

THE BROADCAST ENGINEERS' JOURNAL
Ed. Stolzenberger, Editor
116-03 91st Avenue Richmond Hill 18, N. Y.

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THE BROADCAST ENGINEERS' JOURNAL

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NABET National Council

Meeting: Detroit

Oct. 4-8

WOW Television Training

Retirement—What Is the Industry Policy To Be?

VOL. 15, No. 8

AUGUST 1948

OFFICIAL PUBLICATION OF N. A. B. E. T.

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Editorial, Advertising and Circulation Offices:
116-03 91st Avenue, Richmond Hill 18, N. Y.
Telephone: Virginia 9-5553

Volume 15, No. 8

August, 1948

Contents copyright, 1948, by NABET Publications

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THE BROADCAST ENGINEERS' JOURNAL

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Advertising rates and information supplied on request. Subscription, \$2.50 per year; \$4.00 for two years. Single copies, except Christmas Yearbook, 35c; Christmas Yearbook, \$1.00. All remittances in advance Foreign: add postage. Back copies 50c, back Yearbooks, \$2.00.

Nothing appearing in The Broadcast Engineers' Journal shall be construed to be an expression of The Broadcast Engineers' Journal or the National Association of Broadcast Engineers and Technicians, but must be construed as an individual expression of the author or authors.

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A Message to the Members of NABET

from

JOHN R. McDONNELL
President, NABET

As television mushrooms across the country, it becomes more evident daily that regardless of the economic and social implications it may have for the entire population, it will effect radical changes in the lives of a large number of radio engineers and technicians.

We in NABET are justly proud of the contributions our members have made in the development of television—not only technically but as a field of lucrative employment for a large number of engineers. The standards we have set are high, but we cannot afford to rest upon our laurels garnered in the past. We must constantly strive to improve our position as the leading union in the field. In a democratic organization such as ours, it is the duty of each individual member to acquaint himself with the aims and purposes of the union to which he belongs, for it is only thru an enlightened active membership that real forward progress will be attained. Your National and local officers will welcome inquiries about NABET affairs.

To the many new members who are joining our ranks, I would like to extend a warm welcome on behalf of the membership at large, and a hearty invitation to participate actively in the affairs of your Chapter. Get acquainted with NABET, and I am sure that you will come to the belief—along with many of your fellow workers—that it is the best union in the business.

(Signed) J. R. McDONNELL, *President.*

DO WE HAVE YOUR ZONE NUMBER?

DEADLINE is 2nd OF EVERY MONTH. EXAMPLE: COPY RECEIVED MARCH 2nd APPEARS IN THE APRIL ISSUE, IN THE MAIL APRIL 1st.

Heading Cuts for Chapter news columns. Chapters without regular heading cuts and desiring same, should send in photo, cartoon, or drawing of subject matter that they wish used to identify and distinguish their column.

Ham Issue Scuttled: Instead, descriptions and photos of NABET Ham Stations will be published as received, following several suggestions indicating this preference. *Ham Calls*, however, will be published on an annual or semi-annual basis, as revised lists are received from individual Chapters.



Great drama comes to television in NBC telecasts of Theatre Guild presentations.

How wide is "Broadway"?

To all the world "Broadway" means the theatre. So when NBC, in October, 1947, introduced regular telecasts of Theatre Guild productions, an expansion of "Broadway" began—and some day it will be nation-wide.

Today, if you live in a television area almost anywhere from Boston to Richmond, the new "Broadway" of television runs past your door. Now you can see great plays, pro-

fessionally performed by noted actors. That's news, exciting news, to lovers of the theatre.

Celebrated artists run through lines and action before keen-eyed RCA Image Orthicon television cameras. At *your* end of the picture, on an RCA Victor home television receiver, action is sharp, clear, detailed . . . and voices flawless.

That television can make so im-

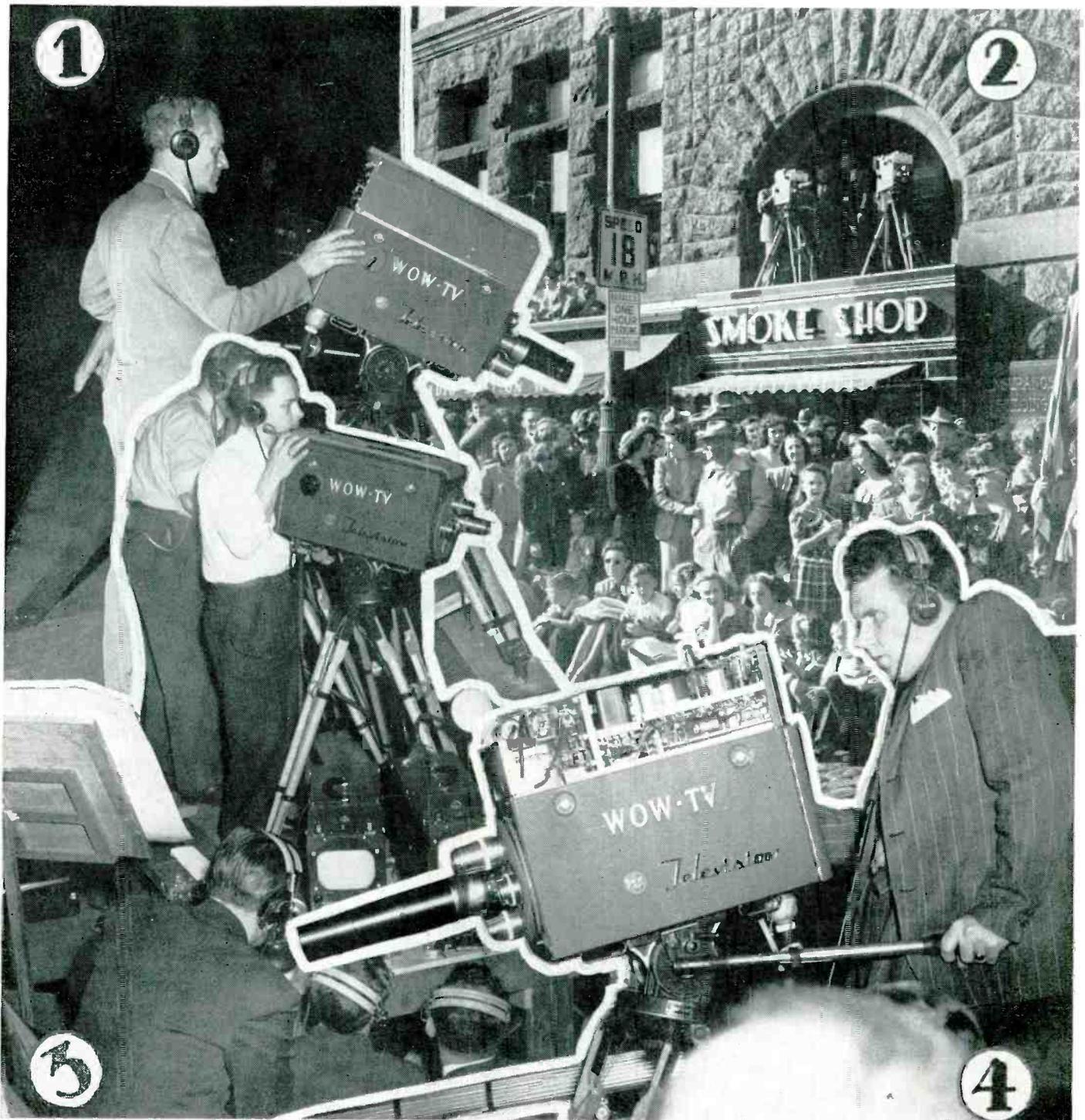
portant a contribution to American entertainment is in good part the result of pioneering and research at RCA Laboratories. Such research enters every instrument bearing the name RCA or RCA Victor.

When in Radio City, New York, be sure to see the radio, television and electronic wonders at RCA Exhibition Hall, 36 West 49th Street. Free admission. Radio Corporation of America, RCA Building, Radio City, N. Y. 20.



RADIO CORPORATION of AMERICA

WOW Television Training . . .



—Photo by Storm

1. Roy Glanton operating camera at ball game.
2. A recent parade held in Omaha, Nebraska with A. H. Maller at the camera. Dick Peck standing next to Technical Supervisor Joseph Herold.
3. Pick up at basketball game held last year with Louis DeBoer and Dick Peck at the cameras. Production Director Russ Baker, Chief Engineer Bill Kotera, and A. H. Maller at the video control.
4. Bill Dunbar at the camera after just spotting a beautiful blonde in the stands.

AM Engineers Confident and Competent In TV

By LOUIS DE BOER

On December 26, 1947, Radio Station WOW, Incorporated, filed an application with the FCC for a commercial television station construction permit.

This date also marked the end of a year of intensive program experimentation in preparation for actual television broadcast programming. The date also closed a two-year period of technical training and research in television.

W. J. "Bill" Kotera, chief engineer at Radio Station WOW was in charge of the training program which consisted of attending classes on the average of three nights a week of two to three hours duration. This time was spent in the operator's time off from AM activities.

Training began at WOW with the construction of a complete Iconoscope camera chain by the engineering department; this unit was used in conjunction with weekly instruction periods for the engineers. Members of the engineering department showed such great enthusiasm for the project and progressed so rapidly that it was considered advisable to purchase standard commercial television equipment to train the engineering department under actual pick-up conditions. Two TK-30 cameras and associated equipment were purchased from the Radio Corporation of America. The cameras were delivered during December, 1946, and have been in use since that time. Test equipment was purchased or constructed during this period to align and demonstrate functions of the various circuits in the camera chain.

All WOW engineers—Glenn Flynn, Roy Glanton, Louis DeBoer, Dick Peck, Al Maller, Larry Sibia, Johnny Brunken, Bob Rudd, Bill Dunbar, Mark McGowan and Cy Hagrman—participated in the training period. Each engineer spent time during this period in operating all phases of the television equipment until he was thoroughly familiar with each job concerning television operation.

Radio Station WOW furnished all equipment necessary for these classes.

Through an arrangement with Creighton University of Omaha, Nebraska, the WOW staff has televised basketball, football, track events, baseball, wrestling, boxing, drama and the numerous other activities of the university.

A number of experiments have been conducted and demonstrated in coopera-

tion with the Creighton faculty and students, in connection with surgery, bacteriology, teaching of drawing, languages, etc. A notable experiment and demonstration was the televising of an operation for removal of a stomach cancer. This was demonstrated to an audience of over two hundred doctors and nurses. Projection of images of live bacteria through the television system has also been successful.

