

THE BROADCAST ENGINEERS' JOURNAL
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The Broadcast Engineers' Journal

NABET Annual Meeting

Chicago—Edgewater Beach Hotel

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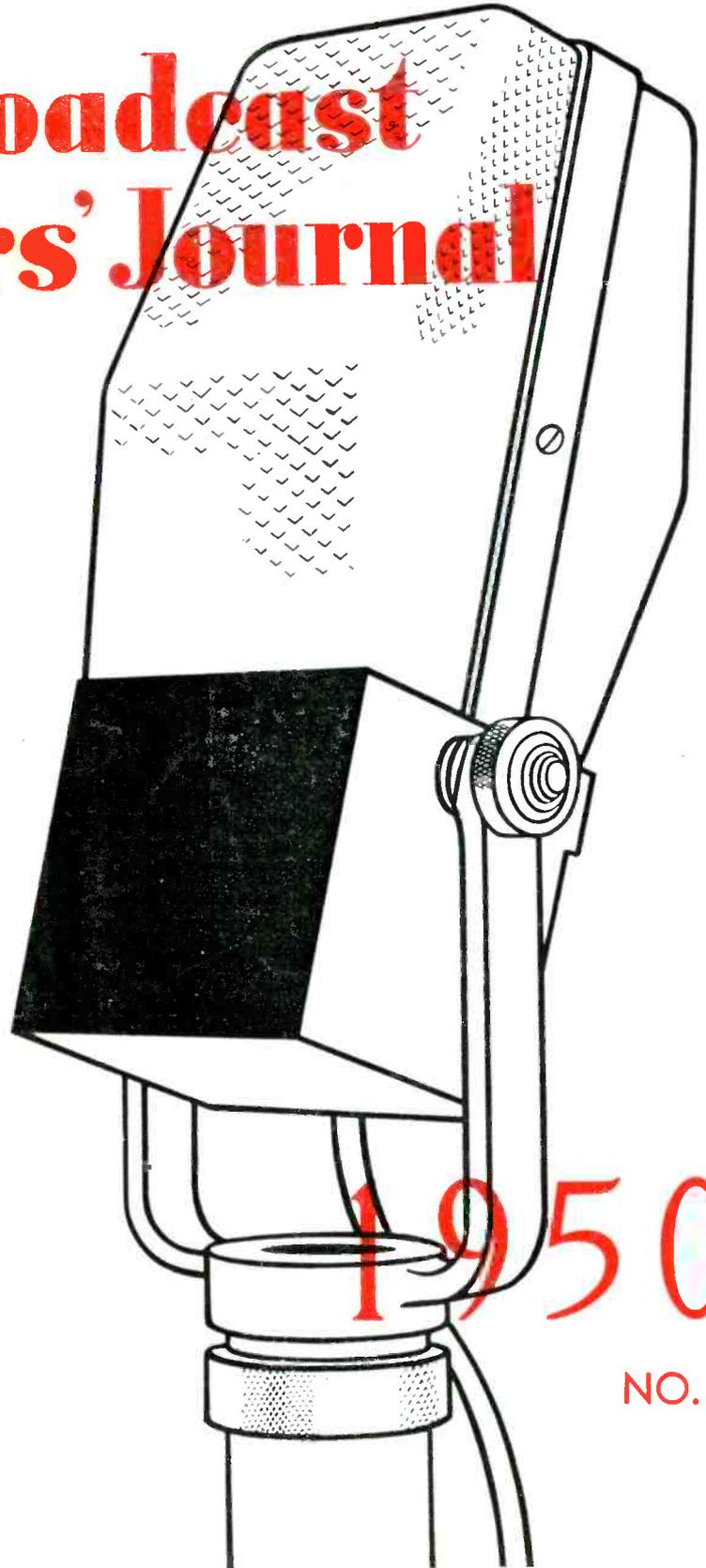
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This Issue:—

READ THE COMPLETE TEXT OF THE NABET
NBC SOUND EFFECTS CONTRACT.



August

VOL. 17

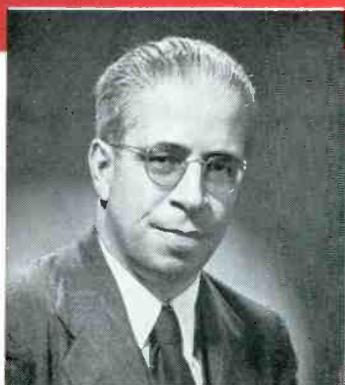
1950

NO. 8

Improved Lacquer Formulation gives

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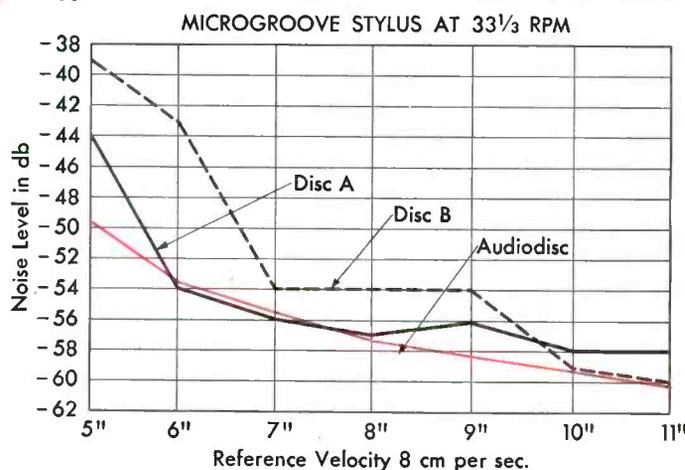
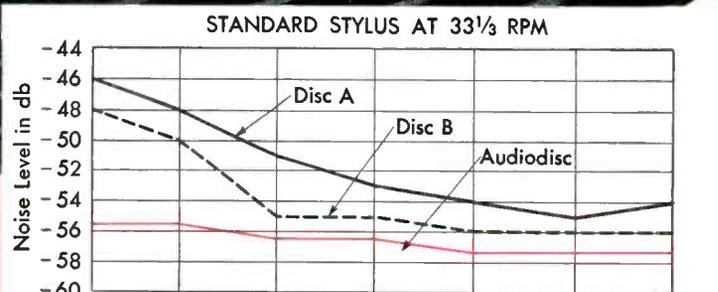
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Mr. Sutheim, a graduate of the Institute of Technology in Vienna, is a chemist of exceptional experience in the field of lacquers and emulsions. He authored “The Introduction to Emulsions” and contributed largely to Dr. J. J. Mattiello’s “Protective and Decorative Coating.” He has also written many articles on coatings, films, etc., for both French and English periodicals.



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AUGUST, 1950

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OF, BY, and FOR
THE
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A Message to the Members of NABET

from

JOHN R. McDONNELL
President, NABET

With the completion of the Chapter elections, and the installation of new Chapter Officers, the NABET membership should begin looking forward to the National Council Meeting (October 11-12-13, 1950). It is the annual opportunity for NABET representatives to meet and thrash out such problems as may have arisen during the year. Additionally, this year the Council nominates a President to be ratified by a vote of the entire membership.

The similarity between the structure of NABET and that of the United States Government is striking in many respects. The executive branch consists of the President, Vice President, Executive Secretary and the several full-time National Officers. The legislative branch is the National Council with the Councilmen voting on some matters in the same manner as the Senate and other matters according to their representation—as does the House. The NABET Executive Board would correspond to the judicial branch. Instead of the nine “old men” of the Supreme Court the Executive Board consists of the President and four National Councilmen who, in addition to their semi-judicial duties, function similarly to the President’s Cabinet. The Chapters correspond to the States and have corresponding “States’ Rights.”

As in any democracy (republic), both the United States and NABET reflect the wishes of the citizens (members) only in so far as those citizens take it upon themselves to take an interest in the affairs of the organization. Contrasted, however, with the huge organization of the United States Government—NABET, by virtue of its being relatively small, can reflect and respond quickly to the wishes of the membership. It therefore becomes the continuing duty and responsibility of every member (and officer) to be aware at all times of the state of the Union and to take an active, vigorous part in local and national affairs. Know your NABET Constitution, your Chapter By-Laws, and the Contract under which you work. See to it that NABET does the job in your Chapter and that your National Councilman is prepared to make a contribution to the national welfare of NABET, your Union.

Sincerely,

JOHN R. McDONNELL,
President—NABET.

SUPPORT NABET
"OF — BY — FOR
RADIO-TV MEN"

THE BROADCAST ENGINEERS



George Maher

NABET

Executive

Secretary

As reported to you in the June issue, it is NABET's intent to publish its national network contracts recently concluded. The July Journal contained the complete text of the ABC Engineering contract, followed by the complete text-changes in the NBC contract.

This August issue contains the complete text of the NBC New York Sound Effects contract; the ABC Sound Effects contract is identical in all major respects. The full weight and effectiveness of NABET was successfully applied in the negotiation of the Sound Effects contracts, which resulted in gaining the identical reduction in escalator from 6 to 5 years, and same top scale of \$129. per week (\$559. per month, a raise of \$33. per month), as had been gained in the Engineering contracts.

NABET is daily demonstrating that it is capable of doing the finest possible job of representation of radio and television men.

The annual meeting of the NABET National Council takes place in Chicago, at the Edgewater Beach Hotel. The Executive Board meets Sun., Mon., and Tues., Oct. 8, 9, and 10th; the full National Council meets Wed., Thurs., and Fri., Oct. 11, 12, and 13th. The new Executive Board will meet Saturday, Oct. 14th.

When you are through with this issue of the NABET Journal, pass it on to a Sound Effects technician at a neighbor station in your area.

In February, 1950, several NABET Constitutional Amendments were voted by the membership. It is not practical to reprint the Constitution each time that it is amended, and mimeod attachments are not too satisfactory. So, in this August issue of the Journal, you will find printed, these several amendments; tear out as indicated, and paste on the inside front cover of your gold-colored NABET Constitution which is dated “Effective Jan. 10, 1949.” This practice will be continued in the future, and each member will thus have the opportunity of keeping his copy of the Constitution up-to-date.

GEORGE MAHER,
Executive Secretary—NABET.

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.

1950-1951 NABET-NBC SOUND EFFECTS CONTRACT

NABET—NBC SOUND EFFECTS CONTRACT

☆

May 1, 1950—Oct. 31, 1951

☆

THIS AGREEMENT dated the 1st day of May, 1950, is between the National Broadcasting Company, Inc., (hereinafter called the "Company"), or its successor, and the National Association of Broadcast Engineers and Technicians, or its successor (hereinafter called the "Union").

SECTION I

INTENT—EMPLOYEE DEFINED

(a) It is the intent and purpose of the parties hereto to set forth herein the basic agreement covering rates of pay, hours of work, and conditions of employment to be observed between the parties hereto, and provide procedure for prompt, equitable adjustment of grievances to the end that there shall be no interruptions or impeding of work, work stoppages or strikes or other interferences with radio and television broadcasting during the life of this agreement.

(b) The term "Employee" as used in this agreement applies to Sound Effects Technicians and Apprentice Sound Effects Technicians employed by the company in the Sound Effects Division in New York City. Excluded from this unit are the Manager and the Assistant Manager of said technicians.

SECTION II

RECOGNITION

(a) The union represents and warrants, and it is of the essence hereof, that it represents for collective bargaining purposes, a majority of the employees of the company as defined in SECTION I. The company recognizes the union as the exclusive bargaining agent for all the employees of the company as defined in SECTION I.

