Selling Sound

Tell 'em about Sound!

THOUSANDS of businesses today need sound! Thousands of buildings, halls, and entertainment places need sound installations! Tens of thousands of offices and plants need intercommunicating systems!

Yet because, in each case, some responsible person does not know about sound reinforcement, or does not understand how sound can be applied in that special instance, such sound sales are delayed.

True, the sound sales story is spreading rapidly. Tremendous progress has been made in the last three years. But the missionary work must be speeded up, if sound is to fulfill its destiny.

Every sound man, every radio man interested, every distributor, is needed to help tell the sound story by personal contact and verbal selling in his own town and circle. Even if a particular prospect does not yet seem quite ready, explain to him nevertheless the merits of sound, the advantages that would result from a proper sound job — and note how the period of waiting is thereby shortened before the sale is actually made!

For even running as it does, into tens of millions of dollars in yearly volume, the sound business is not yet big enough to enable manufacturers to do national advertising to reach the widely-scattered prospects for sound jobs.

So sound men themselves must take up this educational and publicity work for sound. Morning, afternoon and night, the effort must go on — "talking sound." By personal calls, by telephone, by letters, by circulars, every possible prospect must be told what sound can do for him.

Tell 'em about Sound! And ask them to Buy!

O. H. CALDWELL,
Editor

IN TWO PARTS: PART TWO

SEPTEMBER, 1937

Twenty-one thousand business men interested in sound will receive this magazine, including the pass-on circulation to the members of their organizations. Nearly 100,000 potential missionaries for sound can be counted on to see this message. This 100,000 — already familiar with sound in one way or another — can be a mighty and effective force to "sell sound" to every possible prospect.
The remarkable success of the Amperite Velocity is the result of Amperite's "Pattern Policy" to give P.A. Men the finest possible microphones at prices no higher than what they would pay for other makes. A letter from Riddles P.A. Systems is typical of the general remarks of the P.A. industry: "Your Velocity is the finest type of microphone I have ever used... Please duplicate my order."

You, too, will duplicate orders... improve installations... and salve bitter quality at a competitive price by using Amperite Velocity Microphones. There's a model for every type of installation.

CONSULT YOUR JOBBER NOW!

NEW! Desk Stand

New and novel idea! for desk, pulpits, footlights, bouquets. Microphone can be located in the horizontal plane, and used in various positions... as desired. LEAD SPRING SUSPENSION ACTS AS AN EXTRA SHOCK ABSORBER. Unusually stable. STAND ONLY $4.00 LIST. Name plate with maximum of 10 letters $2.50 LIST.

NEW! "Ham Mike"

No peaks! No splashings! Real broadcast quality. Output 68 db. RF Coax Circuit included in microphone Operation directly into grid of tube. Rugged. Not affected by temperature or pressure changes. MODEL HAM (high impedance) $22.00 LIST. MODEL HAL (500 ohms)...

Name includes new special Ham Desk Stand, cast iron, 45 and 6 feet of cable.

AMPERITE JUNIOR

A "Taped" Velocity of surpassing quality. Size of a match box. Ideal for lectures and specialty acts. Can be hidden under coat. Output constant with any position of the head. Transformer included in microphone case. MODEL 7 (200 ohms), or MODEL 71 (2000 ohms) $10.00 LIST.

FREE WINDOW DECAL Advertising your Sound Service. Size 5 x 3 1/2, finished in 4 striking colors. WINDOW DISPLAY 11 x 17, and... New illustrated bulletin. Write for these valuable sales helps today.

A POPULAR AMPERITE VELOCITY $22.00 LIST

A Velocity Microphone of very high excellence. Built to Amperite standards. Used for both speech and music with great success. No peaks. Flat response over audible range. Output... 65 db. Triplet assembled. Fitted with shock absorber and swivel bracket. Model RAC (200 ohms) with 8 ft. of cable; Model RAI (2000 ohms) high impedance with 12 ft. of cable.

AMPERITE CO. 561 BROADWAY, N.Y. U.S.A.
Cable Address: Alcom, New York
ALL ABOARD FOR

BIGGER SOUND PROFITS

ANOTHER FIRST

SELECTIVE PAGING SYSTEM
WITH TALK-BACK FEATURES

- 7 Watts of Power
- Talk to any Station
- Talk back from remote position through speaker

MODEL PC-7-R

- Again Webster-Chicago blazes the trail of Sound Progress, opening a vast new market for the Sound Dealer. Previously a paging or call system consisted of an amplifier, microphone, and the required number of speaker stations. Now for smaller factories, hotels, auto stations, departmental installation in larger factories...a new low priced design having in addition a selective switch so that the operator can talk to any one station only, or can throw the switch so as to talk to all stations. Transmitter shown will handle up to 5 stations.

COMPARE THIS 20-WATTER

Model PA-20-A

A complete 20 watt, two speaker system having a twin sound cell crystal microphone and a full length floor stand; all stowed in two easily handled portable cases. A sound system of wide appeal; very economically priced.

WEBSTER-CHICAGO, the fastest selling sound line.

- With the very latest in Sound Equipment...
- Built to give Satisfaction...
- Priced to SELL.

WEBSTER-CHICAGO, the fastest selling sound line.

Everything in Sound. Amplifiers, speakers, microphone P.A. Systems of all sizes, fixed and portable, interoffice systems, School Systems, Factory Systems, Hotel installations, Marine installations, etc.

Designed by Specialists. Webster-Chicago have been popular priced leaders in the Sound Field for more than 12 years. All engineering personnel have had long experience with actual Field problems.

Technical Help and Information. Special service is rendered to the trade on sound problems. Dealers with Webster-Chicago can approach any size installation with confidence.

Extensive and sustained advertising to Consumers. All inquiries are referred back to the dealer. Hundreds of sales each month result from these direct leads furnished to dealers.

Dealer Helps that definitely open doors. Folders, displays, signs; special letters, etc., make it easy for the dealer to go after business.

See Your Jobber—Write for Catalog

WEBSTER-CHICAGO, 480 Lexington Ave., New York, N. Y.

Without obligation please send me complete catalog.

I am particularly interested in

Name ____________________________
Street ____________________________
City ____________________________ State ____________________________

Investigate Sound OPPORTUNITIES

RADIO TODAY, September, 1937, Vol. III, No. 9, published monthly by Caldwell-Clements, Inc., 480 Lexington Ave., New York, N. Y. Subscription yearly $1.00 in U. S. and Latin American countries; 90c in Canada; 2.00 all other countries; single copy, 15c. Printed in U. S. A. Copyright 1937 by Caldwell-Clements, Inc.
A New Model

Teletalk

Webster Electric announces a new low price Teletalk! This model consists of a master unit that is selective and up to five speaker stations. The cabinets are solid walnut with a hand-rubbed finish. Master unit, $39.50; Speaker units, $9.50. Send for new book.

There's a New Pick-Up Coming

Webster Electric announces a new electric phonograph Pick-up that will be unlike any other ever developed. New in design. New in principle. New in performance characteristics. Write for information as to how you can profit by the increasing replacement demand.

IF EVERY EAR KNEW Perfect Tone Pitch YOU WOULD SELL ONLY WEBSTER ELECTRIC

- When you sell sound you sell an intangible thing. Few people can recognize true tone pitch. Therefore, it is highly important that you choose only the finest sound equipment—the World's finest—Webster Electric.

Webster Electric Sound Equipment was voted the best at the last Radio Parts Show. It is the result of skilled engineering. It is checked and tested by men who know. Its exterior design is the product of an outstanding industrial designer. Its component parts assure flawless performance and a wide margin of safety.

Many of the better distributors are now stocking this fine Sound Equipment. You can get it quickly—with little investment.

WEBSTER ELECTRIC COMPANY • RACINE, WISCONSIN, U. S. A.

Export Department—100 Varick Street, New York City Cable Address "ARLAB" New York

FROM 5 TO 50 WATTS

In addition to this range of sizes, the line also includes a 1 Position Mixer, a new Mobile Unit and all the usual accessories. The line is streamlined and finished in three tones—red, silver and black.

Webster Electric Sound Systems are licensed by agreement with Electric Research Products, Inc., under patents owned by Western Electric Company, Inc., and American Telephone and Telegraph Company, Inc.

Webster Electric
PORTABLE AND SEMI-PORTABLE SOUND SYSTEMS • ELECTRONIC INTER-COMMUNICATING SYSTEMS • ELECTRIC PHONOGRAPH PICK-UPS • TRANSFORMERS AND FUEL UNITS FOR OIL BURNERS
WHEREVER PEOPLE GATHER

★ "If I were a dealer, a service man, or a sound specialist, this is what I would do at the outset of selling sound," says Electro-Acoustic's L. M. Sandwick, who used to sell at retail himself. "I would say to myself: Here is a product I can sell wherever a group of people gathers. Now, how many gathering places are there in my natural territory?"

"Then I would systematically list the food stores, garages, parking lots, churches, schools, material yards, ball rooms, theatres, industrial plants, taverns, hotels, lodge halls, and warehouses within easy access of my place of business."

"The number of prospects will be astonishing. In fact, it will be necessary in most cases for the city dealer to pick particular types of prospects on which to concentrate at the outset. For profitable sales in the next twelve months, my personal choice would be industrial plants, stores and markets, churches!"

SPONSORED SOUND FOR FOOTBALL GAMES

★ Have you ever tried to put on a PA show for your local football games—only to find that the top price obtainable wouldn't begin to cover the costs?

Well, here's how one sound company has made good returns over a period of years, not only for portable work, but for semi-portable and permanent installations as well. This sound specialist gets an advertising "sponsor" to pay the costs, and gives this sponsor verbal advertising between quarters.

"Dress the whole job up," says he. "Get a good sports announcer—furnish the music from records. And maybe you can throw in a small field system for the cheer leaders and game officials to use.

"Do it right—put on a good show and you won't have much trouble finding sponsors who will pay you a fair price for your work."

REAL OPPORTUNITIES

★ "The editors of Selling Sound are to be congratulated on the comprehensive effort they are making for the sound industry," comments John Erwood, vice-president of Webster-Chicago.

"The very nature of sound makes each installation some extent individual. Thus the aggressive dealer and high-class technician—those radio men who are interested in engineering as well as sales—are finding the sound field a business of real opportunities."

"That a publication like Selling Sound has come into the field to give up-to-date knowledge on the industry and to help solve the difficulties of merchandising a specialized product, is bound to be a great aid and a wonderful incentive."

UNDERTAKERS USE PHONES FOR HOME SERVICES

★ Undertakers have proven to be unexpected prospects for intercommunicator systems.

When funeral services are held in a private home, the members of the immediate family usually prefer not to come downstairs to the ceremonies, but to remain secluded in their own rooms while the services are going on. With a set of intercommunicators, explains S. R. Hurt, of the American Carrier-Call Corporation, one unit can be plugged in downstairs and turned on as a microphone, while other units are plugged in the upstairs bedrooms so that the bereaved family can hear every word of the services without exposing their grief to outsiders present.

