

The Broadcast Engineers' Journal
30 Rockefeller Plaza
New York, N. Y.

If addressee has moved, notify sender
on Form 3517, postage for which is
guaranteed

FAY L. HRES
RADIO STATION WBBF-4E0A
PFD 3
EVANSVILLE IND 5145

Sec. 562, P. L. and R.

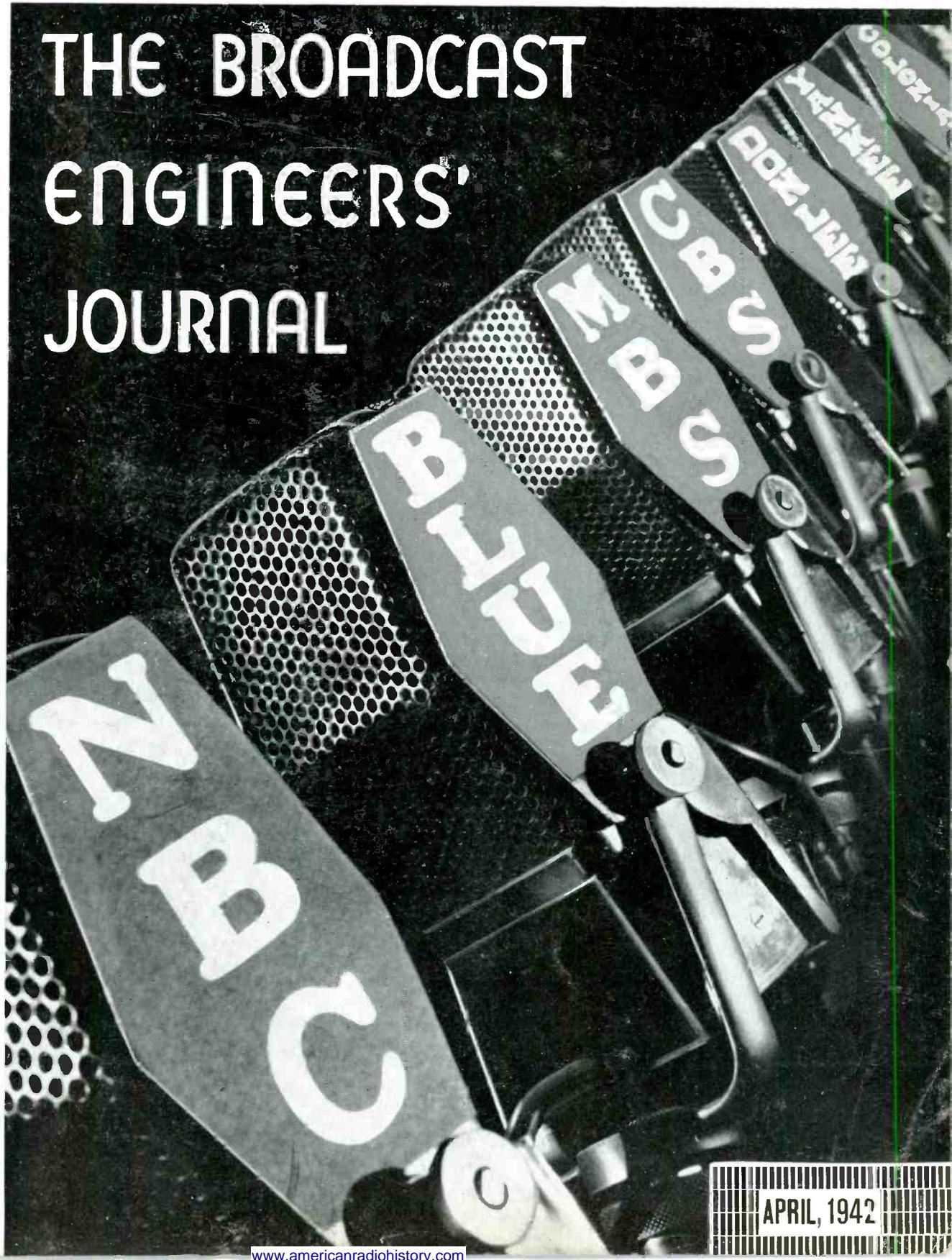
U. S. POSTAGE

PAID

New York, N. Y.

Permit No. 2961

THE BROADCAST ENGINEERS' JOURNAL



APRIL, 1942



A DISTINCT ADVANCE...

Yesterday's methods may seem a bit crude when we realize how very far our new facilities have advanced our technique. However, we're still "old fashioned" enough to produce instantaneous recording discs that are measured solely with a "quality" yardstick.

STillwell 4-7837

ADVANCE RECORDING PRODUCTS CO.

36-12 34th STREET

LONG ISLAND CITY, N. Y.

TABLE OF CONTENTS

NABET Presents.....	2
H. E. Hiller	
F. R. Rojas	
Patent Department Organization.....	3
Technical Press Review.....	6
Tribute to E. C. Horstman.....	9
Cleveland News.....	10
Hollywood News.....	10
New York News.....	14
Behind the Mike.....	15
On the Airialto.....	18
San Francisco News.....	20

THE BROADCAST ENGINEERS' JOURNAL

E. Stolzenberger TRUSTEES H. E. Hiller
 F. R. Rojas G. E. Stewart V. J. Duke

Managing Editor..... E. STOLZENBERGER
 Coordinator..... F. R. ROJAS
 Press Photographer..... JOE CONN
 Staff Cartoonists..... ED. MACCORNACK, ROSS PLAISTED
 Circulation Manager..... TED KRUSE
 Subscription Manager..... ARTHUR G. POPPELE
 Features..... TOM GOOTEE
 Treasurer..... C. W. PHELAN
 Assistant Treasurer..... D. J. MOLONEY