In addition, the WOW staff has televised at points removed from the university; hockey, parades, the Ak-Sar-Ben Coronation, the annual 4-H Livestock Show, horse races, University of Nebraska football, track meets, etc.

Thousands of people have witnessed the closed circuit demonstrations conducted by the WOW staff. Questionnaires are distributed to the guests, on which they are requested to indicate their program preferences, impressions of the demonstrations, hours best suited for various types of television programming, preferences of size and brightness of receiving screens, and other pertinent data.

The equipment and televising of various events were exhibited at the Omaha Electrical Exposition, on November 3-8, 1947, where an estimated 60,000 people indicated great interest in the demonstrations.

Since our staff was not under the terrific pressure of programming for immediate broadcast, we have been able to take time to develop ideas and production techniques to our satisfaction, and then to check our results through the questionnaires distributed at the closed circuit demonstrations. During our year of experimentation we have investigated every possible source of program material within a 50-mile radius of Omaha. We have made arrangements to pick up these events by means of high frequency beamed relay transmitters. We have carefully logged the results of our experiments for future reference. We have experimented with various camera locations at local events, to determine best possible pickup. Our engineering department has developed new lighting methods; camera lens, tilting machines, mike booms and production aids of all kinds as the occasion demanded.

With the filing of application for a commercial television station construction permit, activities in connection with tele-

vision training will be accelerated. Sixteen mm film cameras have been purchased, with which we will compile a backlog of film events for future use. This will include special events, historical events, and all sorts of special films for background effects, etc.

All of this will assure a staff well qualified, through actual experience in all phases of television broadcasting, to provide an experienced, competent program service to the people of this area.

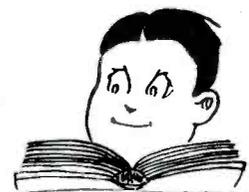
WOW engineers have cooperated to the fullest extent of this training program and the technical training received will provide a source of trained personnel when TV operations begin. The WOW engineers appreciate the time spent by our chief engineer, Bill Kotera, and our technical supervisor, Joseph Herold, so that the engineers could get this valuable instruction in the new game of television.

A special building is being constructed to house the television and FM transmitters and provide studios for the production of "live" television programs. The building has been designed to fit into a master plan for a building which will provide space for AM and FM studios, additional studios for television, and all offices.

Through the intelligent cooperation of WOW management and the NABET engineering staff, both sides have become a team—confident of their ability to more-than-hold-their-own, and actually competent through our several years of program training, to contribute much to TV network programming just as soon as the TV networks are extended to Omaha.

WOW-TV will operate on Channel 6 between 82 and 88 megacycles.

If It Concerns
The Broadcast
Engineer



—he will read it in the
BROADCAST

ENGINEERS'

JOURNAL

RETIREMENT — What Is the Industry Policy To Be?

Under normal conditions, providing for retirement is a complex matter. It is particularly so for the broadcast technician. Broadcasting is rounding out its first generation of experience and history. The industry was started by amateurs and experimenters, most of whom were then in their late teens or early twenties. Their average age today is about forty, and they have about twenty years of broadcast experience.

It has been noticed more and more, that here and there, scattered cases of premature "retirement" and other involuntary cases dubiously classified as "resignations" have occurred among some of the older engineers. There is some evidence that the incidence of these cases may be on the increase. Most of these cases have occurred ten to fifteen years *short* of the individual's age 65 Social Security and employer retirement-plan dates.

It will take another generation of broadcasting to learn what the overall industry or individual broadcaster's policy will be toward continued employment of their technicians thru age 64. We believe that this uncertainty in regard to industry and company policy, coupled with the dismissal cases alluded to, are the prime movers driving the memberships of all the broadcast technicians' unions to demand that their contract negotiators *stress, demand, and get* security and severance-pay clauses in their next contracts. There can be no question about the moral justification of what many believe to be long overdue social reforms and big-business humanification in the fields of dismissals and reasonable retirement plans. The NAM-NAB wish to discard technical personnel with the same indifference and callous treatment given a used-up vacuum tube *must not prevail*.

Sadly, at the continued insistence of the broadcasters, all of the broadcast technicians' union contracts make it advantageous and financially attractive to the employer to discharge top-pay older technicians, and to replace them with bottom-of-the-escalator-wage-scale technicians at 45% to top pay, or with working-students as in television, at 38% of top. None of these practices help employee morale, and all of them contribute to anxiety and nervous strain which is all too glibly passed off as being "the nature of the business."

It was the dubious possibility of being employed at age 64 that has spurred this discussion of the whole subject of retirement for the broadcast technician. The broadcast technicians might just as well wake up to the fact that only by amalgamation of their efforts thru a single independent union of broadcast engineers and technicians, will they acquire the stature and public force and recognition necessary to obtain for the nervously-depleted technicians a guaranteed 3% per-year or 75% of maximum-pay retirement at 25 years service on a pro-rata basis. Thus, the technician who is persuaded to resign after 19 years service would in effect be retired (3% x 19 years) at 57% of his maximum salary, and if he can get another six years employment, he will then be entitled at the end of these six years (3% x 6 years) to resign from this job at 18% of his maximum pay with this employer. Thus, at the end of 25 years service, he would receive (3% x 25 years) retirement payments amounting to 75% of his maximum salary. This plan is simple of achievement. The printers have long handled their vacation pay in this manner. For each day of work, the employer pays a pro-rata share of the vaca-

tion pay into a special vacation fund which is kept in the name of each individual printer. If the printer works for ten different bosses during the year, they will have each paid into the journeyman's vacation fund according to the length of time he has worked in each print shop. Just as readily as employers can transfer monies to State insurance and unemployment funds, federal social security, insurance, etc., etc., exactly the same mechanics would automatically develop the fund necessary to retire each technician after 25 years of broadcast service—regardless of the number of employers who utilized his technical services and skill during the 25-year period.

The figures and percentages used in this discussion are for purposes of explanation and illustration only, and are not intended to be an editorial recommendation. They are very reasonable, however, and might serve as a basis of discussion among groups of technicians to determine their reaction and extent of support for this plan.

It is obvious that the goal of the broadcast technician can best be attained thru collective, unified action by an independent union. The NAB naturally hopes that the broadcast technicians and their unions will *never* get together, and there is some evidence that certain employers are cooperating with at least one of the technicians' unions in an effort to further disorganize the broadcast and television technicians. It is regrettable that one of the technicians' unions would cooperate with the NAB 1948 goal—the busting of the technicians' unions—to the ultimate detriment of *all* the technicians.

However, the technician should not be deprived of his rightful goals pending the ultimate and obviously needed "one independent union." The several unions concerned should recognize the prime rights of their members, set down their common aims and purposes, and let the NAB know that henceforth the several unions are not going to be played one-against-the-other to the detriment of all the individual members, or for the advantage of one union as such, to the detriment of the members. The purpose of all the unions is to serve the best interests and benefits of the working technicians.

All the working technicians have one common purpose. It is most certainly the moral duty of *every one* of the technicians' unions to work toward that common purpose. Failure to do so certainly indicates that such a union is headed by selfish leaders, unworthy of their position of trust. It is most certainly not proper for any one of the unions concerned to act in any manner that would impede attainment of the technicians' goals.

To the individual technicians: talk to your fellow technicians in the other unions; you'll find common ground and common problems.

To the several unions: help the members to help themselves to achieve unity; even with one independent union, the individual technician will be far short of attaining Utopia, and the combined membership will more than absorb all of the capable present full-time union leaders, so that there should be no fears or delays in unification on that score.

The first step in the solution of the broadcast technicians' problems is national unity thru—

ONE INDEPENDENT UNION

TV Sidesteps AM Engineers

AN OPEN LETTER from DORSON ULLMAN

Dorson Ullman is known and respected across the country for his keen mind and analytical observations. He is not inclined toward frequent utterances; when he speaks, it is wise to listen. He has served NABET as one of its founders, as Chairman of the Washington Chapter, Member of the NABET National Council, and as a Member of the Board of Trustees of this Journal. His open letter touches on your personal and very immediate future. Mr. Ullman has stated the case. There are several possible solutions. The major Network-NABET contracts expire May 1st. Renegotiation must start April 1st—eight short months away. NABET's overall policy in this and other matters that relate to and "promote the interests, welfare, and the integrity of position of radio broadcast engineers and technicians" will and must be decided by the NABET National Council which meets in Detroit, October 4-8. That meeting is two short months away! The problems of security, retirement, and jurisdiction, are among some of the profoundest problems that have ever been placed before our National Council. If you find yourself "too busy" to stir up local interest and discussion for the guidance of your Chapter Chairman, the natural course of events may provide you with unlimited time for remorse.

After the October National Council Meeting, the Council and its negotiating committee will have a scant five months to correlate mountains of data, information, and legal advice that will prepare them for the negotiations that start April 1st.

An Open Letter to the Editor:

One of the basic aims of our organization is to "promote the interests, welfare and the INTEGRITY OF POSITION of radio broadcast engineers and technicians." Are we fulfilling this important job at the present time? Are we not permitting widespread infiltration into present and future job opportunities in our industry?

Employer policy in hiring inexperienced low-salaried personnel to operate television in its primary phases of experimentation, development training and limited non-commercial operation was both understandable and, to some extent, justified. Now, however, so-called "budgetary considerations" are being cited as an excuse preventing any but the lower salaried AM engineering personnel from participating in the practical commercial phase of television. At the same time, extensive employment of minimum-salaried beginners is continuing.

Admittedly, television bids fair to overtake AM broadcasting in its commercial appeal to the listening (and viewing) public, and consequently to attract the bulk of commercial

sponsorship. This transition will take only as much time as is necessary to overcome economic obstacles in the path of manufacturing a sufficient quantity of television receivers at a cost within the average citizen's budget capabilities.

Yet the broadcast engineer and technician who has spent valuable years in the furtherance of this industrial art to the commercial gain of his employer finds himself stymied in his sincere attempts to progress with the development of television by two restraining factors, i.e.: (1) his importance on his job which is still contributing the major financial support to this new medium, and (2) his justifiably higher rate of pay which eliminates him from consideration for television assignment by budget conscious executives.

