

4. J. Mc Air N. Y. C. August-September, 1951

APE RECORDING CENTER CORN

Offers State-Wide Educational Service on a No-Charge Basis

"I would found an institution where any person can find instruction in any study." With these words, Ezra Cornell launched what was to be the tremendous university that is Cornell today. And these words have become even more true, thanks to the establishment of the Cornell Tape Recording Center, a library which presents the voices as well as the words of leading authoritics in many fields.

The Center is operated by the Radio Services of Cornell's Department of Extension Teaching and Information, under the supervision of L. W. Kaiser, Head of Radio Services, and T. D. Richards, Jr., Instructor in charge of recording. The new 43page catalog, hot off the press, lists about 450 titles which can be obtained by schools, extension workers or any interested community groups in New York State. This Service is free of charge, the only requirement being that the person ordering a program furnish his own tape onto which the program can be dubbed.

The idea isn't a new one, Kaiser says. There has been increasing demand for this type of service for a long time, but disc recordings, of course, have been rather expensive for limited budgets. Now, tape recording has changed the picture completely. Reasonably high-quality, low-cost recorders and playbacks are available, and many groups already own or have access to them

Variety is the spice of life, and the Cornell Tape Library is well spiced. Recordings available range from a monumental program on radar contact with the moon to advice on how to take care of the bugs in your cabbage patch. All in all, agricultural and home economics topics are greatest of number. They include material from many departments of Cornell, from the United States Office of Education, and several other foundations producing interesting programs. The Center is also the official upstate repository for the Minnesota Department of Education, which contains a similar service for teachers.

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T. D. Richards, Jr., Instructor in charge of recording at Cornell's Department of Extension Teaching and Information, prepares to make another Audiotape recording to add to the extensive tape library.

DAY'S WORK

Bill Day, Self-made Audio Expert, finds that it pays to learn sound recording the hard way



Bill Day at the controls of his latest (and best) complete-ly home-made, professional-type console tape recorder.

Bill Day, of 1611 Richards Street, Salt Lake City, Utah, is a modest and unassuming young man who does not like to brag about his work. So, if this be bragging, our readers will please understand that we are doing it for him.

Although only 26 years of age, Bill Day has been building his own sound recording equipment for the past 14 years. That means that he was only 12 years old when he started building his first recorder. It took 6 months of painstaking effort before it was finished. Unfortunately it didn't work. Undaunted by failure, he immediately started building another. That didn't work either. So he built another — and another and another, all with the same disappointing results. In fact it took two and a half years and eight recorders before his

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efforts were crowned with success. But the satisfaction which he obtained from that first successful recorder was multiplied many fold by each of the previous failures. Nor was all that time and effort wasted, for every recorder built represented new problems solved, new lessons learned the hard way — never to be forgotten.

During these early struggles, while still in public school, Bill couldn't afford to spend very much on his equipment. The only money he had was what could be earned by doing repair work for neighbors. He was therefore forced to build practically all of his own components — from microphone to cutter. This included doing all of his own machining work — a task which took a little more time but taught far more about the construction and operation of recording heads and mikes than could have been learned simply by purchasing the complete units.

By the time his first successful recorder had been built, Bill was 15 years old and just entering high school. Seven more recorders were built during his high school



This home-made professional-type disc recorder set-up in Bill Day's sound studio, is a far cry from his early experimental models. It is the cumulative result of more than 12 years of experience in building constantly improved sound recorders — and is worth more to Bill than the most costly professional machines obtainable. years, each one of a new and improved design.

After graduating from high school, Bill's recording progress shifted into high — for he was then able to get a job and have some real income to put into recording equipment. That meant high quality heads and good mikes — so necessary to the building of high fidelity recorders. But then trouble came from another source. For, in his enthusiasm for building recorders, he forgot that there's a limit to human endurance. Long hours of recording work, in addition to his full-time job, proved too much. He lost the job by fainting from overwork.

Later — with a less strenuous job designing and building electronic equipment he continued to invest his income in more test equipment and parts, while building new and better disc and tape recorders. To date Bill Day has built 23 recorders, the last one at a cost of about \$2500 and 2 years' work. None of these recorders have been built for sale, but to replace previous equipment.

Shortly after World War II, Bill started his own business, designing and building electronic equipment. Experience has taught that it can be rough. But he looks at starting a business like building that first recorder — confident that hard work and determination are the key to success. He is now doing some recording work for friends and those who hear about him — hoping for an opportunity to devote his efforts and talents to professional recording work.

Among other important things, Bill has learned that the satisfaction obtained from doing recording work can not always be measured in dollars and cents. During World War II, he made many recordings for friends and relatives of servicemen to send to their loved ones overseas. As an active member of his church, he gathered together groups of from 18 to 60 persons at a time for his recording sessions. Each individual was told to say all he wished when the mike came to him - speaking as if the serviceman were right there listening. This took from 15 to 30 minutes - being recorded originally on tape and later re-recorded on discs for shipment overseas. After the war, the thanks of returned servicemen encouraged him to continue the good work - making records for friends and relatives to send to church missionaries in other lands and states. No charge is made for this work, the satisfaction of making the records more than paying for the work involved. To date, more than 700 of these records have been made, and the number will reach 1000 before the summer is over.

All in all, Bill Day has had a background of experience in audio work that fcw recordists of his age can match.

Cornell Tape Recording Center

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"We aren't trying to build an archive," Kaiser points out. "We plan to keep only those titles for which there is the most demand. As quickly as people stop requesting a program, we will replace it."

Adding to the library is a very continuous process. The basic end of the recorded material is changeless factual information which will be supplemented as soon as new, fresh material becomes available. Recordings of famous speeches and descriptions of notable events will be included for as long as they are timely. At present they are available for New York State organizations and schools only.

All recordings are kept on master tapes at the Cornell Center. Audio Devices, Inc., of New York, is supplying the tape for this project through the cooperation of their local distributor, Stallman of Ithaca. Anyone wanting to use a program should send his own tape to the Center, along with his order for the particular program or programs desired. The material requested is quickly recorded on the subscriber's own tape, and this is returned to him. The master tapes never leave the Center.

"Tape recordings have at last given us a chance to overcome the objection that radio is not a permanent form of communication," says Professor Kaiser. "Now we can keep vital or important programs on tape for as long as people want to hear them."