ASSOCIATE EDITORS

Chicago..... CON CONRAD
 Cleveland..... BERT PRUITT
 Denver..... J. ROHRER
 Engineering Chapter..... BOB FRASER
 Hollywood..... BOB BROOKS
 KFI-KECA..... H. M. McDONALD
 Mutual Broadcasting..... R. A. SCHLEGEL
 New York..... TED KRUSE
 San Francisco..... F. L. BARRON
 Washington..... BILL CHEW

The Broadcast Engineers' Journal is a privately printed monthly publication, issued by A.T.E. Publications, Inc., a corporation of the State of New Jersey. Address all communications to Editor's office: E. Stolzenberger, 116-03 91st Avenue, Richmond Hill, L. I., N. Y. Telephone Virginia 9-5553. **THE BROADCAST ENGINEERS' JOURNAL IS THE OFFICIAL PUBLICATION OF THE N.A.B.E.T.**

Advertising rates and information supplied on request. Subscription, \$1.50 per year; \$3.00 for three years. Single copies, except Christmas Yearbook, 25c; Christmas Yearbook, 75c, subject to availability. All remittances in advance. Foreign: Add postage.

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



In 1921
Scully Master Recorders

Were first built and designed to fill a demand for a superb lifetime recording mechanism

21 Years Later [1942]



have been **PROVEN**
UNSURPASSABLE
 by the test of time

Orders should be placed promptly for future delivery

SCULLY
Machine Company

62 Walter Street Bridgeport, Conn.
 Telephone Bridgeport 5300

NABET Presents . . .

F. R. Rojas

F. R. ROJAS was born in New York City, less than one and a half miles from Radio City, on January 14, 1906. In a city of millions of "native New Yorkers," from Kansas, Ohio, etc., this is quite an oddity. However, at an early age the family moved to Brooklyn, where he lived until five years ago. He was educated in the public schools and graduated from Manual Training High, on whose soccer team he played for three years. He was actively interested in amateur radio after World War I ended, and the ban was lifted.

After attending Cornell University for one year, he transferred to Brooklyn Polytechnic Institute, where he was graduated in 1928 with the degree of Electrical Engineer. At college he was a member of Alpha Chi Rho fraternity and president of his own fraternity as well as the Interfraternity Council.



F. R. Rojas

In this period he had worked for three years for the Brooklyn Edison Company as a station tester, and for one year as a transitman-computer for the City of New York. On the military side he

served in the 101st Cavalry of the National Guard of New York for three years.

In September, 1928, he was employed by the NBC as a student engineer. After his training period, he was assigned to the Field Department, until his transfer to Studio in 1931. In 1933 he was made Assistant Transmission Engineer, and in 1938 Control Relief Engineer, the position he now holds. A member of many Engineering societies, he is a Licensed Professional Engineer in New York State.

His service in NABET has been long and continuous. At the inception of A.T.E., he was the first Councilman elected to represent Studio and Control. He served in this capacity from 1933 until 1935, when changes in By-Laws split this large group into three separate bodies. At that time he was elected to represent Master Control, which position he held in 1935, 1936, 1938, and 1939. In 1936 he was appointed Assistant National Secretary-Treasurer, and with the transfer of the Presidency to New York in 1937 he was appointed National Secretary-Treasurer. In 1938, with the transfer of the Presidency to Chicago, he was again appointed Assistant National Secretary-Treasurer, a position he still holds. He has attended and acted in an official capacity at the National Conventions in 1936,

H. E. Hiller

HARRY E. HILLER was graduated from St. Matthews Parochial School in New York and continued his educational pursuits in the night schools, including a course in radio at the East Side YMCA in 1913. In his early youth he obtained a musical training which qualified him to sing with the boys' choir at the Metropolitan Opera House in 1911 and 1912. When America took active part in World War I, Hiller became a code instructor at the YMCA School—and thus started an interesting career that included work with the Edison Company, The International Telephone and Telegraph Company, and the Westinghouse plants in Newark, Springfield and Pittsburgh—the cradle of broadcasting. These stations

were WJZ, WBZ and KDKA, respectively. He was in charge of remote pickups and alternated as announcer at WJZ in 1922. He next joined WNYC in 1924 where he remained until 1927, when he left to join "Roxy." An autographed photo of Roxy graces Hiller's living room in East Oange, N. J., inscribed, "Wot in 'ell would I do without ye—Roxy." Hiller handled sound at the Roxy Theatre until 1931, when he followed Roxy to the Radio City Music Hall and Center Theatre as sound engineer. During this period he set the sound for the Radio City Center Theatre's production of *The Great Waltz*. Roxy's attempt at a Philadelphia "come-back" induced Hiller to leave Rockefeller Center; however, the venture failed, and Hiller returned to the Center Theater as sound supervisor until 1937, when he joined the NBC Engineering Staff in New York as Studio Engineer, a position he has held continuously to date, with the exception of a leave of absence in 1939 when he accepted a position with the New York World's Fair as sound engineer.



H. E. Hiller

Hiller is a Member of the Institute of Radio Engineers, and has been active in NABET; he has represented the New York studio engineers as their elected Councilman since 1940, and has recently been elected chairman of the New York Chapter of NABET.

Hiller is a Member of the Institute of Radio Engineers, and has been active in NABET; he has represented the New York studio engineers as their elected Councilman since 1940, and has recently been elected chairman of the New York Chapter of NABET.

1938, 1939, and 1940. In 1940 he was appointed Co-ordinator and Trustee of the A.T.E. Journal, now The Broadcast Engineers' Journal, and was responsible for inaugurating some of the features which have brought this publication to its present high level. (Continued on Page Sixteen)

Patent Department Organization

By Otto S. Schairer

Vice-President of Radio Corporation of America in Charge of RCA Laboratories

[From a lecture delivered by the author at the Practising Law Institute of New York. This is the first of several articles intended to better acquaint the Broadcast Engineer with Patent Law as related to the radio industry. Italics are those of the Editor.]

