



Audio Engineering Society,  
Box F, Oceanside, N. Y.

# AUDIO engineering society

Containing the Activities and Papers of the Society, and published monthly as a part of AUDIO ENGINEERING Magazine

## OFFICERS

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C. G. McProud Executive Vice.-Pres.	Lawrence Shipley Central Vice.-Pres.
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## Convention Report

**T**HE SECOND ANNUAL CONVENTION of the Audio Engineering Society fulfilled the hopes of the Society members and officers and, along with the Audio Fair, attracted a large number of visitors from the New York area as well as many hundreds from out of town. The five technical sessions were well attended, and some of the papers will appear in these pages in future issues.

At the Business Meeting, held on Thursday morning as the first session of the convention, witnessed the installation of the officers for the coming year. Theodore Lindenberg, retiring president, announced the results of the election, and after a brief farewell message relinquished the chairmanship of the meeting to John D. Colvin, newly elected president. The others taking office at this time were: C. G. McProud, executive vice president; Bob Hugh Smith, Western vice president; Lawrence Shipley, central vice president; Norman C. Pickering, secretary; and Ralph A. Schlegel, treasurer. The latter two were continued in the offices they held for the past year. Howard A. Chinn, H. E. Roys, and Theodore Lindenberg were elected to two-year terms as governors.

The annual honors were presented at the Banquet, held on Thursday evening, October 26. The Society's own award was presented to C. A. Rackey in recog-

nition of his continued work in furthering the progress of the Society since it was founded. Howard A. Chinn received the John H. Potts Memorial Award "for outstanding achievement in the field of audio engineering," a plastic-embedded silver medal awarded annually to a person chosen by the Society. Presentations were made by C. J. LeBel, acting on behalf of W. L. Black, chairman of the Awards Committee, who was unable to be present.

Following the banquet and the presentation of the honors, the diners were entertained by a musical group composed of Johnny Johnson and Harry Lennon with accordion and bass, and by Lee Irwin and The Mariners, from the Arthur Godfrey programs.

### SAN FRANCISCO SECTION ELECTS

The San Francisco chapter of the Audio Engineering Society announces the results of an election held recently for officers of the section for the 1950-51 term. The results were as follows: chairman, Dr. Vincent Salmon, Stanford Research Institute; vice-chairman, Harold Lindsay, Amplex Electric Corporation; secretary, Frank Haylock; treasurer, Myron J. Stolaroff, Ampex Electric Corporation; executive board members, Walter T. Selsted, Jack Hawkins, and Ross Snyder.



T. M. McCarty

### SOUTHERN MICHIGAN SECTION ELECTS NEW OFFICERS

The Southern Michigan Section of the AES announces the following results of the annual election: Chairman, T. M. McCarty, president, Gibson, Inc., Kalamazoo, Mich.; Vice-chairman, Earl S. Stone, chief engineer WELL, Battle Creek, Mich.; Secretary-Treasurer, Walter Fuller, chief electronics engineer, Gibson, Inc.; director (two-year term), Wade Allen, Allen Electric Co., Kalamazoo, Mich.; director (one-

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Left, C. A. Rackey (left) receiving Society's Award from C. J. LeBel. Center, John D. Colvin, new president, welcomes visitors to the Convention and the Audio Fair. Right, Howard A. Chinn receives the John H. Potts Memorial Award from Mr. LeBel.

# The Audio Fair Review

**T**HE 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 *en masse*, 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 of the background of noise from the many exhibition rooms. However, there is no doubt about the over-all value of this type of exhibit, 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 exhibit rooms will give to those unable to attend an idea of the highlights of the Fair—every exhibitor 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