Undertakers who have introduced this plan find it a great selling point for their services, as against undertakers not offering interphone privacy.
THE MARKET FOR MODERN SOUND

Industry's complete list of prospects, with reasons why they will buy

- **ADVERTISING AGENCIES** can demonstrate the nature of amplified voices
  - arrange convincing auditions
- **ADVERTISING TRUCKS** broadcast effective messages
  - can keep within city ordinances
- **AIRPORTS** can talk up the safety angle
  - will handle more passengers
- **ALARM SYSTEMS** can cut burglar-insurance costs
  - complete house modernization
- **AMUSEMENT PARKS** can widen their concession grounds
  - govern crowds more readily
- **ARENAS** can increase seating capacity
  - hike box office receipts
- **ARMORIES** can communicate house bulletins
  - improve social relations
- **ATHLETIC FIELDS** can communicate instructions accurately
  - hike staff efficiency
- **AUCTION ROOMS** will save time in bidding
  - cut the number of complaints
- **AUDITION STUDIOS** can conduct several hearings at once
  - contact more artists and sponsors
- **AUDITORIUMS** can stage more varied events
  - must correct their acoustics anyway
- **BAND STANDS** can attract greater audiences
  - increase popular value of music
- **BANQUET HALLS** can improve table and dining arrangements
  - offer faster service
- **BASEBALL PARKS** can report scores promptly
  - attract more clubs and fans
- **BATHING BEACHES** can establish atmosphere of safety
  - cut Lifeguard costs
- **BEER GARDENS** can create entertainment some
  - publicize improved service
- **BUS TERMINALS** can cut porter costs
  - reach passengers in all depot rooms
- **CABARETS** can make appropriate recordings
  - keep all guests within range
- **CHAIN STORES** can stage more special sales
  - increase clerks efficiency
- **CHURCHES** can do dignified broadcasting
  - emphasize large social gatherings
- **CIVIC CENTERS** can improve local business relations
  - sponsor more varied events
- **COLLEGES** can issue rapid campus bulletins
  - improve student-faculty relations

**CONVENTIONS** can contact the "last-row" audience
- increase power of speaker

**COOKING SCHOOLS** can demonstrate more equipment
- get more novelty in exhibitions

**DANCE HALLS** can distribute music properly
- conduct detailed supervision

**DINING ROOMS** can speed up service
- add appropriate music

**EXHIBITIONS** can explain complicated displays
- add speaking specialties

**ELOCUTION SCHOOLS** can handle more students
- use recordings effectively

**FACTORIES** can improve labor relations
- create pleasant working atmosphere

**FAIRS** can increase entertainment area
- broadcast ads and announcements

**FOOTBALL FIELDS** can simplify the coaching job
- report what spectators miss

**GOLF CLUBS** can stage more tournaments
- publicize modern facilities

**GYMNASIUMS** can increase general capacity
- broadcast instructions at right moment

SELLING SOUND
HOSPITALS
can circulate important bulletins
gain time when split seconds count

HOTELS
can distribute news flashes and
music
make a point of house communication

LAWN FETES
can simplify the hostess’ job
knit guest groups together

LECTURE ROOMS
can advertise perfect acoustics
increase room drawing power

LODGES
can meet emergencies
spread more music

MARKETS
can spot necessary price changes
stop thieving

MEMORIAL PARKS
can offer impressive outdoor music

MUSIC SCHOOLS
can stage more and bigger recitals
amplify juvenile voices

NEWSPAPERS
can circulate flash instructions
operate the organization as a unit

ORCHESTRAS
can sponsor new sound effects
depend on light touches being appreciated

PAGING SYSTEMS
can increase coverage and fees
advertise dependability and clarity

PARKS
can organize 100 per cent supervision
accent larger social events

PICNICS
can control wandering crowds
simple work of entertainment

PLAYGROUNDS
can enforce news safety measures

POLITICAL GATHERINGS
can offer front and last rows equal clarity
making more lasting impressions

PRISONS
can regulate matters of discipline
relieve tension within walls

RACE TRACKS
can connect judges with attendants
offer spectators flash bulletins

RAILROAD STATIONS
can reach all rooms simultaneously
improve general passenger well-being

RAILROAD YARDS
can handle emergency situations
connect dispatchers with operators

RESTAURANTS
can advertise speedy service

SALES MEETINGS
can explain plans to large groups
assist the process of note-taking

SANITARIUMS
can pleasantly connect all wards
arrange quiet distribution of voices

SCHOOLS
can enlarge recreational activity
improve staff operation

SHIPS
can quicken action of crew
proceed with more safety

SOAP BOX DERIVES
can keep spectators informed
instruct all scattered entries

STADIUMS
can widen the scope of events
instruct crowds arriving and leaving

STEAMSHIP PIERS
can organize scattered workmen
exchange docked bulletins

STREET DANCES
can keep standards pacified
offer notes of explanation

STOCK EXCHANGES
can avoid sending messengers
through crowds

STORES
can reach scattered attendants
assist auctioneers

SUMMER RESORTS
can announce social and sports schedules
accommodate additional guests

SWIMMING POOLS
can broadcast warnings
advertise complete safety

TALKING SIGNS
can get novel and mysterious effects
advertise more types of goods

THEATRES
can expand entertainment schedules
reduce balcony complaints

UNDERTAKERS
can eliminate noisy messengers
avoid interruptions of privacy

VAUDEVILLE
can experiment with freak effects
play to bigger houses

WEIGHING STATIONS
can save time for patrons

WINDOW DEMONSTRATIONS
can furnish striking “stoppers”
bring models to life

YACHTS AND STEAMSHIPS
can broadcast lifeboat drill instructions
save passengers climbing narrow stairs
THE OUTLOOK FOR SOUND SALES

Manufacturers' optimistic views on 1937-38 prospects
Counsel distributors and dealers on going after business

* TO GIVE readers of "Selling Sound" a general picture of the present situation, the editors sent invitations to a number of sound-industry leaders, asking their views regarding the most important problems in the sound-equipment field.

What we asked is the general outlook for the development of sales in the sound-equipment field for the next ten months? What types of markets can be most profitably developed by dealers, servicemen, and sound specialists? How can the jobber best cooperate with his dealers in stimulating the demand for sound equipment?

Thousands of prospects ready

A combination of good business conditions generally—plus the rapidly growing public acceptance of sound-reproducing systems as a positive necessity wherever groups gather—makes the sales outlook for the next year extremely bright, declares L. M. Sandwick, sales manager, Electro-Acoustic Products Co., Fort Wayne, Ind.

As a result of the improvement in general business, numerous institutions, such as churches, schools, hotels and stores, are now in position to proceed with sound installations which they recognize the need for; but which, a year or two years ago, they were unable to finance.

The growth of public acceptance of sound equipment has resulted from three major factors. First, radio. Second, sound pictures. Third, successful sound reinforcing installations. The first two factors, while indirect, have focused public attention on sound reproduction and have created an acceptance by people in general of hearing and enjoying reproductions of speech and music.

The third factor—the successful sound installation itself—is the key to the present intense interest. Beginning with Chiego's "A Century of Progress" in 1933 millions of the public have heard and reacted favorably to sound equipment at the great fairs and expositions throughout the country. Countless others have realized increased enjoyment at sports events in ball parks, race tracks, gymnasiums, stadiums and arenas, through timely announcements or running accounts of the play or action.

How to sell sound

Surrisingly enough— for sound equipment manufacturers almost without exception have failed to capitalize these favorable openings—the public itself has begun to reduce these spectacular installations to everyday requirements.

The time has now come to consider "sound" selling less as an engineering exercise and more as a specialty merchandising. Viewed in this light, there are three easy ways for the dealer to win the confidence of his prospect.

First, by visiting the job during working hours and making an actual survey of the requirements. This shows his interest.

Second, by asking questions regarding the uses and applications which the prospect may have in mind. This gives the jobber a chance to convince the prospect that the dealer has a service to render, and that he wants to render it honestly and conscientiously.

Third, by a straightforward presentation which avoids technical discussion as much as possible, makes no extravagant claims for the equipment and leaves the prospect to expect a good, workmanlike job, at a fair price—but not a cutthroat price.

Remember, the dealer in sound equipment—more than in any other business—is advertised by his own good works. The prospect who has been sold by conservative claims and reasonable promises will be the least possible advertisement for the dealer whose performance exceeds his sales talk.

Bumper crops, bright outlook

We feel that the general outlook for the development of sales in the sound equipment field for the next twelve months is probably the best it has ever been, particularly so in the Middle West and Southwestern states, declares Laurence A. King, sales manager, Operadio Manufacturing Co., St. Charles, Ill. This, of course, is due to the bumper crop of small grains and corn which they will have this fall. Also, we feel that more and more people are realizing the necessity of sound—this being particularly true in the industrial field. Therefore, because of these factors, the general outlook for the next twelve months is probably as good if not better than at any previous time.

As to how the jobber can best cooperate with his dealers in stimulating the demand for sound equipment, we feel that this is not primarily a problem of the jobber but one that is a dual responsibility between the jobber and the manufacturer. It is the

At the left is the center of a sound job in Texas, which handles 10,000 spectators along 4 city blocks watching a Soap Box Derby. Chap with the goggles is Elliott Wilkinson.
duty of the manufacturer and the jobber, from a selling standpoint, to develop as many leads as they possibly can for dealers and then pass these leads on to the dealers. In addition to this, of course, the jobber as well as the manufacturer must have the product available for the dealer when he makes a sale so the dealer’s customer will be able to obtain his sound material a reasonable length of time after he has ordered it.

By adhering to these two policies, plus the aggressive selling every dealer must do, a nice volume of sales should result for all concerned.

Must know product

In order for a dealer or sound specialist to make a proper estimate and solicit business which will ultimately result in the satisfactory installation, it requires a very thorough knowledge of the product he is selling. Therefore, one of the first duties of the dealer or sound specialist is to become absolutely familiar in every detail with his product so he can do his job by consulting his jobber or the factory men. Of course, the average sale, such as a purchase merchandise, should then be a very simple problem for him to handle.

In larger installations, he should gather together complete data pertaining to the particular job and then from his own experience make his recommendations and submit these back through the jobber to the manufacturer for their okay and approval.

Quality, reliability essential

One of the fundamental differences that should be understood about P.A. is that it is used for business purposes and not for home use, points out S. Ruttenberg of the Amterite Corporation, New York. Since such sound apparatus is being used for business purposes, its quality and reliability must necessarily be greater. The equipment is expected to stand hard usage and continuous service. Reliability over approximately three years is not objectionable.

It is, therefore, of paramount importance to use equipment that will stand up, hence the sound man can charge a little more because of the service that is usually demanded, and the fact that the number of jobs are at best limited.

Because the jobber himself knew very little about sound and the sound business, the P.A. man received very little cooperation. Most P.A. men carried as large a stock of equipment as his jobber, and often larger. By giving a P.A. man first service on his requirements as well as the little help on promising jobs, the jobber could put himself in an enviable position and increase his business on sound equipment tremendously.

For the man interested, sound business is much more profitable to a jobber than other small parts businesses. The number of items are few, the unit of sales large, and the possibilities of equipment becoming obsolete are practically negligible.

At the right, entertainers test their "sound" personalities for outdoor presentation to the mob.

It has taken even the larger jobber a long time to "get wise" to the possibilities in sound and, in fact, they are just about "catching on."