RESearch and invention have long been major factors in the development of industry and commerce. It is only natural, therefore, that research laboratories and patent departments increasingly have become useful and important parts of business enterprises.

In the early stages of their development business concerns usually employ independent firms of patent lawyers to attend to their patent work because its volume is insufficient to justify the maintenance of patent staffs or departments of their own. However, as a business grows and the scope of its activities enlarges, its patent work often requires the complete and undivided attention of one or more patent attorneys and their supporting staffs. When this occurs they are frequently employed directly by the business concerns and are located in their offices or plants where they can have convenient and intimate contact with the research and development work and staffs and with the business managements.

Most patent departments have originated in this manner. From small beginnings many of them have grown to large sizes, and especially in those concerns which have done outstanding research and development work.

A modern patent department of a business concern has many functions. Some patent departments perform most or all of the functions of a firm of patent lawyers, but most departments perform only some of those functions, while some conduct activities that are outside of the field of a patent law firm. A patent department can not usually or safely be regarded as a full substitute for the services of a patent law firm, nor can such a firm always advantageously and economically render some of the services performed by a patent department. Both have their places, and both are used in coordination by well-informed business managements where the volume of the patent work justifies doing so.

Plan of Organization

There are probably about as many different kinds of patent department organizations as there are patent departments. Probably none of them is ideal or perfect. Their plans and characters are determined usually by the manner

in which the departments originated and grew, the nature of the business, the distribution of its plants and offices, the qualifications, abilities and experience of the personnel, and by many other factors.

Consequently, it is impossible to lay down a plan of organization that may be applied universally. It is feasible only to outline certain ideas or principles which may be found useful to those who may contemplate starting or enlarging a patent department. Such suggestions are based upon experience in organizing and managing the patent departments of two large companies and upon observation of other patent departments.

The organization and functions of a patent department can be explained best by the assistance of the accompanying chart which illustrates a plan of a hypothetical department. It can not be claimed that it is perfect or ideal, or that it can be applied to all conditions. However, its principles have been found to be practicable. It does not illustrate any presently known department. Using one of the standard motion picture protective clauses, "The places and characters depicted in this photo-play (chart) are fictitious. Any similarity to actual persons, living or dead, is purely coincidental."

This plan provides for three main divisions for performing fairly distinct sets of functions, as follows:

1. Soliciting and acquiring patent rights and advising as to patent matters.
2. Granting of patent rights and licenses.
3. Patent litigation.

Soliciting Patents

The primary functions generally performed by a patent department are those of obtaining disclosures of the inventions of the research, engineering and other staffs of the concern and of preparing and prosecuting applications for patents upon them. It is almost universal practice to commence the organization of a patent department with a soliciting staff. This work can best be done by attorneys who by technical education or experience, or both, have become specialists in the fields of the business. They should thus be qualified to maintain intimate and continuous contact with its research

and development work and with its production and business staffs. Accordingly, it is usually preferable and important that they should be members of the organization of the business, especially when the number of inventions requires the full time of one or more attorneys to solicit patents upon them.

Obtaining Disclosures

A commonly used method of obtaining disclosures from inventors is to provide them with special notebooks for making records of their inventions and the progress of their experimental work. The records are made in duplicate by the use of carbon paper between adjacent pages. Alternate pages are perforated so that they may be readily torn from the book, one copy being left in the book and the other being sent to the patent department. Each notebook entry should be dated and attested by a witness, preferably a co-worker, who has participated in, or who is familiar with, the development referred to in the notebook entry. The patent department copy should likewise be dated and witnessed by the attorney responsible for consideration of the disclosure.

However, no such means or system for obtaining disclosures is adequate. Inventors often fail to appreciate the novelty and importance of their ideas. Consequently they sometimes fail to record or to report them unless they are stimulated to do so by a properly qualified person who maintains frequent and intimate contact with their work. This can usually be done most advantageously by members of a patent department, rather than by outside patent attorneys, because of their ability to maintain closer relationships with the business and its inventors. Direct relations between the inventor and the attorney who prepares his patent application are essential to the best results.

An excellent supplement to the foregoing method is to have a representative of the engineering and research departments located in the patent department as a liaison between them, and as a further assurance of the reporting and patenting of all useful inventions. He may also assist in classifying disclosures as to their importance, in coordinating them to prevent duplication and overlapping, and in distributing them to the

proper attorneys in the organization for the preparation of patent applications or other disposition.

Employment contracts, with those who are apt to make inventions, providing for assignment to the employer of the employee's inventions relating to the employer's business are in general use. The importance of an employee's inventions is one of the factors which determine his compensation and position. The purpose of such employment contracts is to assure the employer that the results

