a four-month-old infant. "It was then," he recalls, "that I realized that a study of baby cries might produce a great deal of valuable information. Years of informal study followed. Shortly after becoming chief of pediatrics at the hospital, he was assigned a staff and provided equipment to make a systematic investigation of the whole field. Dr. Vincent Fischelli, a Hunter College professor of psychology, designed the special stylograph which charts cries in graph form from the sound recordings. Now armed with mounting proof of the value of his work, Dr. Karelitz has won grants from the U.S. Department of Health, Education and Welfare and from private foundations to continue the project.

"A sleepy baby cries differently from one that's hungry," the doctor explains. "A hungry baby will cry monotonously, while the sleepy one will have a whiny type of cry. For the young mother who is worried that a whimper means a pin is sticking him, may I point out that if this is the case, his cry will be a lusty one you can hear across the street." For a man who has spent so much of his lifetime listening to the wailings of the very young, Dr. Karelitz has preserved a high sense of humor. Proud of the testimonials he has received for his "Baby Cries" recordings from young mothers, the Red Cross and professionals, he points out that the discs feature no stars, songs or music. "But I think we may have a hit on our hands, anyway."

He explains that all recordings are made with parents' consent, usually at birth then at daily, weekly and progressively longer intervals until the child is three years old. These recordings, he found, can forecast with remarkable accuracy the IQ, mental and physical development of children. The vast majority of children studied, he reports, are normal. But the technique does help alert doctors and parents both to the gifted child and the retarded one. "There's nothing new about a doctor or experienced mother paying close attention to a baby's cries. However, crying was never studied systematically before, organized for use as a diagnostic tool or used for educational purposes. This the tape recorder has made possible."

SERVICING YOUR RECORDER . . .

(Continued from page 30)

the job themselves if they need the machine immediately. Recorder manufacturers have been far more interested in selling machines than in providing the necessary service network to repair them—and some fly-by-night importers don't bother to provide any service at all for their units.

What about performing any major repairs on your own recorder? If it's under warranty, don't. Even such minor surgery as replacing an obviously defective tube or soldering a broken lead to a loudspeaker can void the warranty, unless the chore is performed by authorized service personnel. Once the machine is out of warranty, you're on your own. If the trouble isn't obvious, you'd better call in an expert.

How long should servicing take? Obviously it depends on how busy your serviceman is. In some parts of the country, you can phone for a serviceman at seven P.M. He arrives by eight P.M. and your electronic (though not necessarily your financial) troubles are over by nine P.M. In cities like New York, the better service establishments work under a handicap of anywhere from one to two weeks. "The best time of year is the summer," says Sigma's Pikas. "We can get a recorder out in a week or less, while at most other times of the year, it's going to be a week or more." Provided that the entire service department isn't on vacation, your best bets are the months of July and August. The few weeks from Christmas through the end of January are the busiest time of year for most servicemen, and customers may have to wait somewhat longer than two weeks for even the simplest job.

What about factory service for machines out of warranty? Generally it's better than that from independent servicemen if only because factory personnel theoretically have at their disposal all the necessary parts and are familiar with the quirks of their machines. Unfortunately, if the factory has done well by your Ampex, it won't take a look at your Wollensak as well. You'll have to send *that* to its factory (or to an authorized serviceman).

A number of Americans traveling abroad have snapped up seeming bargains in tape recorders overseas, only to find that they can't get parts in the United States. One major supplier, for example, has sold a variety of models in the Far East and Europe which have never been offered for sale in the United States. The Japanese firm's American distributor, in most cases, doesn't carry the parts for these recorders and is unable to provide service for them. A similar situation prevails with other foreign-made units.

Do transistors in better machines cut down on service needs? "Well, you don't have to check the tubes every year," Muirhead says. "But since most recorders

develop mechanical problems more readily than electronic ones, transistor machines need checkups just as often as tube models." He acknowledges that because there's less heat from a transistor recorder, it's likely to last longer.