Selling "sound re-enforcement"

Sound as we know it today is a new entity. No longer is it merely "public address" or more properly "sound re-enforcement" considered either a novelty or form of talityio. Sound re-enforcement and acoustical treatment are main methods of utilizing his most important means of inter-relationship, comments A. Betman, president, Wholesale Radio Supply Co., Inc.

Ten years ago public-address amplifiers were considered as merely "chopped off" portions of radio receivers. The idea of having a person speak to a gathering through the medium of a microphone and amplifier was considered more a novelty than a necessity. Sound equipment was then being put into buildings for the purpose of either imitating radio broadcasting or providing very loud phonograph music.

But now we find sound re-enforcement a part of the modern technique of music. Mr. Averrate Man realizes that radio has brought about a new style of orchestra, tone blending and relationship to individual instruments. What were formerly simple accompaniment devices have now been transformed into solo instruments.

Sounds formerly lost to the normal ear have now become integral parts of modern rhythm and style. Orchestra leader, without sound equipment, have found themselves in the embarrassing position of not being able to duplicate their radio programs to "flesh" audiences. Their patrons were overheard remarking, "This orchestra does not sound as well here as over the radio." This condition has resulted in the development of one of the richest sections of the vast sound re-enforcement market. Today every orchestra leader, however small, is a sound prospect.

Today sound systems are being sold for use in locations where sound re-enforcement is most certainly not required when considered entirely from the standpoint of loudness. Neither are they being obtained as novelties. These systems are being used to improve the quality of certain portions of the sound occurring at that point. When selling sound systems to music groups, quality and special effects should be stressed.

Standardize selling methods

"The modern methods of introducing new products for public use are now found in the sale of sound equipment," states S. A. Leeb, president, Webster Electric Co., Racine, Wis. "Amplification of sound now finds a definite use in our industrial and social life. Better merchandise, better merchandising, unit packages and standardization of selling methods will result in a tremendous sales volume for all manufacturers."

Henry G. Kobel, also of Webster Electric Co., Racine, adds that "applications for the use of sound systems have become so universal that the business of their sale finds that its volume is only limited by the outlets offering it to the public. The same principles of sales and application which are found in other commodities are equally as fundamental to the sale of sound."

"Amplification now finds new avenues of selling, new methods of use and forenoon of the educational and recreation features which sound makes available will result in increased sales."

"Industrial and commercial uses for amplification of sound, and its use as an aid to reducing operating costs in almost every type of business will," concludes Mr. Kobel, "result in a large sales volume."

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DISTRIBUTOR-DEALER PROBLEMS

Candid discussion from those in middle of sound sales

* TO PRESENT the low-down on the distribution situation in sound equipment, Radio Today's editors asked jobbers and dealers to give us their candid comments on present sales methods and how they can be improved—and what sound offers to distributors and dealers during the next 15 months.

Planning for big future

We feel there is everything to be done in the selling of sound equipment, declares Lew J. Benn, Lew Benn Company, distributors, Minneapolis, Minn. By “selling sound equipment” we mean creating a demand or a desire to have. As soon as conscientious effort is made by distributors to sell sound and sell good equipment, the manufacturers will take more interest in its development. I claim it is principally a selling job.

Sound should be the dealer's and serviceman's business, but many purchasers have found it necessary to go direct. In order to get satisfaction, and that has encouraged every manufacturer of sound equipment, especially the small independent company, and also mail order houses from all parts of the country, to “quote direct.” This will be overcome, and we have been trying to accomplish, but we find invariably we lose a sale because of direct quotations by some Eastern mail order house.

Every institution of any size is a potential prospect for some sort of sound, from the large amplifier down to interoffice communication. As it requires quite an investment, naturally the buyer wants to know what he is getting, and it is a semi-engineering and salesman's job to produce this business. Even he small amplifiers sold to orchestra leaders, night clubs, and so-called “beer parlors,” require sales talent and technical knowledge.

We are setting ourselves up for the future of sound business and believe it is going to be large. Practically every hotel is adequately equipped and lots of money is paid every month for telephone interoffice communication, which can be much more economically administered through inter-communicating mediums.

Greatest opportunity in sound

I think there is more opportunity for increased sales in the sound-equipment field for the next twelve months than any other field, writes Robert Henry, radio distributor, Butler, Mo.

The market that has the greatest possibility for development is the market among those prospects which are financially able to buy new equipment of any sort that they are convinced will be of use to them. All you have to do to make profitable sales is to show them how they can use sound equipment. Sound-equipment sales should be handled by a department that devotes the greater part of its time to this work and whose members can become specialists in sound equipment.

Jobber cooperation vital

My frank but humble opinion is that selling sound along the lines sold in the past has none too bright a future. But this practice of manufacturers selling anyone and everyone that comes along will now yield benefits to the jobber who gets out and makes personal contacts for the public is loaded down with obsolete and discredited sound equipment. Therefore, they are in the market for reputable equipment, backed by companies financially and ethically sound and having an intelligent sales policy, concludes W. H. Edwards, wholesale radio supplier, Providence, R. I.

The market is business houses, advertising firms, amusement places and specialty sound men. Schools, state and public buildings will also have to be sold. But again, only good equipment, backed by intelligent salesmanship, will have a chance.

Cooperation of the jobber with the retail dealer is absolutely essential. Three hundred dealers out selling sound are better than one expensive jobber salesman. Also cooperation creates good-will for the jobber for his other lines. This part of the program is up to the jobber. His personal contacts with the dealers must be utilized to the fullest in explaining the “sound” business and the methods of selling, also the different types of installations. But, as for selling the public buildings, the jobber must do that, himself. The primary reason for this is that public officials insist upon discounts.

Make “sound conscious”

The immediate outlook for sales is slow unless manufacturers do enough advertising to make America “sound conscious,” thinks E. L. Grimm, of Radio Television Co., Washington, D. C. Some people think an amplifier is a converted radio set, some other people think it falls in the price range of the cheapest radio sets.

The dealer and serviceman seem in the best position to sell installing intercommunication systems for business and homes, but haven't the necessary training for explaining the problems of high-powered amplifiers, which should be covered by sound specialists.

The jobber stays in the background as a supply depot for the dealer. It is up to the manufacturer to stimulate the demand for sound equipment through advertising to reach all types of consumers.

In soliciting new business and giving estimates the most important thing is to break down any wrong impressions the customer has regarding sound systems. And, above all, to keep “sound” out of the classification that surrounds cheap radio sets and cheap radio service—also the peculiar idea of the customer that a sound system can be tailored to fit and installed in a few minutes. It would be best to

At the left, sound equipment becomes an important part of the scoreboard on the football field at Southern Methodist University, Dallas, Tex.

SELLING SOUND
Too much inexperience

I find that in the amplifier field there have been too many inexperienced people. First, there are too many manufacturers who do not make quality amplifiers, and who do not use the proper microphones and speakers because the amplifier is a price proposition, not a quality proposition. Secondly, there are too many people who are not qualified to manufacture sound equipment, there are plenty of responsible manufacturers who are qualified. But, as the old saying goes, you only get what you pay for; naturally, the prices of the better systems are higher, and the equipment is consequently harder to sell to the average buyer.

Now, as far as the jobber is concerned, most any jobber with a sound sales engineer would be qualified to sell amplifiers. But the biggest problem is the buyer. There are several types of buyers. First, there are those who know very little of what they are buying; they are part-time musicians who also work, we will say, during the day for the city water department, perhaps, or as a janitor in a shop or factory, or maybe as a barber. They get together small orchestras and look for work in small towns, restaurants or clubs for a night or two a week. Most restaurants require that the orchestra furnish its own sound equipment. These jobbers have to supply a full line of equipment. They have to buy too, when a player leaves, to buy another player.

Jobber bills customer

I believe the best market for the serviced dealer in the coming year will be intercommunication equipment. In this field the market is practically unlimited, according to C. W. Hudson, Hudson Radio Supply Co., Richmond, Va.

In most cases, the serviced dealer's capital is limited and he is unable to finance a sound installation. I have found it the best policy for the distributor to make the installation and bill direct to the customer. The service man is then given the difference in the installment payments and his own profit on the equipment. The serviced dealer is responsible for all services within the 90-day guarantee. In case the customer wishes to have the installation financed over a period of time, we have found it best for the distributor to handle the financing. If the distributor can handle the time-payment he will work out much better than the various propositions offered by the manufacturers. The serviced dealer is better able to get credit information in his section than either the serviced dealer or the manufacturer.

In soliciting new business it is always best, if possible, for the salesman to find out what type of equipment the customer can use. If the salesman does not have a definite proposal rather than “can you use an amplifier or do you need communication in your plant?” There is a much better chance of making the sale if there is any doubt in the mind of the salesman as to the price of equipment he should take the matter to the distributor. The sound distributor should have at least one man on his staff who is thoroughly capable of furnishing information on all types of equipment as well as estimates.

In closing, I would like to say that the sound field opens a market to the dealer and serviced dealer which in the next few years should prove as profitable as the set market has been in the past.

Practical advice

Inasmuch as we have enjoyed an average gross on sound business of $1,400 per month in a city of 8,000 population, I believe that we may be able to offer some suggestions which may be helpful to others. George Sharpnack, manager, Program Service Co., Lincoln, Neb.

1. Advertising in local papers is usually a failure because you do not write which sound is heard.
2. Advertising in local papers is usually a failure because you do not write which sound is heard.
3. If you must advertise—use the “sell” method. Paper weights with your ad on them, a miniature microphone or some such article will stay on the desk of your “potential” customer.
4. Free sound jobs to churches. Boy Scouts or other such groups cause more trouble than good. A better way is to offer your regular set-up at a discount to a regular customer.
5. Most of your sales result from well planned demonstrations of new or latest type equipment. As an example, to show a prospect how much better a new velocity microphone or amplifier would operate very frequently result in a sale of complete new equipment.

(Radio Today, September, 1937)
FOOT-WORK IN SELLING 'PHONES

Ways to tap today's big market in intercommunicating systems

* GENTLEMEN carrying small traveling cases are all over town. They're plying briskly between the radio store and its hundreds of prospects for intercommunicating systems. The luggage contains one master station and one remote speaker—or pairs of intercommunicators—all polished and neatly packed. In the side pocket of the bag is a complete supply of circulars, instruction books, price lists, etc.

Salesmen know that office bosses are beginning to get back from vacations. On the salesman's side also is the fact that the public is now better educated to the conveniences of modern inter-phones. Effects of the first promotions of the equipment are now being felt—business executives are definitely 'phone conscious. Time-payment plans have been adjusted.

Offers to demonstrate

Some of the shoe leather is being spent as a result of letters written by dealers to a selected list of prospects. These were personal in nature, and were essentially offers to demonstrate the intercommunicators. Only very brief attempts were made in the mailing pieces to outline the features of the merchandise—the point was chiefly a friendly request for a chance to show the phones and let them sell themselves.

In other cases the outside selling is being done "cold." Then's when the salesman must pick up some knowledge of the profession in which he circulates, with a view of filling, with his inter-room gadgets, the particular needs involved in that branch of business.

For instance, if he calls at a publishing office, it will help him to know how and in what way the editorial department needs to communicate with the advertising department.

Selling modern business

(It has been found that offices or organizations which are involved in the production or distribution of electrical products, are particularly easy to approach. Executives in such places are naturally interested in the operation of the inter-phones, and will allow themselves to be shown the instruments for that reason at first.)