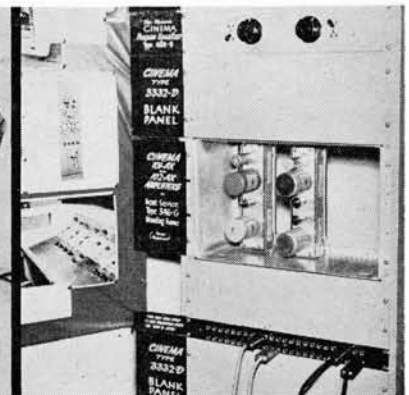
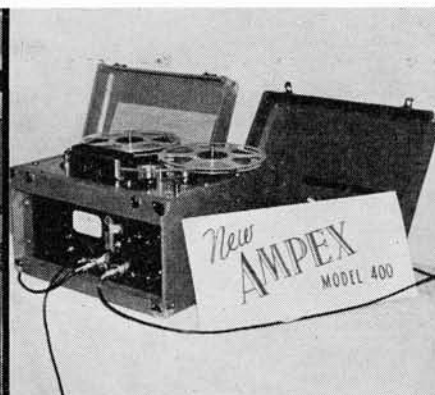
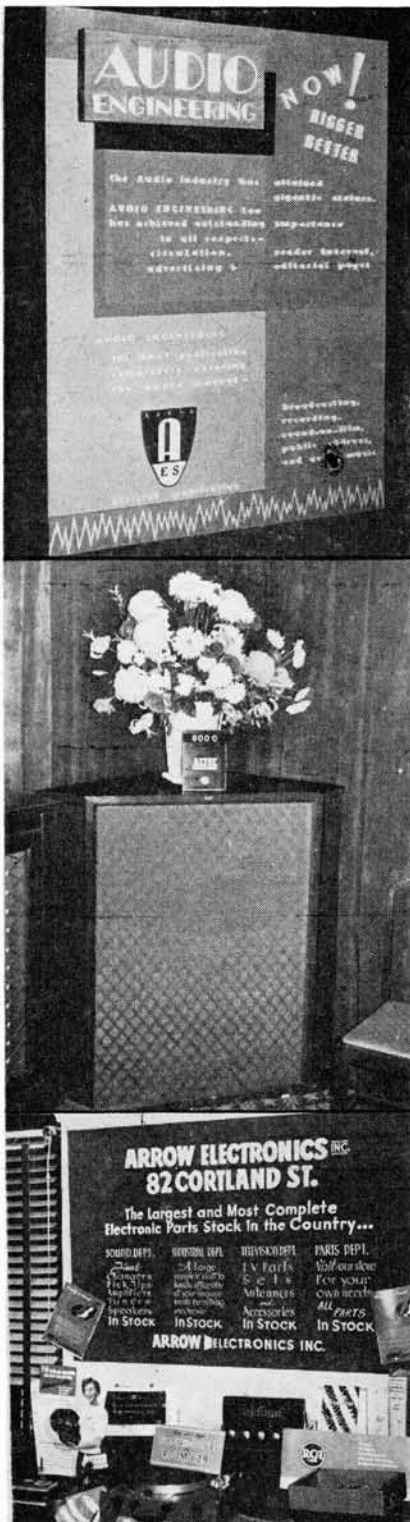
a.c. power was cut off signifying the end of the exhibit hours. Without this drastic means of signalling the closing hour, it is doubtful if the visitors would have left at all—especially on Friday evening, the only time many were able to attend. The following paragraphs will cover the exhibits in detail, with each exhibitor's display being described briefly.