(b) All employees presently employed by the company and all employees employed by the company subsequent to the execution of this agreement shall, on the thirtieth day following employment, become and remain members of the union for the effective period of this agreement. The company shall give the union notice of opportunities for employment in the classifications covered by this agreement, such notice to be of seven (7) days' duration whenever practicable. The company agrees to refer all applicants upon hiring and in any event

within seven (7) days after the commencement of work, to the local officers of the union for information and advice as to the union shop requirements of this agreement. All employees shall be temporary employees for the period of one (1) year from the date of their employment with the company and shall thereafter be regular employees.

SECTION III

HOURS OF WORK—DAYS OFF—MEAL PERIODS

(a) The work week for employees shall consist of five (5) consecutive days in each seven (7) consecutive days and a work day shall consist of not less than eight (8) hours of work credit in any one day, which shall be computed by totalling the number of elapsed hours between the assigned starting and ending time, less meal periods.

(b) An employee shall have two consecutive days off in each seven (7) consecutive days, unless and so long as he shall agree that the days off be non-consecutive. Notice of such days off shall be given by the company seventy-two (72) hours in advance of 12:01 A.M. of the first day off. If any change in days off is made during such seventy-two (72) hour period by the company, the employee shall receive the sum of Five (\$5.00) Dollars additional for such change.

(c) A day off shall consist of twelve (12) hours plus the twenty-four (24) hours for a total of thirty-six (36) hours for one day off, and two (2) consecutive days off shall consist of ten (10) hours plus forty-eight (48) hours for a total of fifty-eight (58) hours off, consecutively. No employee shall be assigned to a watch on a work day until twelve (12) hours have elapsed since his last previous work assignment has terminated. No employee shall be assigned to a watch on a work day until a total of fifty-eight (58) hours have elapsed between the ending of his last work assignment prior to his two days off and his reassignment to work after his two (2) days off.

(d) Nothing in this section is to be so construed as to prevent work by an employee on a scheduled day off providing that overtime rate of pay shall apply on such day off, and further providing that thirty-six (36) hours' notice (prior to 12:01 A.M. on such days off) shall be given by the company to an employee whenever he is required to work on such day off. In the event that less than thirty-six (36) hours' notice is given under this section and an employee is required to work on his day off, the sum of Five (\$5.00) Dollars additional shall be paid the said employee.

(e) No penalty shall be payable if it arises out of a change of schedule directly caused by the illness of another employee but in no event shall illness beyond the second day be a reason for waiving such penalty. If overtime results, however, it shall nevertheless be paid and shall not be deemed a penalty hereunder. In no case shall double penalties accrue against the company.

(f) A meal period may be deducted from hours worked for a total of one hour on any eight-hour work day and two meal periods not to exceed one hour and one-half on any work day of more than ten hours over-all, if such meal period or meal periods are scheduled between the hours of 11:30 A.M. and 2:30 P.M. and between the hours of 5:30 P.M. and 8:30 P.M. When an employee is required to work between the

hours of 12:00 Midnight and 8:30 A.M. a deductible meal period of one-half hour may be scheduled between 5:30 A.M. and 8:30 A.M. A meal period shall be of a minimum of one-half hour duration.

(g) A work week is defined as beginning at 12:01 A.M. Sunday and continuing to 12:00 Midnight the follow Saturday. A tour of duty starting on Saturday and continuing into Sunday shall be considered to be a part of the Saturday tour. Saturday and Sunday shall be considered two consecutive days off.

SECTION IV

OVERTIME AND PREMIUM PAY HOLIDAY CREDIT

(a) All work performed in excess of eight (8) hours per day shall be paid at the rate of time and one-half (1½).

(b) All work performed on scheduled holidays—excepting those specified in SECTION FOUR, Paragraph (c)—shall be compensated for by paying at the rate of one-half time in addition to the straight time rate of pay and by giving one (1) extra day off consecutive with the regular scheduled days off for such day worked. If the employee is on a regular scheduled day off on such holiday he shall receive one (1) extra day off for such day, consecutive with regular scheduled days off. Such extra day off shall add twenty-four (24) hours to the fifty-eight (58) hours specified in SECTION THREE, Paragraph (c). Such day off shall be designated by the Company. No such holiday credit shall be repaid before the holiday or later than six (6) months following the holiday worked. In the event the Company has been unable to give such extra day off within such six-month period, the Company shall pay the employee in lieu of giving such day off, his straight time rate of pay for one (1) day.

(c) In lieu of the five (5) following holidays—Washington's Birthday, Memorial Day, July Fourth, Labor Day, and Thanksgiving Day, all employees shall receive one (1) additional week off with pay; (i.e., five (5) consecutive work days plus the regular two (2) days off for that week less one (1) day for each of such of the above listed holidays as may occur outside the term of his employment), such week to be added to the regular annual vacation period.

(d) Each day an employee is excused from working in any week because of a holiday to his credit shall, subject to all other terms and conditions hereof, reduce by eight (8) hours the work week of such employee for such week.

(e) Should an employee be assigned to a tour of duty before a specified turnaround period has elapsed, he shall receive additional compensation at the rate of One Dollar and Twenty-five (\$1.25) Cents per hour for the portion of such assignment which encroaches on such turnaround period.

(f) In no case shall overtime accrue on overtime.

SECTION V

VACATIONS

An employee engaged prior to January 1 shall receive two (2) consecutive weeks' vacation with pay. An employee engaged between January 1 and April 30 inclusive (excluding employees engaged for a specified period of less than one (1) year) shall receive one (1) week vacation with pay plus such days as are due him under SECTION FOUR, Paragraph (c). An employee engaged after April 30 (excluding employees engaged for a specified period of less than one (1) year) shall receive one (1) day vacation with pay for each month

he has been employed by the Company prior to the beginning of his vacation for that year, not to exceed five (5) work days plus such days as are due him under SECTION FOUR, Paragraph (c). Vacation periods for employees shall be determined and posted by April 1 each year and shall fall within the period April 1 through October 31, and shall not be changed except by mutual consent of the Company and the particular employee concerned. Before February 1 of each year the local management and local committee shall confer for the purpose of discussing vacation scheduling. Vacation preference, within the operating group to which the employees are assigned, shall be given to employees on the basis of seniority as determined by length of service in the Sound Effects Division, except apprentices as covered in SECTION SEVEN, Paragraph (d). Vacations may be taken outside the period specified above by mutual consent of the Company and the employee concerned. No employee covered by this contract shall be required to give up his free choice of vacation (during the period as shown above) to any person not covered by this contract.

An additional week's vacation consecutive with his regular vacation will be given annually to each employee who has acquired ten (10) years seniority with the Company. Such employee shall have the right to take such additional week at some other time during the vacation period, subject to selection on a seniority basis among those employees so splitting their vacations after the vacation of employees not splitting their vacations have been established.

SECTION VI

SENIORITY, LAYOFFS, DISCHARGES, TRANSFERS, SEVERANCE PAY

(a) Company seniority shall start on the date of employment as an employee in the Sound Effects Division in New York City except as provided in SECTION SEVEN, Paragraph (d) regarding apprentices.

(b) In all instances where prescribed wage increases based upon the length of service are specified in this agreement, such length of service shall be computed from the first day of the month during which the employee started work in the Sound Effects Division in New York City, when such date of employment occurs on or before the fifteenth day of the month. When the date of employment occurs after the fifteenth day of the month, length of service shall be computed from the first day of the following month.

(c) The Company may extend, after having notified the committee, the seniority of an employee, but only for the purposes of wages.

(c-1) The Company agrees to consider the principle of "Industry seniority" for purposes of pay, and will discuss the salary of prospective employees with the Union, within the seven (7) day period as outlined in SECTION TWO, Paragraph (b).

(d) The Company may discharge an employee for just cause. Prior to such discharge the Company shall fully discuss the matter with the local committee and if the local committee agrees to such discharge, it shall become effective after notice by the Company and two weeks' pay to the employee involved. In the event that the local committee does not agree to such discharge, the matter shall be certified within 1 week to the national office of the Union and the main office of the Company for resolution. If a solution between these parties is not reached within two (2) weeks from the date of the first notice to the local committee, such dispute shall then be certified to Mr. Edward F. McGrady or his successor for advice

and resolution. The Company and the Union agree to abide by the decision of Mr. McGrady who shall give his advice and decision within one (1) week from the date of certification to him. Should the discharge in dispute be decided to be proper, such discharge shall be finally effective upon the Company's giving notice and two (2) weeks' pay to the employee involved.

(e) When lay-offs of employees are to be made in the Sound Effects Division in New York City, the Company, in its sole discretion, shall determine the number of employees to be laid off. If such lay-off shall be confined solely to temporary employees the Company shall have the absolute right of selection among such employees. If such lay-off shall involve both temporary and regular employees the Company shall lay off all temporary employees and then lay off regular employees in inverse order of office seniority.

Similarly if a lay-off shall involve only regular employees such lay-off shall proceed in inverse order of office seniority.

(f) Office seniority shall date from the day on which an employee was employed as an employee at, or transferred as an employee to, the New York office.

(g) In the event an employee with more than one year's Company or office seniority is laid off, resigns, takes a leave of absence to engage in other business activity or transfers to a position not covered by this agreement and returns to the status of an employee within one (1) year, his Company seniority and office seniority upon returning shall be that which he had on the effective date of such lay-off, resignation, leave of absence or transfer.

(h) In the event the Company wishes to engage at any office employees for any of the salary groups specified in SECTION SEVEN, it shall notify the Union and the Company shall re-employ, in the order of their office seniority, any employees with more than one year's Company seniority who were laid off from such group within the previous year provided the names of such employees are submitted to the Company by the Union. In addition the Company agrees to give preferential consideration to re-employing a member of the Union who shall have been employed by the Company as an employee for at least one (1) year and released more than one (1) year prior to such consideration for reason of a resolution of personnel or for seasonal inactivity or similar cause.

(i) The Company will grant to all regular employees released other than for cause severance pay in an amount equal to one (1) week's pay for each year of Company seniority; provided, however, that in no event shall a regular employee receive less than two (2) weeks' severance pay.

SECTION VII

CLASSIFICATION AND WAGE SCALES

Employees shall be classified into two groups, Apprentice Sound Effects Technicians and Sound Effects Technicians.

(a) Apprentices shall learn and shall gradually assume the duties of Sound Effects Technicians.

(b) The number of persons employed by the company as Apprentices shall not exceed two (2). If at any time during the term of this contract the number of Sound Effects Technicians employed is decreased to less than sixteen (16) employees, one apprentice may be employed.

(c) Preference in employing Apprentices shall be given to persons previously employed in other capacities by the Company.

(d) The minimum wage scales for Apprentices shall be:

Months	Per Month
0—6	\$190.00
6—12	220.00
12—18	250.00

(e) The apprenticeship period shall be not more than eighteen (18) months. Within this limit the company reserves the right to determine the duration of apprenticeship period or periods for each individual Apprentice.

(f) The union agrees that employees will give full cooperation and assistance to the company in training such Apprentices to the end that their service to the company will be effective and creditable.

(g) The salary of employees hereafter promoted from the class of Apprentice Sound Effects Technicians to Sound Effects Technicians, and the minimum salary of Sound Effects Technicians shall be:

	Per Month
0 mos. — 6 mos.	\$292.50
6 " — 1 yr.	314.00
1 yr. — 2 yrs.	361.00
2 yrs. — 3 yrs.	400.00
3 " — 4 yrs.	444.00
4 " — 5 yrs.	487.50
5 " and over	559.00

SECTION VIII

TECHNICAL EQUIPMENT

(a) Sound effects shall be effected and sound effects equipment of the New York Sound Effects Division shall be operated exclusively by the employees hereinbefore defined:

1. Sound effects are all those sounds used to create the illusions necessary in radio broadcasting and in television broadcasting if such sounds are produced off camera.