Retailers of this equipment have the "be modern" angle on their side. If the prospect is advised that modern business certainly includes the use of the intercommunicators, he will begin to think that his competitors are using the equipment to advantage. Executive persons are just as unwilling to be outclassed by neighbors or competitors as anyone else. This is presented not as a sweeping sales argument, but as an important undercut.

Sales demonstrators can be fairly sure that female office workers are generally more anxious to save steps than the men in the office. So it turns out that one of the tricks is to sell the receptionist first. She can't do the actual buying, but she can have a wholesome influence on it.

If usefully demonstrated to while the salesman is waiting to see her boss, the receptionist will be pleased to discover that she is important, and will be in the mood and in position to cooperate if the demonstration occurs between her desk and that of her boss.

Busy spots

Since interphones are sold to deliver instant communication, a salesman with confidence in his instrument will offer to demonstrate in the "rush-spots" of an organization. It seems the best way to show instantly how the phones will make efficiency and save money for the outfit.

Obviously a salesman cannot do this in a few minutes; he should be willing to spend considerable time to allow the equipment to prove its value. Unless company executives exhibit some special interest in watching the demonstrator being set up, the salesman may excuse himself during the process. This is done out of respect for the prospect's time.

If the demonstration does occur in a rush spot, salesmen must take care to keep themselves and their gadgets out of the way until the inter-phone goes into action.

Training angle

Naturally, prospects will wonder whether it will be difficult to train employees to operate the intercommunicating units. Some of them may feel that their office workers, particularly the women, will be mystified when confronted by a series of switches and levers.
The "education to operate" becomes simple when the salesman picks out the brighter persons to teach, where possible, and operates the phones himself several times under their very noses. The trade itself knows that modern equipment is simple and foolproof, but from the viewpoint of the consumer who finds his organization routine changed, operation of the equipment may seem at first confusing.

The more tricky aspects of using the phones are left until the essentials are mastered. In some cases a file clerk can report the contents of a file into an interphone located halfway across a room, when time is valuable. A novice might bungle this stunt until he had some experience with how the voice is carried.

**Argument for secrecy**

Some organizations will get the idea that the minute they install a sensitive intercommunicating system, that the private affairs of a single executive will become a public broadcast. Actually, there is no necessity for private and confidential matters to be aired around the premises, when the interphones are used.

Some of the newest intercommunicators are built so that an earphone may be used for listening to reports which the listener's companions shouldn't know about. Other systems may be adapted for the same kind of situation, if in no other way than by placing the instruments at strategic positions.

In organizations where calling or paging systems are needed, a multiple station inter-phone system will often fill the need exactly. The only other way to do the trick is to use a central PA speaker which covers a whole room rather than sections. This is often unsatisfactory, because the person called can only be paged, since the whole room is listening. To tell him why he is waked and what to do would be unfeasible when large groups are also heed at attention.

Intercommunicators used as paging systems allow the persons called to be addressed in a semi-private fashion. More details may be communicated without causing a disturbance. This is particularly true in factories, where an interruption of large groups of workers represents a definite loss of time and money.

While the emphasis continues on the outside work in merchandising the equipment, dealers figure out new methods of display and demonstration in the store.

In many stores it is no longer enough to have a demonstrator system which connects the front of the store with the back. One of the greatest appeals is that the gadgets save the effort and the time involved in going up and down stairs. Hence, dealers want to be sure that their model installations in the store run vertically as well as horizontally. They make special arrangements with tenants upstairs if there is no department in the basement.

Some radio stores are hooking themselves up to neighbors on either side, for demonstration purposes. This stunt has more novelty appeal than anything else, as it in no way demonstrates the intra-organization need for inter-phones.

An effective method of display is the use of two small desks in windows—one on each side of the entrance if the store front is arranged in that way. On one desk is displayed a master unit; on the other a remote speaker.
RADIO-MUSICAL INSTRUMENTS

New artistic possibilities achieved by tube outfits

"MUSIC is an art, indeed a fine art, a very fine art. But music is not all art. Behind every art lies a vast accumulation of scientific knowledge and experience, and considerable in the way even of engineering practice.

"But when we compare music with the other arts, and particularly with other fields of human endeavor, we find tradition enthroned, instead of progress," declares B. F. Messner, radio and musical inventor of Millburn, N. J., before the recent New York Convention of Music Merchants.

Age of progress

"The graphic arts have evolved photography and moving pictures, even in color—and television. The drama has availed itself of every conceivable device to intensify the arts of make-believe. Communication has made tremendously great strides by telegraph, telephone and radio. Transportation, likewise, has tremendously accelerated the pace of human movement, with steamships, railroads, automobiles and airplanes. Illumination today is very far ahead of the oil lamp of the dark ages. Agriculture and industry leave no stone unturned to press improved machinery into service.

"But what of music? In this age of progress in every conceivable field, music and musicians still use the traditional instruments and apparatus of hundreds of years ago.

Aborigine music

"One musician scrapes the tail of a horse across the intestines of a cat—and the elder his instrument is, the more he prizes it. Another blows lively through a bass tube or a wooden pipe. Another hummers on the drum of the aborigines made from the hide of an ox. Another, sometimes with terrific physical exertion, pounds on a keyboard to make his audience through the physical vibrations of struck strings and huge soundboards. Another with aggregations exceeding 10,000 pipes—one as long and large as a forest log—has hundreds of other complicated and bulky apparatus, produces the sounds of the organ.

"That most of these have reached the limit of their development is amply supported by their almost fixed design for hundreds of years. The principles upon which they are based have been carried through all these years of development, to the end of their capabilities.

"Electric methods have revolutionized many other industries, and the music-instrument industry is next!"

Guitars and ukuleles

"Electrically amplified fretted instruments, particularly guitars and ukuleles, are rapidly supplanting the older types. Bowed string instruments are also coming on the market with the same effect. In carillons, huge bells are now being supplant by tiny ones, electrically amplified. New solo instruments, fingered like a violin, but requiring no bowing, and with a wide tonal range, electrically generated, are being developed. The latest addition to the electrical instruments are the electronic pianos. Music of rare new beauty is being produced. Tools of marvelous facility and power are given the composer and artist.

Change tone colors

"Pianos in the last few years have trended towards smaller, cuter and cheaper types. But tone has steadily been eradicated more and more. Now with the new electronic-amplified pianos we have not only recaptured the lost tone, but we have, even in these smallest instruments, exceed the performance of the largest grands, and at a far lower cost.

"These pianos are not nearly as complicated electrically as modern radio receivers, and they are well within the service knowledge and facilities of the average radio servicemen.

"The advantage in using electrical amplification instead of mechanical principles for tone production lies not alone in the ability to produce bigger, louder, or more sustained tones—although these are important.

"But the ability to change these tones in color, in power and in other ways, gives to the artist a control over his instrument never before experienced and thus greatly extends and enriches his performance."

"At the same time for present radio men, this new expansion of the radio tube art opens up a new volume of sales and maintenance business. If the standard music store is to hold its place in this new advance of musical instruments, it will have to take on qualified radio men or join forces with new established radio-service organizations, familiar with the radio and 'sound' arts."

Lew Green and Ferde Grofe, well known orchestra leaders, follow the trend to electrically amplified music. Here, it's Epiphone's new electric guitar.
ELECTRO-AcouSTIC
SOUND SYSTEMS
Every Job Sells Another One!

NO SATURATION IN THIS MARKET
HERE'S HALF A MILLION PROSPECTS

290,000 STORES AND MARKETS • 89,000 LARGE INDUSTRIES • 50,000
CHURCHES • 33,000 COAL AND MATERIAL YARDS • 25,000 HIGH
SCHOOLS • 92,000 THEATRES AND HOTELS—are going to be busy this winter.
They’re going to need Electro-Acoustic Sound Equipment—the modern necessity
wherever people must hear. They
have the money to pay for it.

You have a right to expect perfect performance in the sound
equipment you sell. Electro-Acoustic Systems give it to you
because they’re carefully engineered and built of the highest
quality materials in the finest plant in the industry. They’re built
by people who “know how”—backed by twenty-six years of
experience and leadership in this field.

That’s why the “Electro-Acoustic” label is your customer’s
guarantee of a perfect installation.

THE LINE IS COMPLETE

Electro-Acoustic is the line with which you can get your share of this
mighty untouched market.

It’s the line with systems, amplifiers, power stages, microphones, baf-
flies and all accessories for every permanent and portable installation
requirement.

It’s the line that features advanced design—matchless flexibility—
modern appearance—perfect performance.

Complete systems from $50.00 up, with adequate discounts to qualified
distributors and dealers,

ELECTRO-AcouSTIC SYSTEMS ARE FULLY LICENSED

MAGNAVOX SPEAKERS

An outstanding new line of Magnavox
Speakers for every application of
sound distribution. The latest in radio
replacement models too. All types
and sizes—electro-dynamic and per-
manent magnet dynamics—5” to 15”
distinctly labeled and packaged.
Built to satisfy every requirement of
high fidelity sound and music reproduc-
tion.

MAIL THIS COUPON

ELECTRO-AcouSTIC PRODUCTS COMPANY

Dept. SS, Fort Wayne, Indiana

Home send me details on Electro-Acoustic Sound Systems and the name of my
nearest distributor. I am also interested in receiving complete information on
☐ Magnavox "EA Special" Speakers.

Name .................................................................

Address ................................................................

City .............................................................. State ...........................................

Radio Today, September, 1937
STEREOPHONIC SOUND

— "Acoustic perspective" with distant actors, at Dallas Fair
— C. C. Langevin devises new methods to sell novel sound effects

* WHEN the San Diego fair was opened, three years ago, Carl C. Langevin sold the Associated Oil Company the idea of sponsoring public-address and radio-pickup facilities for the fair. He put in a wide-range system for outdoor reproduction. It was the hit of the exposition. It soothed the nerves of foot-sore spectators. Only wide-range vertical-cut records were used for reproduced music. People went away talking about the quality of the music which covered every square foot of the exposition grounds.

Cavalcade of Texas

In addition to the public-address equipment Langevin installed remote radio pick-ups all over the grounds. The fair ran a second year, and a delegation of Texans came to hear and see the sound equipment. They were planning an exposition of their own at Dallas.

Naturally Langevin got this business, too. This time he persuaded the Gulf Oil Corporation to sponsor the public-address facilities. In addition he made the installation of sound at the feature attraction, "The Cavalcade of Texas." "There was a show, the like of which no one had ever seen before," comments Walt Whitmore of the Western Electric Company. Hundreds of actors re-enacted memorable events in Texas history on a great outdoor setting 300 feet wide. Capacity crowds of 3,000 persons witnessed almost every performance, and everyone heard each word of dialogue in the mighty pageant. Few realized that the actors did not speak their lines, so cleverly had the dialogue been spoken into microphones by unseen performers, been channeled to the action and pantomime of the actors on the stage. The recorded music used as background and dramatic embellishment to the action of the pageant was a thing of beauty not soon forgotten. It was the sound reproduction which made the pageant. For the first time on a large scale, dialogue spoken offstage had been channeled to the action of actors on stage. Truly it was a sensation.