As more and more Americans buy tape recorders, the need for more and better tape recorder servicemen will increase. It would seem that the manufacturers should be devoting as much attention and effort to creating truly nationwide networks of competent service personnel as they are to selling their equipment in the first place. For no matter how good the recorder you buy, you're eventually going to need tape recorder service.

TAPE IN YOUR CAR . . .

(Continued from page 23)

arm must be extraordinarily heavy to track even on a normal city street and the size of the record must be limited to what will fit under the dashboard. Reel-to-reel tapes don't seem to be the answer because of the threading time involved. Motorists will not want to stop after 30 minutes to change tape reels—especially if they're traveling 60 mph on a thruway.

Major manufacturers of car units therefore are now producing home units as well—essentially the same design, converted to AC operation and set in wood cabinets.

All car models to date are playback only units. Cartridges can be made by do-it-yourselfers, however. It takes a back lubricated tape which can be bought from companies such as Audio Devices, Minnesota Mining or RCA Victor, recorded on a conventional recorder, packaged in a Fidelipac cartridge case with the ends spliced before the cartridge is sealed. Blank tape cartridges are made by Audio Devices and several other firms and these will probably be usable at some future date on home systems. At the moment this is not possible with the Lear-Jet eight-track system.

Installation of the car player depends on the type of system. Telepro and Orrtronic units play through the existing car radio and installation consists of bolting the player to the dashboard and connecting leads to the radio. Most of the others need stereo speakers installed and this involves wiring the car for stereo and (occasionally) cutting holes in the lower door panels to mount the speakers. However, most manufacturers' prices do include installation.

One thing agreed on by almost everyone is the sense of the sound produced by cartridge tapes in an enclosed auto. "It sounds so much like the effect of being bathed in sound that you get from stereo earphones," said one supplier. "Many people in the trade are calling car tape players Stereo Nearphones." Whatever they're called, they're going to be big business.

Letters to the Editor . . .

(Continued from page 38)

able that some of us have grown weary of too many *Bohemes*, *Aidas*, *Carmens*, *Butterflies*, *Toscas*, *Il Trovatore*, and *Rigolettos*, and have turned to the seldom-performed stage works of these same composers and some of their contemporaries who were somewhat overshadowed.

Most assuredly, people who are interested in opera, and who have a tape recorder in the house, tape the Saturday afternoon "Met" broadcasts and have for years. Why not? Until recent years there were some exciting casts performing which generally cannot be found on the average phonograph record. London Records has attempted to make up for this in some of their recordings and to this we are all grateful. But, the European radio broadcasts feature singers many of us in America have heard either through recital albums or on television but not in a complete opera. For example, how many complete opera recordings feature the fabulous Teresa Berganza? Not nearly enough. In Italy and to some extent in England she has appeared in many complete opera presentations both on stage and over the radio. And other than Madam Callas' three pre-recorded MACBETH arias, who has heard her perform the entire work? Yet there is a complete recording of this with her on tape taken from RAI. Such performances were thrilling and made musical history, plus helped build many important careers. I can see no reason for not capturing such treasures on tape for posterity and for lack of same on a commercial recording.

San Francisco has a rather large society of opera enthusiasts who tape whatever interesting work comes along on the radio; I belong to this group. After reading your article, I must admit to feelings of defensiveness about several points made. Perhaps I misinterpreted the concern the "Met" had that their broadcasts were being taped. Concern that they are being sold is quite understandable and is an experience several San Francisco people have come in contact with. We had one member of the

