The Audio Fair Review

The second Audio Fair has come and gone—with appreciably more success than its forerunner, the First Audio Fair. Again, for three days, the halls of the fifth and sixth floors of the Hotel New Yorker were more than filled with a milling throng interested in audio to the extent that they were willing to spend long hours on their aching feet to hear the newest in speakers, amplifiers, pickups, and recorders. And the new items were there on waze, along with the time-tested-and- tried devices that are always interesting to the enthusiast when demonstrated under what are the best conditions possible, in the opinion of the manufacturers, for their particular equipment.

Actually, from the listeners viewpoint, it is doubtful if this is an ideal condition, because—even though the conditions are not perfect—the visitors do get an impression of the quality of performance of the many items, and the interest awakened by it is sufficient to warrant further investigation under more intimate conditions.

For the professional engineer, the exhibits of tape recorders were of great interest, with many types being displayed for the first time. Microphones suitable for all purposes were seen, speakers of the highest quality for monitoring purposes, and all types of recording machines, tape, and discs. One complete display of a broadcast console attracted the broadcast engineers almost as much as the tape recorders—of which there were many more than one.

On the whole the second Audio Fair was a much greater success than the first, with a fifty per cent increase in exhibitors and in registration—the preliminary figures for the attendance indicate that approximately 4700 visitors were present over the three-day exhibit, with many of them being on hand two or even three days.

The photographs of the various exhibits will give to those unable to attend an idea of the highlights of the Fair—every exhibit has something interesting to show, and each one of them spent a long and arduous three days of explaining and demonstrating, so that all felt a sense of relief each day when the a.c. power was cut off signifying the end of the exhibit hours. Without this drastic means of signalling the closing hour, it is doubtful if the visitors would have left at all—especially on Friday evening, the only time many were able to attend. The following paragraphs will cover the exhibits in detail, with each exhibitor's display being described briefly.

Altec Lansing Corporation exhibited a new corner cabinet housing two 15-inch driver units and a multilevel horn, along with the other more familiar members of its line—the 500, the 604B, the 603, the 600, and the 8-inch model 800. The new unit, with the advantage of two low-frequency drivers, showed excellent response characteristics, and an extremely large power handling ability. The interest in this entire exhibit was so great that it was usually difficult to get into the room, but nearly everybody did at one time or another, and the demonstration of the strength of the field magnet used in one of the larger speakers was convincing—even to anyone who did not understand what it all meant to the performance of the speaker. The always-present-but-little-seen condenser microphone was also on hand for display, while others were in continual service for sound reinforcement during the technical sessions and the banquet.

Ampex Electric Corporation's new Model 400 Tape Recorder—of which much has been heard during the past few months—proved that it lived up to its specifications as to quality. The demonstration consisted of playing a tape on the big Ampex, re-recording it on the 400, and reproducing the output of the playback head of the smaller machine on an A-B test with the signal being recorded. This was a truly convincing method of demonstrating the quality of a new product in comparison to the already well-established performance of the leader of the line. After hearing this demonstration, the listener had no doubts of the ability of the small machine to perform completely in accordance with its specifications, which are sufficiently stringent for practically any professional application.

Amplifier Corporation of America presented a 24-hour, 24-lm. per second recorder with quality considerably better than most 7½-inch machines of a year ago. The improvements in slow-speed tape
recorders has been truly remarkable in the last twelve months, and for applications requiring a high quality source of sound for long periods, a machine of the type exhibited here would certainly serve the purpose admirably. With such an installation, hotels and restaurants could be freed from the need for wired services, and would be able to schedule the kind of music or entertainment that was most suitable for the hour or location. In addition to the long-playing machine, a large number of other types of recorders were on display, of sufficiently wide variation of cabinet, styling, and facilities to fill the needs of most semi-professional users.

Arrow Electronics, Inc., a New York City jobber, kept its display room full of visitors during most of the show hours, and well it might, because of the wide variety of components for high-quality music systems that were on display. The jobbers had somewhat of an advantage over some manufacturers because they have available all types of equipment, and are therefore able to make comparisons right on the spot. Tuners, turntables, amplifiers, even television parts, all were on display here.