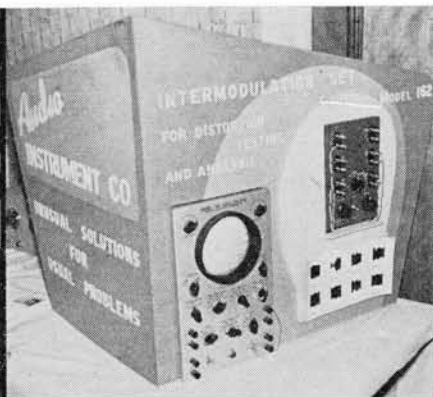
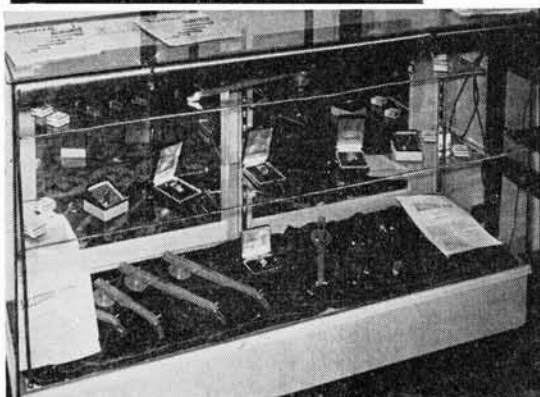
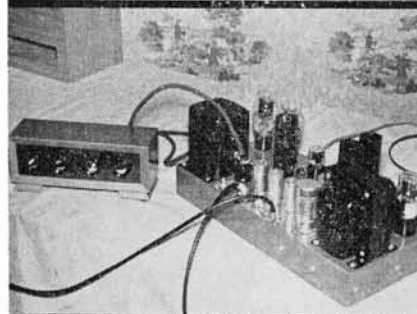
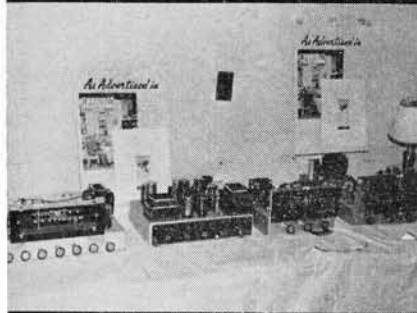
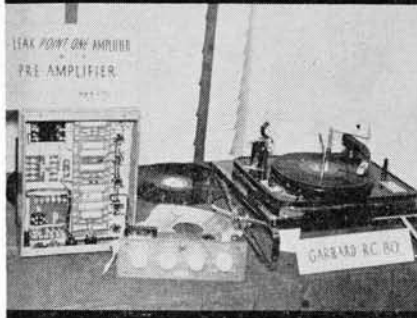
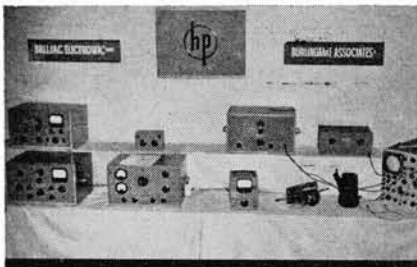
**Altec Lansing Corporation** exhibited a new corner cabinet housing two 15-inch driver units and a multicellular horn, along with the other more familiar members of its line—the 800, the 604B, the 603, the 600, and the 8-inch model 800. The new unit, with the advantage of two low-frequency drivers, 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 that of 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, 3¾-in. per second recorder with quality considerably better than most 7½-inch machines of a year ago. The improvements in slow-speed tape

From the top, reading counterclockwise: Audio Engineering, Altec Lansing Corp., Arrow Electronics, Inc., Amplifier Corporation of America, Ampex Electric Corp., Cinema Engineering Co.





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.

**Audax 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 Audax 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 to fit the Webster and Garrard changers, 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 ¼-in. plastic

or paper tape used on conventional tape recorders. Types shown included plastic-base tape from ¼ to 2 inches wide, several widths of paper-base tape, 16-mm film with single and double perforations, 17.5-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 Bridger—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 IM 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-

From the top, reading counterclockwise: Burlingame Associates, British Industries Corp., Browning Laboratories, Inc., Bell Sound Systems, Inc., The Audio Master Co., Audax Company, Inc., Audio Instrument Co., Audio Devices, Inc.

trol 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 RC80 record changer, the Leak "Point One" amplifier, and the complete line of Wharfedale speakers. Both the changer and the amplifier are well known in this country by this time, but the Wharfedale 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 distortion at rated output, 0.1 per cent.

**Browning Laboratories** had on display its entire line of tuners, just recently improved with the addition of automatic frequency control. 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 Brujac 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 a.f. 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

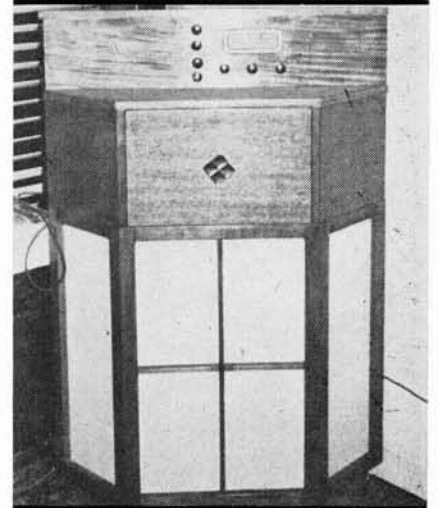
particular interest to the professional, although the advanced experimenter is also likely to find many uses for the convenient chassis available from this company. In addition to these shock-mounted, quick change chassis, a wide line of attenuators, filters and equalizers was shown, all designed with 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.