Remote actors

This year, 1937, "The Cavalcade of Texas" has grown into "The Cavalcade of the Americas," and sound equipment installed by Langevin is again the sensation of the show. Langevin has again introduced a new feature in sound reproduction. It is the first time that "stereophonic sound" has ever been used for a show of this kind. Again as last year unseen performers speak the lines for the actors on the stage, but unlike last year's performance, the voices produce a perfect illusion in that they seem to be coming from the lips of the actors no matter where they may be on the giant stage. It is a realism never before achieved.

In one scene, a member of the cast walks from one end of the set to the other, and his voice follows him with complete illusion of coming from his lips, although his lines are being spoken by another person into a microphone in a soundproof booth 300 feet distant.

Loud enough

Langevin's success is based on one thing—his insistence upon quality of reproduction. By quality, he means three things: The sound coming out of the loudspeaker must be an exact copy of that going into the microphone; the volume must not be too great, but loud enough for every listener to hear, without straining, each word or sound clearly and distinctly above all extraneous noise and third the illusion that the reproduced sound is coming from its original source must be perfect. These are requirements difficult and costly to meet.

"Failure to meet these requirements is the reason why so many men fail in public-address business," says Langevin. "Others are too afraid of their competitors. They haven't the courage to charge enough to make a legitimate profit, for fear a competitor will underbid them. We never think about competitors. We charge what we know the job is worth to do it right, and trust to our ability to sell them on the idea that they must have a quality system.

"In all our experience we have never sacrificed quality to meet a price. The best is none too good."

These actors in their sound-proof booth, supply all voices heard from the 300-ft. stage, through the mixing panels above.
Again leads the way with a startling new feature in inter-communicating equipment

CARRIER-CALL-RADIO

... a RADIO RECEIVER and CARRIER-CALL combined in a single unit!

NOW, in addition to the standard Carrier-Call Systems, you can offer your customers a totally new type of instrument—a system that gives complete radio and communication facilities in any room of the house, any part of the office, without wiring or installation cost—ALL at a SINGLE LOW PRICE.

Plug into any lighting socket, AC and DC.
No wires; no batteries; no installation cost.
Portable—move it anywhere in a jiffy.
Radio reception can be transmitted from master station to outlying stations.
Radio cuts out automatically when unit is used as a communicator by any station. Resumes automatically and immediately conversation is through.
Can be sold where other types are unsalable.
Widens the inter-communication market enormously.
Perfect for executives needing market reports and other broadcasting receptions.
Ideal for homes; the residence market now wide open to Carrier-Call dealers.
Scant opportunity for profitable selling.
Complete merchandising and technical cooperation.

The Carrier-Call-Radio is a NATURAL for dealers. So, get the Carrier-Call franchise for your territory before it is too late. Distributors and dealers are urged to wire or write for complete details.

Licensed by Electrical Research Products, Inc., under patents owned or controlled by American Telephone and Telegraph Co. and Western Electric Company, Inc.

AMERICAN CARRIER-CALL CORPORATION
39 WEST 60th STREET
NEW YORK, N. Y.
SELLING AN AUDITORIUM SOUND JOB

Tips which will help in figuring any large sound system and will simplify the installation

* ARE you making a bid on that auditorium P.A. system? If so, here are a few suggestions which will help you—not only in figuring the job to make your price right, but also in producing results that will give your “sound” business prestige and favorable advertising for the future.

In planning such a system there are two definite steps to be taken:—
1. Get clearly the customer's requirements, and 2. Make a careful survey. Here's why!

First of all, the requirements determine what equipment is necessary. That sounds simple doesn't it. But do you know that probably half your competitors won't figure on the proper equipment and as a result their prices will be out of line. You don't want either to lose your shirt or to be too high, so get the story straight.

If just speech reinforcement is needed a better system will result if the low frequency end is chopped off completely. However, if the system is used for music reproduction, it will need some “low-frequency response” or power depending upon the frequency absorption characteristic of the auditorium.

The ideal P.A. system should have a characteristic which is the converse or opposite of the auditorium's natural characteristic. It's not so easy to get a curve like that and it would cost a lot of money for equipment if done completely and scientifically. Herein lies the need for making a careful survey.

Speake-re location

But before getting into the subject of acoustics let's see what else the survey should accomplish. A set of drawings from the architect will be of aid in determining the power output and speaker requirements. A side elevation drawing and a floor plan are sufficient. (The architect is a good man to know—he can help you a lot, and he will usually do so if he sees you are going about your job in the right way.) If the drawings aren't available, take measurements and make sketches to scale.

It used to be a standard method to group all the loudspeakers in one central spot just forward of the stage, on the center line of the building. That was still good practice in churches or where there is a speaker's stand and only one microphone location. If there are going to be microphones all along the foot lights, it makes a better job to spread your loudspeakers across the top of the proscenium arch.

By using the floor plan and knowing the distribution angle of the loudspeakers, they can be laid out so as to give even coverage. Remember that with dynamic speakers, the low-frequency spread is very wide and the high-frequency output is not much more than a beam. If it is a speech reinforcement job, the lows should not get through anyhow, therefore not any more than a 60° spread should be figured unless your loudspeaker manufacturer specifies differently.

If there is a balcony, the loudspeakers across the top of the proscenium arch should be used for reinforcement in the balcony only. Don't try to bend the sound waves down under the balcony to the rear orchestra seats. Sound waves won't bend. Cover the back of the orchestra with loudspeakers located on each side of the proscenium.

The elevation drawing comes in handy in determining the right height.

Elevation of an auditorium having a balcony. Separate speakers are used for coverage up and downstream. Note how the sound envelope is paralleled to the ceiling to avoid reflections.
acoustical" in walls can be overcome by using some good old horse sense in placing and aiming the loudspeakers. While a sound level meter is an ideal tool for figuring out the power requirements for an auditorium, because of expense it is usually out of the question for most sound men. However, the cubic content of the room gives fairly good results for figuring in most cases. First of all the cubic content of the hall must be calculated—subtracting the mass of balconies and sloping floors.

Dividing power between speakers

The accompanying chart shows the number of acoustical watts required for various size installations. The efficiency in per cent and also the power handling capacities should be obtained from the manufacturer of the loudspeakers. If the efficiency is 20 per cent you must multiply the acoustical power by 5 to get the audio output power of the amplifiers (20 per cent is 1/5) or if only 8 per cent efficient multiply acoustical power by 12 1/2, etc.

If only one loudspeaker is used, its power capacity must be great enough to handle all the sound the amplifier puts out. If two are used, each one will get 3 db less than the maximum and so on. Each time the load is doubled, half the power is applied to each unit. When the electrical power is converted to acoustical power these are going to add again in the same ratios so don't worry about that.

One must remember, however, that the same amount of sound energy may not be wanted from each speaker. In this case the level differences may be adjusted by working from different taps on the auto transformer. Or if the maximum in quality is desired and power dissipation is not a factor, T type attenuators in the individual loudspeaker circuits can be used. Make sure, though, that the amplifier output is matched into the impedance of your combined load.

Gain requirements

The overall gain of the amplifier system depends upon the efficiency of the microphones and the insertion loss of your mixer circuits. Microphone manufacturers will furnish the necessary data on output levels at various distances and angles of incidence. This will aid in determining the spacing required between microphones if they are to be arranged along the footlights and also allow calculations of the total system gain.

If the microphone output is — 80 db, and your electrical power required is 8 watts or +30 db, and the insertion loss of your mixer 6 db, your gain must be the algebraic sum or

(To page 31)

Above—by keeping the sound beam off the walls much reflection is eliminated.

Below—horizontal sound coverage provided by a single speaker.
SERVICING PA SYSTEMS

* Without question there is a lot of "sound" servicing business to be had these days for the alert serviceman.

School installations which are idle all summer need to be tested out thoroughly at the beginning of every fall term. Auditorium systems which are only used two or three times a year should be carefully inspected and tried out prior to each time it is used as these events are apt to be of considerable importance.

**Systems need attention**

Some of the larger companies have sold inspection service with their installations but there are today probably thousands of systems which have not had any expert attention since they were installed. In some cases it will be found that it is just as easy to sell a combined servicing and operating contract, particularly where the system is only used a few times a year. Churches offer a very good field for both servicing and operating contracts.

In attempting to sell service, one should have a fair idea of the magnitude of the installation. With this in mind, an itemized statement of what you will do and how often is an excellent approach to a prospective customer. Be specific but make your story complete. The following lists some of the more important items which should be covered particularly with the older installations:

- Check batteries (or rectifiers) recharge if necessary.
- Check AC line voltage.
- Inspect and test all fuses—replace corroded or defective ones.
- Clean and lubricate all mixers and other step type controls.
- Test all vacuum tubes and replace faulty or border line tubes.
- Test microphones—deliver button carbon type see but units are well balanced and that button currents are normal.
- Test all loud speakers—if electrodynamic, make sure that the fields have normal currents. If the diaphragms of cone type units have been subject to high humidity, see that they are thoroughly dried out (damp diaphragms not only cause loss of efficiency but create abnormal frequency response patterns). Be sure that the speakers are properly matched to the output of the amplifier.
- Test all accessories such as photographs for correct speed and flatter, radio tuners for good reception, cable connectors for good contacts, etc.

**Noise and hum**

Test system overall for noise level—electrostatic condensers almost always need to be replaced, particularly after long period of idleness. This is also the time to check mixer noise—key clicks—transmitter buzz if carbon button units are used. In testing for noise, it is well to terminate the input ahead of all mixers and controls and monitor the output increasing the amplifier gain to its maximum.

It may sometimes be found that the loud speakers are of a type which have a low frequency cut-off well above the AC hum region. In such cases it is important to monitor with a speaker which will reproduce this noise, as sometimes through a fault in the filter circuits, this hum may be of such proportion to modulate part of the speech signals.

Test the overall system response using a frequency record or a piano or other musical instruments. A portable audio frequency oscillator is, of course, the most desirable test instrument for measuring the system characteristic.

Finally, make an actual talking test, checking the range of pick-up of the microphones and the coverage of the loud speakers. Make this test having someone ready as this generally produces the most constant level. Check all parts of the auditorium for loudness and naturalness of sound, noting any discrepancies which might be remedied by better angling of distribution of energy from the loud speakers. Also induce the singing test—that is, advance the gain to a point where singing occurs and then decrease it until it stops. This point should be marked so that the operator will never exceed it. Determine the best setting for operation where the sound is most natural and compare this with the one used when the auditorium is full of people. The difference will give you an indication of the overloading value of the audience.

Above all—keep a record of conditions as you find them and whatever changes were made. Send a nicely prepared report to your customer—it is impressive and accomplishes two things—it helps to justify the money he has paid you and shows him the necessity for a periodic service of this type. And besides, you will find these records keep increasing in value. They are time savers for you, and they help you sell new replacement parts or a modernization job.

**CLEANING ATTENUATOR CONTACTS**

* While the procedure for cleaning mixers and other step type gain controls is very simple, the Don'ts are extremely important. Briefly the procedure is as follows:

1. Wipe the contacts clean with a clean soft cloth. Never use any form of abrasive or cleaning fluids. Carbona, carbon tetrachloride or the like are all harmful. If you find that someone has previously used vaseline or some other grease or gummy oil—remove as much as possible with your cloth.
2. Put a few drops of a high-grade light oil which is non-corrosive and will not gum on the contacts. Rotate the switch arm until the old dirt is loosened up.
3. Wipe clean with clean soft cloth and lubricate with the same oil using only enough to give smooth operation.