These same executives have not denied that television assignments could be filled quicker and more efficiently by experienced broadcast engineers and technicians. They are hamstrung, however, by policy directives pointing to the high television budget (largely capital expenditures) and insisting that the engineering payroll must be kept at a minimum. This "saving" of course will be nullified within a short period of time by sliding-scale salary increases. Also, perhaps, an understandable fear of job insecurity might result in the majority of engineering employees requesting compensatory union contract settlement which would more than offset any temporary budgetary gains.

Every engineering employee and every conscientious union officer and member should carefully analyze this problem in all of its implications immediately and proceed to take appropriate sensible action as the situation develops. If the predictions of several competently qualified observers is correct and television does supplant in importance all other existing forms of commercial broadcasting within two, three or five years, then the very men who have contributed so much toward making this newer medium commercially feasible may soon be left out in the cold either by transfer to television at inferior job seniority and ratings or by outright discharge.

Judged from a general viewpoint, this problem presents a very unhealthy and potentially dangerous labor situation. Judged from a personal viewpoint, the daily "bread and butter" as well as the future welfare of each engineering employee is vitally and alarmingly affected.

(Signed) DORSON ULLMAN,

NABET Washington.

NABET

Offers One Independent Union
for Broadcast Engineers and
Technicians.

CONTACT ANY OFFICER. SEE PAGE 2.

NABET EMPLOYMENT SERVICE

Due to the day-to-day changes in status and availability of unemployed NABET members, it has not been deemed practical to publish such a list of names in each issue of the Journal. Instead, each available member should immediately notify the National Office, with copies to his Chapter Chairman, of availability together with brief resume of experience, etc., and notify them immediately of any change in status or availability. The Chapter Chairman for the area, and the National Office, each of whom are called upon to fill vacancies, will thus be kept up-to-date to the mutual advantage of all concerned.

Development of a Retirement Income

By JOHN E. BURRELL

John Eden Burrell was born in Seattle, Washington, Nov. 27, 1905. He received



JOHN EDEN BURRELL

his primary and secondary schooling in the east. From 1924 to 1926 he went to sea as a radio operator and attended the University of Washington 1926 to 1930, and was graduated BS in EE. Burrell then joined the Bell Lab broadcast transmitter development group 1930 to 1932, and became chief engineer of the Northern California Broadcasting System (KUBS and KQW) from 1932 to 1936. He went into business for himself as a consulting engineer in broadcasting, and in 1936 and 1937 he built stations KHUB, KYOS, and KTKC among other consulting jobs during this period. He then joined NBC in 1937, and after a six month period as studio-field engineer, he was transferred to NBC-New York Television, where he has served variously in the studio, field, and development groups to date, with a leave of absence for service in the U. S. Navy as Lt. Comdr, in the guided missile program.

"Jack" Burrell is a member of the Engineering Chapter of NABET. The subject matter of his article is one of his more serious hobbies, and his comments and observations are worthy of serious reading. It should be noted at the outset, however, that the author is not recommending herein the use or appropriation of official NABET funds. He is suggesting, as he so aptly puts it, that the future belongs to those who prepare for it. He goes on to describe the "open-end investment trust" as a means of attaining a retirement income goal. He does suggest that it becomes possible to set up such an investment trust group if a sufficient number of individuals become interested. His article is published without bias in order to determine the degree of interest among the membership. Com-

ments may be addressed to Mr. Burrell thru your Chapter Chairman or c/o this Journal.

The material success of a man is generally determined by his ability to support his family thru honest labor. He is additionally expected to be thrifty and to use good judgment in providing for his family's security in the event of his untimely passing, and he is expected to be working toward his eventual retirement from active, full-time work. This article deals with the latter responsibility—retirement. There are individuals who are providing for their eventual retirement thru the purchase of *Series E* U.S. savings bonds which yield 2.9% at maturity. As a comparison using the author's example of \$2400 annual income requirement for retirement, it should be noted that \$1800 a year would have to be invested in *Series E* bonds for as many years as we might expect to live after retirement; if that expectation is 10 years, a capital investment of \$18,000 is indicated; if 20 years post-retirement is anticipated then \$36,000 capital investment is required to purchase the necessary bonds during the preceding 20-year pre-retirement period. But whatever expectancy is anticipated or chosen, it should be pointed out that this form of retirement is essentially "living on your bank account" and if you are still living when the last of your *Series E* bonds has matured, you may have to go out and get a job again in order to continue eating. The important difference in the author's proposal is that in your retirement, you are living off the *income* from your capital investment—instead of using it up—and the capital investment remains intact, and will continue to provide a regular income to you just as long as you live, and thereafter to your survivors. Because of the large investment required to provide a livable retirement income prior to age 65, when it would become supplemented by the small Social Security payments, the average individual might find that a combination of both plans (part *income* from investment, and part small increments of capital) would make it easier for him to provide the annual \$2400 retirement income.—Ed.

It has been said that any fool can earn money but it's a wise man who can retain it. With all of the uncertain factors in

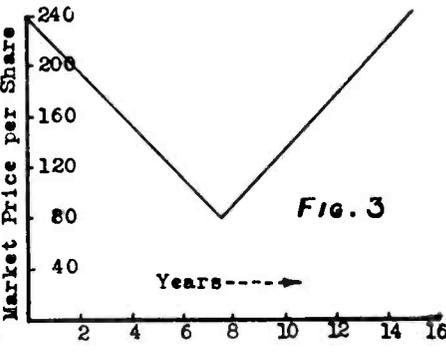
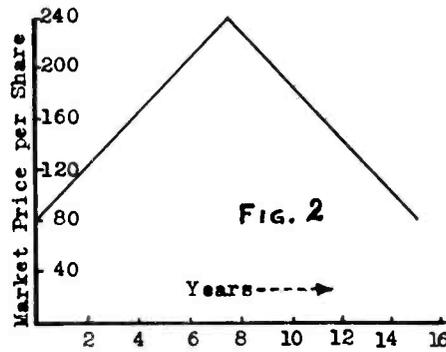
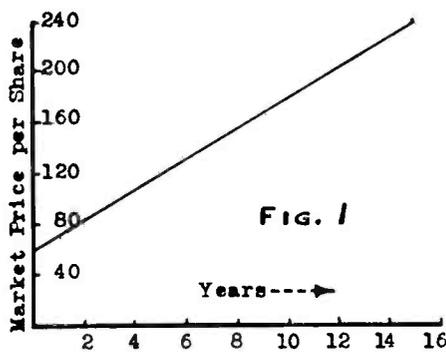
today's life, investments become more difficult to separate from speculation, or even downright fraud. However, there are certain principles which may be accepted to aid in making a choice of investment.

A general rule to remember is this:—the return from an investment is proportional to the risk. If it becomes necessary for an individual or company to offer you an excessively high interest rate to attract your extra funds, you may be sure that some speculation is involved. On the other hand, if you insist upon a guaranteed return from your invested funds, the organization backing the bond must necessarily offer you a lower return in exchange for the guarantee.

It would seem that somewhere between these two limits the average man might strike a balance or proportion.

At the offset, I wish to make it clear that I do not pose as an expert in investments. The thought that "an expert is the guy who throws monkey wrenches in other peoples machinery" comes to mind too often. However, if you are interested in one person's opinion and experiences, just keep on reading.

Let us start with a brief discussion concerning the various types of investments. They are bonds, mortgages, preferred stocks, and common stocks. It must be remembered that there are several modifications to the above such as stock rights, options, insurance loans, etc., but in general the above classifications will suffice for the following example. Suppose you were a manufacturer and wanted to expand your business. You needed funds to do so, and in order to obtain the necessary funds you float a bond issue. At the present time, bonds can be marketed at a reasonable rate of interest, but there have been times during speculative booms when it was necessary to offer 6% to 8% return in order to attract capital. A bond holder must be paid his interest and at the due date must be paid back his principal. Hence, bonds carry a maturity date as well as an interest rate. Some bonds are callable. This means that our manufacturer can pay off the bondholders at his convenience ahead of their normal maturity. He might do this if he wishes to clean up this debt or perhaps as in the present market, to reduce his old 6% bonds to present day 2% or 3% types,



Examples of typical price trends on the Stock Markets during three different trends. Fig. 1, steady rise in prices. Fig. 2, steady rise followed by equivalent falling off of prices. Fig. 3, falling prices followed by rising prices. See text for discussion "price averaging"—generally referred to as "dollar averaging."

hence save on interest charges. Certain bonds are non-callable when issued and must run their full time. If the corporation that issued the bonds defaults in interest and/or principal, the bondholders can institute proceedings to take over or sell the assets of the corporation in an effort to recoup the loss. Many people labor under the impression that a bond is the safest type of investment, but a glance at the past number of defaulted bonds of nations, industries, and railroads would seem to contradict this belief. What is the use of "taking over" a bankrupt, rundown business whether it be a nation or water-bogged salt mine?

Another method to raise funds might be effected by issuing some preferred stock. The principal difference between this instrument and a bond is the legal right of seizure. The preferred stockholder shares in profits, after the bondholders are paid their interest, up to the limits specified. That is to say, that holders of 6% preferred stock with a par value of \$100 would receive \$6 dividend and no more. The excess profits would then be distributed to the common stockholders. Some preferred stocks are cumulative and others are not. If cumulative preferred, back dividends must be paid before any earnings can be passed on to the holders of the common stock. If the above described 6% stock were a cumulative preferred and it had not been paid three dividends, \$18 would be paid the holders of every share before any profits could be passed on to the common stock. Some preferred stock may be offered with the understanding that it may be converted to one or more prescribed shares of common stock at a later date. In a successful business this may be advantageous to both parties. Let us assume that the business has been so successful that each share of common stock is now obtaining a dividend approximately equal to

that of the preferred and has a present day value of one half of the preferred. A 3-to-1 conversion would give the preferred holder almost three times the return and a capital gain of 50% if he chooses to sell on the open market. He, of course, loses the "guarantee" of dividend payments and now owns a stock which will have greater fluctuation in price.

The holders of common stock are in effect owners of the business. They can vote for the president, board of directors, treasurer, etc. It can be seen from this that it is necessary to own 51% of the common stock in order to gain control of a corporation. All profits remaining after payment of funded debt obligations as well as preferred stockholders, may be distributed among common shareholders or used to build up a reserve. It has been said that over 75% of profits in national business is paid to owners of common stock. This sounds reasonable when considering the prior statement that the holders of the common stock actually are the owners. Hence, it follows that common stocks have a definite place in our investment portfolio.