Ted Richards says, "We would found a tape recording library so that any person can find instruction in any study."



Mr. Richards picks out a recorded tape from the library files, to fill another request for a free copy of a worth while educational recording. Cornell's latest catalog, available free on request, lists about 450 educational recordings, classified under the subjects of General Information, Agriculture, and Home Economics.

QUICK FACTS ON MAGNETIC TAPE RECORDERS

(Additional Information can be obtained by writing to the manufacturer)

Manufacturer	Model and Price	Frequency Response	Dato	Tape
AMPEX ELECTRIC CORPORATION	Partoble Model 400 \$925.00	50-15,000 cycles (±2 db) at 15"/sec. 70-10,000 cycles (±2 db) at 7 ½"/sec.	Portable, dual-track recorder, with tape speeds of 15 and $7\frac{1}{2}$ " per second. Signal- to-noise ratio, over 55 db at either speed. Either half-track or full-track recordings can be played back without changes in adjust- ment. Separate record and playback heads. Instantaneous starting. Rewind time, $1\frac{1}{2}$ min. Simultaneous monitoring Weight – approx. 75 lb.	Wound with OXIDE IN
Haward Ave. at Laurel, Son Carlos, Califarnia	Cansale Model 300C \$1,860.00	50-15,000 cycles (±2 db) at 15‴/sec.	Professional-type, single-track recorder, with tape speeds of 15 and 71/2" per second. Signal-to-noise ratio, over 60 db. Separate record and playback heads and amplifiers. Rewind time, 1 min. for full NAB reel. De- sign flexibility permits modifications for spe- cial applications, including multi-channel recording and response beyond 80 KC. Cus- tom built instrumentation machines avail- able with response to 100 KC. Also available in portable and rack-type units.	R <mark>ed</mark> Oxide, Plastic Base Recammended
	"Twin-Trax Magnemuse" Model 810B (7½"/sec.] \$285.00	50-9,000 cycles (±3 db) ot 7 ½"//sec.	Portable, dual-track recorder, with automa- tic reversal—giving up to 1 hour continuous play on 7" recl. Dynamic range, 45 db. In- put channels for microphone and radio-	
AMPLIFIER	Model 810C (15"/sec.) \$345.00	30-13,000 cycles (±2 db) at 15"/sec.	phono. Total distortion, less than 3%. Shuttle speed in both directions. Weight— 42 lb.	Wound with
CORPORATION OF AMERICA 396-398 Broadway, New York 13, N. Y.	"Magnemaster Consolette" Model 815 \$395.00	50-15,000 cycles, at 15"/sec. 50-10,000 cycles, at 7½"/sec.	Single or dual-track recorder with tape speeds of 15 and $7\frac{1}{2}$ " per second. Separate heads for erase, record and monitor. Simultaneous monitoring while recording. Dynamic range, 50 db. Shuttle speed in both directions.	OXIDE OUT Red or Black Oxide,
	"Twin-Trax Magnerama" Madel 910B \$495.00	50-9,000 cycles (±3 db) at 7 ½ " 'sec.	Portable, dual-track recorder, with 71/2" tape speed and automatic reversal — giving 4 hours continuous play on 131/2" reel. Tape speed, 71/2" per sec. Microphone included. Weight—55 lb. Other data same as for "Twin-Trax Magnemuse" above.	Plastic or Poper Base
AMPRO CORPORATION 2835 North Western Ave., Chicago 18, III.	"Ampro-Tape" Model 731 \$119.75	100-7,000 cycles, at 3¾″/sec.	Portable, dual-track recorder with 3 ³ / ₄ " tape speed—giving 2 hours playing time on 7" reel. Input channel for microphone, radio or phone connection. Rewind time, 4 min. for 7" reel. Includes microphone, 5"x7" PM speaker, and jack for external speaker or earphones. Weight—17 lb.	Wound with OXIDE IN Red Oxide, Plastic Base
BELL SOUND SYSTEMS, INC. 555 Marion Rd., Columbus 7, Ohio	"RE-CORD-O-fone" Model RT-65-B \$186.45	70-8,000 cycles (±3 db] at 7 ½″ sec.	Portable, dual-track recorder with tape speeds of 17%", 33/4" and 71/2" per second. Rewind ratio 6 to 1. Includes crystal microphone, 6" PM speaker, inputs for microphone and radio-phono, and headphone monitoring jack. Weight-33 lb.	Wound with OXIDE IN Red Oxide, Plastic or Paper Base