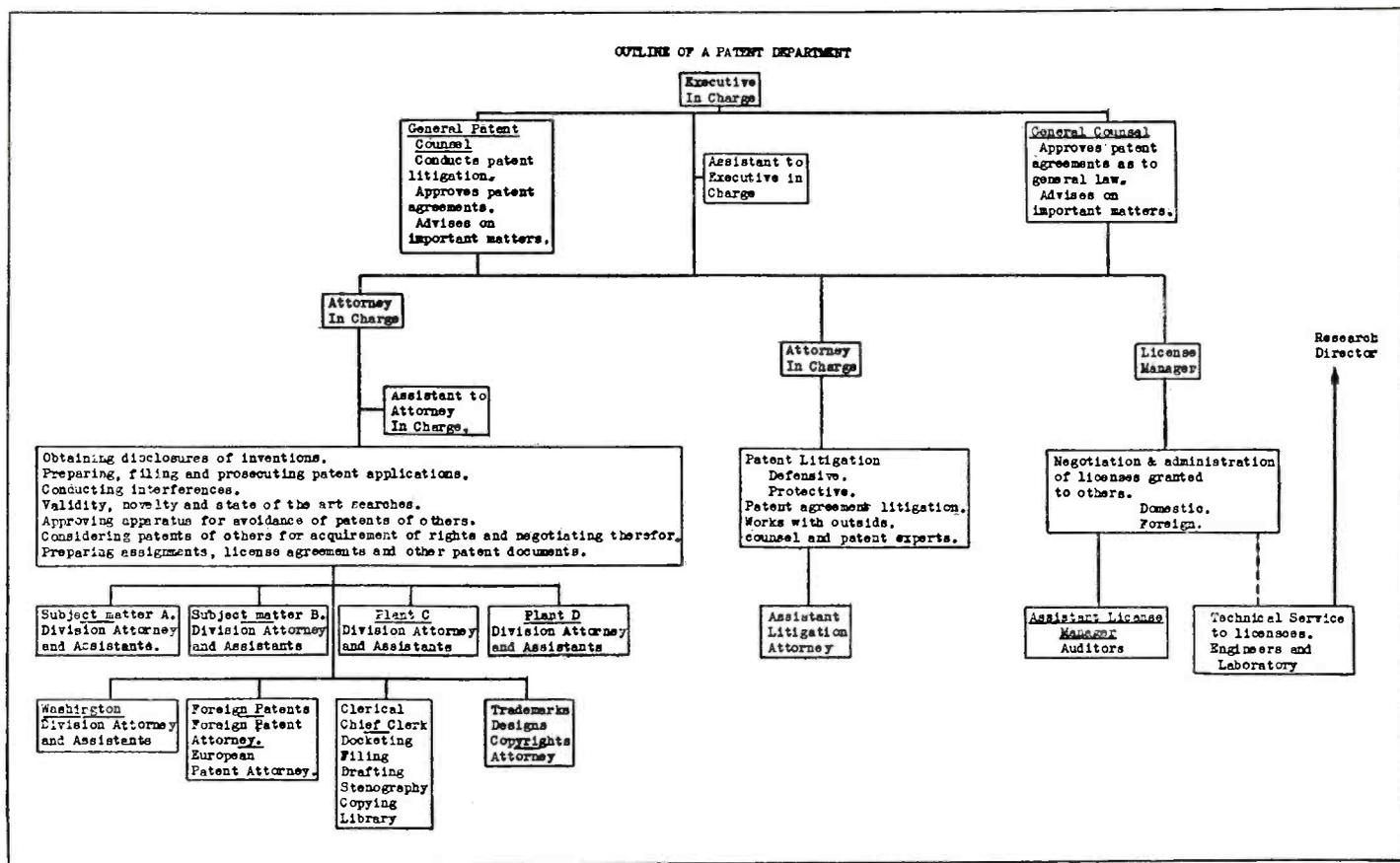
tute the best means of ascertaining at all times the load of application work and the progress being made in moving it.

Emphasis should be placed upon preparing and filing the more important cases first, so that if it is not feasible to file all of them with reasonable promptness, only the cases of minor importance will be endangered or lost.

Any invention which is in use or about to be put into use, or to be made the subject matter of a publication, should be given preferred attention to

valid patents. Therefore, the patentable subject matter should be described and claimed clearly and distinctly. It should also be disclosed in sufficient detail to provide adequate prior art to enable the Patent Office to use the resulting patent as a reference against others who may subsequently seek to obtain a patent upon it.

Every assistance and cooperation should be given the Patent Office to enable it to examine applications thoroughly and expeditiously. This should



of his research and development work will not become available to his competitors without his consent and without compensation to him.

When disclosures of inventions are received in the patent department they should be listed and assigned a docket number, classified as to subject matter, and graded as to probable importance, including the culling out of those which do not have sufficient novelty, utility or value to warrant the effort and expense of endeavoring to patent them. A list should be made for each attorney or group of attorneys handling a division of the work. Such docket lists should be reviewed periodically for the purpose of keeping them up to date and of cleaning out the "dead wood". They consti-

avoid loss of certain foreign rights and risks of loss of United States rights under the new shortened statutory public use bar.

It is advisable for each attorney handling applications to keep a daily or weekly work sheet specifying the work done and the actions taken in connection with the preparation of patent applications. This is helpful not only in expediting the filing of applications, but also in providing a record to supplement and prove diligence in respect of inventions which have not been reduced to practice.

Prosecuting Applications

In the preparation and prosecution of patent applications the primary purpose and effort should always be to obtain

include giving the examiner references to the prior art of which he may not have knowledge. Having the respect and confidence of the Patent Office and others for ability, forthrightness and integrity in soliciting patents, and in all other phases of the work, is an invaluable asset to any patent organization.

Prosecution of applications should be carried on in cooperation with the inventors and engineers of the organization.

It is usually desirable to acquaint the inventor with the cited prior art and to discuss it with him before filing an amendment. It is also advantageous when amending to ascertain whether anything has occurred since filing which would affect the prosecution. Inventors and other engineers should also be kept in-

formed of the issuance of patents on their inventions and in their fields, as this stimulates their interest in patent matters.

Personnel

The best qualified persons for soliciting and other patent work are usually those who have first graduated from, or studied at, engineering and scientific institutions, who have then studied general law and have become members of the bar, and who, in addition, have learned patent law, practice and procedure in a patent law office or patent department, or in the Patent Office. However, it is immaterial by what method a person acquires the necessary qualifications so long as he possesses them.

The important thing in selecting the staff of a patent department is that its principal members should have no serious limitations upon their abilities and potentialities to undertake any kind of work that may require their attention. They should have the capacity to assume increasing responsibilities and to develop and to progress as the business expands in scope and volume and in its need for leaders. The patent soliciting staff should be a source of supply of men for administrative and other more responsible positions in the patent and other departments of the business.