Repeat No. 2 as often as necessary to properly clean all contacts and keep the rest of the unit particularly the contact plate and the resistance units, free from oil and dirt.
ALL METAL-Glass TUBES give better tone, greater volume — operates on AC or DC

MODERN executives have been demanding an inter-office communication system like CENTRAL-CALL for a long time. Speaking delays and awkward interruptions caused by the talk-listen switch are eliminated entirely by the CENTRAL-CALL System. Simultaneous conversation can be carried on privately between master and any one of the substations. So completely selective that no interference or cross talk is possible from other substations.

CENTRAL-CALL adds speed and easy exchange to office communication. The metal-glass tubes and 6 inch speaker assure the finest voice reproduction with plenty of volume in reserve.

No special wiring is need. Plug in anywhere on the office or house lighting circuit. Saves time and money in wiring... quick installation and immediate operation make big selling features.

CENTRAL-CALL master system and substations are smart and modern in cabinet design. Sturdy construction of 5-ply walnut with piano finish. Substation switch makes easy selection. Call by loudspeaker—simultaneous talk as by telephone.

CENTRAL-CALL will sell at once on demonstration and by comparison. Territories are open for aggressive distributors who will appreciate the liberal profits. Write or wire at once for complete details.


CENTRAL-COMMUNICATION DEVICES, INCORPORATED
140-144 WEST 22nd STREET, NEW YORK CITY
PHONE—CHELSEA 2-7144-5


GLOSSARY OF SOUND

- **Tweeter**—A loudspeaker unit designed to reproduce high frequencies only (above approximately 3,000 cycles).
- **Woofe**r—A loudspeaker unit designed to reproduce low frequencies only.
- **Baffle**—A partition physically increasing the distance for sound traveling from the front to the back of a loudspeaker diaphragm.
- **Acoustic watt**—Unit of sound energy (based on a reference level of $10^{-16}$ watt per sq. centimeter).
- **Mixer**—Adjustable microphone volume control used to mix one microphone output with others.
- **Beam power**—(Tubes)—Flow of electrons directed in beam formation to increase efficiency otherwise lost in secondary emission.
- **Turret speaker**—Speaker with dome-shaped metalic housing—"turret top."
- **Harmonic content**—Percentage of harmonics present in signal based on ratio to fundamental frequencies.
- **Du. gain**—Amount of voltage or power (or combination of both) amplification calibrated in decibels.
- **Response**—Reaction of any equipment unit to applied signal energy.
- **Response characteristic**—Contrast for "response frequency characteristic"—relative measurement of equipment response at various frequencies.
- **Low-pass filter**—A combination of elements which excludes high frequencies but not lows (passes the low.
- **High-pass filter**—A combination of elements which excludes low frequencies but not highs (passes the highs).
- **Band-pass filter**—A combination of a low and a high pass filter which passes a single band of frequencies.
- **Phase shift**—A change in signal polarity.
- **Dividing network**—Combination of elements intended to divide signals into two or more frequency channels.
- **Angle of incidence**—Angle from perpendicular at which sound waves impinge upon a given surface.

Reverberation—Persistence of sound energy in an enclosed through repeated reflections.

Rate of decay—Time involved in absorption of sound energy.

Insertion loss—Attenuation caused by the introduction of elements, combination of elements, or equipment units in any circuit.

Power loss—When the attenuated energy is actually dissipated.

Transmission loss—When input signal is greater than the output signal—may include insertion, power, reflection or transition losses.

Transmission gain—When output signal is greater than input signal.

Optimum reverberation—Desirable average for overall frequency range and various size and shape of enclosure.

Reverberation time—Time required for sound energy to decay to one millionth of its starting value.

Echo—Concentrated sound reflections where noticeable time interval occurs.

Interference patterns—Resultant effect of two or more sound waves arriving simultaneously at same location.

Acoustic feedback—Sound waves emanating from loudspeakers feeding back to the microphones.

Phasing or polarizing loudspeakers—Connecting speakers so that they will receive the same instantaneous polarity of signals so that their diaphragms will vibrate in unison.

Boomy—Term to describe lack of high frequency response or over-emphasis of low frequency.

Thin—Term describing sound lacking in low frequency response.

Lows—Low frequency energy, either acoustic or electrical.

Highs—High frequency energy, either acoustic or electrical.

Loss—Loss of power.

Wow—Effect of pitch change due to variation of speed in recording or reproducing machine.

Beating—A phenomenon in which two or more period quantities react to produce a resultant having pulsations of amplitude.
NEW SOUND EQUIPMENT

Electro-Acoustic sound system


Lafayette amplifiers


Selective paging system

* 7-watt interphone system for factory paging, institutions, small hotels, etc. Handset up to 5 remote stations—will select any one or all. Talk back feature operates up to 20-40 feet from speakers. Sufficient power for factory floor spaces of 20 to 20 square feet at average noise level. Webster-Chicago model FC-9R. Webster Co., 5822 Bloomingdale Ave., Chicago, Ill.—SELLING SOUND—see also advt. p. 1.

Aircraft microphone


RCA amplifier


Velocity Hand-i-mike

* Smallest complete velocity mike ever made with a high or low impedance output, designed for use as a hand type, but also can be employed as a desk or mounted on regular floor stand. Flat response from 60 to 7,000 cycles. Output only 3 DE below standard type of velocity microphone. Head measures 7/16 x 1 x 8/16 inches. Molded rubber case. List $22. Amperite Corp., 561 Broadway, New York, N. Y.—SELLING SOUND—see also advt. inside front cover.

Ramco sound system

* 14 watt deluxe amplifier system with split carrying cases. Dual input channels with mixing and fading controls. Variable impedance output. 114 DE gain with response from 30 cycles up. Velocity mike, banquet stand, speaker and microphone cables. Model 156. Regal Amplifier Corp., 14 W. 17th St., New York, N. Y.—SELLING SOUND—see also advt. p. 29.

Crosley interphone

* Lowcost intercommunicating system for homes, offices, etc. 2-way loudspeaking system. Uses power lines for transmission. Cabinet of walnut measuring 7 3/4 x 11 x 6 3/4 inches. Crosley Chatsbox—List $11.25 per unit. Crosley Radio Corp., 1329 Arlington St., Cincinnati, Ohio—SELLING SOUND.

Mobile sound system

* 6-colt and 110 AC amplifier for mobile use. Fuses phone and microphone inputs which can be mixed. Four speaker receptacles with change over switch to match speaker lead. Crystal pickup. Modernistically styled base and hood. Weblet Electric Co., Racine, Wis.—SELLING SOUND—see also advt. p. 2.

Crystal mike

* Microphone with both velocity and pressure output elements. Unidirectional response with both ele-ments. Velocity element alone gives bidirectional response, while non-

SELLING SOUND
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While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this index.

- Build Profits
- Satisfy Customers
- Flexibility to meet EVERY requirement

• REMLER

INTER-COMMUNICATION SYSTEMS

Build a permanent and worthwhile business with profitable Remler systems. Priced to meet competition with new features which are not available in other systems, regardless of price.

Modern styling ... built-in cabinets ... superior station selector system ... high intelligibility ... approved by Underwriter's Laboratories. Prices start at $49.50 for two station systems.

REMLER—SINCE 1918

Remler Inter-Communication Systems are backed by the reputation and stability of a trustworthy firm continuously under the same management for twenty years. Write for catalog, prices, price list, illustrated folders, also helps and names of nearest distributor.

REMLER COMPANY, Ltd., 19th at Bryant, San Francisco

Radio Today, September, 1937

NOT in years has there been such a heavy demand for wire in connection with the Serviceman's business. You have noticed it—we have noticed it.

With Public Address going like a prairie blaze and Radio a soothing balm of activity which promises to be sustained, you will be needing GOOD WIRE.

CORWICO Wires are scientifically produced to do their job 100%. Antenna Systems, P-I Cables, Hookup Wires—"made by engineers for engineers." Use CORWICO on your next contract.

Eliminates "Man-Made" Static on Broadcast as Well as on Shortwave Bands

Licensed by Amy, Reese & King, engineers with traditional CORWICO care, this masterly aerial system fits every set and every location. Filters out nuisance noises caused by electrical devices. Improves reception generally—widely endorsed by Service men.

No. 14 (illustrated above) $675 List

For broadcast and shortwave frequencies, designed to eliminate "man-made" static and afford better reception. 2 to 6 sets can be operated at the same time with an additional lower transformer for each added unit. Other "Noise-Master" units available. WRITE FOR INFORMATION.

CORNISH WIRE CO., Inc.
20 CHURCH STREET
NEW YORK CITY
CORWICO Wire Catalog available to Service men.
Distribution is exclusively through jobbers.
NEW THINGS

directional pickup is obtained with the pressure element alone. A switch selects either one or both elements. Model 720A—list $39.50. Saure Bros., 225 W. Huron St., Chicago, Ill.—Selling Sound—see also advt. p. 36.

Interphone paging system

* High-powered interphone system for paging and 2-way communication. Master switch for calling all outlying stations simultaneously. Toggle switches for selecting outlying stations. Use of 1, 2, or 3 master stations possible. Unlimited number of outlying stations—can talk with master station. 8-Watt output. Opera- dium Mfg. Co., St. Charles, Ill.—Selling Sound—see also advt. p. 24.

Espy intercommunicator

* Master type interphone system accommodating up to 4 remote stations. Easy conversation from any one of outlying points—or simultaneously with all. Use ordinary twisted pair for interconnection. Attractive walnut cabinets. Master unit $39.50—remote stations $10. Espey Mfg. Co., Inc., 124 E. 25th St., New York, N.Y.—Selling Sound

Portable sound system

Intercall communicator
* Wire and wireless type interphone systems for home and office use. Office systems for 5 or stations with all-master units, permitting full intercommunication. Headphone for privacy use—speaker cuts out. Push-button connects with desired station or stations. Intercall Systems, Inc., Dayton, Ohio—Selling Sound.

Speech relay system
* Master type interphone system handling up to 4 remote stations. 2-way conversation controlled at master station. Selector switch for any one or all of outlying stations. Model A permits party line operation whereby remote stations may talk among themselves. Aluminum cabinets with silk suede finish. AC-DC operation. Complete systems priced from $38.50 up. Turner Co., Cedar Rapids, Iowa—Selling Sound.

30-watt amplifier

Audio oscillator
* Best-frequency type audio oscillator with frequency range up to 11,500 cycles and essentially constant output of 2 volts to 500 ohm load. Attenuation independent of output impedance. Walnut cabinet and German silver dial. Hand calibrated over 5-month period to insure against thermal change. Net $25. Telesco Co., 127 N. Dearborn St., Chicago, Ill.—Selling Sound.

Remote mixer control
* Two-channel remote mixer for newest RCA sound system. Mixer is connected into circuits so that no signal circuits are taken out of amplifier. Provides normal operation as mixer at amplifier—no hum or noise pick-up. Enables operator to monitor sound at a position in auditorium with consequently better sound reinforcement. List $24.25 with 50-ft. cable. RCA Mag. Co., Camden, N.J.—Selling Sound—see also ad. outside rear cover.