Andak Company, preferring to demonstrate for quality of sound rather than quantity, conducted its displays of performance behind closed doors. To many visitors, this was a welcome change from the somewhat overpowering sound which filled the corridors of the fifth and sixth floors of the hotel. Using a choice of two recognized amplifiers and a high-quality two-way speaker system, the performance of the Andak Polyphase pickup was shown at normal living room levels, and with the finest of taste in selection of program material. Available now with special adapters, the Audax Polyphase—with two styli and therefore capable of reproducing all types of home records without changing arms or heads—is rapidly gaining favor, both for its quality and for its convenience in use.

Audio Devices, Inc. had only two items to exhibit—but each of these was available in so many varieties that their display was still quite elaborate. First, the famous Audiodiscs were there in full force, in many diameters and in all grades from the perfection required for masters to the smaller and lighter base types used by the amateur. Second, the variety of magnetic tapes on display was so great as to surprise those who have previously known only of the standard 1/4-in. plastic or paper tape used on conventional tape recorders. Types shown included plastic-base tape from 1/4 to 2 inches wide, several widths of paper-base tape, 16-mm film with single and double perforations, 17.6-mm film with single perforations, and 35-mm film with double perforations. All it takes to bring out a special tape is to show a need for it, and anything imaginable can be made.

Audio Instrument Company showed a new device intended to generate a signal, composed of both low and high frequencies, which could be used with any oscilloscope to give a qualitative measurement of intermodulation distortion, as well as with the Bridge—an instrument designed to permit the measurement of small audio voltages without appreciable loading of the source. This instrument has fulfilled the need for an a.f. coupling unit of extremely high impedance, a necessity in development and laboratory work, and a useful accessory in the service and experimenter’s shop. The Intermodulation Set offers in compact form a source of signal for I.M measurements which is entirely suitable for most developmental work.

The Audio Master Company displayed a number of portable record and transcription players which fill the need for a small unit suitable for the salesman who has a product which is best demonstrated by the use of records, or by a salesman for the records or transcriptions themselves. These units are also well adapted for p.a. system use, as well as for schools and other educational applications.

Bell Sound Systems Inc. displayed for the first time a new amplifier of exceptional merit, Model 2145. This all-triode unit with an output in excess of 15 watts combines a number of useful features, principal of which is the use of a remote control unit which is connected to the main chassis by a single cable. All inputs are plugged directly into the amplifier chassis, and by the use of cathode followers the signal can be fed to the control unit by a cable as long as 25 feet without frequency discrimination. The high-gain input employs a two-stage preamplifier on the main chassis, thus isolating the low-level signals from the cable. The selector switch on the remote control assembly makes a choice between phono and radio signals, compensates for record characteristics, and adjusts high-frequency roll-off. Bass and treble tone controls and a compensated volume con-

control complete the remote unit complement, with the signal being fed back through the cable from the output of another cathode follower in the remote box. In all, this unit appears to have had much thought in its design, and was apparently planned with the needs of the user well in mind.

British Industries Corporation had a number of imported items on display, including the Garrard RC300 record changer, the Leak "Point One" amplifier, and the complete line of Wharfdale speakers. Both the changer and the amplifier are well known in this country by this time, but the Wharfdale line is relatively new. This group of speakers, ranging from an 8-inch model up to a 15-inch heavy-duty job, provide a full range of types for all applications where quality is a requisite. Most of the models are built with cloth surrounds, resulting in lowered resonant frequencies, and giving an extremely flexible cone mounting. The Point One amplifier, of a type similar to the "Williamson" now so famous in this country, derives its name from the control of tone and volume is well above average. Two models of the AM-FM receivers were shown, one with a power supply on the same chassis and with complete tone control facilities, and another consisting solely of a tuner for both bands and designed for systems where the control of tone and volume is incorporated in a separate amplifier unit. The smaller FM-only chassis is primarily intended for use where a suitable AM chassis is already available, or for those critical listeners who do not want anything but FM. This unit has its own power supply, but does not have the tone controls. All models have exceptional sensitivity on the FM band, and the quality is above normal on either type of receiver.

Burlingame Associates and Brune Electronic Corporation exhibited a number of unusual items, among them being a Danish importation in the form of an elaborate oscilloscope. The entire standard line of Hewlett-Packard products was shown, with prominence being given to the newer types of combined gain sets and oscillators. Laboratory power supplies, high-gain i.e. voltmeters, and the versatile Tektronix oscilloscope filled out the line of equipment shown.