2. Live music or voice are not sound effects.

3. Such treatment of sound as to create an effect as is now performed by engineers shall continue to be performed by engineers.

4. Sound effects may be effected and put into the electronic system in any way.

5. Sound effects or sound effects equipment if used for the production of motion pictures are excluded from this agreement. For the purpose of this paragraph, television recordings are not motion pictures.

(b) An employee need not be assigned where:

1. The broadcast of a production, or portion thereof, from a theatre, auditorium, or other similar place not owned or operated by the Company if there is in effect as to such place a contract requiring the use of others than employees of the Company.

2. For the production of certain sound effects which have traditionally been made in the theatre, vaudeville, or radio by musicians, actors, or singers.

(c) The Company agrees that in operating under the provisions of this Section it will not put into effect any operations or lay down any rules which constitute discrimination against the Union or any employee of the Company as hereinbefore defined.

SECTION IX

OUT-OF-TOWN PICKUPS

(a) An employee shall be present and operating when sound effects are required at the origin of company commercial and

sustaining programs originating in the field whenever sound effects equipment of the New York Sound Effects Division is used, except that the provisions of this paragraph shall not apply to:

1. Commercial and sustaining programs originated in the studios of affiliated stations. Affiliated stations' studios shall include auditoriums, halls and theatres leased by an affiliated station within a twenty-five (25) mile radius of their main studios as designated by the FCC. This exception shall not apply to commercial programs originated in conjunction with other attractions at fairs, expositions, carnivals or exhibitions.

2. Sustaining programs, including network cooperative programs of fifteen (15) minutes or less, originated within a twenty-five (25) mile radius of an affiliated station's main studio as designated by the FCC.

3. Commercial or sustaining programs built and produced by affiliated stations wherever originated.

4. Programs scheduled on short notice when time does not permit the assignment of an employee to a pickup.

5. Sustaining programs or political commercial programs broadcast jointly with any other network or networks.

6. International short-wave programs originated outside NBC studios and broadcast under government contracts.

7. Television programs originated at points which are nearer to the main studios of affiliated stations than to the principal television studios of the company in New York.

8. Studio and field television programs originated singly or jointly by other licensed television stations on a cooperative basis.

If in the opinion of the company, it is in the best interests of the company, an employee of the company shall cover any program falling in the foregoing classifications.

(b) Affiliated radio stations are defined for the purpose of this section as those taking ten (10) or more hours of service monthly from the Company network. Affiliated television stations are defined for the purpose of this section as those taking four (4) or more hours of service monthly from the Company network.

(c) In no event shall the Company refuse to assign an employee in any case where the Company would ordinarily assign an employee because of any claim made by any other Union to the operation of all technical equipment in any particular area.

(d) Nothing contained herein shall be determined to require the company to employ sound effects technicians to operate its sound effects equipment in connection with the demonstration of sound effects to tourists in the RCA Building.

SECTION X

WAGE PAYMENTS

(a) No deductions, directly or indirectly, by way of commission or otherwise, may be made by which any employee shall receive less than the minimums established by this agreement, such minimums be net to the employees except for deductions required by law and deductions requested in writing by the employee.

SECTION XI

TRAVEL TIME

Travel time by an employee shall be credited as follows:

(a) Travel time shall be all that time consumed by an employee when traveling on Company assignment from his home or home office and return thereto.

(a-1) All travel by common-carrier shall be in first-class accommodation when available.

(b) Full time shall be credited for all travel time except as hereinafter provided.

(c) Traveling time between his home and the Company assignment shall only be credited when the employee is so scheduled by the Company and the time necessarily incurred is in excess of the time normally required to travel between his home and the home office.

(d) Home office shall be defined as any Company engineering office to which the employee is normally attached, or the out-of-town hotel or headquarters to which he may be assigned by the Company for the duration of his assignment.

(e) When travel is on a common carrier between the hours of 8 A.M. and 12 Midnight, local time, full time less one (1) meal period shall be credited up to and only for the first nine (9) hours of travel.

(f) When travel is continuous on a common-carrier during the period between the hours of 12 Midnight and 8 A.M. local time, and suitable sleeping facilities are available, no credit shall be allowed. For the purpose of this paragraph a single occupancy berth is construed to be suitable sleeping facilities. When travel is designated by the Company on conveyances which do not have suitable sleeping facilities, full time credit shall be allowed.

(g) When travel on a common-carrier terminates between the hours of 12 Midnight and 8 A.M., local time, due to arrival at designated destination, travel time from station to hotel or out-of-town headquarters plus one hour, is to be credited to the work-day in which such termination occurred and shall not result in a split day, or a short turn-around or penalties.

(h) When travel by an employee on a common-carrier is interrupted between the hours of 12 Midnight and 8 A.M., local time, due to the necessity of making a scheduled common-carrier change, he shall receive full time working credit from the time he leaves one carrier and arrives at another carrier, plus one hour. This credit for the hours between 12 Midnight and 8 A.M., local time, shall be added at the Company's option, to the work-day during which the interruption occurred or to the previous work-day and shall not result in a split work-day, or a short turn-around or penalties.

(i) It is agreed that on out-of-town assignments of seven (7) days or more, Company assignments permitting, an employee will take his two (2) consecutive days off each week for the number of weeks he is on the out-of-town assignment. No holiday repayment shall be permitted while on such out-of-town assignment.

(j) The Company may assign a returning employee to a day off, providing he completes his assignment or proper arrangements are made to relieve him of the responsibility of the equipment on or before 8 A.M. If the employee is assigned to a day off, with this provision, he shall receive one (1) hour credit for traveling to his home, which will be credited to the previous day, and shall not result in any penalty.

(k) The Company, at its discretion, may schedule an employee to travel out of a distant city any time after 8 A.M. without incurring a short turn-around penalty.

SECTION XII

USE OF EMPLOYEE'S CAR

Compensation at the rate of 7 cents per mile with a minimum of \$1.40 for each assignment shall be allowed an employee for using his automobile with the consent of the company in executing the business of the company, except in no event shall he receive working credit for the time consumed

in traveling between his home and office. However, it is agreed and understood that the use of an employee's car is not mandatory.

SECTION XIII

**ARBITRATION
CONTROVERSIES AND DISPUTES**

(a) In the event any dispute or grievance shall arise under this agreement in any of the local offices of the Company, the employee or employees involved shall report, in writing, the specific dispute or grievance to the employee committee, herein called "local committee," and to the Assistant Manager or Manager of the New York Sound Effects Division, who will endeavor to settle such dispute. In the event that such dispute or grievance cannot be settled by the committee and the Company representative within seven days, then such dispute shall be immediately certified to the national office of the Union and the main office of the Company for action. In the event that the parties cannot reach agreement within seven days after the dispute is referred to them, or reach such agreement during any extension thereof upon which the parties may agree, the dispute will be certified to an arbitrator as hereinafter provided.

(b) When any of the members of the local or national committee are on duty and are called upon to meet with a Company representative pursuant to the provisions of this Section, said members of the committee, during the period of discussion in reference to such labor problem, will be paid at their normal wage rate by the Company.

(c) A request for arbitration shall be made by delivering a signed written notice to that effect directed to the other party within thirty days after the national office of the Union and the main office of the Company cannot reach an agreement in the dispute. Unless such an arbitration request is so made, the grievance or dispute shall be deemed to have been abandoned. The party requesting arbitration shall simultaneously request the American Arbitration Association to appoint an arbitrator in accordance with its rules and regulations. The arbitration hearing shall be conducted in the locality of the office where the grievance or dispute arose, unless otherwise mutually agreed to by the parties, provided however, that if the grievance or dispute is one of national application, it shall be heard in New York, unless otherwise mutually agreed. A final written decision or award of the arbitrator shall be made as soon as practicable after submission of the grievance or dispute to him. The parties agree that such final decision shall be binding on each of the parties, and that they will comply therewith within five days of the arbitration award, subject to such decisions, rules and regulations as any Federal agency having jurisdiction may impose. In no event shall the arbitrator modify or amend the provisions of this agreement, nor shall the same question or issue be the subject of arbitration more than once, except upon a showing of new evidence, change of conditions, or circumstances. Each party will bear its own expense in carrying out the provisions of this paragraph, and the parties will share equally the expense of the arbitrator. The time limits herein provided may be extended by mutual consent. The Union and the Company agree that there will be no stoppage of work or lock-out or other interference with the Company's work or business until the procedure provided in this paragraph shall have been employed and one of the parties hereto fails or refuses to comply promptly with any final decision duly made against it by the arbitrator hereunder.

SECTION XIV

GENERAL PROVISIONS

(a) The Company will not discriminate against any employee for anything said, written or done in furtherance of the policies and aims of the Union.

(b) The Company will not assign, transfer or require employees to go to any radio station, transmitter, studio or property where a strike of broadcast technicians or any technicians whose functions are similar to those covered by this agreement, is in progress or to originate a program or programs especially for such station. However, the Union agrees that unless and until the Company fails to abide by an award of arbitrators made pursuant to the provisions of SECTION THIRTEEN of this agreement, the service and operations of the Company will not be interrupted by its members and that its members will perform the duties regularly and customarily performed by them for the Company. The Company agrees that unless and until the Union fails to abide by an award of arbitrators made pursuant to the provision of SECTION THIRTEEN of this agreement, it will not lock-out any of the employees covered by this agreement. Upon the failure of either party to abide by the provisions of this Section, the other party may at its option terminate this agreement forthwith by notice in writing to the other party.

SECTION XV

TERM OF CONTRACT

This agreement shall become effective on the first day of May, 1950, and shall remain in effect until Midnight (New York Time) October 31, 1951. Both parties agree to commence negotiations on September 27, 1951, for the extension or modification of this agreement for a period commencing November 1, 1951.

NATIONAL BROADCASTING COMPANY, INC.

By /s/ V. T. NORTON,
Vice President

NATIONAL ASSOCIATION OF BROADCAST
ENGINEERS AND TECHNICIANS

By /s/ GEORGE MAHER,
Executive Secretary

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TV LENS PROGRESS

During the last ten years, dramatic advances have been made in the art of making photographic lenses. As a result, today we have lenses with quality and speed that were undreamed of before the war.

Basically, four important developments helped to make this tremendous progress possible—new and better optical glasses, anti-reflection lens coatings, new methods of lens computation, and new and improved optical machinery. Each of these has in turn eliminated a serious stumbling block that long had stood in the way of the lens designers and manufacturers.

Up until comparatively recently, it was practically impossible to produce a high speed lens that was really well corrected. Because of limitations in the available optical materials and techniques, high quality and high speed could not be married. In effect, a lens could be one or the other, but not both. Optical experts, therefore, were limited to either of two courses—they could produce a high speed lens that was well corrected only in the central portion of its field, or they could produce a lens with an enlarged corrected field at the sacrifice of speed.

There were two fundamental reasons for this: First, in order to obtain good definition in the central portion of an image, the lens must be corrected for zonal spherical aberration and for longitudinal color. Second, to obtain good image quality toward the outer edges of the field, the lens must be corrected for astigmatism, flatness of field, and coma caused by lateral spherical aberration. Until relatively recently, it was impossible to make both of these classes of corrections satisfactorily at the same time. We had lenses of the Petzval type which have good resolution in the center, but suffer from field curvature and therefore are usable only for very small field angles, and we had lenses of the Cooke triplet type which while providing a flat field



The Video Reflector in Action at a CBS Television Field Pickup.

also have strong zonal spherical aberration.