You may ask "Why wouldn't a corporation borrow money from a bank or other lending institution instead of floating a new bond issue or preferred stock, or perhaps sell more common stock." The answer is that many firms do borrow from such sources. However, banks are limited by law and tradition as to how much and for what purpose such funds are to be used. Again, the public is not apt to put pressure on a corporation for active participation or personal assistance because of the loan. In a well run corporation, funds are borrowed to increase income. It is good business to borrow money at "x" per cent if by so doing you can obtain a return from these funds of 2x per cent or more. It follows, that it is up to management to

determine the most economical means for financing.

Management—the most important factor in business—is most frequently overlooked by the small investor. If one knew for certain that the corporation management was both efficient and honest, most of our investment worries would end. Not all, however, because no one knows exactly the time when the "well will run dry" or world conditions change the entire economy of a nation. Now that the preliminary explanations are made, let us see how we can use the information for our individual good and well being.

If anyone reading this can predict the business index for the next several years, even on a general basis, he need progress no further as it is his own fault and inertia which stands in his way of becoming independently wealthy! It is for the majority of us who are forced to travel the middle path, the following examples are given:

Let us assume that Mr. A. decided he must set aside funds for retirement. He determines that he needs \$200 per month (\$2400 per year) and the particular investment he selects has had a long record of paying an eight dollar a year per share dividend. This means he must acquire 300 shares of this stock between now and the time set for retirement—say 15 years. (300 shares at \$8 equals \$2400 income.) So, he divides 15 into 300 and comes out with the fact that it will be necessary for him to purchase 20 shares each year for the next fifteen years to reach his retirement income goal.

Figure 1.—Share Averaging (equal number of shares purchased each year). In this example of Share Averaging, a constant number of 20 shares are bought each year:

1st year at \$70 per share, cost	\$1400
2nd year at \$85 per share, cost	1700
3rd year at \$95 per share, cost	1900
4th year at \$108 per share, cost	2160
5th year at \$120 per share, cost	2400
6th year at \$130 per share, cost	2600
7th year at \$140 per share, cost	2800
8th year at \$153 per share, cost	3060
9th year at \$165 per share, cost	3300
10th year at \$177 per share, cost	3540
11th year at \$190 per share, cost	3800
12th year at \$200 per share, cost	4000
13th year at \$212 per share, cost	4240
14th year at \$222 per share, cost	4440
15th year at \$240 per share, cost	4800

Total cost of the 300 shares..... \$46,140

If instead, dollar-averaging method had been chosen (*equal number of dollars* invested each year) then the total investment of \$46,140 divided by 15 years equals \$3075 annual investment. This \$3075 would have bought the following number of shares in each of the 15 years, at the above yearly purchase prices:

1st year \$3075 will buy	43.9 shares
2nd year \$3075 will buy	36.2 shares
3rd year \$3075 will buy	32.3 shares
4th year \$3075 will buy	28.4 shares
5th year \$3075 will buy	25.6 shares
6th year \$3075 will buy	23.6 shares
7th year \$3075 will buy	21.9 shares
8th year \$3075 will buy	20.1 shares
9th year \$3075 will buy	18.6 shares
10th year \$3075 will buy	17.3 shares
11th year \$3075 will buy	16.3 shares
12th year \$3075 will buy	15.3 shares
13th year \$3075 will buy	14.5 shares
14th year \$3075 will buy	13.8 shares
15th year \$3075 will buy	12.8 shares

Total shares bought with same investment, 340.6, or 40.6 *more* shares than with the share-averaging plan. This represents a 13½% gain. At \$8 per share dividend, this would increase our annual retirement income by \$324.80 (\$2724.80 instead of \$2400).

Figure 2 and Figure 3 further substantiate the advantage of dollar-averaging in preference to share-averaging, regardless of the different business cycles indicated by the different price ranges indicated in Fig. 1, 2, and 3.

In Fig. 2, share averaging would cost \$48,180 to purchase 300 shares, whereas, by dollar averaging, the same \$48,180 investment would purchase 330.5 shares, a 10.2% gain, with an increased annual retirement income of \$244.

In Fig. 3, share averaging would cost \$47,920 to purchase 300 shares, whereas, by dollar averaging, the same \$47,920 investment would purchase 321.4 shares, a gain of 7.2%, with an increased annual retirement income of \$171.20.

The reason for the gain achieved by dollar-averaging is that with fixed amounts of investment, a greater number of shares are purchased with the same dollar investment when prices are down, and a minimum number of shares are bought when prices are high, all of which results in a lower average cost-per-share, varying between 7% and 13% in the examples cited above.

Let us compare four sections of an imaginary business cycle.

Consider Figure 1 in which he started saving during a depression and retired during a boom. It is evident by inspection, that the same results would have taken place had the business curve been reversed; i.e., market price high at start of investment program and tapering off at same rate of rise as Figure 1.

Figure 2 shows the gain by dollar averaging for a theoretical business curve which starts low, peaks during approximate midterm, and drops down to about the same level as the start of our investment program. Again we note appreciable income gain for the same number of dollars cost to the investor.

Figure 3 shows the same general results when the above business curve is reversed, i.e., high prices during the beginning and end of investment program, but with lowest prices during midterm period.

From the above it also becomes evident that the only way each man can equal in final results and cost is to buy on a market that had zero fluctuation. It is interesting to note that we approach this condition when we limit our purchases to high grade bonds. However, you will remember that on the average, most profits are paid to the holders of common stocks (owners of business) so it follows that careful purchases of these commodities will result in a larger return on your investment.

To reiterate: — the explanation of the improvement in *dollar averaging* as opposed to *share averaging* lies in the fact that when prices are lower more shares are purchased per dollar invested. Conversely when prices are high, fewer shares are purchased—you are not "stung" as much. Because no one can determine the high and low points of business, it follows that averaging of some kind is in order.

But how can I purchase an odd or practical number of shares, and how about brokers costs being unreasonable when small purchases are made each pay day? It's a good question because it can be answered in but one manner, i.e.,

either you have to have such an enormous income that unit shares represent a negligible amount, or you better join with a few thousand, who are in your financial status, and pool your funds to create the equal purchasing power of the tycoon! An additional advantage is the quarterly compounding of fractional interest as well as the small increments of capital.

Who is going to do the work of selecting and managing said funds? Well, there are several institutions that specialize in stock management and charge a reasonable fee for this service. Your money is not placed in any one company but rather in as many as several hundred, in many diversified types of business.

As a complete follow up, there is at least one company that combines both of the above features in such a manner that you can purchase out to one one-thousandth of a share of stock. This gives you diversification, use of entire savings except for a few cents cash balance, and fund management including automatic reinvesting of dividends—for a nominal fee. Certainly no one can complain if by paying a fee for such a service, they secured benefits far beyond what they could have done as an individual. It is important, however, that any investment trust be investigated for conditions and cost of service.

It must be remembered that payments made into such a fund cannot carry a guarantee of interest rate or capital value on a day-to-day basis. It is possible to start purchases and a year later come out with much greater funds than were paid into the fund during the year. And if business conditions fall off in the security world—the reverse can be true. However, as mentioned before—you don't need any system if you know when to buy and sell provided you can do it consistently all your life! Figures prove that speculators do not last long—even a Jesse Livermore.

It would seem that the membership of NABET might become its own investment trust using a trust company for actual stock and bond purchases and setting up books for receiving accredited payments into such a fund. Money could be retired at any time necessary to the individual investor.

This investment-retirement study has been tiresome to prepare and comments would be appreciated. More specific information can be given in answer to questions, if enough of the members are sincerely interested.

The future belongs only to those who prepare for it!

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Review of Current Technical Literature

By Lawrence W. Lockwood

Proceedings of the IRE May, 1948

INFLUENCE OF REPRODUCING SYSTEM ON TONAL RANGE PREFERENCES—H. Chinn and P. Eisenberg

This report covers a series of experiments designed to ascertain the preferences when listening to a system whose transmission characteristics are such as to compensate for the change in the response of the ear with loudness level.

EXPERIMENTAL STUDIES OF A REMODULATING REPEATER—W. Goodall

This paper describes tests made on an experimental broad band microwave FM repeater. A superheterodyne receiving unit is used with a microwave reflex oscillator transmitting unit to form a repeater. Oscillograms showing the performance of the repeater on a multilink basis are discussed.

THE STEADY STATE AND TRANSIENT ANALYSIS OF A FEEDBACK VIDEO AMPLIFIER—J. Mulligan, Jr., and L. Mautner

A two stage feedback video amplifier is analyzed on the transient and steady state bases, and a simplified design procedure is developed for each approach.

NOTE ON THE MAXIMUM DIRECTIVITY OF AN ANTENNA—H. Riblet

It has been shown by Bouwkamp and deBruijn that the directivity of a linear current distribution of fixed length may be made arbitrarily large. By a slight extension of their arguments the same conclusion is demonstrated for a two dimensional current distribution and for a distribution of current on an infinite strip.

CONSIDERATIONS OF MOON RELAY COMMUNICATION—D. Grieg, S. Metzger and R. Waer

Communication between two places on the surface of the

earth by reflecting radio waves off the moon is considered. Transmitting powers now available would seem to be adequate.

MICROWAVE PROPAGATION EXPERIMENTS—L. Thompson

Propagation tests at frequencies between 3000 and 4000 mc are described. The effect on the received signal of changes in the index of refraction of the atmosphere are discussed, and means are suggested for minimizing signal variations with particular regard to the application of microwave relay communication systems. Theoretical data is given of diffraction at these frequencies.

Radio and Electronics (New Zealand)—May, 1948

AN INSTRUMENT FOR MEASURING "Q" WITH AN OSCILLOSCOPE

A design is given for the necessary additional unit and curves are provided which enable calculation to be dispensed with.

Tele Tech—May, 1948

HOW MUCH PAY IS AN ENGINEER WORTH?—Dr. H. Richmond

Second in a series of articles on engineer pay. This article analyzes the pay for radio and electronic engineers in research and manufacturing fields and outlines a bonus plan covering engineers with General Radio Company.

AMPLIFIED LOAD IMPEDANCE REDUCTION—B. Hadfield

General design equations are derived for output watts, efficiency and load impedance, and it is shown that a range of at least 10:1 in load resistance can be made available with a change of output watts of only 1.3:1.

CAUSE AND CURE OF SPURIOUS TV RECEIVER OSCILLATIONS—R. Cavanaugh

RF burst of hf oscillations cause interference in sets using single pentode horizontal deflection amplifier tubes; magnet or solenoid effects cure.