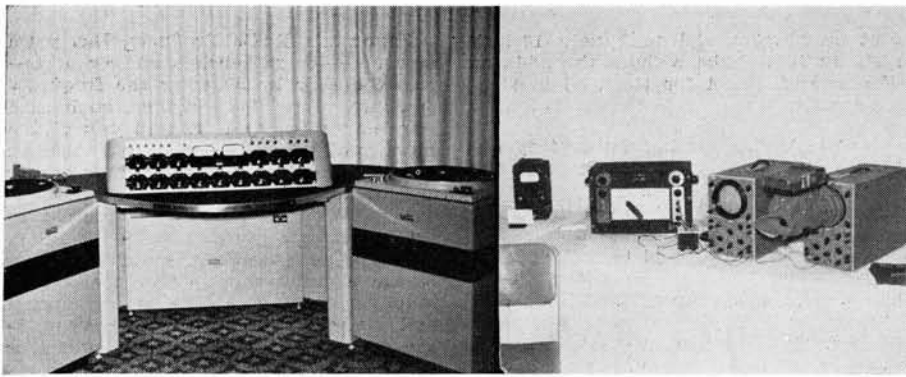
**Electronics of Staten Island**, a newcomer to the audio field this year, had two new corner speaker cabinets on display, one containing the speaker alone and another with a built-in tuner, amplifier, and record changer. The performance from these cabinets was above average, indicating the advantage 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-



From the top, reading clockwise: Electronic Workshop, Electronics of Staten Island, Electro-Voice, Inc., The Daven Company, Fairchild Recording Equipment Corp., Fisher Radio Sales Co., Inc.





From the top, reading clockwise: Gates Radio Company, Gawlor-Knoop Co., Hudson Radio & Television Corp., General Electric Co., Harvey Radio Co., Inc., Harrison Radio Corp.

quency horn folded into the corner, two direct-radiating cones, and two multi-cellular horns, the smaller covering the range from around 3500 cps as far as the signal source required.

**Fairchild Recording Equipment Corporation** exhibited a complete line of high-quality disc recording apparatus, together with a rack of equipment designed for the better quality transcription studio where off-the-air recordings are made as a regular business. Outstanding interest was shown in an equalizer which featured continuously variable peak frequencies at both low and high ends of the spectrum, and with continuously variable amounts of equalization at the frequencies selected.

**Fisher Radio Corporation** showed their line of high-quality radio receivers and amplifiers along with the new Concertone tape recorder, which is the most compact model yet shown which will handle the standard 10-inch reels on NAB hubs. Incorporating a three-motor chassis of cast aluminum, with the amplifiers mounted directly on the unit, the entire recorder can readily be carried in a single case. This model is made with two speeds—7½ and 15 inches per second—and with either single or double track heads, either type of which is readily changed for the other in a matter of minutes.

**Gates Radio Company** had on display a complete console for broadcast station use, along with several types of amplifiers and remote input equipments. One model of remote amplifier, designed for use with either a.c. or batteries, is equipped with an automatic changeover feature which connects the battery supply immediately in case of failure of the power source. The station console, with two turntables, is so arranged as to provide for comfortable operation and has facilities for two separate programs, or for one program and one audition channel. Neatness of design and construction features the entire Gates line, and accessibility for maintenance is one of the strong features of the equipment.

**Gawlor-Knoop Company**, manufacturers' representatives, showed the lines of Allen B. DuMont Laboratories, Ballentine Laboratories, and Clough Brengle Co., with cathode ray oscilloscopes with attached Polaroid Land camera for permanently recording the traces under observation, a product of the DuMont organization. From Ballentine, the new models of electronic voltmeters—always so popular in the field—were shown, together with a number of accessories which extend their usefulness. The Clough Brengle Audiomatic sweep gen-

erator, which provides a frequency swept signal over the entire audio range or over any selected part of it, was also a hit with the visitors who are 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 styli were 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-1201 speaker actuated by a 60-cps a.c. source and illuminated by means of a Strobotac gave convincing demonstration of the operation of the speaker cone under high-level excitation. A moving cutaway of one of the same 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.

**Harrison 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.

**Harvey Radio Company, Inc.**, featured the Magnecorder in its various forms, together with the Lansing corner speaker, Rek-O-Kut turntables, and the Audak Polyphase pick-up, and with this assembly of components which are now familiar to the music lover and audio hobbyist alike produced a quality of sound which was only to be expected from such distinguished equipment.

**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 Masco tape recorder. The Audio-Pacific amplifier, exclusive at Hudson, was shown to have exceptionally flat frequency response and low distortion throughout the entire range.

**Langevin 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