group who was offered Maria Callas' complete performance of TRISTAN on tape for \$200; also her Kundry. I am certain there is hardly a Callas fan around who wouldn't give up their dinner to have a copy of this but \$200 is a bit ridiculous. Another experience a few years back took place shortly after Puccini's LA FANCIULLIA DEL WEST was last performed here. A list arrived in the mail to one of my mutual tape enthusiasts and on that was listed the complete San Francisco Opera Company's performance of "The Girl." This was the very performance many of us had seen. The list had been sent from New York and listed complete operas which had been taped all over the world. We were gladened that San Francisco had been included on such an international list, and believe me, those of us who experienced the thrill of that performance were somewhat enticed by getting a remembrance of it on tape. One member could not restrain himself so made the purchase and when the tape arrived the sound quality was so poor that it looked as if he might break down and cry. Quite rapidly the word was spread around and the purchase of such "Golden Moments of Opera" has been minimal if at all.

In closing, those individuals selling anything that comes along regardless of the sound quality, ethics, or laws involved, are backing themselves right into that well-known corner because more often than not, these tape recordings turn out to be so poor that no one has taken a chance on another purchase and believe a person who knows, word of this gets around fast. When the list of "easy sells" is exhausted these individuals will have no where to turn except out of business. As quoted in your article ". . . I doubt if there are more than a thousand or so people who are willing to pay the price for these pirated tapes . . ."

You might liken it to Brunnhilde's fire: sooner or later it will be put out naturally. The river Rhine will overflow and there will be a great many of these "pirates," as Mr. Legge put it, out of business for lack of it.

Lowell V. Cary, Jr.

tape

TAPESPONDENTS WANTED

KEN VETROVEC, 3200 So. Elm Ave., Brookfield, Ill., 60513—V-M 735 stereo playback—3 speeds—mono & stereo—music tapes—interested in German tapemate but would like to hear from all interested in taping—teenager.

K. M. PORTER, Box 1810, Paramaibo, Surinam, South America—Akai four track—3 speeds—stereo & mono—color photography, music and candid conversations—particularly interested in Australian taping—only English is spoken, but will welcome tapes from all over—adult.

LARRY LAUER, 3205 Elm Ave., Brookfield, Ill., 60513—Roberts 770—two speeds—Norelco 4-track mono—3 speeds—special interested in radio announcing—music tapes (rock and roll)—will answer all tapes—teenager.

H. R. GALLANT, Box 733, Escondido, Calif., 92026—Zephyr transistor TR-10A—interested in taping

HARRY SWOBODA, 405 M. Rheindahlen, Morserhof 12, West Germany—Uher Universal 5000—3 speeds (up to 3 3/4 ips)—2 tracks—reel up to 5 6/8"—English, German, French, Polish, Czech and Russian spoken and written—interested in music, sounds of birds, sleep learning, sports, photography. Prefers male taperspondents. Americans and others.

FRANK MARTIN, 2311-13th St., Niagara Falls, N.Y.—RCA Victor—2 speeds, 2-track—interested in exchanging ideas, humor or just chat—interested in hearing about Calif. and Fla.—teacher and copywriter.

BEN SLESINSKI, 12628 Waltham Ave., Detroit, Mich., 48205—Interested in taping.

Would you like to be included in next issue's listing of taperspondents? To be sure you are, just fill out the coupon—the more complete the information you give, the better—and mail to TAPESPONDENTS Editor, TAPE RECORDING, 156 East 52nd Street, New York 22, N.Y.

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Prefer tapes: (please check) mono stereo
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FOR SALE

BEAU MOTORS: Three 3-speed reversible, 5", direct drive, synchronous, hysteresis capston Beau Motors — new — \$75 each: Abajian Electronics, 38 Elsom Pkwy., So. Burlington, Vermont.

NEW! Tape Automatic Shutoff \$3.95 reel adaptors: 10½" for regular, 7" for battery portables. Le Roi Electronics, Marengo, Ill. 60152.

RCA 70 C-2 Console Transcription table—78 & 33 RPM—with Pickering 190 D arm and GE VR II Cart. N.Y./N.J. Metro Arca best offer plus shipping charges. Write Dept. H., Box 898, Chesnut St. Sta., Union, N.J. 07083.