To combine high quality with high speed, a lens must of necessity be made up of multiple elements and the optical glasses used must be chosen to produce a high dispersion and a high index of refraction. These requirements could not be met under old standards and manufacturing techniques. Today, however, thanks to the relatively new anti-reflection coatings multiple elements can be used in a lens without impairing its light transmission qualities and thus its speed. Similarly, thanks to new and improved optical glasses, which can be used in combination to produce inverted lens elements, it is now possible to obtain a high dispersion and a high refractive index with a minimum of astigmatism.

High quality, high speed lenses now are available to the television cameraman as well as the cinematographer and the still photographer. Such a lens is the Balowster—a high speed, high quality telephoto lens. In spite of its seven elements that give it an F rating of 1.3, it suffers from none of the old lens ills and aberrations.

New lens design and manufacturing techniques also made possible the now well-known Zoomar lens. A vari-focal

lens, it makes use of twenty-eight separate lens elements to obtain the necessary compensations and resulting picture quality. Before the development of the modern lens coatings such a lens would have been out of the question. Both of these lenses made their debut only within the last three years.

Oddly enough, these great strides in lens-making progress have come about simultaneously with a shift of the photographic center of the world from the eastern to the western hemisphere. America today leads the world in the production of high quality lenses. Before World War I, virtually all good lenses were made in Europe. But gradually—thanks to scientists here and many who came here from abroad—this country has taken the lead in high quality lens production. We have developed new skills in the know-how of fine lens craftsmanship. We also have learned how to produce optical glass and today are making far better optical materials than ever were obtained from European glass makers. The new American glasses are not only available in greater variety, but in better constancy as to formula and to optical characteristics.

We have, I believe, entered a brand new era in lens design. The next five years should see the development of a



Whether she sings
way up here...

Or he sings
way down here...



*High notes . . . middle notes . . . low notes
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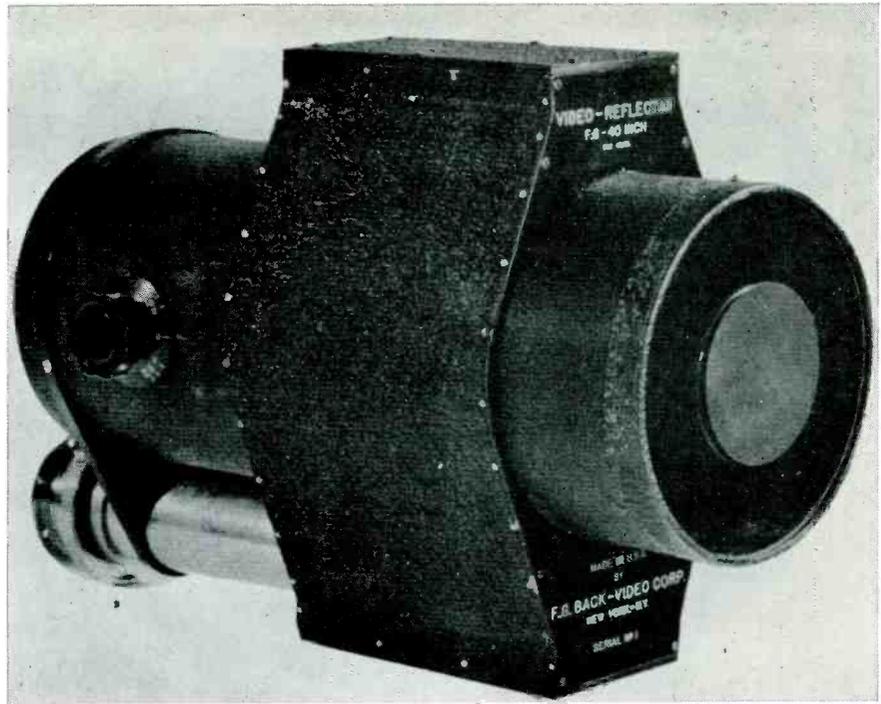
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host of brand new types of photographic lenses. The great impact and needs of television—which basically also is a form of photography—should add impetus to new and more thinking along the lines of optics.

One radically new lens—a lens without lenses—already is being put through its television trials. A long focus lens (40 inch focus to be exact), it is called the Video-Reflector and uses four carefully designed and manufactured reflectors—one aspherical reflector and three flat reflectors—to obtain sufficient high-quality magnification to make the figure of a man several blocks away from a TV camera completely fill the screen on a television receiver. By old standards, such a lens, built to old standards of design, would have to be at least 40 inches long and, because of the multiple lens elements necessary would weigh in the neighborhood of 40 pounds. Not so with the lensless Video-Reflector. It measures just 16 inches from mount to tip, and tips the scales at 6 pounds! It is all done with mirrors. The light enters the “lens” through a correction plate, is picked up by the aspherical reflector, and then is zig-zagged back and forth by the three flat reflectors to the target of the TV camera’s image orthicon. Lens control (F stop opening) is obtained, not through



The Forty-inch focal-length Video-Reflector, Weighs Only Six Pounds, is 16 Inches Long!

the use of a conventional iris, but by the adjustment of a rotatable “damper” (like the simple damper used in a chimney) placed directly in front of the aspherical reflector. Depending on the “damper’s” position, it cuts off more or less light to provide F stops ranging from F/8 to F/22.

The Video-Reflector is just one example

of the new thinking in lens design. I look for many others. With the modern materials, new techniques, and advanced knowledge in the field of applied optics now available, new and dramatic lens developments cannot help but be born. And with each will come new highs in quality, light transmission, speed, color correction, and compactness.

New RCA Stabilizing Amplifier Corrects Many Types of Faulty Television Signals

An improved stabilizing amplifier designed to correct faults which may be introduced in video signals during their transmission from the television camera to the input of the transmitter was announced by the RCA Engineering Products Department.

The new television amplifier, RCA Type TA-5C, the company stated, will correct many common disturbances such as hum or surges originating in power supplies, other random signals created by high-impedance grounding circuits or long cable sheaths, circuit saturation with resultant destruction of the proper sync-to-picture ratio, switching surges, and low-frequency distortion introduced by coupling circuits with inadequate time constants.

The TA-5C amplifier clips a composite signal at blanking level and the video portion of the signal, with its cleaned-up blanking reference, is fed to a mixing amplifier stage, where the sync signal, likewise clipped and reshaped, is restored to it. Separate gain controls are used for both video and sync portions of the signal to permit a sync range setting of 0 to 50 per cent. The restored composite signal is fed to a two-stage picture amplifier which provides the proper output across $37\frac{1}{2}$ ohms, and to a monitor output circuit which feeds 75 ohms.

The unit separates sync from the composite video signal and after two stages of clipping provides a standard RMA sync signal to a sync output jack. This signal may be used to phase a local sync gen-

erator with the incoming remote signal. Thus it is possible to add the local sync signal to the remote video signal, making possible “fades and dissolves” between local and remote signals.

A selector at the input accommodates a range of input signals from 0.20 volt to 1.5 volts, peak-to-peak. The output of the amplifier is designed to deliver the standard level of picture and blanking signal with a maximum sync of 1.5 volts peak-to-peak. The amount of sync can be adjusted independently to any value between 0 and 1.5 volts peak-to-peak.

Filament power for all tubes is provided by a transformer mounted on the chassis. Plate voltage must be obtained from an external regulated power supply. The TA-5C is mounted on a recessed chassis for standard rack-mounting in either the transmitter room or the studio control room. The unit is $10\frac{1}{2}$ inches high, 19 inches wide, and $8\frac{3}{8}$ inches deep, and weighs 17 pounds.

LABOR - MANAGEMENT NEWS

The Secretary of Labor Says:

I would like to help change popular prejudices with respect to older persons. There is a disposition to think people have grown old merely because they have passed a certain birthday, without reference to their health and vigor. There is a widespread notion that, at a fixed time, older workers should give up their places to younger ones, and that without reference to productive capacity. And this is having a direct and bad effect on the employment situation.

It is harmful economically, and it is harmful to the national morale. We need the devotion of all our people if democracy is to win out. We must do nothing to let any segment of our population feel rejected or unwanted. The spirit of older workers was never so high as during the war when employers went into old folks' homes, recruited their residents for essential jobs, even designed jobs around them. If we could achieve full employment in wartime for destructive purposes, we should be able to achieve full employment in peacetime for constructive purposes. That means we must utilize all the skills of all our workers, old and young.

Our economy should function so that the capacity and devotion of all our people can be put to good use. That is full employment. Full employment is a situation where there are jobs equal to the number of people seeking work.

We must strive to make the hope of full employment a reality, leading to a 300 billion dollar national production in 1954, as pictured by President Truman, in his Economic Report.

Union Bargainers Entitled to Wage Data From Employer

The National Labor Relations Board has ruled that an employer must supply a union representing his employees with the wage data needed for collective bargaining in a form that will not interfere with bargaining.

The ruling was made in a case in which the company supplied an alphabetical list of employees and a separate list of pay scales in its various departments, but declined to match the two lists in such a way that the union could tell what individual employees were actually being paid.

The Board, by unanimous decision of a three-member panel, held that the employer had failed to fulfill the duty imposed by the law "to furnish this information in a manner not so burdensome or time-consuming as to impede the process of bargaining."

The Board ruled that the union needed this information to bargain effectively for the employees it represented and to determine whether or not the wage provisions of the current contract were being administered properly by the company. The Board also ordered the company to supply information on merit raises made under its contract with the union.

The company in the case is the B. F. Goodrich Co., of Akron, Ohio. The charges were brought by Local No. 5 of the CIO United Rubber Workers' Union, which represents approximately 20,000 employees at the company's Akron plant.

The panel was composed of Chairman Paul M. Herzog and Board Members John M. Houston and Abe Murdock. It was

delegated full power to act on behalf of the Board, in accordance with Section 3 (b) of the law.

The Board ordered the company to:

"Upon request, furnish to United Rubber, Cork, Linoleum & Plastic Workers of America, Local No. 5 (CIO), a list of all employees in the appropriate unit identified by name, department, and pay-roll number, and showing (a) the salary of each employee before and immediately subsequent to the horizontal increase of July 1, 1948, (b) the present salary of each employee, and (c) the number of performance rating points received by each employee in the last rating."

In another case, the Board ruled that a union was entitled to information on wage rates for the year before contract negotiations, but not for the two preceding years.

A three-member panel of the Board ruled unanimously that a union bargaining for a 1949 contract was entitled to have the names, positions, and wage rates during 1948 for the employees in the bargaining unit it represented. A majority of the panel held that it was not entitled to have this data for the years 1946 and 1947.

In denying the union's request for 1946 and 1947 wage data, the majority said that on the facts in this case: "The record before us fails to disclose the relevancy of such information to the negotiations under consideration."

The opinion was signed by Chairman Paul M. Herzog and Board Members James J. Reynolds, Jr. and Abe Murdock. However, Board Member Murdock dissented from the holding that the union here was not entitled to the 1946 and 1947 data.

The case involved the Yawman & Erbe Manufacturing Co., of Rochester, N. Y., and Local No. 34 of the Office Employees International Union (AFL).

The Board ordered the company to furnish the union, upon request, with "the names, positions, and current wages of the employees in the unit . . . in order to enable (the union) to discharge its functions as statutory representative of the employees in the appropriate unit."

EMPLOYEE BENEFIT PLAN REVIEW

Social Security changes are expected to stimulate the adoption of new retirement plans. Many employers have been waiting until they were certain what the changes would be before taking action.

Studebaker Corporation and Auto Workers—CIO have agreed on a non-contributory pension plan under a five year contract. Approximately 23,000 production employees are covered by the agreement. The general pattern follows the General Motors-UAW program, guaranteeing \$100 a month pensions, including social security, starting at age 65 following at least 25 years of service. Employees with 10-25 years service will get a minimum of \$4 a month for each year worked. Normal retirement will be 65, but employees can work until 68. Studebaker guarantees to pay at least \$1.50 a month retirement income for each year of service up to 30 years in case of normal retirement.