Manufacturer	Madel and Price	Frequency Response	Data	Таре
BERLANT ASSOCIATES 4917 [.] West Jeffersan Blvd., Los Angeles 6, Cal.	"Cancertone" Madel 1401 \$345.00	40-15,000 cycles (±2 db) at 15"/sec. 40-7,500 cycles (±2 db) at 7 ½"/sec.	Professional type single or dual track re- corder mechanism and electrical chassis for console installation. Tape speeds, 15" and $7\frac{1}{2}$ " per sec. Signal-to-noise ratio, over 50 db. Fast forward and rewind time, 1 min. for $10\frac{1}{2}$ " reel. Separate record, erase, and playback heads. Monitors while recording. Carrying case and console available. Weight -50 lb., in case, with 8" speaker.	Wound with OXIDE IN Red Oxide, Plastic Base
THE BRUSH DEVELOPMENT CO.	"Soundmirror" Model BK-443P \$279.50Model BK-443P \$289.50	To 7,000 cycles, at 7 ½"/sec. To 4,000 cycles, at 3 ¾"/sec.	Portable, single-track unit, available with 71.2 or 33/4" tape speeds—providing 30 to 60 minutes recording time. Signal-to-noise, over 40 db, Wow and flutter, less than 0.3% RMS. Fast forward and rewind, 75"/sec. Inputs for microphone, radio-phono. Output, 5 ohms, 33 dbm. Includes 6" PM speaker and crystal microphone. Weight—32 lb.	Waund with OXIDE IN
3405 Perkins Ave., Cleveland 4, Ohia	"Saundmirrar" Madel BK-442 \$259.50 (mahagany) \$269.50 (blond)	To 7,000 cycles, at 7 ½″/sec.	Table model, single-track units with 71/2" tape speed—providing 30 minutes recording time on 7" reel. Signal-to-noise, over 40 db. Wow and flutter, less than 0.3% RMS. Fast forward and rewind, 75"/sec. Inputs for microphone, radio-phono. Output, 5 ohms, 33 dbm. Includes 8" PM speaker and crystal microphone. Weight—33 lb.	Red Oxide, Plastic or Paper Base
CALIFONE CORPORATION 1041 North Sycamore Ave., Hallywoad 38, Cal.	"Dynacard" Partable Model C3-C3A \$795.00	50-15,000 cycles (±2db) at 15"/sec. 50-7,500 cycles (±2db) at 7½"/sec.	Portable, single-track, dual-speed recorder designed to NAB Standards. Unique features include direct capstan drive from special slow-speed synchronous motor which elimi- nates flutter, and clutch-free dynamic brak- ing of tape reels. Signal-to-noise ratio, over 50 db. Fast forward and rewind, 48 sec. for 101/2" reel. Three separate heads permit monitoring from tape while recording. In- cludes VU meter, 2-speed equalization, and separate record and monitor gain controls. Weight—44 lb. for C3 transport mecha- nism; 33 lb. for C3A amplifier.	Wound with OXIDE OUT Red Oxide, Plastic Base
CRESTWOOD RECORDER CORP. 221 Narth LaSalle St. Chicago 1, III.	"Magictape" Model CP-201F \$229.50	50-8,000 cycles, at 7 ½″/sec.	Portable, dual-track recorder with 71/2" tape speed. Rewind time, less than 2 min. Micro- phone and radio-phono input channels. In- cludes crystal microphone and 6"x9" speaker. Has fast forward time of 1 min. 20 sec. for 7" reel. Weight—29 lb.	Waund with OXIDE OUT Red Oxide, Plastic Base
EICOR, INC. 1501 West Congress St., Chicaga 7, III.	Partable Model 115 \$144.95	80-7,500 cycles, at 7 ½ ''/sec.	Portable, dual-track recorder with tape speed of $7\frac{1}{2}$ " per sec. Removable capstan permits conversion to $3\frac{3}{4}$ " per sec. Rewind speed, 6 to 1. Crystal microphone and speaker in- cluded. Weight—27 lb.	Wound with OXIDE IN Black Oxide Paper Base or Red Oxide Plastic Base
THE GENERAL INDUSTRIES COMPANY Elyria, Ohia	Tape-Disc Recorder Assembly Madel 250 \$79.50	(depends an amplifier used)	Combined disc and tape recorder assembly for installation in console or portable case. Tape speed, 334"/sec., dual track. Fast for- ward and reverse. PM erase. Takes 5" reels. Disc recorder cuts and plays back up to 10" discs, at 78 rpm. Records from tape to disc and vice versa — and from microphone or radio to disc or tape.	Waund with OXIDE IN Red ar Black Oxide, Plastic or Paper Base

Monufocturer	Model ond	Price	Frequency Response	Dota	Tape	
FAIRCHILD		Console Model Unit 125 \$2,750.00	50-15,000 cycles (±1 db) ot 15"/sec.	Professional type, single-track recorder with 15" tape speed $(7\frac{1}{2}" \text{ and } 30" \text{ models available})$. Total noise and distortion -64 db (ref. $2\frac{1}{2}$ % dist.). Adjustable bias. Speed tolerance, 0.1%. Built-in VU meter and circuit checking. Unit-type, plug-in chassis. Automatic stop — instant braking and reversal. Push-button control of all functions.	Weynd	
EQUIPMENT CORP. 154th St. and 7th Ave., Whitestone, N. Y.		Console Model "PIC-SYNC" \$4,000.00	50-15,000 cycles (±1 db] ot 15"/sec.	Same as model 125 with the addition of lip synchronous operation. Used with motion picture camera and film projector, synchron- ous sound tracks are made and played back on $\frac{1}{4}$ " tape, with no interconnecting equip- ment. Automatic Framing, which assures correct cueing of tape and film, available at additional cost. Other applications include Facsimile recording and telemetering, with frequency response possible above 80 KC.	with OXIDE IN Red Oxide Plostic Bos	
		Control Track Generotor Model 140 \$335.00		Portable light weight unit for "On Loca- tion" picture synchronous track recording on 1/4" tape. Used with any portable tape re- corder with 15"/sec. tape speed and fre- quency response good to 14 KC., a control track is simultaneously applied which later becomes the tape speed control when played hack on Pic-Sync recorder.		
MAGNETIC RECORDING INDUSTRIES LTD. 30 Brood St., New York 4, N. Y.	ARCON	Model VM-55 \$289.50 Model VM-56 \$345.00	To 4,000 cycles (2, 3.75, 7.5, or 15" per sec.) To 9,000 cycles (2, 3.75, 7.5,	range of office and conference dictation and transcription work. Models VM-55 and VM- 56 have choice of 4 tape speeds, by pulley substitution, providing up to 2 hours con- tinuous recording on 7" reel. The VM-56-	Wound with OXIDE IN	
		Model VM-56-55 \$395.00	or 15" per sec.) To 3,000 cycles (1" per sec.]	SS, with 1" per sec. tape speed, provides 4 hours continuous recording on 7" reel. Fast forward and rewind ratio, 40 to 1. Correct- O-Matic feature for automatic corrections. Split-A-Word instantaneous stop-start, ac- tuated by microphone button or transcribing foot switch. Weight—191/2 lb. for VM-55; 241/2 lb. for VM-56 and VM-56-SS. Com- plete line of dictating and transcribing ac- cessories available.	Red Oxide, Plastic or Paper Bose	
MARK SIMPSON MFG. CO. INC.		"MASCO" Model LD-37 \$221.40 Model LD-37R (with radio) \$264.60 "MASCO" Model DC-37 \$243.00	80-8,500 cycles (±3 db) αt 7 ½″ 'sec.	Portable, dual-track, dual-speed recorders, arranged for instant change from $7\frac{1}{2}$ to $3\frac{3}{4}$ " per sec. Up to 2 hours recording time available on 7" reel. Signal-to-noise ratio, 45 db at $7\frac{1}{2}$ ". Automatic equalization. Neon recording level indicator, volume and tone control, monitor switch, 6" PM speaker, and microphone. AC erase and bias. Micro- phone and radio-phono inputs. External speaker and amplifier outputs. Available with or without built in AM tuner. Weight of	Wound with OXIDE	
32-28 49th St., Long Island City 3, N. Y.		Model DC-37R (with radio) \$286.00	80-5,000 cycles (±3 db) ot 3 ³ 4"/sec.	Models LD-37 and 37R, without carrying case.	IN Red Oxide,	
		"MA5CO" Model D-37 \$243.00 Model D-37R (with radio] \$286.00		Models D-37 and 37R, with two-tone tweed carrying case. Models DC-37 and 37R have metal cover with carrying handle. Cover operates inter- lock switch and can be locked with key.	Plastic Base	
OPERADIO MFG. CO. it. Charles, II.		"Du-Kane" Portable \$229.50	50-8,000 cycles, at 7 ½''/sec.	Portable, dual-track recorder with 71/2" tape speed. Power output. 7 watts. Input channels for microphone and radio-phono. Output iacks for headphones and external speaker. Fast forward speed, 150"/sec. Rewind time, 80 seconds for 7" reel. Microphone and built- in 6"x9" speaker included. Weight—26 lb.	Wound with OXIDE OUT Red Oxide, Plostic or Paper Bose	