Cinema Engineering Company had a number of useful and practical items of particular interest to the professional, although, the advanced experimenter is also likely to find many uses for the convenient chassis available from this company. In addition to these shock-mounted, quick change chassis, a wide line of attenuators, filters and equalizers was shown, all designed with the needs of the particular application uppermost in the requirements for the product.

The Daven Company, long established as one of the "standard" manufacturers, exhibited its newer line of instruments, topped off by the distortion and noise measuring set described in these pages last month. The Daven line of laboratory instruments is expanding gradually, and each new addition lives up to the reputation of the builder and further enhances it. The 11-A Gain Set, announced last year, is now a familiar item, and many of them are in continuous service.

It is expected that the new distortion measuring instrument will soon achieve wide use among those who require high precision in measurements.

Electronic Workshop exhibited a variety of equipment ranging from a cleverly designed miniature audio oscillator to complete custom equipment for the home. Their own design of amplifier was presented in a highly polished chrome plated model for the Fair or for those who enjoy having equipment which may be shown off as a prized possession. With a preamplifier having the same knob spacing as the Browning tuners usually employed by EW in their custom work, the resulting appearance of the installation is well above average.

Electronics of Staten Island, a newcomer to the audio field this year, had two new corner speaker cabinets on display, one containing the speaker alone and another with a built-in tuner, amplifier, and record changer. The performance from these cabinets was above average, indicating the advantage of using the room corner as an element of the speaker housing by reducing the solid angle into which the speaker must radiate. Cabinetry and finish on both models displayed were of excellent appearance, and because of their relatively small size these units would make welcome additions to most living rooms.

Electro-Voice, Inc. displayed its entire line of microphones, pickup cartridges, and speakers, the latter including mechanisms only as well as a number of furniture cabinets. Outstanding among the line is the Patrician, a massive corner cabinet constructed under license from Klipsch, and incorporating a low-fre-
One model of remote amplifier, designed for amplifiers and remote input equipment, a complete console for broadcast stations equipped with an automatic changeover feature which allowed the entire recorder to be switched for one program and one audition channel at a time, was also a hit with the visitors who were engaged in any sort of development work.

**General Electric Company** exhibited two of its major products in the audio line—pickups and loudspeakers. A mammoth phonograph cartridge employing the quick-change stylus assembly was an attractive feature, since it showed the method by which the stylus was changed for standard or LP records, and in a form large enough for everyone to see the actual working of the device. The display of a S-120A speaker actuated by a 60-cps a.c. source and illuminated by means of a Strobotscope gave convincing demonstration of the operation of the speaker cone under high-level excitation. A moving cutaway of one of the speakers served to show the features of the internal construction, with the magnet, polepieces, voice coil and support being plainly visible when the unit split apart.

**Hudson Radio Corporation** featured the Electronic Workshop A-18 amplifier, shown for the first time at the Fair. In addition, the current most popular lines of equipment—including turntables, phonograph pickups, speakers, and radio tuners, were all there in abundance. Harrison also had a novelty item as a giveaway which was the source of fun for the visitors all through the Fair days.

**Hudson Radio & Television Corporation**, another New York City jobber, exhibited a wide variety of components for sound systems, ranging from the Audio Pacific Bell, Electronic Workshop, and H. H. Scott amplifiers through Radio Craftsmen AM/FM tuners, a selection of speakers, and the Magcon tape recorder. The Audio-Pacifier amplifier, exclusive at Hudson, was shown to have exceptionally flat frequency response and low distortion throughout the entire range.

**Langenberg Manufacturing Corporation** showed a full line of quality transformers along with a number of professional type plug-in amplifiers and two power amplifiers designed for home or professional use. One of these latter units, encased in a convenient wall mounting cabinet, and of excellent quality, is...
first standard model to handle 10-inch reels on NAB hubs without the addition of a special panel for the feed and rewind reels.