Profit-sharing retirement plans have been adopted by two Chicago firms—Zenith Radio Corp. and Thor Corp. Under the Zenith plan (non-contributory) the company will contribute

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Some Labor Contracts Provide Severance Pay For Workers

Only 168 out of a total of 2,100 collective-bargaining agreements recently studied by the Department of Labor's Bureau of Labor Statistics stipulate that workers losing their jobs through no fault of their own should receive separation allowances.

Separation benefits were included in 8 per cent of the agreements studied. This is slightly higher than the percentage of agreements with dismissal-pay provisions found in a similar study conducted by the Bureau in 1944.

Dismissal (or severance) pay is a sum of money, in addition to accrued wages or salaries for past work, paid to an individual whose employment is terminated through no fault of his own. The most common objective of dismissal-pay plans has been to ease the employee's financial burden while he is looking for a new job. Other objectives include the provision of partial compensation to the worker for retraining or acquiring new skills, as well as the maintenance of good will of employees, and the community generally.

Communications Well Covered

In the current survey about three-fourths of the 27 agreements analyzed in the communications industry and 60 per cent of the 46 agreements in the rubber industry contained such provisions.

Slightly more than half of the 63 agreements studied in the printing and publishing industry (primarily newspapers) provided for dismissal pay. In the iron and steel industry dismissal compensation was allowed in 12 per cent of the agreements.

There were other industry groups in which at least 10 per cent of the agreements surveyed included dismissal-pay provisions. These were petroleum and coal products; electrical machinery; chemicals; mining and crude-petroleum production; and banks, insurance companies, and other types of office employment.

Dismissal-pay provisions were written into the agreements of 41 national or international unions. Of these, 17 were affiliated with the American Federation of Labor and 16 with the Congress of Industrial Organization. The remaining eight were unaffiliated unions.

Among the individual unions, dismissal-pay provisions appeared most frequently in contracts of the American Newspaper Guild (CIO), Communications Workers of America (CIO), United Steelworkers (CIO), International Typographical Union (AFL), International Printing Pressmen and Assistants' Union (AFL), United Rubber Workers (CIO), and the United Office and Professional Workers (affiliated with the CIO at the time of the survey). In the collective-bargaining procedure of the American Newspaper Guild dismissal pay is a standard feature, with 201 of the 202 Guild contracts in effect in December 1949 containing severance-pay provisions.

Qualification Clauses

In 89 of the 168 agreements, the clauses simply stated that dismissal for "lack of work" or "reasons beyond the employee's control" was sufficient to qualify an employee for a separation allowance. These, as well as other clauses, generally provided that the allowance was not payable if the discharge was self-provoked or for causes such as dishonesty or gross neglect of duty.

Plans which scaled the amount of dismissal pay to the

worker's length of service were most widespread, 150 of the 168 dismissal plans being of this nature.

For 67 the agreements studied, the minimum amount of dismissal pay was equivalent to one week's earnings. Almost an equal number (66) provided a minimum of more than a week's pay.

The amount of dismissal pay was not limited in 59 agreements. In this group a frequent relationship between pay and service was to grant one week's pay for each completed year of service. In other agreements one week's pay was allowed for each year of service up to a specified number of years. Lumpsum payments, usually at the time of dismissal, were specified in all but seven of the 168 agreements with dismissal-pay clauses.

Seven agreements provided that an employee's earned dismissal pay could be converted to a death benefit payable to the beneficiary or estate of an employee. All but one of these were in the printing and publishing industry.

BENEFIT PLAN REVIEW—from Page 11

20% of profits before taxes after allowing a return on investment equal to, after taxes, to 6% of the net worth of the company or \$1,000,000, whichever is greater. Twenty per cent of the employee's credits are vested after two full years' service and vesting is increased by 10% for each year of service thereafter. Credits are based on total earnings up to \$6,000 and are "weighted" by years of service. Employees with less than one year of service receive 100%. This is graded up to a 300% maximum for 20 or more years' service.

The Thor Corp. plan is contributory. Employees are given the choice of contributing 2%, 3%, 4%, or 5% of their salaries. Thor will contribute 10% of its annual domestic net operating profit before income taxes, and before deducting Thor's contribution to the fund, but after deducting capital losses. In figuring the above, the following items are disregarded: 1, Gains from the sale of assets other than stock in trade. 2, Income and losses from foreign operations. 3, Royalties.

Death benefits under an uninsured pension plan are taxable as a distribution to the beneficiary in accordance with provisions of Section 165(b), the Bureau of Internal Revenue has ruled in PS No. 63.

UAW-DIST. 50 PLAN

A booklet describing its "model" pension plan has been issued by United Construction Workers, Dist. 50 United Mine Workers. The plan has been established in industrial plants in more than a dozen states. It is non-contributory, *jointly administered* and benefits are not related to social security or any other source of income. Pensions start at 65 after 20 years' service and employees with 10 years' service are eligible for proportionate amounts at 65. Retirement is not compulsory until 70. Two trustees represent the union and two the employer and their powers include the naming of the corporate trustee, Edward E. Kennedy, research director, prepared the pamphlet. Much of the text is devoted to demonstrating Mr. Kennedy's contention that the plan is superior to the steel pension plans.

College Graduates' Job Prospects Surveyed By Secretary Tobin

With about 500,000 college students graduating this year—the largest number in our country's history—the job outlook for the new college graduates is generally good, Secretary of Labor Maurice J. Tobin advised students in a series of short articles prepared for their college publications.

Secretary Tobin pointed out, however, that while basically the economy of the country is strong and production and employment will remain high during 1950, jobs for the new graduates will not be as easy to find as in 1947 and 1948. The outlook is clouded, he says, by three factors: the large number of graduates who will seek jobs; a moderate increase in unemployment; and the fact that the graduating class of 1948 and 1949 filled war-created shortages in some specialized fields.

The consensus is that production and employment will remain high during 1950. The big problem facing the economy is that of constantly providing more goods and services and utilizing fully a labor force that is growing at the rate of 600,000 to 700,000 workers a year. Even if employment continues during 1950 at about the same level as 1949, as is expected, unemployment will increase and jobs will be harder to find.

Brighter Aspects Cited

"This is not to say the outlook is bleak," Secretary Tobin continued. "In some localities and in some occupations there will be jobs in abundance. And our economy is so strong and prosperous that the long-range growth possibilities are

limitless, if we as a Nation concentrate efforts to expand employment opportunities to keep pace with the growing labor force. Nevertheless, the fact remains that, on the average, you who are graduating this year will have to hunt longer and harder than your immediate predecessors before you find the job you want and for which you are trained."

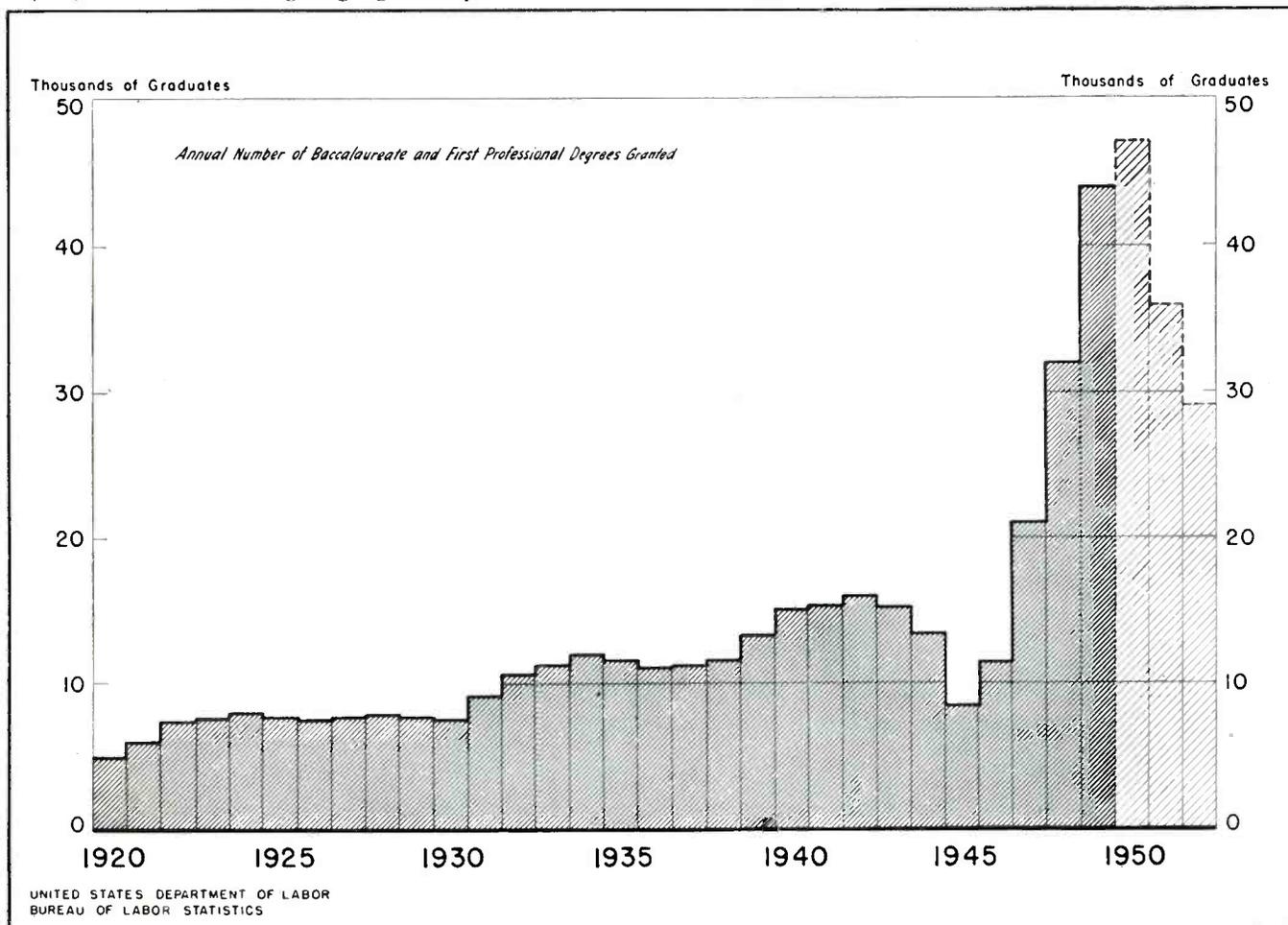
Graduates seeking information on expanding industries or sections of the country need to remember this basic fact: most of the jobs taken by this year's college graduates will be, as usual, those which have been vacated by other workers. Deaths and retirements at the top of the occupational ladder create the largest number of openings at the bottom. It follows that most of the openings will occur in the target industries and the areas where there are now the heaviest concentrations of employment.

Expansion Creates Jobs

To emphasize that most job opportunities occur as a result of turn-over is not to belittle the number that arise through expansion. Growing markets, technological improvements, and the development of new industries and additional services all create job openings for workers with the proper training.

For many college graduates of the class of 1950, the fact that American industry is in a period of intense competition for markets will be the major reason for success in finding employment. Industry responds to competition by pushing sales efforts, cutting production costs, streamlining operations, re-

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LABOR LAW INTERPRETATIONS

Questions and Answers on Selected Provisions of the New York State Labor Law

Prepared by the Legal Unit of the New York State Department of Labor
under the Supervision of Deputy Industrial Commissioner
and Counsel Abraham H. Goodman.