TAPES

Share Large Tape Collection 20's—30's Pops (from original discs). 6-selection sampler tape \$1.00. 2 track 3¾. Doug Martin, 396 Toler, San Leandro, California.

SAVE 30-60% tape recorders/stereo tape. FREE 50-page catalog. **SAXITONE**, 1776 Columbia Road, Washington, 20009, D.C.

RELOCATING

Transistor Specialists Co. will be expanding and re-locating at Twinlakes Electronics & Engineering, U.S. Hwy 62 East, Leitchfield, Kentucky 42302.

SERVICE

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tape

TAPING FM STEREO

There's a new FM stereo station in Chicago with a new programming approach that's capturing the imagination of Chicagoans and creating plenty of favorable comment throughout the listening area. WSDM, at 98 on the FM dial, features stereo music, news and weather reports—but the way they do it is unique.

"Den Pals" who answer to such names as Cookie Galore, Anti-Freeze, Candy and Ninotchka are the disc-jockeys who announce all records with foreign accents and sexy tones. The copy written for them is decidedly tongue-in-cheek. All commercials are brief, well-written and satiric in nature. Dull announcements are avoided and the music is well coordinated into programs that don't sound like that continuous grind so common to many stations which repeat "Top-40" tunes over and over.

The music? It's all stereo and features pop vocalists such as Ella Fitzgerald, Frank Sinatra and Judy Garland as well as lots of good jazz.

Mickey Schorr, the operations manager of the station—and brains behind its format—has created a format that brings many unexpected visitors to the FM stereo station. He doesn't really mind because they simply to the fun.

He says if you find Secret Agent 0036 (36-24-36) being chased by Evil Morris, don't worry. She always stays two jumps ahead. Besides, she might have even taped the event on the weekend or the night before and may not be around. However, there are five full-time den pals who work shifts around the clock—and there's always something happening.

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READERS SERVICE**

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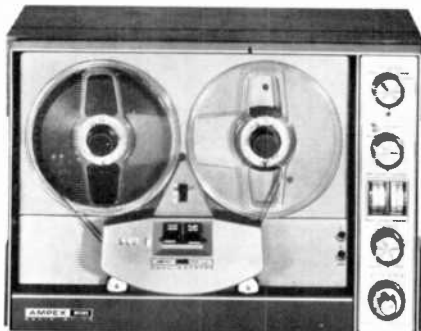
Shopping for
a tape recorder?
Here's all
you need to know:

Ampex is the one professionals use!

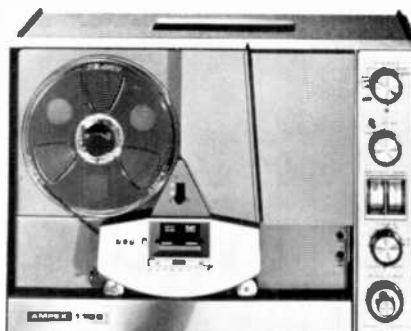
It's a fact! 'Most all of the music you hear every day was originally recorded on Ampex tape equipment. And now, your nearby Ampex dealer can show you a full line to choose from for home use. Start with our lowest priced #860. Like all Ampex tape recorders, it features dual capstan drive and solid die-cast construction. It makes stereo and mono recordings, plays them back in shimmering high fidelity . . . and costs less than \$300, complete with detachable slide-on speakers. For just a little more,

you can have our #1160, which is even easier to use; it has automatic threading and automatic reversing. (You don't have to switch reels to play the other tracks!) And, if you're a "nothing but the best" believer, believe us: you'll be more than happy with our #2070. It offers sound quality on a par with professional equipment and power enough to thrill a small auditorium. To round out the picture, there's also a full line of accessories . . . all in the professional tradition of Ampex.