McIntosh Engineering Laboratory exhibited its two amplifier models, the 50-W-2 and the 20-W-2, along with the new preamplifier AE-2 which incorporated the input stages and controls necessary for a complete reproducing system. The McIntosh amplifier circuit has been proven more efficient than most others, and it is of unquestionable quality. The smaller model, using two 6V6's in the output stage, has an output of 20 watts, which is remarkable for 6V6's. The larger model is housed in a single chassis unit of unconventional design. The 50-W-2 model, using 6L6's, consists of two similar chassises, the power supply being separate from the amplifiers. These models are extremely flexible, especially suitable for use in wired music systems or for PA use in such places as restaurants, dance halls, skating rinks, and other such locations where the highest quality and reliability are requisite.

James B. Lansing Sound, Inc. had on display one of their largest speaker systems for home use, although from its quality and output power it would definitely be suitable for monitoring in professional applications. This model, the D-1005, incorporates two woofers and an eight-cell horn with a crossover in the vicinity of 1500 cps. It was finished in a light blond hardwood, and presented a very attractive appearance. The entire line of speaker mechanisms was also shown, ranging from the 6-inch model up to the heavy-duty 15-inch woofers.

Leonard Radio, Inc., with a complete line of radio tuners, amplifiers, speakers, turntables, and even a TV console suitable as an entertainment center for the home, featured the Markham-Williamson amplifier, a new 15-watt unit with a remote control unit permitting adjustment of tones and volume to the user's satisfaction without the need for him to leave his favorite easy chair. This amplifier is built along the lines of the Markham circuit—from low-level input to output stages—and is sure to be another contender for amplifier honors.

Magnecord, Inc. had several models of its recorders available and all on demonstration, ranging from the portable PT-68 through its various forms up to the new console PT-68X in a cabinet which contains all the amplifiers necessary with the machine. This model has attracted considerable attention, largely because of its mechanical features and the convenience of operation. It is the

Upper left, Leonard Radio, Inc. Center, left to right, Magnecord, Inc., Langevin Mfg. Corp., McIntosh Engineering Laboratory, Measurements Corp.

Panoramic Radio Products, Inc. put a new note—or rather lots of new notes—into the Fair by showing the frequency structure of various signals, such as a number of musical instruments and a number of human voices. The Panoramic sound analyzer continually sweeps over the audio spectrum and indicates the amplitude of all frequencies present on the screen of a CRT tube, thus permitting the user to observe the characteristics of the signal present or in the case of amplifier testing, to observe the amount and character of distortion present in the output signal. A number of similar instruments for a wide variety of different purposes were also on display, but the analyzer attracted the most attention.

Peerless Electrical Products Division of Altec Lansing Corporation had a large number of interesting items on display. The now-famous Musicians amplifier, described in AE in November 1949, leads the line for popularity, and it is now followed by the Musicians Amplifier, Senior, which is a theatre-type 50-watt unit employing 12AX7's. This unit is intended to be driven by the original Musicians unit. Also shown was a new amplifier using the space-charge-grid tubes which have finally reached the market. This model will be described shortly in these pages, and will undoubtedly follow the Musicians amplifier into the Hall of Fame for audio equipment.

The Pernoxfux Corporation proved how good their Royal Eight speaker could be, with performance essentially comparable to that from earlier 12-inch speakers. In a small cabinet with a single speaker, the performance was better than would be expected from standard console radio receivers, and when four units were mounted in a single housing, the output at the lower frequencies was remarkable considering the size of the basic cone speaker. Also on display were the high-fidelity headphones, which consist essentially of a pair of minute cone speakers mounted in receiver cases and equipped with sound-proof pads to ensure good coupling between the units and the eardrums.

Pickering & Company, Inc. presented a modern display showing drawings of their units in normal position, and augmented with the actual components already mounted. A number of side column loudspeakers adorned the room, and the choice of music showed off the performance of the speakers to advantage. Most striking of the demonstrations was the performance of the model 390 arm playing on a turntable an angle of 45 deg. from the horizontal, showing the remarkable balance of the arm, with its
cartridge, during the playing of records on normal turntables.

Presto Record Corporation displayed a full line of recording equipment for both tape and disc. A new professional model of tape recorder, designed to mount either on a rack or on a conventional record console, was shown for the first time, and its many features pointed out in detail. The smaller Model PT900 was also on display, as were a number of different models of disc recording machines of varying capabilities. The large tape machine is designed to operate either directly or remotely, and it provides for the 10-inch reels on NAB hubs. Both of the basic Presto chassis are three-head models, and permit simultaneous monitoring of the recorded signal during recording.