Question—Are payments made by an employer to a union for a group insurance fund pursuant to a collective bargaining agreement to be considered as part of the remuneration paid to an employee in computing the minimum wage?

Answer—It is the position of the Department of Labor that payments made solely by an employer to a union pursuant to a collective bargaining agreement for a group insurance fund may not be considered as part of the remuneration to each employee in computing the minimum wage.

Question—Must one apply for a license to operate an employment agency?

Answer—The Department of Labor has no jurisdiction with reference to license requirements under the Employment Agencies Law, Article 11 of the General Business Law.

The Employment Agencies Law applies only to cities except that provision which relates to Domestic and Household Employment agencies applies to cities of the third class.

One who is interested in opening an employment agency should consult the locality in which he proposes to conduct business to ascertain the requirements imposed by the individual locality.

Question—What are the requirements in the law concerning the use of goggles and safety shoes in foundries?

Answer—The requirement in law for goggles and safety shoes is contained in Industrial Rule Number 10 as promulgated by the Board of Standards and Appeals of the Department of Labor, entitled "Rules relating to the Equipment, Maintenance and Sanitation of Foundries, and the Control of Dust, Gases and Fumes in Foundries."

The Rule in question reads:

"Where the eyes of employees are exposed to injury by dust, flying chips, molten metal, or radiation, they shall wear approved goggles, which shall be furnished by the employer.

"All persons engaged in manual labor, handling heavy objects, shall wear shoes with protective toe boxes."

The provision in the Labor Law relating to the general duty to protect the health and safety of employees reads:

"All places to which this chapter (Labor Law) applies shall be so constructed, equipped, arranged, operated and conducted as to provide reasonable and adequate protection to the lives, health and safety of all persons employed therein. The Board (Board of Standards and Appeals) shall make rules to carry into effect the provisions of this section." (Section 200 of the Labor Law.)

The Courts have ruled that compliance with Section 200 of the Labor Law is the duty of the employer.

Since the Industrial Code Rules relating to goggles and safety shoes implement Section 200, as authorized by the section, it follows that compliance with these rules is a duty imposed on the employer.

The Industrial Code Rules are comparable to the provisions of the Labor Law.

"The rules of the Board (Board of Standards and Appeals) shall have the force and effect of law, and shall be enforced in the same manner as the provisions of this chapter (Labor Law)." (Section 28 subd. 4 of the Labor Law.)

A violation of an Industrial Code Rule carries the same penalty as does a violation of a provision of the Labor Law. (See Sec. 1275 of the Penal Law.)

It is the position of the Labor Department that it is the duty of the employer, without exception, to furnish goggles and safety shoes to his employees as required by the Industrial Code Rules quoted above. The failure of employees working in the employer's plant to wear goggles and safety shoes as required by these Industrial Code Rules is a violation of the Rules for which the employer is responsible.

Question—Is there a New York State Law which requires the payment of overtime rates to employees engaged in the manufacture of fishing articles?

Answer—There is no law in New York State which requires the payment of overtime rates to employees engaged in the manufacture of articles used in fishing. If any employees of such an establishment are engaged in interstate commerce or in the production of goods for interstate commerce, however, the Federal Fair Labor Standards Act might apply.

Question—May an employer who provides a medical examination for all new employees require the employees to contract that he may deduct the expense of this examination from the wages of an employee who voluntarily leaves the job before having worked 30 days?

Answer—The employer may require new employees to sign a contract. It is the position of the Labor Department, however, that a deduction from an employee's wages for the expense of such a medical examination would be illegal under Sections 16, subdivision 2, and 197 of the Labor Law in any case—whether the employee failed to work at least thirty days or not.

NATIONAL PROSPERITY

By CHESTER M. WRIGHT

I've just been going over some statistics and reports on general business conditions.

By and large, reports are exceptionally good. Much better than was forecast six or eight months ago.

Employment runs to about 60,000,000 jobs at least. Perhaps a better figure is 61,000,000—a million more than Henry Wallace wanted to plan for.

Big lines, such as steel and autos are booming. Dividends are big, but there can be a question whether in many cases they are as big as they ought to be.

Some companies seem inclined—as they have been always—to pile up more reserves and contingency funds than appear either wise or necessary, although Uncle Sam steps in with some limitations now through Internal Revenue.

But the whole point is that most business is going great

guns, with profits high and employment likewise high.

As an amateur economist it seemed to me many months ago that our domestic economy would have to roll in high gear, even though to some degree we are doing the high rolling by borrowing from the future.

The condition of prosperity must continue at least through another year.

Now consider one amazing fact: We have this domestic prosperity while we are pouring out enormous amounts of money and goods to other countries, with no equivalent return to us.

Thus it is clear that we can produce plenty for ourselves and still give away cash and goods running into billions, both in Marshal Plan aid and in European and Asiatic re-armament. That comes near to being something of an economic miracle.

It is another quirk of our economy that if we were producing at our present level and NOT giving a lot of it away, we should have a glut of "over-production"!

Taking it from there, if we had that glut of over-production we should find mills and factories shutting down, with unemployed lines getting longer.

Isn't it odd? Yes, it is!

However, if we have to get our prosperity by means of giving away our surplus, let's keep on giving it away, for that's what we shall have to do anyway, like it or not.

Of course there are spots in the national economy that are not so good.

It will be a good idea for union economists and statisticians to watch closely the pleasure resort figures this summer. They can be—as they have been—a pointer to what lies ahead generally. People cut out pleasures first, naturally.

Those who remember will recall that Miami, Florida, went to the cleaners just about an even year ahead of the 1929 bust.

Right now it is showing signs of another slump, but not sufficiently to serve as a barometric guide.

Now finally, there is one powerful agency that is doing as much as any other to keep standards high and prosperity within sight.

That is union labor, with its constantly improving wage scale and its steady betterment of working conditions.

To be sure, there is some room to question whether labor, as an over all proposition, is leading or following in the wage-price spiral. But there is no doubt about the fact that the steady gain in envelope content on pay day is making it possible to absorb a constantly rising proportion of our national production and thus do a big job in preventing accumulation or unsalable surpluses.

That gain is going to continue and as it continues it will keep on contributing to national economic soundness. It helps to get ready for the day when Marshall Plan aid stops and—maybe—when foreign re-armament stops.

Unless, ladies and gentlemen, unless Russian dictatorship decides that the hour has struck to force us into war, in which event all bets on forecasts are off. And that can happen.—CMW.

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WASHINGTON

By W. D. DEEM

It seems every place I went this month collecting news, the first thing the fellows said was 'the war scare is the biggest news here.' Wayne Bates, an engineer at WNBW in his early twenties, single and in the National Guard, said, trembling, "wawaWhat-me scared of the draft, shucks man, you're right, I'm practically on my way."

The Washington Chapter extends congratulations to our new top officers, Mr. Paul Malik, President of the Washington Chapter and Mr. Stanley Egbert, new Secretary-Treasurer. Both of these men were formerly councilmen—Paul of the WOIC group and Stan. of the WMAL-TV Xmr. group.

Credit was given where credit was due one Sunday last June. Paul Anderson, the retiring President of the Washington Chapter was commenting upon the amount of program time of the Armed Forces Hour that came from the Master Control Studios on film, the rest being live from the WNBW studios and giving TD credit to Mr. L. A. McClelland. The following Sunday while Paul was at the MC desk, what should come up on the final credits but a neatly painted sign reading, *Technical Director, Mr. Paul Anderson*. Paul had nothing more to say about the situation, he was happy.

A letter was received by the office of C. H. Colledge from NY giving praise to the picture quality of programs originating from the Washington studios. I was talking to Frank Gaskins of WNBW Master Control and his comment on the subject was, "You know, Warren, they must have been talking about film out of Washington because every time you guys are on down there it seems that

A. T. & T. calls up and wants to know what's wrong with the picture." I know he must have been kidding though. (Frank's a swell guy and the pictures couldn't be as bad as that.)

New man at the WMAL TV Xmr. is Kline Mingle. Kline was formerly at WOL transmitter. He is still a member of NABET.

Recently arrived at the WNBW studios from downtown WRC field is Keith Williams. Keith has over 15 years with NBC and would like to add television to his list of accomplishments.

I want to pass out a couple of bouquets to Messrs. Leon Chromak and Bill Wells for doing a wonderful job of helping put over RCA's Color TV project. Both fellows have worked very long hours and have devoted lots of their days off to the field testing of the system.

MOHAWK

By JOHN F. McMAHON

Vacation time is upon us and mine starts Monday, so this being Saturday, I guess I had better get out a bit of gas for the BEJ. I won't be around for about a month or so.

Red Wilson is due bak about the time I leave. He is now a country gentleman and put some of the vacation time in on landscaping the new place.

Joe Gagne is to be gone for a bit too, but it will be quite a while before he gets back as Joe is changing jobs.

By the time this gets into print, Newt Barnes should have the roof on his new house, at the rate he's going. He picked up a terrific suntan and some of his old friends don't recognize him now.

I heard Joe Girolami get an air credit the other day. Guess it pays to stay in good with the announers, eh?

With all the talk of new contracts, I was thinking, (and not alone), that maybe we should get into the swing too, just for laughs—and money.

We had an IRE meeting on the Hill at WRGB Tele xmr. this week and it was quite a time—free beer, coke, etc.; but I never saw so much beer left at any congregation of radio men.

Of all the fellows who came up here, the one who really puzzled us was the guy who wanted to see the horizontal pulse on the picture. I think we finally convinced him that it can't be done, after which we checked with Don Norgaard and he assured us that we were right.

Speaking of Don, he tells us that he is running an effective 1.8 megawatts on twenty meter phone. Before the FCC

gets excited, I'd better explain that this is due to the use of a speech compressor, single sideband, one kw input and a beam which gives about fourteen DB gain. From what Don said, this single sideband is really effective.

Marce Reeds is a recent Papa and we hope the new offspring isn't giving the ham rig too much competition.

I think we should add NBI (new baby interferene) to the list along with BCI, TVI and the new one HAI (hearing aid interference).

Hort Mosher made the front pages a week ago with an eyewitness account of the fire at the Voorheesville Army depot. He and Brownie Pulliam were on the Hill when the deal broke out and had a fine view of the proceedings. It was a pretty expensive blaze. That's where my taxes go!

Herb Kohl had a very nasty auto accident not long ago. Some clown ran into the side of his new Ford and battered it pretty badly. Herb was lucky to get off with only a dislocated finger.

The lads at WGY Studio have another new Ampex tape recorder. Guess they won't have to do any live shows down there now.

BCNU es & 73's.

MAC.

ROCHESTER STORY

By B. HOLLY

Rochester Chapter, May meeting—Ed. Lynch, NABET Veep unanimously elected Chairman for new two year term. Doug Carveth appointed Secretary, Al "gimme the dough" Barons, Treasurer. Councilmen elected for here and there—WRNY Ed. Menzner, alternate Leo Halpin; WVET studios Al Klein, alternate Joe Massafaro, WVET xmr. John Micsak, alternate Bob Treacy; WHEC studios Walt Lynch, alternate Al Keltz; WHEC xmr. Ray Jobs, alternate Dick Sanderl; WHAM studios Bernie Lynch, alternate Art Ziehm; WHAM xmr. Clyde Parker; WHAM-TV studios Elmer Grabb, alternate Fred Ambrose; WHAM-TV and WHFM xmtrs. Alex Gresens, alternate Scoop O'Brien.