Supreme tube checkers
* Tube tester with floating filament selector. Five tests possible—inter-element leakage, open element in each circuit, short circuit between any of tube elements, quality test of complete tube elements, separate sectional test of dual purpose tubes. Model 6011.

VOCAGRAPHR Thirty Watts "Hushed Power"
ret only $39.90

Compare these STARTLING Sound Values!
See what other leading manufacturers ask for a full thirty-watt, dual high gain input, beam power amplifier then ask your own guys apart house to demonstrate this amplifier. Here are a few of the many other VOCAGRAPH values he offer you:

Thirteen-watt, forty-cup system, Model 30.30V complete with velocity microphone, three piece case, and two 12-inch p.m. speakers, only $399.00.

Eighteen-watt, high gain amplifier, Model 10.18C for only $197.75, or complete with velocity microphone, two 12-inch speakers, and phone piece case, etc., only $355.00.

Ten-watt, high gain amplifier, Model 26-10C for only $175.70 or complete with crystal microphone and carrying case with 12-inch speakers, only $247.45.

Whatever your sound needs may be, from ten to ninety watts, get the new VOCAGRAPHR catalog. It shows you how to make bigger sound heard.

Functional Design
"V" SERIES VELOCITY MICROPHONES
The smooth trim lines and screen housing are more than just style. They contribute to the top performance that typifies the "V" Series. No side-wall reflection. No Resonance.

Priced from $25 to $75 list.

WRITE FOR CATALOG • SEE YOUR JOBBER

Electro-Voice MFG. CO.
338 E. Colfax Ave.
South Bend, Ind.

Export Office: 100 Varick St., New York, N. Y.
New Business for Sound Engineers

* You can attach the Presto 112-D recording mechanism to any radio phonograph combination to record radio programs off the air. No pre-grooved records needed. The Presto mechanism cuts the groove as it records the sound—makes permanent high quality records that can be played 50 times or more.

Net price to P. A. and service men complete with installation data $64.00

PRESTO RECORDING CORPORATION
137 West 19th St., N. Y. C.

Master Communo-phone


Sunco sound system

* 12-watt portable system with self-contained microphone, amplifier and speaker. Gain of 126 DB. Powerful enough to cover indoor audiences up to 3,000 and outdoor areas of 25,000 sq. ft. 8 input channels for mike or phone. Operates from 110 AC. Sanford Engineering Co., 4234 Lincoln Ave., Chicago, III.—Selling Sound.

Set tester

* High-sensitivity multi-range meter for set testing. DC range 0-10/50/250/500/1000/2500 at 25,000 ohms per volt. AC range same as DC. AC range 0-1/10/50/250/500/1500/2500/5000/20000. Resistance 0-500/5000/20000/5meg/20meg. Capacitance and diode calibrations. Free point tester makes all series and parallel meter connections. Tripplett Electrical Instrument Co., Bluffton, Ohio—Selling Sound.

Speaker and amplifier cases

* Complete line of portable carrying cases for speakers, amplifiers, phonographs, etc. Made of heavy plywood covered with black fabricoid. Reinforced corners, rust-proof hardware. Custom Auto Trunk Co., 500 W. 13th St., New York, N. Y.—Selling Sound.

Portable amplifier system

* 30-watt sound system employing 12 beam power output tubes. Electrostatic mixing on 2 input channels. Cathode...
20-watt sound system

Central-call interphones


High-sensitivity multi-meter

* AC-DC multi-range meter using rotary range selectors. Ranges chosen so that commonly measured values fall on upper section of meter scale. Ranges—AC and DC volts 0/10/20/30/40/50/60/150/300/500/1200/DC at 20,000 ohms per volt—AC at 2000 ohms per volt. DC millis 0/10/20/200/300. Resistance ranges 0/1/2/3/4/5/6/7/8/9/10/20/30/40/50/500/1000/50/250M with self-contained battery. Model 329—net $38.95. Triumph Mfg. Co., 4017 W. Lake St., Chicago, Ill.—SELING SOUND.

Vocagaph amplifiers

* Low-priced line of amplifiers with many features. Series thirty available in 10 watts at $32.95, 18 watts at $49.50, 30 watts at $66.50. Electrome Design Co., 164 N. May St., Chicago, Ill.—SELING SOUND—see also advt. p. 25.


Microphone stands

* Line of "select-cut Controlled" mike stands. Base and tubing for stands available separately so that any desired combination may be had. Bases available with 1½, 2, 3, 4, and 6-inch pipe threads to fit all tubing sections. Gunmetal, bronze, chrome, black or silver wrinkle finishes on bases. 7 distinct combinations possible. Eastern Mike-Stand Co., 56 Christopher St., Brooklyn, N. Y.—SELING SOUND—see also advt. p. 25.

A pair of Aces for P.A. pick-ups!

BETWEEN them, Western Electric's famous "B-Ball" and "Salt-Shaker" mikes meet every Public Address need. Both can be used for non-directional work—both can be transformed quickly for directional work by simply putting on their acoustic baffles. Both are popular with P.A. engineers and dealers all over the country. At their low prices, you can't afford anything less than the true Western Electric quality these mikes give you! For full details: Graybar Electric Co., Graybar Building, New York.

Western Electric
Distributed by GRAYBAR Electric Co. In Canada: Northein Electric Co., Ltd.
We do not manufacture amplifiers, horns or microphones... but we do manufacture the largest and most complete line of Microphone Stands and Mountings for every type of microphone.

Eastern "Mike" Stands are high quality products designed to meet every requirement. Oversized material used throughout, thereby insuring the Best Mike Stand Value for the Money.

WRITE for our new illustrated catalog TODAY.

EASTERN MIKE-STAND CO.
56 Christopher Ave., Hackensack, N.J.

Phone: DEck 2-5530
Factory Representations — Territory Open

NEW THINGS

Combination interphone and radio

* Midget type broadcast receiver incorporated in a new inter-communicating unit. "Two-way" conversation may be carried on between a monitor station and the interphone stations. Radio reception at monitor may be turned on or off at any monitoring station. Radio cuts out automatically when system is used or communication by any one of the detectors. Receivers instantly when conversation is completed. Manufacturers expect new unit to widen interphone market and open new channels of distribution. America Carrier-Carriage Corporation, 39 West 60th Street, New York—Selling Sound—see also p. 15.

* Extensive alterations are being made at the pig slaughter establishment, McCoy's, at Norwood, Pa. Head man at the place is Earl L. McCoy.

METALEX HORNS

A Room to the Sound Engineer

* "EX" for Objectionable Resonance

The elastic material we are using regarding the "EX" horn makes us want everyone interested in public address, etc., to try our line. These efficient exponential horns should not be confused with the so-called "resonating" unit. When we are set with the metal "EX" horn it gives almost unlimited tone and has no objectionable resonances. Stocked in 3 sizes.

The Model NON-EXPLI-EX is aNickel speaker installed in a metal horn gives almost unbelievable reproduction.

Write for interesting literature.

Wright-DeCoster Distributors are always anxious to cooperate.

WRIGHT-DeCOSTER, INC.
2271 University Ave., St. Paul, Minn.


W. H. Kelly Co., Toronto, Ont., Canada

Taylor & Pearson, Ltd., Edmonton, Alta., Canada

SOURCES OF SOUND SUPPLIES

An alphabetical list of sound manufacturers whose advertisements have appeared in RADIO TODAY or SELLING SOUND. Continued having ad. space in this issue and in the ADVANCE INDEX, P. 29.

Amplifiers

AMP Inter-Communicating Systems

Kits (Amplifier) K

Microphones M

Record Playing & Recording Equip. RP

Speakers S

ALLIED RADIO CORP., 328 W. Jackson Blvd., Chicago, Ill.—AMP, INT.

AMERICAN MICROWAVE CORP., 56 W. 60th St., New York, N. Y.—INT.

AMERICAN MICROPHONE CORP., INC., 1915 South Western Ave., Los Angeles, Calif.—INT.

ARPERITE CORP., 261 Broadway, New York, N. Y.—INT.

AIRLIE RADIO CORP., 110 W. 33rd St., New York, N. Y.—AMP

AISTON MFG. CORP., 1030 Diversey Ave., Chicago, Ill.—INT.

AVANTIC MICROPHONE LABORATORIES, INC., 4545 N. Damen Ave., Chicago, III.—INT.

ATLAS SOUND CORP., 1515 5th St., Brooklyn, N. Y.—AMP, INT.

INSULINE CORP., 353 Park Pl., New York, N. Y.—INT.

JEISEN RADIO MFG. CO., 601 S. Lake St., Chicago, III.—AMP, INT.

KREISLER COMMUNICATIONS, Inc., 250 W. 57th St., New York, N. Y.—INT.

LEISTE RADIOPHONIC CO., 63 De Camp St., New York, N. Y.—INT.

MARCOMPHONIC, Inc., 610 Madison Ave., New York, N. Y.—INT.

MILLS ELECTRONIC LABORATORIES, Inc., 172 2nd Street, New York, N. Y.—INT.

MORGAN & PETERS, Inc., 130 Church St., New York, N. Y.—INT.

OPERATING RADIO CORP., 85 W. Van Buren St., Chicago, III.—AMP

OPERA-TALK RADIO CORP., 85 W. Van Buren St., Chicago, III.—INT.

PHILCO RADIO & TELEVISION CORP., 1521 15th St., New York, N. Y.—INT.

PHILIPS ELECTRIC CORP., 61 W. 33rd St., New York, N. Y.—INT.

PORTOMATIC CORP., 1015 Madison Ave., New York, N. Y.—INT.

PRESIDENT RADIO CORP., 200 W. 15th St., New York, N. Y.—INT.

QUIN-NICHOLS CO., 150 N. Michigan Ave., Chicago, III.—INT.

RADIAL ELECTRIC CO., 601 W. Van Buren St., Chicago, III.—INT.

RADIAL ELECTRIC CORP., 150 W. 15th St., New York, N. Y.—AMP, INT.

RADIO SPEAKERS, Inc., 1200 S. Michigan Ave., Chicago, III.—INT.

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RADIAL ELECTRIC CO., 601 W. Van Buren St., Chicago, III.—INT.

RADIAL ELECTRIC CORP., 150 W. 15th St., New York, N. Y.—AMP, INT.

RADIO SPEAKERS, Inc., 1200 S. Michigan Ave., Chicago, III.—INT.

RCA MANUFACTURING CO., INC., Front & Cooper Sts., Camden, N. J.—AMP, INT.

REAL AMPLIFIER MFG. CO., 14 W. 17th St., New York, N. Y.—INT.

REYNOLDS MFG. CO., 1201 Brandt St., Rainelle, W. Va.—AMP, INT.

SHURE BROS., Inc., 305 W. Van Buren St., Chicago, III.—AMP, INT.

SIMPLEX RADIO CO., 515, 5th Ave., New York, N. Y.—INT.

SOUND PRODUCTS, Inc., 315 W. 57th St., New York, N. Y.—INT.

STANDARD ELECTRIC CO., Inc., 390 Church St., Chicago, III.—INT.

STEVENS-GARDON TELEPHONE MFG. CO., 100 Goler Rd., Richmond, N. Y.—AMP, INT.