Manufacturer	Madel a	nd Price	Frequency Respanse	Data	Торе
MAGNECORD INC. 360 North Michigan Ave., Chicago 1, III.	Model PT6-J Amplifier \$300.00	Model PT6-A Recorder \$248.00	50-15,000 cycles (±2 db) ot 15"/sec.	Portable, single-track recorder, with inter- changeable capstans for 15 and $7V_2''$ tape speeds. Two separate heads. Combination record/playback amplifier. Low impedance mike input, bridging input, monitor speaker, O-level output terminal, VU meter, termi- nal for external speaker.	
		Model PT63-A Recorder \$334.00 Model PT63-J Amplifier \$387.00	50-15,000 cycles (±2 db) at 15"/sec.	Same as above, except with three separate heads for erase, record, and playback for monitoring from tape while recording. PTG3-J amplifier has separate record and playback amplifiers, and switch for equaliza- tion at $7\frac{1}{2}$ and $15''$ tape speed.	Wound with OXIDE
	Model PT7-P Am	plifier — \$440.00 Model P17-A Recorder \$468.00	50-15,000 cycles (±2 db) at 15"/sec.	Portable, single-track recorder, with 15 and 71/2" tape speeds. Three separate heads. Safety-interlocked push button controls. Signal-to-noise ratio, over 55 db. Separate record and playback amplifiers—equalization at both speeds. Three microphone inputs and bridging input. Includes VU meter, monitor speaker, and output for external speaker.	IN Red Oxide, Plastic Base
		Console Model P17-CC \$950.00 Consolette Model \$889.00	50-15,000 cycles (±2 db) at 15″/sec.	Complete console combination including PT7 recorder (as above) and PT7-C line- level amplifier. Separate record and playback amplifiers. Headphone jack Switch for $7V_2$ and 15" equalization. Switch for record, playback or bias reading on 4" VU meter. Black enamel finish with burn-proof Formica top and chrome trim.	
THE PENTRON CORP. Chicago 16, III.	Portable Model 9T	3-C \$179.50	50-8,000 cycles, at 7 ½"/ sec. 50-5,000 cycles, at 3¾"/sec.	Portable, dual-track, dual-speed unit $(7\frac{1}{2}'')$ and $3\frac{3}{4}'')$ —providing 2 hours recording on 7'' reel. Signal-to-noise ratio, 50 db. Flutter less than 0.5%. Fast forward and rewind ratio, 20 to 1. Inputs for microphone and radio-phono. Outputs for headphones, ex- ternal speaker, and PA system. Includes 6'' PM speaker and crystal microphone. Weight —27 lb.	Wound with OXIDE IN Red Oxide, Plastic or Paper Base
PERMOFLUX CORPORATION	C C	Permoflux Scribe Dictating Unit \$354.50	Ample for all	Compact magnetic tape recorder designed for office dictation service. Same recorder, with different accessories, serves as either a dictat- ing or transcribing unit. Dictating unit in- cludes microphone with control switch. Trans- cribing unit includes single earphone and dual foot control, Simple "cartridge" load- ing eliminates threading. Tape speed, 3 ³ / ₄ "	Wound with OXIDE IN
4900 West Grond Ave., Chicago 39, III.	OE	Permoflux Scribe Transcribing Unit \$361.30	voice recording	per sec. Recording time, 1/2 hour per maga- zine. Includes provision for card indexing of corrections, extra carbons, length, rush, etc. Available accessories include: carrying case, telephone pick-up, magazine packet, tape mail- ing envelopes, dual foot control. single or double earphones, paddle-type or conference "mike," microphone adapter, external speaker and extra tape magazines.	Red Oxide, Paper or Plastic Base