When only one attorney is needed it is almost essential that he should have had considerable experience in Patent Office practice. But it would be quite impracticable for a patent department to recruit and to maintain a complete staff of personnel, each of whom possesses all of the foregoing qualifications. Accordingly, a patent department must be a training ground for young men in which they acquire education and experience which increasingly qualify them for more advanced duties. The engineering and development staffs of a concern are excellent sources of supply of such men because they often include some who have shown an interest in, and an aptitude for, patent work.

Within the limits of feasibility, it is a wise and constructive policy, in seeking young recruits, to employ only those who have the ambition and the inherent ability to continue, and to complete, the studies of science, engineering and law which will make them fully useful for any position in the patent field. Every reasonable assistance and encouragement should be given to those who use their evenings and week-ends in such efforts to improve themselves. Probably the greatest of all satisfactions enjoyed by the head of a patent organization is to

(Continued on Page Seven)

Presto performs better!



Check these reasons Why Presto Glass Base Discs are First Choice of Recording Engineers



LESS SURFACE NOISE—Presto Glass Base Discs have the lowest surface noise or needle scratch of any disc made, permitting unusually wide frequency response.



LONGER LIFE FOR SAPPHIRE CUTTING NEEDLES—Purity of the Presto coating compound, and precision smooth surface greatly increases the life of sapphire cutting needles.



PRECISION SMOOTH SURFACE—Presto Discs have a plate glass base, coated in one operation with a special compound developed by an exclusive Presto formula, assuring a fine, even surface.



FOR ALL TYPES OF RECORDERS—Presto Glass Base Discs have a thickness of .60" to .075", a non-warping center insert with four center holes. They can be used on all makes of recording equipment.



Sold Everywhere. Stocks of Presto Discs are carried in principal cities by Graybar Electric Co. and leading radio parts distributors.



Not Affected by Age. Presto Discs can be kept in stock a year or more without deterioration.



Research Laboratories use the Presto Discs to demonstrate capabilities of the finest vertical and lateral recording equipment.



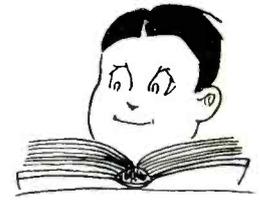
Majority of larger broadcasting stations and recording studios throughout the world use Presto Glass Base Discs.

PRESTO
RECORDING CORP.
- 242 WEST 55th ST. N. Y.

In Other Cities, Phone . . . ATLANTA, Jack. 4372 • BOSTON, Bel. 4510
CHICAGO, Har. 4240 • CLEVELAND, Me. 1565 • DALLAS, 37093 • DENVER,
Ch. 4277 • DETROIT, Univ. 1-0180 • HOLLYWOOD, Hil. 9133 • KANSAS
CITY, Vic. 4631 • MINNEAPOLIS, Atlantic 4216 • MONTREAL, Wel. 4218
PHILADELPHIA, Penny. 0542 • ROCHESTER, Cul. 5548 • SAN FRANCISCO,
Yu. 0231 • SEATTLE, Sen. 2560 • WASHINGTON, D. C., Shep. 4003

World's Largest Manufacturers of Instantaneous Sound Recording Equipment and Discs

TECHNICAL PRESS REVIEW



A digest of leading technical articles in the current contemporary press.

Compiled by: TOM GOOTEE

[In these busy times few engineers can spare the time required to read all the current technical literature. It will be the purpose of this regular feature to provide an index of current technical articles on radio broadcasting and related subjects.—Ed.]

PROCEEDINGS OF THE I.R.E.

(March, 1942)

CBS International Broadcast Facilities

By A. B. Chamberlain

Following a consideration of the significance of international broadcasting and its status in both hemispheres, this article describes factors and various problems attendant upon the successful relaying of programs to the Columbia Latin American network of some sixty-four stations. Facilities for this service are described, including a discussion of studios, F-M program-relay circuits, and the Brentwood Long Island transmitters. Features of design and operating performance characteristics of the transmitting apparatus are considered. And a typical international relay receiving-station installation is also discussed. Some excellent radiation pattern maps for Latin America and a number of antenna diagrams are included in this article.

Directional Characteristics of Tropical Storm Static

By Messrs. S. P. Sashoff and W. K. Roberts

Tabulated data of static recorded during 1938 and 1939 has yielded some interesting observations as to the directivity of tropical-storm static. And this information is discussed briefly. The results of this analysis show (1) that only certain portions of the storm may be regarded as important sources of static, (2) that the relative position of each static-producing area remains fairly well fixed with respect to the storm center, and (3) as far as can be determined, no static emanates from the "eye" of the storm.

Simplified Methods of Determining the Optical Characteristics of Electron Lenses

By Messrs. K. Spangenberg and L. M. Field

New methods of calculating lens characteristics are proposed which are relatively simpler and more accurate than any of the methods now in use. The first is an extension of Salingers method of joined circular segments applied to paraxial rays in fields with a rotative symmetry; this method is the computational equivalent of the original graphical method. A second method described makes use of the action function which is approximated from the potential function. A third method replaces the convergent and divergent parts of the usual lens with equivalent thin lenses, and then employs a combination formula for calculating the focal lengths of the two thin lenses. A new experimental method is also described, which makes use of a demountable vacuum tube.

Fourier Analysis of Transmission Problems

By R. V. L. Hartley

The treatment of transmission problems by use of the Fourier identity (recurrent wave-forms) is considered in this article, for both steady-state and transient treatments. This adaptation of the Fourier Analysis involves the use of two independent sets of sinusoidal components.