Vacations now in full swing, with Dick Reber and Jim Pritchard doing the relief pitching at the WHAM studios, and Carl Leurgens, Mike Graeco, Charlie Long filling in at the tmrs.George Rimmelman transferred from WHAM AM operations to TV studio work.George Norton WHEC SE, vacationing out Missouri way and Ray Gondek off on the long trip to the West Coast.

To Page 19



Review of Current Technical Literature

By Lawrence W. Lockwood

Audio Engineering—March 1950

Basic Video System Planning—C. Rackey

A dileneation of the fundamental requirements for a complete television broadcasting plant.

CBS TV Sound Effects Console-1—R. Monroe, P. Fish

Production of television programs with optimum sound effects and a minimum of confusion demands flexible audio facilities designed specifically for the purpose.

Steps To Improve TV Audio—A. Davis

Consistency of sound quality is more desirable than occasional perfection. The author proposes a solution which involves the use of an equalizer which is variable over a wide range.

White Noise Testing Methods—E. Cook

Description of a testing procedure which permits an instantaneous evaluation of amplifier or component performance and which extends beyond most constant frequency testing methods.

An Impedance "Jig"—A. Smith

Details of a simple instrument which will save time and provide information useful in selecting components or in evaluating those whose characteristics are unknown.

Audio Engineering—April 1950

The KB-3A High Fidelity Noise Cancelling Microphone—L. Anderson, L. Wigington

A new microphone design of especial interest to broadcasters and public address operators for close talking applications.

Overcoming Fletcher Munson Effects—N. Grossman, M. Leifer

Presenting a simple method of compensating for the natural characteristics of the ear for various listening levels.

FM TV—March 1950

Continuous Tuning For TV Sets—B. French

Details and performance data on the new DuMont 4 section head end designed to tune continuously from 54 to 216 mc.

TV Applications of the 6BN6—R. Gray, W. Stroh

Advantages of using the gated beam tube as an audio limiter discriminator and video sync clipper.

NABET CONSTITUTIONAL AMENDMENTS

Adopted Feb. 1950

(Trim down to 3 $\frac{3}{8}$ " x 5 $\frac{3}{4}$ " and Scotch tape to your gold-colored copy of the NABET Constitution dated "Jan. 10, 1949")

Art. IV, Sec. 1(a).

The National Council shall consist of a National Councilman from each Chapter of the Association, who shall be elected by a vote of each Chapter as hereinafter provided. The term of office of National Councilmen so elected shall be for two (2) years, except as provided in Art. 6, Sec. 6(a), and hereafter until their successors shall have been duly elected.

Art. IV, Sec. 4(e), (last sentence has been amended to read):

Any vacancy shall be filled by an interim appointment by the President.

Art. VI, Sec. 6. Chapter Elections.

(a) Elections for all officers, except as hereinafter provided, shall be held between May 1 and June 15 of each year and shall be officially completed and the results reported to the National Office not later than June 15 of that same year. Elections for Chapter Councilmen shall not begin until a Chapter Chairman has been elected. Each member in good standing shall be entitled to cast one vote in Chapter elections by proxy or by mail. The methods for such proxy or mail vote shall be determined by the Chapter. Procedure for Chapter elections shall be in accordance with the By-Laws of each individual Chapter.

(over)

Radio Relays vs. Wire Lines—F. Budelman

Why the use of radio relays is expanding.

Practical Wireless—April 1950 (British Pub.)

Recording Sound Effects—K. Bourne

The principles and practice of recording sound effects for dramatic performances and for synchronized cine sound tracks on tape.

Proceedings of the IRE—Feb. 1950

A Microwave System For Television Relaying—J. Millar, W. Sullinger

The transmission requirements for radio relay systems for television network operation are discussed.

Spurious Modes in Coaxial Transmission Line Filters—D. Mode

Some equations are presented for the cutoff frequencies of such spurious modes, and supporting experimental data is included.

(b) Elections for Chapter Chairman shall be held as provided above except that they shall be held every two years as provided hereinafter. In order to provide for a continuity of experienced National Councilmen, such two-year terms shall be initiated and elections shall be held during odd numbered years beginning in 1951 in the following Chapters: New York, Detroit, Dixie, Hollywood, Rocky Mountain, Omaha, Rochester, Pittsburgh; and such two-year terms shall be initiated and elections shall be held in even numbered years beginning in 1950 in the following Chapters: Engineering, Chicago, Cleveland, Mohawk, Philadelphia, San Francisco, St. Lawrence, Syracuse, and Washington. In the event of consolidation of any two or more Chapters, or the addition of other Chapters, the Executive Board will designate the voting year for such Chapters. Chapter Chairmen shall assume office on July 1, following their election. (The Executive Board has placed Metropolitan New York Chapter in the odd numbered year group of Chapters.)

Art. VII, Sec. 1(a) (Third sentence has been amended by deleting the words, "immediately following their elections" and substituting therefor the words "July 1st"—to read:

"Newly elected Councilmen shall take office July 1, and shall serve for a term of one year or until their successors shall have been elected."

(over)



METROPOLITAN NEW YORK NABET NEWS

By
TED KRUSE

Elections for Chapter officers and Councilmen are now over. We sincerely hope that careful attention was paid to the selection of candidates. These gentlemen and in particular the Chapter Chairman will be blamed for everything that goes wrong including malicious rumors started by mis-

guided members. The choice of Group Councilman is particularly important, as these members are your direct contact in the Chapter Council. Councilmen should therefore be picked for their ability and knowledge of union affairs, and not because they are the only suckers willing to sacrifice one evening a month for meetings. Your Councilman is the one to blame for your lack of information on union activities.

Speaking of information, we wonder how many of you read President McDonnell's May report. In it the President wonders if these reports are read and, if so, by whom. He asks that each officer and member who reads these reports, address a post-card to, President's Office, 375 O'Farrell Street, San Francisco 2, Cal. It will be sufficient to write, "I read the monthly report." Please indicate the name of your Chapter on your card.

We deplore the fact that a (j.g.) minority of our members have so little faith in their organization and representatives, that they would resort to unauthorized and mediocre counsel. This might be the final proof necessary to show that NABET is a democratic union, and that no group is going to dictate to the membership. At the same time we like to think that NABET is composed of members of above average intelligence. Of course, some of the local chapters may feel that conditions were never better, and that we could only stand to lose by asking for changes in working conditions or salary or both. A progressive union cannot rest on last contract's laurels. Conditions, whether economic or social, are always changing. These changes demand constant attention and re-adjustment. A union such as NABET has moral responsibilities to not only its members, but to the company or organization that hires its members. You cannot demand conditions which are detrimental to the company in its dealings with competitors in the industry. This is a fact that some of us overlook around negotiation time.

JOB PROSPECTS—from Page 13.

placing equipment, and by redesigning products and plants.

General observations about conditions in the job market tend to hide widely varying situations. Prospects are excellent in some occupations, industries, and areas. In others, where wartime and postwar shortages have now been filled, many graduates will find it difficult to get jobs.

The employment outlook as summarized in Secretary Tobin's review is as follows:

In *teaching*, an acute personnel shortage in elementary schools accompanied by a growing oversupply in high schools; stiff competition in *law, journalism, and personnel work*; in *engineering*, opportunities for graduates will be better after 3 or 4 years; in *chemistry*, competition keen among persons without graduate training but outlook better for those with graduate degrees; probable oversupply of *business administration* graduates and a surplus already in *accounting*; prospects good for *health service occupations*; rising demand for *nurses*; good opportunities in *medicine and dentistry*; in *pharmacy* the profession not yet overcrowded; good opportunities in other occupations related to health service, such as *veterinarians, medical X-ray technicians, medical laboratory technicians, dental hygienists, physical therapists, occupational therapists, and dietitians*.

ROCHESTER—from Page 16

Nelson Smith returned to WHAM after several years with Eastman Kodak. "Smitty" had over 15 years with WHAM previously as SE and now assigned to TV maintenance.

Howie Mouatt WHEC studio Super, sporting around in a new Buick. Craig Williams, WHEC SE with a new Nash and Ted Cullian WHAM TE, boasting a new Hudson.

BLESSED EVENTS DEPARTMENT

Al Keltz, WHEC SE happy Poppa of a baby boy, also celebrating his working the 200th country on the ham rig. The Irv Hoffmans WRNY SE celebrating two firsts, a baby girl, their first, born on Irv's first day of his vacation. Irv recently received a check from Uncle Samuel's income tax refund department for two cents; promptly cashed it, saying "every penny counts now." Also the Fred Ambroses expect to have an announcement for this department soon.

NEWLYWED DEPARTMENT

Carl Cleveland, WRNY and Bernice Huchinson of Leroy, N. Y., on June 10. Bill Bullock, WHAM TE, and Lois Buell of Holcomb, N. Y. Don Poole, WHAM-TV cameraman, and Betty Newcombe of Gowanda, N. Y. on June 17. Don started out on the honeymoon trip and 45 minutes later discovered he had forgotten to pack HIS suitcase in the car; had to return and start all over again.

WVET negotiations finally completed and contract signed. WHEC still in the throes of negotiation.

Congrats to Ed. Cole, WVET on his promotion to Assistant Chief Engineer.

WHAM-TV in trouble June 23, when lightning smacked the telephone cable connecting studios and xmtr. taking all the audio lines OUT. Orm Bullis and "Wee Willie" (250 lbs.) Reynolds wading thru the water on the studio roof to put up an emergency microwave link to feed TV sound to the Pinnacle Hill xmtr.

Charlie Snyder and Elmer Grabb both WHAM-TVers and Norm Briggs, WRNY getting their mobile rigs into operation for the summer hamming.

RMA To Lead Industry's Battle Against Proposed TV Excise Tax

As a blow to continued development of television, including cheaper TV sets and expansion of TV broadcasting, and as a heavy burden on the nation's newest and fastest-growing industry, the Treasury's proposed 10 per cent Federal excise tax on television receivers is arousing widespread industry opposition on the

grounds that it is discriminatory, the Radio Manufacturers Association said today.

Vigorous industry protests against the proposed tax were registered with the House Ways and Means Committee, and it was pointed out that the tax proposal is the only increase in excise taxes recommended in the Administration's tax "reduction" program.

WCEMA-IRE Meeting

The 6th annual Pacific Electronic Exhibit will be staged Sept. 13-15 at the municipal auditorium in Long Beach, Cal. The annual coast IRE convention will also be held at the same place and time.

L. W. Howard is show committee chairman for WCEMA, sponsors of the event, and Lloyd C. Sigmon is IRE liaison chairman with the WCEMA group.

WCEMA will stage field trips for visiting jobbers to see Southern California electronic plants and distributor organizations. The trips, of course, will be in addition to the IRE field trips that have been tremendously successful for many years.

RCA's TV Antenaplex Now Available In All TV Areas

The RCA Television Antenaplex System, a multiple-outlet master system which offers solution of TV antenna problems for apartment houses, hotels, stores, schools, hospitals, and office buildings, is now available for installation in television areas throughout the nation, the RCA Engineering Products Department has announced.

The system was first publicly announced last May, but initial sales were restricted to the Eastern Seaboard because of limited availability of the specialized facilities required for the most effective installation.

Designed to meet requirements of both landlords and tenants by providing TV antenna outlets in all apartments, offices, or other space units with a minimum of rooftop equipment, the system consists essentially of an individually tuned antenna for each transmitting channel in the given area, a master signal amplifier to boost the signals received on all channels, and one or more vertical lines of coaxial cable, running through pipe wells

in the walls, with branch connections for all outlets.

To obtain the highest quality reception on all channels in use, the tenant in a structure equipped with such a system needs only to plug the receiver's antenna connection into a wall or floorboard outlet, in the same way that the power cord is plugged into a utility outlet. In addition to eliminating the necessity for individual antenna installations and greatly reducing rooftop construction, the master system does away with the mutual signal interference presented when individual antennas are erected close together.