Radio Corporation of America exhibited two physical arrangements of its tape recorder, one being rack mounted so that the functioning of the mechanism could be studied readily without the necessity of crawling into a console. Mounted in a console cabinet, the same chassis becomes a more-familiar design of recorder, and can be controlled remotely if desired by a similar set of operating controls. Also shown in the room occupied by the Engineering Products Department was the new Starmaker microphone, a miniature ribbon microphone designed for use on audience participation shows or on television where the performer should not be hidden by the microphone. Two cabinet mountings for the LC1A speaker were also shown and, with a signal of undoubtedly high quality from the tape recorders, showed excellent characteristics.

In another of RCA’s rooms the new model of the duo-cone speaker—the 516S2—was on display, both visual and aural. This unit is lower priced than the LC1A, but gives the listener who wants good quality a high degree of performance with a two-way unit combined in a single housing.

Radio Music Corporation displayed a number of professional-type transcription pickups, using a single arm and three interchangeable heads. One head is designed solely for lateral transcriptions, another solely for vertical, and a third serves to play both at the same time.

in several dimensions and spillings along with a variety of recording discs ranging from 6 inches up to 17½ inches in diameter. Newest products of this company include a line of TV picture tubes, principally of the dark face rectangular types which are being used almost exclusively in current production sets.

Mark Simpson Mfg. Co. Inc. featured their new Masco Sound-Reel magnetic recorder, with a number of interesting features for a small and inexpensive ma-


chine. Extremely compact, the Sound Reel will record at 3 1/2 or 7 1/2 inches per second, and is reversible so as to record on two tracks. Also shown was the small tweeter designed to mount in front of a 12- or 15-inch cone and to be connected across the voice coil of the large cone without any crossover network.

Somerset Laboratories, Inc. displayed their new noise-suppressing amplifier with a remote control unit designed to permit the user to adjust volume, tone, and suppression from his easy chair. Also shown were several models of the noise suppressor unit separate from the main amplifier and for use with existing equipment. In one form of the complete equipment a separate control panel is supplied which can be mounted in a cabinet at some suitable spot, permitting the placement of the amplifier at some more convenient location than is usually available at the desired control panel.

Sonar Radio Corporation demonstrated a new tape recorder equipped to handle 10-inch reels and of quality superior to the usual home-type machine. This model is equipped with three heads, permitting simultaneous monitoring of the recorded tape during the actual recording process. Complete in four panels for rack mounting, the unit is approximately 24 inches high, providing for the recorder chassis, record and playback amplifiers, and the loudspeaker and power supply panels. In another model, the recorder chassis is separate, and the amplifiers and speaker are rack mounted units which may be

Below: upper left, Rek-O-Kut Co., Inc.; upper right, Hermon Hosmer Scott, Inc.; lower left, Mark Simpson Mfg. Co., Inc.; lower right, Somerset Laboratories, Inc.
Sonocraft Corporation featured the entire line of Magnecorder equipment, for which they are one of the Jobbers in the New York area. On display were both the PT6 and PT63 recorder units, the auxiliary chassis for large reeds with the NAB hubs, and several models of amplifier-speaker-power supply units, along with the multichannel mixer for up to four microphones.

Stephens Manufacturing Corporation exhibited its complete line of speakers and cabinet models, with the two-way systems taking the lead in favor among the visitors. The Hy-Son super tweeter, first shown at the 1949 Fair, is now in complete production, and the addition of this unit to a regular two-way system improves the performance in the upper-halves to a remarkable degree. Stephens models include crossovers at both 800 and 800 cps, and multichannel horns are available in a wide variety of sizes and shapes to fit every requirement.

Sun Radio & Electronics Co., Inc., one of the most aggressive Jobbers in the New York area, exhibited a new unit known as the Realist—a corner cabinet incorporating a high-frequency speaker directed upwards at an angle from the rear of the unit. In usual hard-walled living rooms, this model gives a remarkable distribution of sound, and by the very realism of the sound source makes the unit live up to its name. Another feature of this display was the presence of a shadowgraph unit on which visitors could compare their own style with the standard shape for a given type in order to determine if wear had progressed to a degree which would make replacement advisable.