Manufacturer	Model and Price	Frequency Respanse	Data	Tape	
	RC-7 Transport Mechanism \$425.00 A-920 Amplifier \$224.00	To 15,000 cycles, at 15"/sec.	Professional type equipment for portable or stationary use. Tape transport mechanism has true three-motor drive and separate re- cording and reproducing heads. Instantan- eous monitoring from tape is provided. Input for single microphone or high impedance bridging. Output, 10 watts. Also zero level line. Two speakers are mounted in amplifier for playback. Monitoring output for 'phones.		
PRESTO RECORDING CORP. P. O. Box 500, Hackensack, N. J.	Model RC-10-14 \$684.00 Model RC-10-24 \$761.00	To 15,000 cycles, at 15"/sec.	Professional, single-channel, dual-speed re- corders ($15''$ and $7!/2''/sec.$) for rack mounting. Three separate heads, permitting monitoring from tape while recording. Three- motor drive mechanism. Fast forward and reverse. RC-10-14 controlled by rotary type selector switch. RC-10-24 completely push- button controlled Can be arranged for re- mote operation.	Wound with OXIDE IN Red Oxide, Plastic or Paper Base	
	Console Model SR-950 \$2,785.00	50-15,000 cycles (±1 db) at 15"/sec.	Professional, single-channel recorder, with 15 and 71/2" tape speeds (15" and 30" op- tional). Signal-to-noise ratio, over 58 db below max. signal. Fast forward and reverse, 240 ft./sec. Three separate heads. VU meter. Amplifier and power supply units on hinged panel.		
RANGERTONE INC. 73 Winthrop 51., Newark 4, N. J.	Portable Model R-SP (Less pre-amp) \$2,618.00	45-15,000 cycles (±2 db) at 15"/sec. 50-8,000 cycles (±2 db) at 7 V ₂ "/sec.	Professional-type, single-track, dual-speed recorders, with choice of $3\frac{3}{4}$ ", $7\frac{1}{2}$ ", 15" or 30" per second tape speeds. Up to 2 hours recording at $7\frac{1}{2}$ " per sec. on 14" reel. Dis- tortion, less than 2% total harmonic. Maxi- mum signal-to-tape noise, 55 db. Double- puck, tight-loop tape drive. Peak-to-peak flutter, less than 0.1% at 15"/sec. Rewind speed controllable continuously from 0 to 250"/sec. in both forward and rewind. Meets	Wound with OXIDE	
	Consele Model R-5C (Less MP synchronizer) \$3,117.00	45-15,000 cycles (±2 db) at 15"/sec. 50-8,000 cycles (±2 db) at 7 ½"/sec.	all N.A.B. adopted standards. Complete monitoring and mixing facilities. VU meter, signal indicator and footage counter cali- brated in minutes and seconds. Complete tape editing facilities. Also available with positive "sprocketless" synchronization for motion picture and TV applications. Weight of portable model—drive unit 85 lb. playback amplifier 52 lb., record amplifier 37 lb.	Red or Black Oxide, Plastic Base	
RCA BROADCAST EQUIPMENT SECTION	Cabinet Rack Model RT-11A \$1,975	50-15,000 cycles (±2 db) at 15"/sec. 50-5,000	and monitoring. Distortion, less than 1% at 10 db below maximum level. Signal-to-noise, 60 db below maximum level. Wow and flut-	Wound with OXIDE IN	
Camden, N. J.	Console Model RT-12A \$2,270	cycles (±2 db) at 7½1″/sec.	ter, 0.1% at 15" per sec. Fast forward and rewind time, 60 sec. for 2400 ft. reel. Timing accuracy, $\pm 21/2$ sec. for 30 minute run. In- stant stop and start (within 1/10 sec.). All control functions push-button controlled. Remote push-button control also available.	Red Oxide, Plastic Base	

Menefacturer	Model and	Price	Frequency Response	Data	Ταρε	
REVERE CAMERA CO.		Model T-100 1 Hour Play \$169.50 Madel T-200 1 Hour Play (with radia) \$209.50	To 7,500 cycles (±3 db) at 3¾"/sec.	Portable dual-track recorder available with either $3\frac{3}{4}$ " or $1\frac{7}{6}$ " tape speed, providing 1 or 2 hours recording time on a 5" reel. Signal-to-noise ratio, over 50 db on 2-hour machine. Rewind speed, $102\frac{1}{2}$ "/sec. Fast forward, $37\frac{1}{2}$ "/sec. Flutter, less than 0.35% .	Wound with OXIDE IN	
320 East 21st 5t., Chicaga 16, III.		Madel T-500 2 Hour Play \$179.50 Model T-600 2 Haur Play (with radia) \$219.50	To 5,000 cyles (±3 db) at 1%″/sec.	Two-level neon recording indicator. Instant start and stop lever for editing, etc. Out- puts for external speaker or headphones. Microphone and 5"x7" PM speaker included. Weight-25 lb.	Red ar Black Oxide, Plastic or Paper Base	
SONAR RADIO CORP. 59 Myrtle Ave., Broaklyn 1, N. Y.	0.0.0	Madel PTM Transpart Mechanism \$229.90 Model RPA-1 Amplifier \$190.00	30-10,000 cycles (±2¼ db) at 7½"/sec.	Portable, single-channel recorder with $7\frac{1}{2}$ " tape speed. Signal-to-noise ratio, 50 db or more. Total harmonic distortion, less than 2%. Wow and flutter, 0.25%. Fast forward and reverse, 58 sec. for 2,500 foot reel. Three separate heads. Playback timing, ± 0.3 % for 33 min. program. Includes RF filter, 40-step attenuator, VU meter and RC equalizers. Equipment can also be console or rack mounted.	Waund with OXIDE IN Red Oxide Plastic Base	
THE STANCIL- HOFFMAN CORP. 1016 North Highland Ave., Hollywaad 38, Cal.		"Minitape" Madel M5A \$249.00	100-5,500 cycles (±2 db) at 7½" ar 15" 100-4,000 cycles (±2 db) at 3¼"/sec.	Portable, single-track recorder with tape speeds of 33/4, 71/2 and 15" per sec. Signal- to-noise ratio, at least 35 db. Completely self-contained battery operated unit (record- ing only). Weight—13 lb.	Waund with OXIDE IN	
	Madel R4 \$1,670.00		50-15,000 cycles (±1 db) at 15"/sec.	Portable, professional-type, single-track re- corder with tape speeds of 71/2 and 15" (or 15 and 30") per sec. Signal-to-noise ratio, over 60 db. Separate record and playback heads and amplifiers with independent moni- tor amplifier and speaker.	IN Red Oxide, Plastic Base	
	Madel Synchranaus Film Recar Reprod \$2,142	Magnetic der and ucer	45-7,500 cycles (±2 db) 16mm 45-15,000 cycles (±2 db) 17 ⅓ mm	Synchronous magnetic film equipment for motion picture and TV sound recording. In- cludes proper speed and equalization for both 16mm and 17.5mm film width. Full synchronous sprocket drive arranged for forward or reverse recording or playback. Also fast forward and reverse for editing. Gearless drive. Signal-to-noise, at least 50 db. Max. harmonic distortion, 1.5% from full level. Playing time; up to 1 hr. for 16mm, up to 24 min. for 17.5mm. 2,000-ft. reel capacity.	Uses Magnetically Coated 16mm and 17.5mm Film	
	Multi Comm Re	Model CRM-15 Multi-Channel Communicatians Recarder (Prices an Request)	200-7,500 cycles (±3 db) at 7½"/sec. 200-3,500 cycles (±3 db) at 3¾"/sec.	units, with automatic sequence control per- mit continuous, 24-hour recording. Signal- to-noise, at least 40 db. Distortion, not more than 5% total harmonic at "0" input level.	Uses Special 0.7" Plastic or Paper Base Tape	