ELECTRONICS

(March, 1942)

Television: An Agency for Preparedness

By Noran E. Kersta

A summary of the first six months of commercial television is presented in this article by the Manager of NBC's Television Department. Special emphasis is attached to the present use of television in training civilian defense personnel, and the possible future use of television as a major means of further defense training and of general communication.

Embossed Groove Recording

By Lincoln Thompson

Recording by the Embossed Groove method offers much in that the recording equipment requires little attention for reliable operation, and that it uses inexpensive blanks which may be easily filed or mailed. A comparison of the Embossed Groove and Cut Groove methods of recording is given, and many of the problems of Embossing are discussed.

An Automatic Monitoring Circuit

By Frank Marx

This electronic device was devised to relieve broadcast operators of the strain of monitoring another station's programs to intercept air-raid warnings. The circuit is comparatively simple, and will automatically monitor any frequency. A "dead man" control to guard against failure is incorporated in the circuit.

A 10-KW F-M Transmitter

By Messrs. E. S. Winlund and C. S. Perry

The newly-developed RCA F-M transmitter (type FM-10A) is described in this article. Basically the 10 kilowatt transmitter may be considered in three parts: the Crosby exciter, the 1 kw amplifier, and the final 10 kw amplifier. The FM-10A can be considered as a higher-powered version of the 1 kw F-M transmitter now on the market—but with very low distortion characteristics. A simplified schematic and

(Continued on Page Fifteen)

Patent Organization

(Continued from Page Five)

witness the development and progress of younger men who have benefited from such training and have become highly creditable members of the patent bar.

Interferences

Since conducting interferences in which pending patent applications become involved is a part of the operation of soliciting patents, it is logical that those who prosecute the applications should also conduct the interferences in which they become involved. For this reason patent departments usually attend to interferences. However, some organizations prefer to have interferences conducted by outside patent attorneys, especially in important cases, and when the attorneys in the patent department are not as experienced in such matters as those of patent law firms. Another method of assuring competent handling of interferences is to have them conducted or directed by an attorney in the patent department who is especially qualified and experienced in this field of patent practice.

Similar procedures may also be followed in handling reissues, motions, appeals and other contested phases of patent prosecution, including suits under Section 4915. The attorney who prepared the application should be given full opportunity to participate in all such matters in order to obtain the benefit of his greater familiarity with the technical subject matter and to broaden his experience.

Acquiring Patent Rights

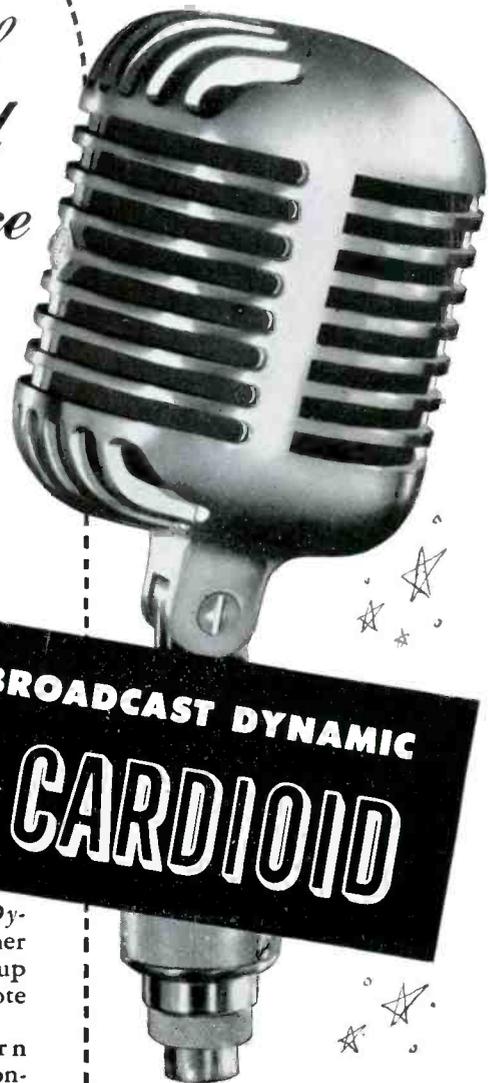
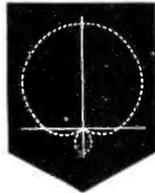
No concern can safely consider itself fully able to make all of the inventions which it needs to use in its business, even though it has highly competent and well equipped research and engineering staffs. No organization is self-sufficient in such matters or includes all of the inventive talent in its field. *The individual inventor working in the basement, in the loft, or in the small shop or laboratory is still, and always will be, a potent force in scientific, engineering and industrial development.* He makes a large percentage of the useful and important inventions and deserves corresponding credit and reward. The inventions of competing business organizations must always be reckoned with also. For these reasons it is often important, if not essential, that a concern should acquire the right to use the inventions of others to enable it to make and sell the best possible products or to operate the most efficient and reliable services.

Consequently, consideration of the

(Continued on Page Eight)

The Broadcast Engineers' **7**
Journal for April, 1942

A New Concept of Directional Performance



Model 556A for
35-50 ohms.
Model 556B for
200-250 ohms,
and Model
556C high im-
pedance — at
only \$75.00 list

NEW SHURE BROADCAST DYNAMIC SUPER-CARDIOID

New "556" Super-Cardioid Dynamic Microphone offers further simplification of sound pick-up problems in studio and remote broadcasting.

Super-Cardioid pattern achieves maximum unidirectional action over a wide frequency range — yet retains wide-angle front pick-up. Provides an easier means of eliminating undesired noises — gives full reproduction of music, clear reproduction of speech. Shure Uniphase* single-unit moving-coil construction. Extremely rugged. Insures better performance outdoors as well as indoors — yet is surprisingly moderate in cost.

30-Day Trial. Broadcast Engineers: Try the "Super-Cardioid" for 30-days in your station without obligation. Available for immediate delivery. Write us today.