THERMODYNAMIC FURNACE CO., 159 W. Lake St., Chicago, III.—INT.

THERMODYNAMIC MFG. CO., 159 W. Lake St., Chicago, III.—INT.

TRANSUCER, Inc., 14 Rockefeller Plaza, New York, N. Y.—INT.

TRANSFORMER CORP. OF AMERICA, 40 W. 37th St., New York, N. Y.—INT.

TRAY RADIO MFG. CO., 1142 S. 3rd St., Los Angeles, Calif.—INT.

UNITED SCIENTIFIC LABS., 62 W. 11th St., New York, N. Y.—INT.

UNITED SCIENTIFIC LABS., 62 W. 11th St., New York, N. Y.—INT.

UNIVERSAL MICROPHONE CORP. Co., Ltd., 9, Box 200, Englewood, Calif.—AMP, INT.

Utah Radio Products Co., 820 Olive St., Chicago, III.—INT.

WARD & CO., MONTGOMERY, W. 32nd St., New York, N. Y.—AMP

WARD PRODUCTS CORP., 1232 15th St., Cleveland, Ohio.—AMP, INT.

WESTER-CHICAGO, Inc., 100 W. 22nd St., New York, N. Y.—INT.

WESTER-CHICAGO, Inc., 100 W. 22nd St., New York, N. Y.—INT.

WHOLESALE RADIO SERVICE, Inc., 304 W. 6th St., New York, N. Y.—AMP, INT.

WRIGHT-DECOSTER, INC., 2271 University Ave., St. Paul, Minn.—INT.
David Bogen, maker of sound equipment, uses new Bogen Communophone.

* One of the season's biggest public address jobs in New York City went into the Metropolitan Hospital, Welfare Island, when Wholesale Radio Service Co. recently installed a new Lafayette centralized system for the institution. The setup handles 50 loudspeakers distributed throughout wards and departments for radio programs and announcements. Equipment also supplies the P.A. requirements for the main auditorium.

* Central Communications Development Corp. now have new headquarters at 130 W. 22nd St., New York City. The layout includes space for office, factory, and laboratories; the firm manufactures Central-Call intercommunicators for national distribution.

* Regal Amplifier Mfg. Corp., 14 W. 17th St., New York City, have completed an agreement with Electrical Research Products, Inc., whereby they are licensed to make and sell public address and intercommunication equipment under patents owned or controlled by Western Electric and American Telephone & Telegraph Co. Regal products will be merchandised under the trade name of Ramco.

The company makes a complete line of amplifiers, 5 to 100 w., portable and fixed, and also produces intercommunicating systems of both the wireless and wired types. Walter Spiegel is sales and advertising manager.

* American Carrier-Call Corporation, makers of intercommunicator systems, have moved to larger quarters on the eighth floor of 59 W. 66th St., New York City, where the company's research laboratories and its plant for the manufacture and assembly of systems are now combined under one roof. A new operating head of the Carrier-Call organization was announced by President Gatter at a recent meeting at which changes were voted by the board. T. Stockton Gains was elected executive vice-president. There will be no successor to former sales manager Gottshall, who died soon after his withdrawal from the company.

Radio Today, September, 1937
SOUND NEWS

Shure "ULTRA" offers you the highest performance available today in general purpose microphones. A exclusive built-in filter gives thrilling like reproduction and sturdy dependable service...yet "ULTRA" is unusually low in price. Because of this "ULTRA" Crystal Microphone offers standard equipment with nationally-known sound-equipment manufacturers and eminent sound engineers everywhere. Available in Swivel, Gooseneck and Spherical models. List Price, complete with 7 ft. cable. $25

SHURE "TRI-POLAR"

Uni-Directional
Bi-Directional
Non-Directional

All in ONE Crystal Microphone

Here, for the first time, is one microphone that does everything! Gives you all three directional characteristics (1) Uni-Directional (2) Bi-Directional (3) Non-Directional in one unit, each instantly available through a 3-point selector switch.

The Shure "TRI-POLAR" is the most advanced microphone available anywhere at any price! It enables you to select just the sound you want...gives you better results under adverse sound conditions.

Model 703A, complete with 25 ft. of cable, List Price, only $39.50

ZEPHYR CRYSTAL PICKUP

The Shure ZEPHYR "Balanced-Tracking" Crystal Pickup reduces feedback wear...increases record life...Improved wide-range response for better reproduction.

Model 690, List Price...$12

Specially designed "Run-Test" available at 50c list additional. Press arm down on port to loc...Release when lifted.

For complete details ask your retailer, or write for Baldwin 10P today!

Fowler Durst, long associated with the sound and communication industries, has resigned as vice-president and chief engineer of Guided Radio, Inc., where he also was in charge of commercial applications. Mr. Durst is a graduate of Bucknell University and the A.T.&T. courses in transmission engineering and accounting practices. For fifteen years he was with the Bell System, serving from 1920 to 1938 in the long-distance department of the American Telephone and Telegraph Company, and later as transmission engineer at Washington, D.C., and in 1938 transferring to Electrical Research Products Inc., New York City, in design and engineering capacities. Mr. Durst's home is at 29 Calverton Road, Great Neck, L.I., N.Y.

Universal Microphone Co., Inglewood, Calif., is under way with the production and distribution of a line of crystal microphones, incorporating the crystals of the Brush Development Co. First model is called the Randi-Mike and others will follow.

* A carbon microphone is offered by the Electro-Voice Mfg. Co., 338 E. Colfax Ave., South Bend, Ind., as a prize for suitable questions for the newly published Electro-Voice Fun department. First volume of this new publication carries a list of 20 questions with the multiple-choice type of answers.

* H. A. Keph, president of Atlas Projector Corp., and also head of W. C. Gutlohn, Inc., jobbers of 15 mm. sound-on-film, has announced that early this fall, they will market a popular priced portable 16 mm. sound projector. The equipment is described as ideal for home and classroom use.

SALES MGR. D. F. O'Brien of Champaign.

BOGEN

SOUND SYSTEMS

ALWAYS FIRST WITH THE LATEST

This organization has not been content merely with keeping abreast of modern trends and developments. Repeatedly we have been "FIRST WITH THE LATEST"

In keeping with this policy, we will present for the first time in commercial sound equipment...

BINAURAL AMPLIFICATION
AND ELECTRONIC TONE CORRECTION

Don't fail to hear these radical and different methods of sound amplification.

On display at LOUTH NO. 14 COMMERCE HALL NATIONAL TRADE SHOW N. Y. C., OCTOBER 1-3

DAVID BOGEN CO., INC.
663 Broadway New York City

SOLD BY THE MILLION
MICROPHONES & ACOUSTIC DEVICES

SELLING SOUND

30
DISTRIBUTOR-DEALER PROBLEMS
(From page 9)

6. By all means, never "build your own"—at least for sales purposes, you are a thousand per cent better to offer a factory-made outfit, for several good reasons. Such a product has a resale value. It offers good design, which the average man cannot possibly give. This may hurt the average sound man's ego, but if he is after profit, he had better heed this.

7. Sound equipment has a rather rapid depreciation. For this reason at intervals sell your obsolete equipment. By selling junk—"junk"—you will be money ahead to "keep up with the parade."

8. Price your service and equipment properly, and let it be known if some dealer wants to underbid you, let them have the job. Underbidding them will only cause them or you to lose money. Better let the other fellow be a victim to his folly.

9. Watch your accounts. Credit only those whom you know to be "good." Service to a dead beat means your time and money thrown away.

Jobbers see rapid growth

"Our own opinion is that unit sales of sound equipment are perhaps 100 per cent larger now than they were last year," says Seattle Radio Supply Co., Inc., Seattle, Wash. "We notice that the overall dollar volume in the business is increasing rapidly."

"Out here in Wisconsin, sales of sound equipment look to us about 100 per cent better than they were last year," reports Valley Radio Distributors, Appleton, Wis. "The overall volume done in the business is definitely on the increase."

"We will say that sales of sound equipment are about twice as good as they were last year," writes S. H. Larson, Hudson, Wis. "And the activity is such that total dollar volume done in the business here is certainly increasing."

SELLING AN AUDITORIUM JOB
(From page 17)

116 db. (80-50+0), as shown in accompanying chart.

In earlier paragraphs mention was made about absorption characteristics and acoustics. As a general rule, most auditories which have not been treated acoustically have a high reverberation time at the low frequency end. That's why when a flat system is used it sounds boomy and unnatural.

Too much bass objectionable

One of the most recent P.A. jobs that is really good, used horns that didn't have any response below about 400 cycles. You may recall some of the older type horns that didn't sound so natural. One of the reasons was that a lot of people tried to make low frequencies come out of those horns and others tried to squeeze too much power out of them.

It is surprising what improvement can be made both in the singing point of a system and the naturalness of the sound if an equalizer (adjustable if possible) is used to attenuate the lows. It is preferable to insert it in the input circuits or better after the mixers. Sound picture recording engineers use them almost all the time and they call them—dialogue equalizers. By taking the auditories characteristics into consideration, one will save a lot of trouble and save the customer a lot of expensive acoustical treatments.

One of the best practical ways to determine what equalizing is needed is to turn up the gain until the system starts to buzz. The frequency it buzzes at is the natural peak of the auditory characteristic if a substantially flat sound system is employed. With a set of tuning forks (can be borrowed from local high school) or a frequency record or piano the value of the frequency can be determined. Then attenuate that part of the frequency band with a resonant circuit if necessary. Put in just enough attenuation to make the system sound natural and the singing frequency will be high enough to avoid low frequency difficulties.

5 MINUTE TONE TEST

Try it with a "Bullet" Microphone!

- Believe your own ears! Try the five minute tone test. Here's what you do: Listen to sound reproduction using any velocity or crystal mike comparable in price to a "Bullet" model. Listen to it for a full five minutes. Then disconnect it and immediately hook up a "Bullet" mike...and listen. You'll be amazed at "Bullet" superiority! Nothing we could say would be as convincing as this testimony of your own ears. Try the tone test and you'll agree that "Bullet" is the big boy in micros.

When our engineers created the new 1958 "Bullet" dynamic microphones they built a line unsurpassed in quality and performance. "Bullet" mikes are remarkably sensitive, rugged and dependable. You won't appreciate the quality in sound reproduction until you test to get complete data on the new "Bullet" line. Models FH-7, BH-7, FH-8 and FH-9 range in price from $75.00 to $90.00. There's a model to fill your need. For complete data and prices, write to Dept. 688.

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UNDER U.S. PATENTS OF AMERICAN TELEPHONE AND TELEGRAPH CO. AND WESTERN ELECTRIC CO., INC.

THIS COMPLETE 20 WATT BEAM POWER ULTRA MODERN SYSTEM $150.00

READY TO OPERATE
- Dynamic microphone
- Floor stand
- 2-10" P.M. Speakers
- 2-Speaker boxes
- T.A. 20 amplifier

SOUND PRODUCTS ARE SOUND PRODUCTS!!

Radio Today, September, 1937
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Here is the only magazine and handbook devoted solely to the business of Selling Sound

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Second, make sure of getting all future issues of Selling Sound, because each succeeding issue will be even better than the first, and you must keep abreast of things if you don't want to be at a competitive disadvantage.

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