Manufacturer	Model and Price	Frequency Response	Data	Tape
UNIVERSAL ELECTRONICS SALES CORP. 1500 Walnut St., Philadelphia 2, Po.	"Reeles Model C \$219.0	-1-A 70-8,000 cycles (±3 db)	Portable, dual-track recorder with 71/2" tape speed and automatic reversal, giving 1 hour continuous play on 7" reel. Signal-to-hiss, 60 db. Signal-to-hum, 50 db. Fast forward and rewind. Electronic recording level indi- cator. Inputs for microphone, phono and radio. Output for external speaker or PA system. Weight-34 lb.	Wound with OXIDE OUT Red Oxide, Plastic Base
WEBSTER CHICAGO CORPORATION 5610 Bloomingdale Ave., Chicago 39, III.	Web-C Portab Madel 1 \$187.5	le at 7 ½"/sec. 210 70-4,000 cycles	Portable, dual-track recorder with tape speeds of $334''$ and $71/2''$ per sec. Gives up 2 hours recording on 7'' recl. Records or plays in both directions without reel turnover. Fast forward and rewind. Two recording heads and two motors. Signal-to-noise, 35 db. Amplifier automatically equalized for both speeds. Includes electronic eye volume level indicator, 6" PM speaker and microphone. Weight—38 lb.	Wound with OXIDE IN Red or Black Oxide, Plastic Base
WEBSTER ELECTRIC	"Ekotape" Mod \$169.50 Model 11 \$169.50	60-4,000 cycles, at 3 ³ 4" sec. 1 60-7,000 cycles at	Portable, dual-track recorders with $3\frac{3}{4}$ " or $7\frac{1}{2}$ " tape speed—giving 2 or 1 hour recording time respectively on 7" reel. Fast forward and rewind, 75" per sec. Neon recording level indicator. Input jacks for microphone and radio-phono. Output jack for external speaker. Includes 5" x7" PM speaker and crystal microphone. Weight—34 lb.	Waund with OXIDE
CO. Racine, Wisc.	"Ekotape" Po Model 10 \$369.50 Mad 101 \$395	40-8,000 cycles, at .9 7 ¹ /2" 'sec.	Portable, single-track recorder with 71/2" tape speed. Fast forward and rewind, 75" per sec. Electronic eye recording level indi- cator. Inputs for microphone and radio- phono. Output for external speaker. Includes 8" PM speaker. Weight—50 lb. Model 101-8 includes crystal microphone. Model 101-9 includes receptacle for connect- ing a remote control foot switch.	IN Red or Black Oxide, Plastic or Paper Base
	"Recordin Model 1B \$149.95	10 85-6,000 cycles, at	Portable, dual-track unit giving 2 hours re- cording on 5" reel. Includes phonograph turntable and pick-up for recording from disc to tape. Rewind time 1½ min. for 5" reel. Jack for external speaker. Recording level indicator. Includes 6" oval speaker and crystal microphone. Weight —21 lb.	
WILCOX-GAY CORP. Charlotte, Mich.	"Recordin Model 10 \$187.50	10 65-8,500 cycles, at	Portable, single-track unit giving 1 hour re- cording on 5" reel. Includes disc recorder and reproducer. Records from tape to disc and vice versa, and from microphone or radio-phono to disc or tape. Fast forward and reverse. Automatic stop. Recording level in- dicator. Jack for external speaker. Includes 5"x7" oval speaker and microphone. Weight 27 lb.	Wound with OXIDE IN Red Oxide, Plastic or Paper Base
	"Record Model 2 \$149.	A-10 cycles at 7½"/sec.	Portable, single-track, dual-speed recorder with choice of $3\frac{3}{4}$ " and $7\frac{1}{2}$ " or $1\frac{7}{6}$ " and $3\frac{3}{4}$ " tape speeds. Finger-tip push-button control. No separate amplifier switch; record button shifts amplifier and crase head. No clutches. Records from mike, external radio or other source. Fast forward and reverse. Neon recording volume indicator. Includes 5"x7" speaker and jack for external speaker. Weight, under 20 lb.	

NOTE: All prices listed are subject to change without notice. Consult manufacturer or local dealer for exact price, as some prices are list and others net.

Manufacturer	Model and Price	Frequency Response	Doto	Tope
MACON ELECTRONICS Division of York Rodio ond Television Corp., 801 N. Broadway, Decatur, Ill.	"Musictape" Portable \$199.50	50-7,000 cycles, at 3¾"/sec.	Portable combination tape and disc recorder, with $3\frac{3}{4}$ " tape speed (dual track) and 78 rpm disc speed. Records from tape to disc or vice versa. Also records from microphone, external radio or phono to either disc or tape. Simple push-button control of all func- tions. Includes automatic erase, neon record- ing level indicator, fast forward and rewind, 5" x 7" speaker, crystal microphone. Weight -32 lb.	Wound with OXIDE IN Red Oxide, Plostic Base

RECORDING TIME For Various Tape Speeds and Reel Sizes

REEL SIZE	3 *	4 "	5 ″	7 "	101⁄2 ″	14 "
LENGTH IN FEET Audiotope Other Types	150 150	300 300	600 600	1250 1200	2500 2400	5000 4800
RECORDING SPEED		TOTAL I	RECORDING TIME	(Based on Audiota	ipe footage)	
1 ⅔ ″ per sec. Single Track	16 min.	32 min.	1 hr. 4 min.	2 hr. 13 min.	4 hr. 26 min.	8 hr. 52 min.
	32 min.	1 hr. 4 min.	2 hr. 8 min.	4 hr. 26 min.	8 hr. 52 min.	17 hr. 44 min.
3¾″ per sec. { Single Track	8 min.	16 min.	32 min.	1 hr. 6½ min.	2 hr. 13 min.	4 hr. 26 min.
Dual Track	16 min.	32 min.	1 hr. 4 min.	2 hr. 13 min.	4 hr. 26 min.	8 hr. 52 min.
7½″ per sec. Dual Track	4 min.	8 min.	16 min.	33 ¹ ⁄ ₃ min.	1 hr. 6½ min.	2 hr. 13 min.
	8 min.	16 min.	32 min.	1 hr. 6 ¹ ⁄ ₂ min.	2 hr. 13 min.	4 hr. 26 min.
15″ per sec. Single Track	2 min.	4 min.	8 min.	16½ min.	33½ min.	1 hr. 6½ min.
	4 min.	8 min.	16 min.	33⅓ min.	1 hr. 6½ min.	2 hr. 13 min.
30″ per sec. Single Track	1 min.	2 min.	4 min.	8¼ min.	16½ min.	331/3 min.
	2 min.	4 min.	8 min.	16½ min.	33⅓ min.	1 hr. 61/2 min.