TEST CHARACTERISTICS OF RECORDING WIRE—G. Carter and R. Koontz

Review of wire characteristics, test methods and performance reveals some of the problems that beset engineers in the design and manufacturer of magnet recording wire.

IMPEDANCE MATCHING HALF WAVE TRANSFORMER—H. Dinger and H. Paine

Constructed from a few feet of coaxial cable and N connectors half wave transformer gives reasonably accurate continuous frequency coverage from 100 to 400 mc.

Communications—May, 1948

DESIGN AND CONSTRUCTION OF A SECONDARY BROADCAST STUDIO—R. Schilling, A. Stark and W. Sherwood

Compact second studio 16x20 feet uses station-built console with a remote type amplifier which can be removed and used as a spare remote unit. Other studio features include monitor amplifier, dual turntable setup and two dynamic microphones.

TV TRANSMITTER DESIGN—G. Hamilton

Trends in design. Features of systems with special consideration of video amplifier and modulator requirements, modulated amplifier and Class B linear amplifier stages. DC restorer operation also analyzed.

CHECKING FM TRANSMITTER FREQUENCIES WITH WWV—R. Freeland

Measurement technique employs specially designed secondary standard with 6F6 oscillator driving a 10kc multivibrator, which in turn drives a 2kc multivibrator. Two stages of amplification provide harmonic outputs of up to 110 mc.

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LABOR HISTORY--VII.

(From the Labor Info. Bulletin)

The issue of industrial versus craft organization came to a climax in the AFL 1935 convention in Atlantic City. A minority report of the resolutions committee protested the executive council's interpretation of the San Francisco declaration of the year before on industrial unionism and called for "unrestricted charters" to organizations set up in the mass-production industries.

Defeat of the minority report by a vote of 18,024 to 10,093 left the issue unresolved. A few weeks after the convention, six AFL affiliated unions and the officers of two others formed a Committee for Industrial Organizations, with John L. Lewis, president of the United Mine Workers, as chairman. The committee announced that its purpose was to promote organization of workers in the mass-production and unorganized industries and to encourage their affiliation with the AFL.

Unions active in the formation of the CIO were the United Mine Workers, Amalgamated Clothing Workers, International Ladies' Garment Workers, United Textile Workers, International Union of Mine, Mill & Smelter Workers, and the International Association of Oil Field, Gas Well & Refinery Workers. Charles P. Howard, of the International Typographical Union, who became secretary of the committee, and Max Zaritsky, of the United Hatters, Cap & Millinery Workers, participated as individuals without committing their unions.

Shortly after the formation of the committee, four additional unions joined. These were the International Union of United Automobile Workers, United Rubber Workers, Amalgamated Association of Iron, Steel & Tin Workers, and the Federation of Flat Glass Workers.

The AFL executive council characterized the activities of the CIO as dual unionism and in January 1936 asked the group to disband. When the request was rejected, the council suspended the 10 participating international unions. This action was upheld by the 1936 AFL convention.

In November the CIO held its first constitutional convention, was reorganized as a federation of national and international unions, and changed its name to the Congress of Industrial Organization. The new federation was made up of the 10 unions suspended from the AFL and some 32 other units or "organizing committees." Lewis was elected first president.

The constitutional structure of the new organization resembled the AFL in providing basically for a loose federation of autonomous national unions governed by an executive board and officials elected at annual conventions of delegates from affiliated unions.

AFL, CIO, and other unions continued to register substantial gains in membership, in the number of collective-bargaining agreements negotiated and in the number of workers in industries covered by these agreements.

By the end of 1941, total union membership was between 10 and 11 million, or about one-third of all the wage earners and salaried employees in the country.

In addition to the nearly 10 million workers in the AFL and CIO, an estimated 900,000 workers belonged to other bona fide labor organizations.

World War II provided organized labor with perhaps the greatest opportunity in its history to extend union organization and influence. During the war years union membership in-

creased at the rate of almost a million a year. The greatest gains were in shipbuilding, aircraft, automotive, electrical, and other war industries. Between 1941 and 1945, many unions in the metal trades doubled and tripled their membership. The CIO United Automobile Workers in 1945 reported a total dues-paying membership of 1,052,000, the largest ever reported by an American union.

Collective-bargaining agreements were extended over large sections of industry. Few new national unions came into existence, although some unaffiliated unions, such as the National Federation of Telephone Workers and the Foremen's Association of America, came into prominence.

Both the AFL and CIO represented labor on the various advisory and administrative boards set up by the Government in connection with the prosecution of the war.

TECHNICAL LITERATURE—from Page 12

TEST INSTRUMENTS IN THE BROADCAST STATION—H. Eidson, Jr.

Part III of series covering uses of RF bridge, decade resistance box and field strength meter in broadcast measurement work.

Electronics—May, 1948

SIMPLIFIED SINGLE SIDEBAND RECEPTION—O. Villard, Jr.

Accessory designed for use with a conventional communications receiver exhibits advantages when receiving ordinary code signals as well as single sideband phone. Selectivity is approximately doubled by employing a demodulating oscillator, balanced detector, two 90 degree phase shift networks and a low pass filter.

ACOUSTIC PROBLEMS IN STUDIO DESIGN—G. Nixon

Planning a broadcast studio involves considering Noise originating both inside and outside the building. Construction of walls, ceiling and floor should attenuate airborne sounds and those due to transmission of vibration.

LOW IMPEDANCE REACTANCE FOR VHF—E. Stodola and H. Lisman

Flat plate transmission lines make equivalent low impedances at vhf. Such reactances are mechanically large enough even at 1,000 mc to be readily fabricated. Design requirements are developed, and applications to an amplifier and to a matching section are described.

STAGGER TUNED AMPLIFIER DESIGN—H. Wallman

Practical wideband amplifier considerations, limits to overall bandwidth of cascaded stages, and transient response characteristics of stagger tuned circuits are presented. Curves and tables give design criteria. Comparisons are made to other coupling circuits.

COUNTER CIRCUITS FOR TELEVISION—A. Easton and P. Odessey

Basic step type counter circuit is analyzed to determine design criteria. Its limitations, possible improvements and the relationships between parameters that govern the most stable operation are discussed.

Taft-Hartley Day

NOVEMBER 2, 1948

If You Don't Register—You Can't Vote!

NLRB Rules That Pension, Retirement, and Insurance Plans Are Proper Subjects For Negotiation

Under the Labor Management Relations Act, an employer must bargain with his employees on pension or retirement plans if the employees request it, according to a recent decision of the National Labor Relations Board.

A majority of four of the five-member Board held that such plans fall within the scope of the section of the law which makes it mandatory for both employers and unions to bargain collectively "in respect to rates of pay, hours of employment, or other conditions of employment."

It was the first time in the 13-year history of the Board that it had ruled on this matter, which in recent years has been acquiring a steadily increasing importance at the bargaining table.

The Board held that the payment of benefits under such plans brings it within the category of "wages" under the statute, while the age and terms of retirement would bring it within the category of "conditions of employment."

The majority opinion was signed by Chairman Paul M. Herzog and Members John M. Houston, James J. Reynolds, Jr., and Abe Murdock. Member J. Copeland Gray filed a dissenting opinion.

The Board's ruling was handed down in a case involving the Inland Steel Co. and the United Steelworkers of America (CIO). The Board found the steel firm guilty of refusal to bargain in violation of both the present law and its forerunner, the National Labor Relations Act, under which the case was originally filed.

It issued a conditional order for the company to bargain with two locals of the Steelworkers union on pension and retirement policies at two plants in the Chicago area, but only if the union complies with the filing and affidavit requirements of the law within 30 days. On the same conditions, it also ordered the company to consult with the union before making any future changes in the retirement plan.

Pointing out that both the courts and Congress have classed retirement benefits as "wages" under the Social Security Act, the Bankruptcy Act, and the Federal tax laws, the majority declared that the company's monetary contribution to the pension plan constitutes an economic enhancement of the employee's money wages. Their actual total current compensation is reflected by both types of items.

In other recent decisions, the Board has declared that—

1. It is not required by the new labor law to hold separate representation elections among craft union members whenever requested.

It held that the 1947 craft amendment of the law does not make it mandatory for the Board to carve craft units out of pre-existing industrial ones, but it does prevent the Board from denying separate bargaining rights to crafts solely on the basis of a prior Board decision.

2. Under the new law the Board should take jurisdiction over a retail truck sales company which made its sales almost entirely within one State. The Board held unanimously that it had jurisdiction over the company on the basis of the fact the company received most of its merchandise from outside the State, and that it made repairs on trucks in interstate commerce.

3. It could not give a place on an NLRB election ballot to an individual that the Board found to be actually the agent of a union which had not met the affidavit and filing requirements of the law. The individual involved in the case had been an international representative for the noncomplying union at the time she asked to participate in the election.

4. In cases where an employer is found to be dominating a union, the Board will order disestablishment of the union.

When, however, an employer's interference with a labor organization falls short of domination, the Board will order only that recognition be withheld until that union, or another, is certified as bargaining agent.

In announcing its new policy under the "equal treatment" provisions of the new law, the Board said:

"Upon similar facts, the Board will hereafter apply the same remedy to both affiliated and unaffiliated labor organizations. Similarity of facts must be the test."

Retirement Plan Wholly Paid

By BIRD & SON, INC.

A retirement income plan which will be funded from company earnings, with individual employees making no contribution whatsoever, has been established by Bird & Son, Inc., of East Walpole, Mass., manufacturer of paper and paper products, which employs 3,000 persons. The first payment into the trust by the company will be made out of current earnings and will amount to approximately \$800,000. This money has been turned over to the Merchants National Bank of Boston for the retirement trust.

The plan, announced December 1, 1947, by President A. H. Anderson, becomes effective for the year 1947 and is unique in the respect that none of the money placed in the trust fund can ever come back to the company.

Under the plan, adopted after months of study, the company, after making deduction for reasonable return on capital, sets aside a definite proportion of its remaining earnings for this retirement fund each year that such earnings are made.

Every person who has been with the company for five years or more participates, and person's share depends on base pay and length of service. The 3,000 workers covered by the plan include the employees of Berry Asphalt Co., a wholly owned subsidiary.

The plan provides annual income upon retirement at age 65 for men (60 for women), death benefits in case an employee dies before retirement, and cash payments to employees who leave the company before reaching retirement age.