800 SERIES



1100 SERIES



2000 SERIES



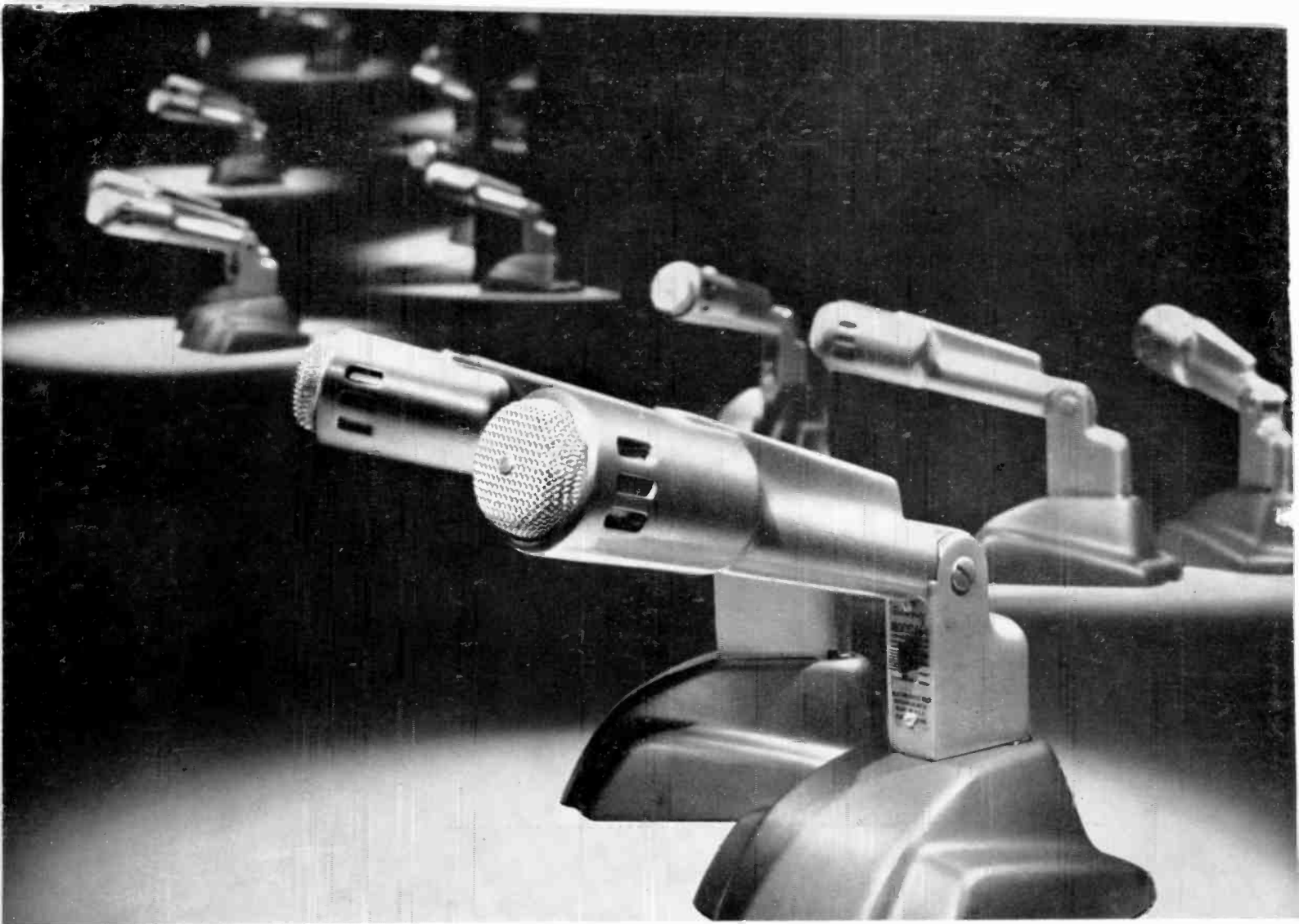
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