A trend among metropolitan realtors toward inclusion of such systems as integral engineering features of multiple-dwelling structures, on the same basis as heating, plumbing, and ventilating systems, was seen in the recent action of three large New York apartment owners. In the first joint move by realtors to solve the TV antenna problem for apartment dwellers, owners of Schwab House at 11 Riverside Drive, and developments at 40-44 Park Avenue and at 715 Park Avenue signed contracts with the Commercial Radio Sound Corporation, RCA sound products distributor in the New York area, for installation of RCA Antenaplex systems in these projects during construction.

Additional Subminiature Tube Types Now Available

Two additional Sylvania subminiature tube types, a medium-mu triode and a high-mu triode, are now available through authorized distributors, according to an announcement by Sylvania Electric Products Inc.

Type 5645 medium-mu triode is a T-2 suitable for Class A amplifier applications. It is 1.3 inches long and 0.31 inches in diameter. Under typical operating conditions the tube will have a transconductance of 2700 micromhos and an amplification factor of 20. Maximum rated plate dissipation is 1 watt and plate resistance is 7400 ohms.

Type 5646 high-mu triode is a T-2 suitable for Class A amplifier or resistance coupled amplifier applications. It is 1.3 inches long and 0.3 inches in diameter. Under typical operating conditions the tube will have a transconductance of 2400 micromhos, an amplification factor of 70 and a plate resistance of 29,000 ohms. Maximum rated plate dissipation is 0.3 watt.

Both subminiature types have 6.3 volts, 150 milliamperes heaters and flexible leads for direct wiring to circuit.

TV IN BRAZIL

Brazil's largest radio network—Emissoras Associadas—plans to introduce television at the fast-growing business center of Sao Paulo, and all equipment will be supplied by the Radio Corporation of America, it was announced by Meade Brunet, a Vice President of RCA and Managing Director of the RCA International Division. He said the station is expected to be on the air in the summer of 1950.

Arrangements for the installation of the television transmitter, as well as associated studio and mobile pickup equipment, were begun in 1948 and concluded during the recent visit to the United States by Dr. Assis Chateaubriand, Director General of the Brazilian network, according to Mr. Brunet. He said the transmitter and antenna will be located atop Sao Paulo's highest edifice, the State Bank Building.

"The installation," said Mr. Brunet, "will include what is known as a three-bay super-turnstile antenna which is to be 520 feet above street level and which is capable of radiating 20 kilowatts of power. New studios now are under construction in a Sao Paulo suburb called Sumare. Since the city's power supply is of 60 cycles, it will be possible to use United States television standards of 525 lines and 60 fields. The station frequency band will be on channel No. 3.

"Provisions are being made for the use of RCA microwave transmitting equipment between the studio, outdoor mobile pickup units and the main transmitter.

"RCA and Emissoras Associadas plan to have television an accomplished fact in Brazil during the summer of 1950."

The contract providing for the installation was arranged through RCA Victor Radio, S. A., the Brazilian associated company of RCA.

In his announcement, Mr. Brunet revealed that since 1946 the Brazilian network has purchased from RCA 11 radio broadcasting transmitters, which have been erected in that country's principal cities. He said the network had recently purchased two 50-kw transmitters for installation at the strategic ports of Bahia and Porto Alegre. At the same time, a 10-kw transmitter was purchased for installation at Recife.

Other RCA transmitters in Brazil are in operation in Rio de Janeiro, Sao Paulo, Belo Horizonte and Fortaleza. They include two 50-kw, two 10-kw, one 7½-kw, two 5-kw and one 1-kw stations.

TV INTERFERENCE

In many cases of interference to television reception it has become almost automatic for the receiver owner or installing service technician to blame an amateur radio station.

The Federal Communications Commission has just exploded this myth.

Writing in the special January television issue of "Radio-Electronics," William L. Kiser, FCC Engineer at New York City, affirms that "Investigations by Commission engineers have time and again proven conclusively to the set owner that the amateur is operating within his rights and that the apparent interference is due to inadequate design features in the television receiver."

Kiser's article describes some of the many other types of interference which exist: FM and short-wave broadcasting, diathermy, commercial radio-telegraph—and even spurious radiations from neighboring television receivers.

Citing the unwillingness of many receiver owners and service technicians to face the facts, and their tendency to jump at an "easy" solution by blaming an amateur, Kiser calls it "the amateur alibi." While most amateurs are willing to cooperate in interference cases, he says, unfounded accusations often preclude cooperation.

The FCC engineer places a very large part of the whole interference problem "right in the lap of the manufacturers." In designing, he says, they have "erred somewhat on the side of insufficient rejection" of unwanted signals.

GALLIUM

Wanted: Commercial uses for a costly, little-known metal which will melt when held in the hand, and has other unusual properties of so far undetermined utility.

Briefly stated, that is the problem of a group of scientists at The Eagle-Picher Co. laboratories. They produce a unique metal in considerable quantity but as yet have learned of no major use for it.

The metal is gallium, a by-product of the extraction of lead and zinc in the tri-state area of Missouri, Kansas and Oklahoma.

At present a price of \$1,300 a pound is quoted on the silvery, unusual material by The Eagle-Picher Co. Small quantities have been sent to laboratories over the country doing various types of research.

So far the most important work on potential uses is being done by the Navy

in experiments at Bethesda, Maryland. A radioactive isotopic form of one of the gallium salts has been injected into test animals and autoradiographs made of the animals' bones.

These show that the material has the ability of going direct to the growth areas within the bones and concentrating there. Since gallium, in this form, has a relatively short radioactive life, there are indications that it may prove valuable in diagnosis and possible treatment of cancer of the bone. Work done so far is still in the preliminary stages.

Those who are producing metallic gallium believe that other uses will be discovered, sooner or later, and that the supply of metal that has been accumulated eventually will be in demand for some yet undiscovered purpose.

Ordinarily one thinks of rare metals as being stored in vaults or similar safe storage spots. With gallium, the situation is quite different. Stocks have to be kept in a refrigerator because of a little known property of the rare metal.

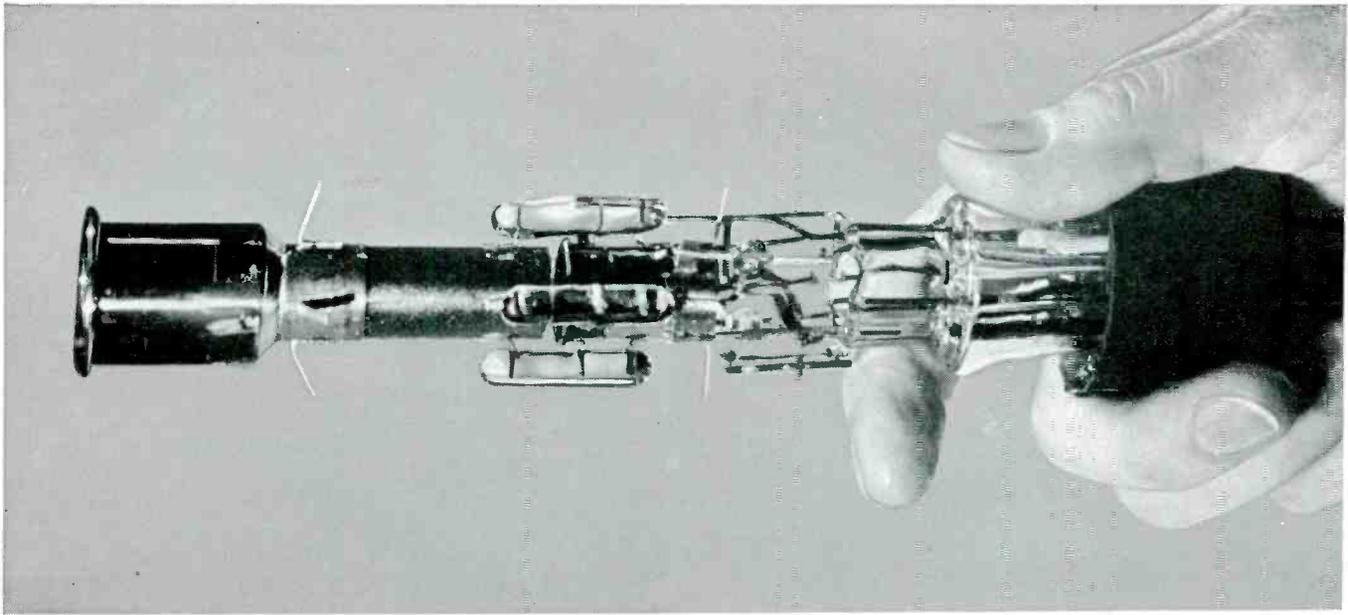
This is its extremely low melting point of 85 degrees Fahrenheit. As it is prepared for sale to laboratories it is in the form of metallic crystals of a distinctive thickened leaf shape. At ordinary summer temperature these will melt into a silvery liquid if not refrigerated.

As the temperature drops below 85 the metal again solidifies. Thus the cold storage method is necessary to keep the material in a constant form.

Since interior body temperature is 98.6 degrees Fahrenheit, gallium is readily melted by body heat. When a piece of it is held in the clenched hand there is a distinctly cold sensation as the material is warmed and begins to liquefy. Soon one edge gives way, just as a silver coin would under more intense heat, and the metal flows out between the fingers.

For a time it was thought that another property of gallium, its high boiling point of 3500 degrees, might lead to its use as a heat transfer agent in atomic power piles. However, this possibility later was discounted because of the relatively small amount of the metal in existence, and the large quantities of material that would be required for extensive atomic power development.

If it concerns the
RADIO-TV MAN
he will read it in
THE BROADCAST
ENGINEERS'
JOURNAL



Electron gun which generates the pencil-like beam or "brush," of electrons that paints the television picture on the kinescope's luminescent face.

Wonderful peacetime "gun" shoots electrons

How a pencil-thin electron stream
"paints" television pictures on TV screens

No. 7 in a series outlining high
points in television history

Photos from the historical collection of RCA

● Though television now is familiar to millions, few know what makes pictures on the screens of home receivers. And little wonder! This, to most laymen, is a highly complex operation.

Many factors are involved, but in home receivers the kinescope tube—developed by Dr. V. K. Zworykin of RCA Laboratories—is undoubtedly most important. The face of this tube is the receiver's "screen." On it, an amazing electron gun paints pictures in motion.

Inserted inside the kinescope—in a vacuum 10 times more perfect than you'll find in any standard radio tube—this electron gun is machined and assembled with watchmaker precision . . . to 1/1000th of an inch. Such care is necessary to assure that the electron stream, emitted by an electrically heated surface, is under perfect control—compressed into a tiny beam, in perfect



After this white-hot block of luminescent material is taken from the furnace, it will be spread on the face of a kinescope to form the screen for television pictures.

synchronization with the electron beam in a distant television camera.

In obedience to a signal originating in the camera controls—then telecast and received in your home—this electron beam moves back and forth across the luminescent screen of the kinescope . . . to paint areas of light and shade. In turn, your eye automatically "combines" these areas, and sees a picture!

One of the miracles of all this is that, although the electron beam moves across the face of the kinescope 525 times in a *thirtieth of a second*—not a single mechanical moving part is involved! Thus there is no chance, in a kinescope, of any mechanical failure.



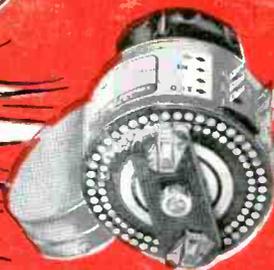
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