All money placed in the fund is credited to the workers on the basis of units of credit which are figured each year in which earnings permit a payment to the trust. These credits stand to each worker's account as long as he remains an employee of the firm.

Workers with 25 or more years of continuous service at retirement age may receive up to 40 percent of their base pay as retirement income. Primary payments received by the worker under the Social Security Act and payments under any contributory company annuity plan are deducted in figuring payments under the plan.

Working for the company at the present time are a number of persons over retirement age. Men over 70 will retire on June 30, 1948, and those over 65 will retire on December 31, 1948. The age limits are five years less for women. Retirement income for both these groups is financed by special provisions.

Industry Mobilization

RMA President Max F. Balcom appointed an eight-man Industry Mobilization Policy Committee which will immediately urge appropriate government officials to adopt a mobilization plan for the radio and electronics industry as developed by the RMA Board of Directors at Chicago.

Fred R. Lack, vice president of Western Electric Co., New York, was named chairman of the policy committee. The other members are: Paul V. Galvin, president of Motorola Inc., Chicago, vice chairman; Frank M. Folsom, executive vice president, RCA Victor Division, Camden, N. J.; Harry A. Ehle, vice president of International Resistance Co., Philadelphia; George R. Haase, vice president of Operadio Manufacturing Co., St. Charles, Ill.; H. L. Hoffman, president of the Hoffman Radio Corp., Los Angeles; W. A. MacDonald, president of Hazeltine Electronics Corp., New York; and R. C. Sprague, president of Sprague Electric Co., North Adams, Mass.

RMA President Balcom's action followed a thorough discussion of anticipated military requirements for radio and electronics equipment by the RMA Board of Directors during the Association's 24th annual convention at Chicago last week. At that time RMA directors were told that the government's armaments demands from the radio industry may reach a billion dollars annually.

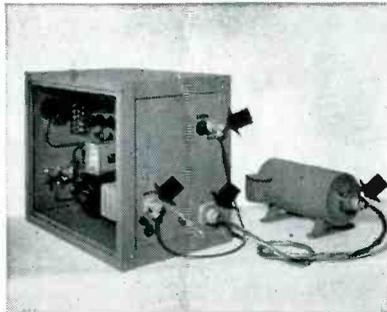
The first objective of the committee will be to persuade government officials to establish a four-man committee to centralize and coordinate the procurement of radio and electronic equipment and components beginning with the fiscal year starting July 1. This committee would be composed of one high ranking officer from each of the three military services—Army, Navy and Air Force—and one civilian representing industry.

The committee also will seek more long range objectives to expedite the production of military equipment through a spreading of the work among all segments of the radio industry, including both large and small manufacturers, equally throughout major producing areas.

The radio industry, operating through RMA, is the first major industry to develop its own plan for industry mobilization as a counter-proposal to several plans announced recently by government agencies.

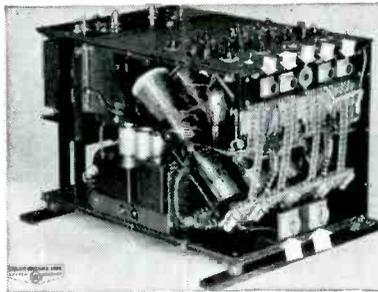
THAT VERSATILE TYPE "K" SERIES

TYPE K CONNECTORS



on the above Geiger Counter made by Technical Associates, Glendale, California.

TYPE AN, K, P CONNECTORS



on Cathode Ray Recorder (shown with cover removed) made by Heiland Instrument Co., Denver, Colo.



The 64-page Cannon Electric Type K Bulletin completely covers this versatile series of electric connectors, together with accessories to the line. Address Department H-376.

For prices on Type K Connectors, quotations will be made on specific catalog numbers only, and are available from Cannon Electric Representatives located in principal cities of the U. S. A. or direct from the factory.

Cannon Plug

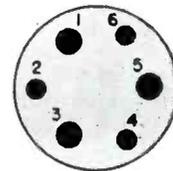


TYPE K ANGLE 90° PLUG

Integral Cable Clamp

is one of the many styles of K and RK fittings to meet most requirements for electric circuits and mounting locations.

ONE OF THE 190-ODD INSERT ARRANGEMENTS



is the GK-P6 insert which carries three No. 14 and three No. 10 contacts, having 3/64" clearance. The insert diameter is 7/8". No. 14 contacts are rated at 15 amps, and No. 10 at 10 amps.

CONTACTS

all have tinned solder pots in K inserts and are quality-made brass with silver-plate finish to stand wear and



PIN CONTACT



SOCKET CONTACT

30AMP.
(WIRE 10)

pressure of engagement with low loss factors. The 115- and 200-amp. types are removable for soldering.

CANNON ELECTRIC



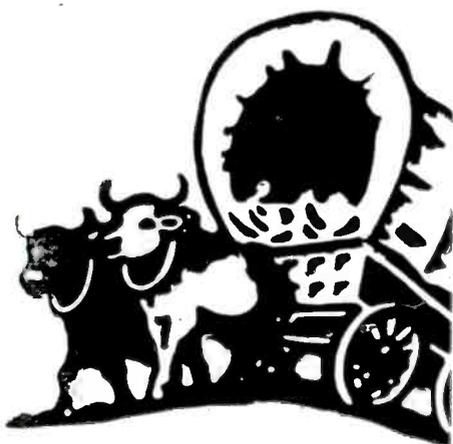
SINCE 1915

Development Company

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FRAZAR & HANSEN, 301 CLAY STREET
SAN FRANCISCO 11, CALIFORNIA



OMAHA NEWS

By Cy Hagrman

(EDITOR'S NOTE: The copy sent in by Roy Glanton was so good that the Editor of the Omaha News decided to use it as it was received.)

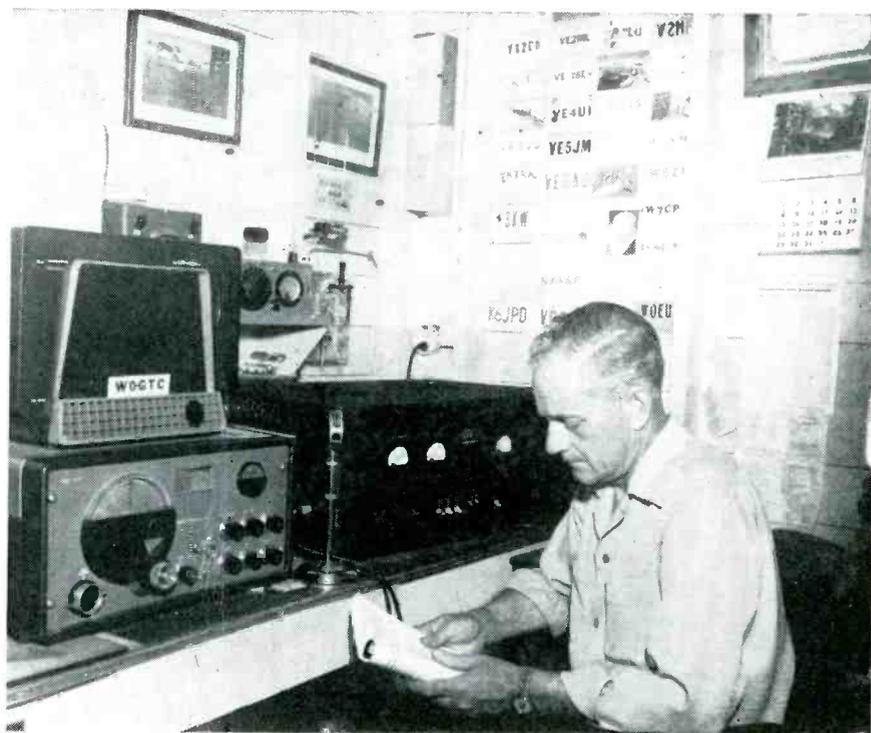
Dear Editor:

I'm not a "hound" for publicity, but you asked me to write this, and never let it be said that modesty held me back.

I got into ham radio just the reverse of what is usually the case; first, commercial radio 1923. Then, Amateur radio, 1932. The call W9GTC (nine gray tom cats). Of course, it is now WØGTC "GEORGE—THOMAS — CHARLIE," because of the new Zero district.

I started out with the usual very simple one-tube xmtr, but not for long, as there was the usual evolution to more tubes and more watts to broaden my horizon and to get some of the coveted dx. Working hours at WOW, I tried to use old discarded B.C. equipment and discarded tubes. Aside from the bulk of the rig, the junk, including 212E tubes worked very well on 40. But trying to get the stuff down on 20 or 10, resulted in explosions, fireworks, etc. So, finally squatted on 40 C.W. with 500 watts and got my share of DX, at times. Finally, in disgust, I dismantled the rig just before the war—declaring that when I got on the air again it would be with a factory job, one which I would not have to be always tinkering with.

See the picture? After the war I blew the works and bought the HT-9 and the SX42 and went on—of all things—phone! After having been a cw nut for so long. I like phone best now, but get in some cw every now and then just to keep the fist limbered up.



—Photo by McGowan

ROY GLANTON SEATED IN HIS HAM SHACK

Well, Louie, I don't recall any particular QSO or contact being more thrilling or exciting than another. I enjoy them all, whether they are dx or local. And it is enjoyable and relaxing after a day in this broadcast business.

I have worked 40 countries and had nice QSO with Souerbaja, Java recently.

I hope this is enough for you, and will give you plenty of information about me and my rig.

73,
Roy.

* * *

Bob Rudd started 14th year with WOW, May 29, 1948.

Roy Glanton started 20th year with WOW, May 24, 1948.

CONGRATULATIONS: to Roy and Marguerite Glanton on their 18th wedding anniversary June 6, 1948.

—to Glenn and Millie Flynn on their 10th wedding anniversary June 27, 1948.

—to Cy and Vera Hagrman on their 15th wedding anniversary June 4, 1948.

Gosh, I see by the record that Chief Engineer Bill Kotera has an anniversary, too. He and Gertrude are celebrating their second anniversary. Practically newlyweds, huh?

BIRTHDAYS: Nary a one!

VACATIONS IN JUNE: Mark McGowan vacationed a while in Minnesota.

Bob Rudd has a new Nash Sedan and

at present writing thinks car is fine. He went to Yellowstone Park for his vacation.

Bill Dunbar is taking a cruise with the Navy.

Roy Glanton took a trip to Glacier National Park, Banff, B. C., Canada, Oregon, Washington and Idaho.