Tech Laboratories, Inc. displayed the artificial reverberation generator developed by Audio Facilities Corporation and marketed solely by Tech. This unit is capable of introducing a controllable amount of reverberation to any signal, and eliminates the need for costly echo-chamber equipment setups for radio sta-

[Continued on page 53]
THE AUDIO FAIR REVIEW
[from page 32]

The machine employs a continuous loop of magnetic tape with suitable amplifiers and control circuits so as to add any desired amount of reverberation with a controllable decay time. Also shown was a complete line of attenuators, both of the conventional type and the newer lever type, believed by many engineers to be more convenient in use.

Terminal Radio Corporation exhibited only a small number of the many lines they represent in New York, but featured in their display was the Ampex line of magnetic recorders. Both the 300 in portable cases and the newer model 400 were shown, with performance of the high quality to be expected from the Ampex machines.

The Tetrad Corporation brought a valuable collection of diamonds to the Fair and displayed them in a glass case under the protection of a uniformed patrolman from the city police force. These diamonds were industrials which will be processed into stylus for use in pickups, and the total value of the collection was claimed to be $102,000. Also on display were a number of charts showing the faulty tracking resulting from worn stylus, together with a number of photos showing the stylus wear resulting from the use on a relatively small number of plays, using both diamonds and sapphires.

Transit Sound Systems Co. Inc. exhibited a new machine which uses a 1%-in. tape which plays back and forth on twelve parallel tracks, permitting the playing of a continuous program from 10 to 20 hours long. The machine uses multiple heads, making it possible to play any of six different tracks as selected, on a single channel, or to have six different programs playing on a number of channels, thus giving the listeners a choice of programs. Operation is as simple as a home radio, with a single switch to turn the machine on or off; after running the tape through in one direction, it reverses automatically, and continues. Production of this machine is to be started immediately, with completed models expected in from 90 to 120 days.

Triad Transformer Mfg. Co. exhibited a full line of transformers for high-quality audio use as well as for a number of geophysical applications. The popularity of the line of audio and power transformer is attested by the list of users, which includes such names as Gates, Concertone, McIntosh, Magnecord, Presto, Newcomb, Lear, Audio Pacific, Westrex, and others of equal importance in the field. The Triad line, although relatively new to audio, is well established on the Pacific coast, largely because of the ability and reputation of the designer and chief engineer, Lou Howard, who has been responsible for the design and production of quality transformers for many years.

U. S. Recording Company introduced a new portable transcription and record player employing an all-play stylus and reproducing through a small speaker mounted in the cover of the case. The quality of reproduction would serve admirably in applications where a portable equipment would be used, and was considerably above the average for similar equipment. An item of great interest to most visitors was the spring-driven magnetic recorder designed for portable use, and shown as a sample of the work being done in Germany at the present time. It is said that negotiations are being carried on for the manufacture of this device in the United States, and it is thought that such a device would be well received.

United Transformer Company exhibited a complete line of audio and power components ranging from the smallest models used in hearing aids up to the largest used in amplifier service. Also shown were a number of complete amplifiers, following the circuits published in UTC literature. From the performance obtained, it is obvious that the equipment will satisfy the needs of most users, and the wide variety of transformers in the line ensures full coverage of all requirements.

University Loudspeakers, Inc. displayed a number of speakers for systems of various power requirements, as well as the line of cone speakers, coaxial units, tweeters and horns. One feature of the exhibit was the display of a cabinet containing a three-way speaker system with separate controls on the three ranges. The "highs" channel covered the range from 3000 to 15,000 cps, the "middles" channel covered the range from 300 to 3000 cps, while the "lows" channel covered from 45 to 300 cps. Separate control of these channels made it possible for the listener to determine for himself the effect of varying the response of the sections, and pointed out the need for good balance throughout the entire audio spectrum.

With the closing of the exhibits on Saturday afternoon, both exhibitors and visitors alike began to plan for the third Audio Fair, which will be held in the same place on Nov. 1, 2, and 3, 1951. Many exhibitors have already expressed their desire for the same or for more space, and will of course have first choice of the rooms they occupied this year. Several other organizations not yet represented at the Fairs have already indicated their intention of being in next year, so it is certain to be bigger and better as time goes on.