*Patented by
Shure Brothers

SHURE

New Features

Twice as unidirectional as the cardioid — yet has wide-angle front pick-up

Decreases pick-up of reverberation energy and random noise 73%.

Improved wide-range frequency response from 40 to 10,000 cycles.

Symmetrical axial polar pattern at all frequencies.

Highly immune to mechanical vibration and wind noises.

SHURE BROTHERS
Designers and Manufacturers of
Microphones and Acoustic Devices
225 West Huron St., Chicago

Patent Organization

(Continued from Page Seven)

patents of others for the possible acquirement of rights under them, conducting negotiations for such rights, preparing assignments and license agreements for the consummation of such transactions, and the administration of patent agreements are functions often performed by patent departments. They are related to the soliciting of patents upon inventions of employees because they are all parts of the process of acquiring patent rights which are essential or important to the operation of a business.

While it is advisable to have an open-minded attitude toward the inventions and ideas of others, on the other hand, great care should be exercised in receiving disclosures of them in order to avoid subsequent embarrassment from claims for compensation for alleged surreptitious and unauthorized use of them. A good practice is to decline to accept a disclosure unless the proposer has filed a patent application or obtained a patent, or unless an agreement is reached which properly protects the rights and interests of both parties. It is also good practice to provide for the acceptance of such disclosures only by the patent department or with its approval.

The method by which such rights are acquired and their nature are determined either by the desires of the patent owner, or by the circumstances of the individual case, or both. The commonly used methods include purchase of the patent, an exclusive or a non-exclusive license, a license with the right to sub-license others, and exchange of licenses. The considerations may be one or more fixed payments, or royalties, or reciprocal grants of licenses, or a combination of them.

A simple non-exclusive license is all that is usually required to provide freedom to use an invention for the purpose of furnishing the best products or services. However, many owners of patents prefer to sell them outright and refuse to grant licenses under them because they do not want to engage in the business of licensing or to undertake to protect their licensees against infringements of their patents by others. In other cases the patent may be purchased for little or no more than the cost of a license. For these and other reasons, purchase of a patent is often the only or the most practicable method of acquiring rights under it. When a concern is engaged in granting licenses generally under its patents, it may be desirable and economical for itself and its licensees that it acquire not only a license for itself but

also the right to extend sub-licenses to those whom it licenses under its own patents. This may be accomplished either by purchase or by acquiring a license which includes the right to sub-license others.

An exclusive license may be the practical equivalent of a patent, and especially when it contains no limitations. However, an exclusive license is often used when the owner desires to retain title to the patent and when the license which he grants relates only to part of the possible fields of use of the invention.

Work of this character requires the services and judgment of experienced and mature attorneys. In cases of importance it is advisable to consult or use the services of general counsel and of outside patent counsel. Some business managers prefer to have such matters handled by patent law firms, and especially where the employee attorneys are relatively inexperienced in such matters.

Patent Approval

When research and development are undertaken in new fields a patent department can render valuable assistance to the technical staff by collecting and co-operating with the technicians in studying patents, publications and other material showing the state of the art. In this manner any patent obstacles may be ascertained and appraised, the most promising lines of approach to the problem determined, and much development and other expense avoided.

In all cases, newly developed apparatus should be examined thoroughly by an attorney who knows the art to which it relates, in order to determine whether it involves the patents of others. It should receive his approval before it is put into production or use. This should include all advertisements and other publications relating to such apparatus. It is unwise ignorantly or knowingly to incur the risks and liabilities of the infringement of the patents of others which have a reasonable possibility of being held valid. Carefully conducted patent approval work can accomplish much in the avoidance of hazardous and expensive patent litigation. However, it can not wholly insure against such litigation because the owner of the patent, or his counsel, may not agree with the opinion of your counsel and neither may the courts. When the sale of a product is likely to provoke controversy or litigation under an adversely-held patent, it is advisable to consult the patent counsel who will conduct the defense if an infringement suit should be brought.

In cases where the validity and scope

of adversely-held patents are subject to reasonable differences of opinion, it is preferable to endeavor to acquire licenses rather than to incur the liabilities of infringement. When it is not possible to acquire a license upon reasonable terms, an experienced and capable staff of patent attorneys and technicians is invaluable in devising ways and means of avoiding adversely-held patents and in reducing infringement risks. In some cases, it may be advisable to set up a reserve to meet the contingencies of patent litigation.

Division of Work

In business concerns which have well developed research and engineering organizations, a large variety of products and several plants, the volume of work of the foregoing character usually requires the services of several or many patent attorneys. Where such conditions exist it becomes important and imperative that the work be divided in some appropriate manner. The most logical basis for division is in accordance with a subject matter classification similar to that followed by the Patent Office. Such a classification enables the attorneys in charge of divisions to have comprehensive knowledge of all of the patents and applications in their fields and to exercise better supervision over the work than is possible with any other method of distributing the work. However, no such classification or division is so clean cut and precise as to prevent the occurrence of marginal and overlapping cases. The only proper remedy in such cases is adequate coordination and cooperation between divisions.

Sometimes it is not feasible to adhere strictly to such a method, and especially where the company has several plants. In such cases it is often desirable that one or more patent attorneys be located at each plant to look after the work that originates or arises there. In other cases, all of the patent attorneys required for handling one class of subject matter may not be located at the same place, and it may be advisable to have a division at each place. When there is likely to be duplication and overlapping, again the remedy is proper supervision and coordination between the divisions of the work.

Washington Representation

Many of the larger patent departments have branch offices in Washington for conducting state of the art, novelty and validity searches, for conducting or assisting in interviews with examiners and officials of the Patent Office, and for keeping the headquarters of the

(Continued on Page Eleven)

Hail to the 'Chief'—and Farewell



E. C. Horstman

UNEXPECTED but deserved was the formal announcement by the Blue Network Company that E. C. Horstman had been appointed Manager of Engineering Operations for the Central Division of the newly-formed Blue Network Company, Inc.