Inter Modulation . . .

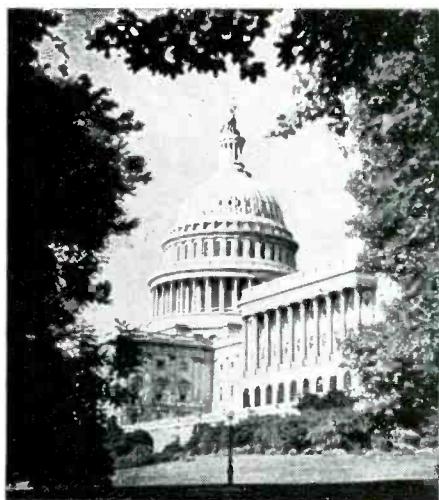
A new system for the measurement of distortion caused by intermodulation has been announced by the Electrical Research Products Division of the Western Electric Company. Although designed to determine optimum processing conditions in variable density sound-on-film recording, the system is expected to prove valuable in many fields where audio frequencies are used.

The new system consists of the RA-1258 signal generator unit and the RA-1257 intermodulation analyzer. In operation, a signal of two frequencies, the low between 40 and 150 cycles and the high either 2000 cycles or between 7000 and 12,000 cycles, are added by the signal generator with a minimum of amplitude modulation of one frequency by the other. The high frequency is attenuated to a desired ratio, which may be 1:1, 1:2, 1:4, or 1:10, and the two frequencies com-

bined in a hybrid coil. Output levels range between +23 and -44 dbm at 600 ohms output impedance, sufficient for tests of most equipment without the use of additional amplifiers which might in themselves introduce distortion. The summed voltage is passed through the device under test.

The output from the equipment being tested is fed to the analyzer where the percentage of intermodulation, or the percentage of amplitude modulation of the high frequency signal by the low frequency signal may be closely measured. A distortion phase meter is provided for determining, when measuring variable density recordings, whether compression is occurring on the positive or negative half of the low frequency signal.

The analyzer itself functions by first amplifying the input signal from the device under test, then eliminating the low frequency component by means of band pass filters. The resulting high frequency component is amplified and rectified, producing an envelope which is a replica of the intermodulation in the input signal. The average output of the rectifier is attenuated to a reference value, amplified, rectified, and applied to a vacuum tube voltmeter which is adjusted to read the per cent intermodulation directly.



WASHINGTON

By Warren Deem

Wally Ward of WNBW had an anxious few minutes out at Severn when lightning struck and momentarily knocked the power out during a driving rain storm in the area.

Frank "Clag" Spain of the WNBW crew recently moved up to the Video

— 17 —

Uniformly good-

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**FOR THE
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HIGH FIDELITY
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Allied Professional Recording Discs are manufactured to exacting standards by one of the pioneers in the field of instantaneous recording equipment. The accumulated knowledge of years of experience have been engineered into Allied Discs. **TRY** them.

Also ALLIED RECORDING EQUIPMENT

The Allied Recording Machine (illustrated) combines the Allied Transcription Turntable and Allied Overhead Cutting Assembly, which are also sold separately. Like Allied Discs, this equipment is of highest precision quality, good for long, trouble-free service.



ALLIED

RECORDING PRODUCTS CO.

21-09 43rd AVENUE

LONG ISLAND CITY 1, NEW YORK

WRITE FOR NEW DESCRIPTIVE BULLETIN

Control spot during the Republican Convention at Philadelphia. *Johnny Rogers* was in Philly and so *Clag* handled his job here.

Jim Butts took his Ham Operators license and passed with flying colors. Let us know what your call letters will be Jim so we in turn can let all the NABET hams in on it for you.

Three men besides *Johnny Rogers* went to the Republican Convention in Philadelphia namely—"Mac" Mac Clelland, Mike Vossler and Vern Swieger. The fellas came back with an interesting story about the portable studio that Station KTHT of Houston, Texas, brought. It was a deluxe model trailer all equipped for AM broadcasting, had turntables, recording tables, consolette, easy chairs and shower all built in and on the sides of the souped-up tractor that pulled the trailer were two deep freeze units with close to 1000 pounds of prime beef. Those hungry Texas boys weren't taking any chances. The power unit was a masterpiece. It was self starting and as explained by a big Texan "You just push this yhar button, see?"

Ed McCaul thinks that doing the

Johnny Bradford show for television is a little more complicated than the *Tommy Dorsey* shows down at WRC. About every 20 minutes he has a spare two seconds to glance at the video monitor.

Carroll Bolstad and *Mike Galvin* are both back from very enjoyable vacations and rarin' to go again.

Sam Newman is back at the Xmtr after an "interesting" month with the field and studio crews. Sam is one of our most active ham operators here in this district. His call letters are W3HN.

Swimming at the Wardman Park pool is the favorite sport with the WNBW crews these hot and humid days. The only thing is the precious minutes spent in the pool aren't long enough somehow.

"Mac" *MacClelland's* new boat is nearing completion and Mac has some big plans for some cool cruising along the Potomac.

BOOK REVIEWS

TELEVISION — HOW IT WORKS, published by John F. Rider Publisher, 203 pages, 8½x11", paper cover, price \$2.70.

The text is divided into twelve chapters as follows:

1. General aspects of the television system.
2. Frequency characteristics of the television signal.
3. Television receiving antennas.
4. R-F amplifier, oscillator, and mixer circuits.
5. The FM sound channel.
6. The video I-F and detector section.
7. Video amplifiers and D-C restorers.
8. Synchronizing circuits.
9. Sweep circuits.
10. The picture tube.
11. Power supplies.
12. Alignment and servicing.

This text offers a good starting point for the service man or AM broadcast technician to familiarize himself with some of the problems, some of the circuits used, and special considerations encountered in TV circuits. Subject matter presented in usual Rider style—with emphasis on simplicity and clarity of presentation.

* * *

BUSINESS EXECUTIVE'S HANDBOOK — published by Prentice-Hall, third edition, Sept. 1947, 1600 pages 5½x8", \$7.50.

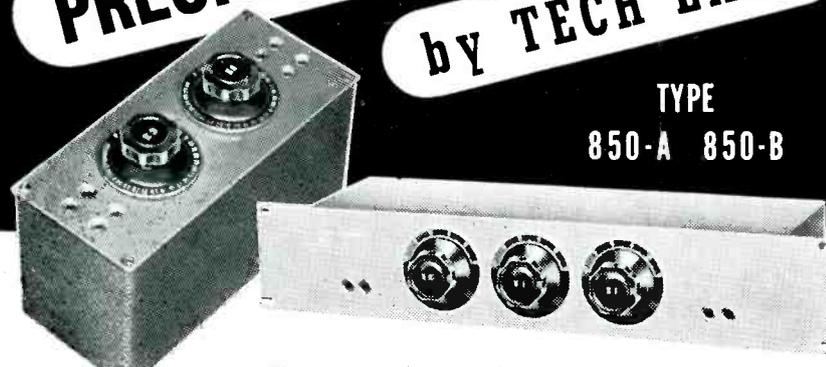
This comprehensive business handbook is divided into seventeen sections as follows: Business Mathematics (158 pages); Tested Business Letters (142 pages); Selling By Direct Mail (108 pages); Advertising (142 pages); Sales Management (66 pages); Sales Contracts and Forms (128 pages); Purchasing Procedure (72 pages); Office Management (70 pages); Telephone, Telegraph and Postal Information (70 pages); Credits and Collections (156 pages); Dealings With Embarrassed Debtors (26 pages); Financial Statements (94 pages); Business Insurance (86 pages); Directors, Officers, Stockholders (62 pages); Corporate Meetings, Minutes and Resolutions (84 pages); Partnerships (36 pages); Types of Business Organizations (17p ages). These sections are followed by a 16-page Glossary of business terms and abbreviations, and a 65 page Index.

This Handbook should prove of value to existing business offices and to union officers and managers. This vast fund of business information should be perused by those wishing to broaden their knowledge of business methods and information, and especially by those who contemplate going into business.

NEW...IMPROVED

PRECISION ATTENUATORS

by TECH LABS



TYPE
850-A 850-B

The units illustrated represent a complete redesign of our older precision attenuators for laboratory standards. Flat for all frequencies in the audio range. Reasonably flat to 200 k.c. up to 70 db.

Bulletin sent on request.

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Manufacturers of Precision Electrical Resistance Instruments

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DETROIT

CONVENTION NOTE—The Republican Convention which was aired with such monotonous regularity, came up with a number of surprises. The most startling of the lot was a statement made by one of the speakers during the evening of the second day. This gentleman sonorously intoned the following, and we quote: "The Republican congress has brought Labor and Management much closer together in their thinking." (Unquote). This will probably surprise the hell out of management—too!

REVOLTIN' DEVELOPMENT—CURT PIERCE of Chi NBC rolled into town June 20 to ride herd on the Horace Heidt show from Detroit's convention hall. His local assistant was RED LEWIS, whose only claim to fame is that he can, in a normal voice, be plainly heard and understood through three layers of sound proof glass. Assistant, that means keep the java coming, the pencils sharp, and wake me in time for the show. The program went per NBC specs (that's good?—I mean—that's good!) and at long last we crammed NBC's portable soundproof booth back into its own private box car without wheels. Portable and soundproof—oh! My aching back! Never, in all the long history of radio have two words been more improperly used. A Sherman tank would have to grunt to move it—and soundproof! I personally heard two flies playing hopscotch on the roof of the thing all afternoon, and every time the orc's brass section cut loose, it would blow out my lighter. It blew it out, that is, until thanks to that wonderful NBC exhaust fan, the air got so thick, the thing wouldn't even light for lack of oxygen! Even with all this it was a real pleasure to meet another of the Chi NBC and we all hope to see some of you boys here again real soon.

SERIOUS NOTE—HERB TANK, chief engineer for the whole deal around here lost his father a very short time ago. We hear of these things happening to other people far removed and our collective sympathies go out to them spontaneously. When it starts happening to our immediate friends, it's getting a little too close to home for comfort. On such occasions little differences in opinion seem even less consequential. The Detroit chapter made its heartfelt feelings known in the proper way and at the proper time.

MEAT EATERS—Fall is drawing ever nearer, as it usually does at this time of the year (now, isn't that an asinine statement) and with fall once more comes the time for negotiations—or legal mayhem—have it as you will. The Detroit Chapter has begun to make its plans and preparations. In order to facilitate sinking my teeth into something a little on the solid side, I've had them all filed to a point and am now known as the only red headed Ubangi in captivity. For an extremely small fee I can supply some high quality files that should last through at least three contract periods. Please post on local bull boards.