AUDIOTAPE DATA

			P	LASTIC BASE		PAPER BASE		
Length	Reel	Coating	Туре	e No.	List	Type No.		List
		Ŭ	Oxide Out	Oxide In	Price	Oxide Out	Oxide In	Price
150 ft.	3 " Plastic	Red Oxide	150	151	\$0.85	120	121	\$0.70
300 ft.	4" Plastic	Red Oxide	350	351	1.60	320	321	1.2
600 ft.	5" Plastic	Black Oxide Red Oxide	640 650	641 651	3.50 3.50	600 620	601 621	2.2.
1250 ft.	7″ Plastic ∫ (or aluminum)	Block Oxide Red Oxide	1240 1250	1241 1251	5.50 5.50	1200 1220	1 201 1 22 1	3.50
2500 ft. ${}$	Std. N.A.B. Aluminum Hub Complete 10½ ″ Alum. Reel	Red Oxide Red Oxide	2550H 2550R	2551H 2551R	10.00 12.85	2520H 2520R	2521H 2521R	6.50 9.3
5000 ft.	Std. N.A.B. Aluminum Hub Complete 14 " Alum. Reel	Red Oxide Red Oxide	5050H 5050R	5051H 5051R	20.00 26.00	5020H 5020R	5021H 5021R	13.00 19.00

AUDIOFILM, is also avoilable in 16 mm, 17½ mm and 35 mm sizes, for spracket-type synchronization of separately recorded sound in motion picture and TV applications. The magnetic axide coating is applied on the same base material as standard motion picture film, with conventional spracket holes. Prices and data on request.



by C. J. LeBel, Vice President, Audio Devices, Inc.

TAPE RECORDER TRENDS

Another year has rolled around, and with it another Quick Facts issue appears. Reading about so many machines all at once is an excellent way to see the trend of the industry, so we will take a few columns to discuss what we found.



C. J. LeBel

Wider Frequency Range

Some years ago it was considered that the best designs would produce a frequency range of 1000 cps per inch per second of tape speed. The present relationship seems to be at least 2000 cps per inch of tape speed, and a few designs approach 4000 cps per inch of tape speed. The economy of tape use which this permits is obvious, though in the more extreme cases it is purchased at the expense of signal-tonoise ratio. Where the latter is important, as in professional equipment, 2000 cps per inch per second seems the limit.

Simple Operation

There seems to be a definite trend toward more simple operation, particularly on home machines. We have one knob control where we often used to have two knobs, or a gearshift. This is all to the good if it encourages wider home use as it surely will.

Three Heads

There are rather more professional machines, even in the low cost class, with provision for monitoring off the tape while recording. This is the three-head design, with separate recording and reproducing heads. We like this trend for two reasons: First, because monitoring off the tape is good insurance against lost takes; and second, for better quality. The design considerations for recording and reproducing heads are by no means alike and combining both functions in one unit leads to a compromise which is good but still a compromise. With the trend to lower tape speed, such compromise will become less and less desirable.

Lower Cost Professional Machines

It is good to see considerable attention given to professional machines in the \$400 to \$750 class. Not only does this help the broadcaster, but the school will find it useful. Much school recording can be done only with machines of full professional quality, and this price class fits well within the average school budget.

Many broadcasters with studio equipment in the \$1500 to \$3000 class like to use lower cost truly portable machines for their remote work. Home machines are seldom really adequate for broadcast quality, and we are glad to see more equipment in the most popular price class.

Sprocket Hole Magnetic Film

Judging by sales figures on Audiofilm, the motion picture industry has found magnetic film very useful, and so we welcome the advent of more light portable machines. For location work, particularly, they will reduce costs amazingly.

There has been considerable discussion of the comparative virtues of sprocket hole magnetic film and of standard quarter inch Audiotape with synchronizing track for motion picture recording. Since our sales to proponents of both methods have been large, we cannot say that either method has defeated the other. Each seems to have its place.

Business Machines

Judging by improvements in present machines, and advent of new manufacturers, tape has come to stay in the dictating machine field. We are glad to see this, for we have always felt that tape offered many advantages over wire in business work.

Not Overlooked

While they are not listed, we have not overlooked the airport recorder and the digital computer. Both use wide tape for multi-channel work, and both seem to have a good future. Perhaps the next addition of Quick Facts may show several of each type. Telemetering is another multi-chan nel field which is moving rapidly ahead. We see that the upper frequency limit in telemetering recording has been pushed up to 100 kc surely a far cry from the 15 kc limit of the first professional recorders.

HAVE YOU SEEN THE NEW AUDIOTAPE SOUND MOVIE YET?

This educational film, in full color, is now quickly available for free showings to all interested groups

When the new 16mm sound moving picture on the manufacture of Audiotape was first announced (Audio Record, February 1951) the requests for copies far exceeded our expectations — and our supply of prints. As a result, many show ing had to be booked pretty far in advance. Since then we have obtained an additional supply of these films and copies can now be obtained without delay for free showings to all interested groups and organizations.

Several hundred showings of the new Audiotape film have already been made to a wide variety of audiences, ranging from professional recording engineers to school students and amateur recordists. Judging from the reports which are contin ually pouring in, the film is a huge success. Audiences and sponsoring organizations have commented very favorably on the educational value of the film — its excellence of color and photography and the fidelity of the sound reproduction (original sound recorded on Audiotape, of course).

For the benefit of those who might have missed the original announcement, here's what it's all about. The full-color, 16mm sound film, entitled "Audiotape Speaks for Itself", takes you on a personally guided tour through the modern plant where Audiotape is made. You see actual laboratory demonstrations of how the magnetic oxide is formed — dried — ground mixed - and applied to test samples on miniature, pilot plant equipment. After the test samples are carefully checked for physical and magnetic properties, the ingredients tested are released for production use. Then you are taken out into the plant itself, to see Audiotape actually being made — batch mixing, ball milling, coating, monitoring, slitting, production testing, and packaging for shipment.

We believe that this new film will give a much better understanding of how and why Audiotape has achieved the recognized superiority that has made it the first choice of so many professional recordists. It shows how the extra care and precision in formulating and applying the coating produces a magnetic recording tape that is unequalled in fidelity of reproduction and uniformity of output.

Prints of the 16mm sound film will be loaned without charge to interested recordists and educational institutions. Requests should be mailed to Audio Devices, Inc., 444 Madison Avenue, New York 22, N. Y.

TEACHERS: Cash-In On Your Knowledge of Educational Recording!

Audio Devices offers \$25 plus 10 ree!s of Audiotape for each of the ten best articles on the use of sound recordings in educational work

Within the past few years, the use of sound recording in schools and colleges has grown by leaps and bounds. In fact its growth has been so rapid that we're frank to admit that our knowledge of the subject is far from complete. Naturally, we want to know more about it — for our own information and to help other educators to utilize the full potential of this new teaching tool.

Audio Devices is therefore offering cash awards of \$25 — plus ten 1250-ft. reels of plastic-base Audiotape — for each of the ten best articles on the use of tape or disc recordings in educational work. In addition, 10 reels of Audiotape will be given for all other articles which are used, in whole or in part, for publication in Audio Record or in special literature prepared by Audio Devices for the educational field.

Since we want to gather this information as quickly as possible, the above offer will be limited to material post marked not later than December 15, 1951.

Here are a few suggestions that will help you prepare your entries in this contest.

- 1. Make the information as complete and detailed as possible, telling exactly how you are using recordings in any or all fields such as music, drama, languages, speech correction, elocution, science, or what have you.
- 2. Explain how or why the use of recordings simplifies or improves the teaching technique over previously used methods.
- Include specific data on the type of equipment used — recording speeds, quality requirements, etc.
- 4. Include, if possible, good photographs of the recording equipment in use.

The articles will be judged on the basis of the factual information which they contain, rather than on the literary merit of the text. Stories covering some of the more unusual applications in educational work will be particularly welcome.

Even if you have already contributed educational recording stories for Audio Record, don't hesitate to send in a new entry amplifying the same subject. The fact that we may already have part of your story will in no way detract from its consideration in judging the articles entered in this contest.

Articles submitted by teachers or other

education personnel in Elementary Schools, High Schools, Colleges and Universities throughout the United States will be eligible for this educational recording contest. If you are engaged in any type of educational recording work (disc or tape), send in your story before Dec. 15, 1951. It may bring you \$25 in cash — plus \$55 worth of free Audiotape. And even if your article doesn't happen to get one of the ten first awards, you can still get the \$55 worth of

AUDIOSCRIPTS 1951 Now Available

12 Complete, Non-Royalty Radio Scripts Selected from Prize-Winning Entries in the Scholastic Magazines and AER National Script Writing Contests for 1951

Here's a timely answer to the need for good, non-royalty radio scripts suitable for educational or amateur recording or broadcasting. In Audioscripts 1951 you get a collection of twelve complete prize-winning radio scripts for less than ten cents each. These student-written scripts, selected from prize-winning entries in the Scholastic Magazines and AER Contests, cover a wide variety of subjects — original radio dramas, radio drama adaptation, and general radio scripts. Here's the list of contents for Audioscripts 1951:

ORIGINAL RADIO DRAMA (Scholastic Magazines' Contest)

- First Prize THE END OF THE JOURNEY by William Galarno. Interesting highlights on the early life of Doctor Samuel Forrester.
- Second Prize EMERGENCY ASSIGNMENT, by Richard S. Reamer, Jr. Tense drama urging safety in tecn-age driving.
- Third Prize -- THE EMERALD FLAME, by Thomas J. Walsh. An action-packed biblical drama.
- Fourth Prize LEFTY, by Carmia Amato. A humorous story about a potential thief and his "conscience".

RADIO DRAMA ADAPTATION (Scholastic Magazines' Contest)

Fourth Prize --- GREAT EXPECTATIONS. A skilful condensation of the famous Dickens novel, adapted for radio by Edward J. Golden.

GENERAL RADIO SCRIPTS (Scholastic Magazines' Contest)

First Prize — THE STARS POINT THE WAY, by Geraldine G. Heuermann. In which four famous radio personalities join the fight for better English in the schools.



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All articles submitted become the prop-

Entries should be addressed to Contest

time?

will be returned.

Avc., New York 22, N.Y.

- Second Prize THE FIRST PERFORMANCE OF HAMLET, by James D. Stasheff. An on-thescene report of this famous stage premiere.
- Third Prize THE VISION, by Edward Q. Field, JR. A startlingly realistic alcoholic phantasmagoria.
- Fourth Prize JUNIOR'S FIRST TRAIN RIDE, by Nancy Rac Riley. A humorous episode about the antics of a very unruly youngster.

SCRIPTS FOR HOME AND SCHOOL RECORDING (AER Contest)

- First Prize HISTORY IS MY BEAT, by Meric L. Legnini. A newspaper reporter covers the Boston Tea Party.
- Second Prize WHEN THEY COUNT THE AMERICAN DEAD, by William H. Robinson, Jr. Dramatization of the Boston Massacre and the death of Crispus Attux.
- Third Prize THE SCAR, by William A. Coffield. The story of how Andrew Jackson got the scar on his forehead.

As a service to educational radio, and as part of Audio's sponsorship of the Scholastic Magazines' and AER Contests, this valuable collection of radio scripts is offered at cost \$1.00 net each. Copies can be obtained by sending check or money order (no stamps please) to Audio Devices, Inc., 444 Madison Ave., New York 22, N.Y.