SWEETNESS AND LIGHT—What ever happened to that jolly little rag put out (and who could blame them) by IBEW 1212. Monthly it used to ooze into the MCR here where we all avidly read this mimeographed mess. Its little happy message of brotherly love and mundane philosophy never failed to impress us with the almost impossible difference in levels that can exist between associations that are purportedly striving to attain the same ends.

ADDED SKILLS—TRUMAN (the human?) OLIVER

CAPPS*

SAPPHIRE is, and has always been, the only material for making cutting styli for high class recordings.

CAPPS* Patented Sapphire Styli (2187512) are the original and accepted standard for high class professional acetate recordings.

Imitated but not equalled

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DETROIT—from Page 19

after long hours of practice has perfected the snappiest silent manual of arms with the Hoover cleaner seen this side of a Marine parade grounds. Good work, TRUE—thank your lucky stars you have no hay fever.

PERSONALITIES—It might be an idea to acquaint you who read these learned ramblings, with the characters who make up our tech staff here in the hallowed halls of WWJ (production note—everyone scream ALLAH BE PRAISED and bow to the east). Starting alphabetically with AM we find one E. G. BOYES, studio supervisor supreme without portolio. Someone once asked if the initials EG stood for eagles and gulls and this query should be clarified. It seems MRS. BOYES bitter half is practically a charter member of the Audubon Society, said society consisting of a group of people who dash frenzidly about the country looking for a robin with a woodpecker complex—maybe it's the other way around. In any event, EDDY will at the drop of a tail feather perch on the back of a chair and recount bird stories by the hour—very learnedly, too. The often used and much maligned phrase purportedly originating with the military, "That's for the birds," has a special meaning for this staunch paunch friend of the four footed and the feathery. On EGB's own sayso, and this should be the best authority in the world, his

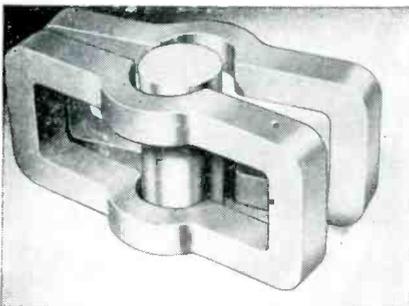
name is not now, nor never has been spelled BOIDS—it is BOYES if you please. Bulbous boy EDDY literally came with the fixtures for his time in service is now on the high side of twenty years—during which time he has soldered more connections than Carter has pills. Pass the birdseed, mother dear, I feel a cheeep coming on. EDDY is a slightly rotund character given to much chin rubbing and deep cogitation, and with a flamboyant disregard for conventional jokes, he sports a sense of humor that would make a cork screw jealous. It has been rumored MR. BOYES once said, "I think the bays need a good blowing out," this remark was supposedly made just prior to TRUMAN (the human) OLIVER accidentally(?) reversing the hose connections on the cleaner after which he blew three amplifiers plus panels into the MCR man's lap. It is the contention of the writer, after investigation and due deliberation, the tale is a foul canard. Here is hoping ready EDDY takes this dissertation in the proper spirit; if he doesn't, yours truly will be massaging the bays for the next ninety days—or more. Mother, I have my nose caught in the drinking cup—assistance, please.

COMING ATTRACTIONS—Next month, the strange tale of ROY (down with everything) BRIDGEMAN and his unusual talent. You should live so long and grow so fat, BRIDGEMAN. Until that time, so long and luck from Detroit, and

—RED LEWIS.

TELEVISION NEWS

Henry L. Crowley & Co. of West Orange, N. J., shows an example of sizeable and elaborate cores that can be economically fabricated in powdered iron. The two-piece frame and center slug as-



sembly for television receiver deflection transformers is shown here. The result is greater deflection efficiency, smaller tubes, lower receiver cost.

RMA quotes the FCC as not considering a renumbering of the remaining 12 television channels. Channel No. 1 was previously deleted by order of the FCC.

Auto ignition interference to TV reception can be reduced by the use of ignition suppressors in the auto, according to RMA tests.

RMA reports TV receiver figures continue to climb.

Du Mont recently announced its advanced design television transmitter control console. All transmitter meters and controls are duplicated on the control



console, for centralization of observation and operation. The console is shown here, and includes a 12" picture monitor, line and frame monitors, frequency monitor, overmodulation indicator. While this item is just a portion of DuMont's overall TV line, it is adaptable for use with any make or model TV transmitter.

Don Lee's Los Angeles TV station goes commercial with a complete General Electric plant, changes its call letters to KTSL, and will operate on Channel 2.

RCA International has conducted a series of TV demonstrations in Spain to acquaint the people with television.

Life-size TV pictures for hotels, clubs, hospitals, churches, schools, etc., are now available, according to an RCA announcement of the first commercial equipment designed specifically for the purpose. Picture screen sizes will vary from 3x4 feet to 7x9 feet, as required.

RCA announces a lower-priced oil-filled plastic lens, which enlarges the usual 7" or 10" TV pictures to the approximate equivalent in size and brilliance of a 15" picture tube; list price \$36.95. This lens is said to be free of distortion, halo effects, etc.

The *New York Times* of July 16th reported on a captured German lens of f/6.8, with a focal length of about 2/3 inch, with a 210° field of vision. This unusual field permits the lens to "see behind itself" and as stated in the *Times*, if such a lens was placed on the floor of a room, a single photo would show the floor, walls, and ceiling!

In this connection of captured German technical developments, it has been reported by *Scientific American* that hundreds of tons of scientific reports now in the hands of OTS—the Office of Technical Services, will have to go unsurveyed due to failure of the Congress to appropriate sufficient funds, coupled with its directive to "wind up its work within a year." It would seem that the hundreds of colleges and technical schools could handle this task of classifying and summarizing the data.

TEN YEARS OF LEADERSHIP

Ten years ago the first AUDIODISC was manufactured . . . manufactured by a patented precision-machine process, which produced the finest recording disc known.

During this decade AUDIODISCS have been rated first in every field of sound recording . . . radio broadcasting, commercial recording studios, the phonograph record industry, motion picture studios, educational institutions, home recording, research laboratories and governmental agencies. In every country throughout the world, AUDIODISCS are regarded as the true standard of recording quality.

At first the output of AUDIODISCS was measured in tens of thousands, then in hundreds of thousands and later in millions per year. Today this highest rate of production is being maintained and the quality is the finest yet achieved.

AUDIO DEVICES, INC., 444 Madison Avenue, New York 22, N.Y.

Export Department: Rocke International Corp., 13 E. 40th Street, New York 16, N. Y.

Audiiodiscs are manufactured in the U.S.A. under exclusive license from PYRAL, S.A.R.L., Paris



they speak for themselves **audiiodiscs**

DAVEN

FIXED ATTENUATORS

Daven fixed attenuators are precision built, accurately calibrated networks. These units are extensively used in major broadcasting installations, motion picture sound studios and as laboratory standards of attenuation.

Some suggested uses are:

- **LOSS:** Introduction of a fixed known loss.
 - (a) To reduce level
 - (b) To equalize several incoming lines
 - (c) As laboratory standards of attenuation
- **TRANSFORMATION:** To transform or change from one impedance to another without introducing frequency or reflection errors.
- **ISOLATION:** To isolate one part of a line from another.
- **BRIDGING:** To bridge a program line for monitoring purposes.
- **MULTIPLE CIRCUIT:** To combine several inputs into one output, or to divide one input into several outputs.

The following fixed attenuators are our standard type units. Unless specifically stated, any standard impedance or loss is available upon request. Frequency range, unless listed, is from zero to 50 KC for most values. Upon request, this range can be extended.

TYPE T-950



TYPE T-950
"T" Network
Size: 11/16" diameter x 1 3/8" long (overall).
TYPE H-950
Balanced "H" Network
Mounting: No. 6 screw through center hole.
Maximum level + 20 DBM

TYPE T-691
"T" Network
Size: 1 3/8" dia. x 3" long.
TYPE H-691
Balanced "H" Network
Mounting: Octal tube socket.
Maximum level + 20 DBM

TYPE T-154



TYPE T-154
"T" Network
Size: 1-13/16" high x 1 1/2" long x 1 3/8" wide (overall).
TYPE H-154
Balanced "H" Network
Mounting: Four 6/32" screws.
Maximum level + 25 DBM

TYPE V-154 - "T" OR π NETWORK
Video Attenuator.
FREQUENCY RANGE: 0 to 10 MC. Loss: 0 to 30 DB per unit. Impedances: 50 to 75 ohms. Furnished with BNC type receptacles. Matching plugs or right angle adaptors for RG cable can also be furnished.

TYPE T-153



TYPE T-153
"T" Network
Size: 3 3/8" high x 1 1/2" long x 1 3/8" wide (overall).
TYPE H-153
Balanced "H" Network
Mounting: Four 6/32" screws.
Maximum level + 30 DBM
(Available up to 20 Watts, upon request)

TYPE RF-155 - "T" OR π NETWORK
Radio Frequency Attenuator.
FREQUENCY RANGE: 0 to 200 MC. Loss: 0 to 20 DB per unit. Impedances 50 to 75 ohms. Total of 80 DB available by connecting in series.

TYPE 1030



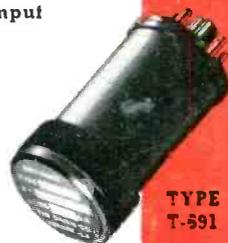
TYPE 1030 - "T" NETWORK
0-40 DB in 1 DB steps.
SIZE: 1 3/8" diameter x 1 1/4" long.
MOUNTING: No. 6 screw through center hole.

MULTIPLE NETWORKS

TYPE 1130-8 - "H" NETWORK
1 input, 8 outputs, 18 DB loss.
SIZE: 1 3/4" diameter x 1 3/8" long.
MOUNTING: No. 6 screw through center hole.

Special multiple output networks available in a wide variety of inputs and outputs in Type 1030 or Type 1130.

TYPE T-591



TYPE V-154



TYPE RF-155



TYPE 1130-8



When ordering kindly supply the following information: Type, Circuit "H" or "T" and DB loss required.

THE **DAVEN** CO.
191 CENTRAL AVENUE
NEWARK 4, NEW JERSEY

Further information on these units will be supplied on request.