No better choice could have been made for the position of division engineer, and no person as well qualified. Horstman is a veteran of NBC; one of the first engineers on the Chicago staff. After fifteen years of service, he relinquished his post as control room supervisor on March 15—and assumed his new executive duties with the Blue Network.

And thus the NABET not only loses a member, but also a distinguished president and leader.

Although we regret the loss of such a great leader to the Blue Network, it is gratifying to know that effectively he is still with us in his new position. The many reformations and improvements which he advocated and attained for the NABET stand as the greatest compliment and monument to his untiring efforts in behalf of the organization. In years to come these achievements in the interest of NABET will take on added importance, will be even greater remembered.

And so, to one of our most distinguished ex-members: E. C. Horstman—the best of luck in your new work!—T. E. G.

If you have not been using or have not yet tried Allied's New Glass Base Discs, a trial will convince you of their merits and superior quality — at no premium in the cost to you. We invite you to try this disc — that is how we obtain new customers. We feel certain that you will reorder — that is how we build sales volume — from satisfied users. Your telephone call, letter, wire or cable will receive our prompt and courteous attention.

ALLIED GLASS BASE RECORDING DISCS



PROMPT DELIVERY direct from the manufacturer to any part of the United States, Canada, South America and to some foreign countries. **ALSO AVAILABLE** recoating service for your old aluminum discs. Delivery in one week. Details on request.

ALLIED RECORDING PRODUCTS CO.

21-09 43rd Avenue

Phone STillwell 4-2318
Cable: Allrecord New York

Long Island City, N. Y.

Cleveland News

By Bert Pruitt

THE BOYS who open up the station each morning have little faith in the old proverb, "Early to bed and early to rise makes a man healthy, wealthy and wise." They maintain that this must have been written before sign-on time was changed to 6 a.m.!

Joe Microphone says: "Consider my fate . . . Announcers scowl at me . . . Sopranos keep me in a dither . . . Comedians speak questionable stories into my ears . . . Basso Profundos rock me with thunderous blasts



WTAM Transmitter First Aid Session—Left to right: Clark, Stewart (the instructor), Butler (supine, with splint), Russell, Walker, and Pay. Photo by F. C. Everett.

. . . Politicians shout at me and engineers stretch my neck until I look like a giraffe!"

"This and That"—Our Transmitter men advise us that they have increased their oomph by taking off the two top sections of their vertical. If taking off two sections would accomplish this, we naturally wonder why they didn't peel off another two sections so they could multiply their success by 2 . . . or could they?

J. J. Francis (CS) says Lady Luck took one look at him, then placed him in the category of luckless men. It seems that J. J. had been going to a certain theatre once a week for several years.

His ambition has always been to hear his name called on BANKO night. Last week J. J. decided to go to a different theatre to change his luck. Yes . . . they called his name for a \$500.00 jack pot . . . at the theatre where he wasn't!

"Fame"—Frank Whittam (SE) has the reputation of being one of the best marksmen in Northern Ohio. While hunting crows one day last fall Frank spied one sitting on an uppermost limb of a hickory tree. He took aim and let fly. When something fell from the tree, Frank saw what appeared to be pinfeathers filling the air, so he ran up to the tree. The pinfeathers turned out to be yellow jackets! Instead of hitting a crow he had brought down a colony of yellow jackets. Frank also has the reputation of being one of the fastest runners of the Middle West.

"Grafting"—Barney Pruitt (CS), the North Olmstead Grafter, had been trying for years to graft a tobacco plant to a peach tree, but without success. One day last fall Tommy Cox (SE) was out in Pruitt's orchard listening to the luckless grafter discuss his failure. When Tommy's pipe went out he looked for a match, but neither he nor Pruitt had one, so Cox placed his pipe in a fork of the peach tree. They then went into the house for a bottle of beer. One thing led to another and they were soon on their fourth one. Cox told Pruitt about the evils of smoking . . . They both swore off smoking, but continued drinking beer. This spring Pruitt went out into his orchard to look at the peach tree. The north side of the tree was still peach, but the south side had turned into a tobacco plant!

Hollywood News

By Bob Brooke

SUN . . . Peeling noses and white shoes have been daily garb this hectic winter . . . Perfect chamber of commerce weather with little rainfall and lots of clear hot days . . . Plenty of snow up high and the most beautiful nights God ever made . . . Surf boarding Ferguson and Golfing Brooke rarely missed a day somewhere within easy "tire" distance . . .

War . . . War has come to Hollywood since I last wrote a column for the Journal . . . Our lives are changed . . . Yet NBC Engineering here has been amazingly fortunate in losing very few men and being able to carry on its routine operation with a minimum of discomfort . . . Yes, we've had bars and boards placed over our Master Control window . . . We've been mugged and finger-printed . . . We watch the dawn patrol of P38s on our way to work and watch the searchlights identify every

plane at night . . . but except for the extra duties of shows from Army Camps and an occasional Morale show from the studio, life goes on as ever . . . Our greatest change is away from the studio . . . Almost every engineer is an Air Raid Warden or other volunteer worker . . . Those with fewer family ties have either enlisted or are planning more active service when the opportune time arrives . . . Yes . . . Hollywood is active and Defense conscious and Our Shows Keep Rolling Along . . .

Journal . . . Our Hollywood editor for the past year has gone and joined up . . . Ray Ferguson, better known as Fergy, has joined the civilian radio engineering group of the Army Air Corps and is in training at Lexington, Kentucky . . . Ray is a veteran of some twelve years with NBC . . . Originally from San Francisco, he had been

(Continued on Page Twelve)

Patent Organization

(Continued from Page Eight)

organization informed respecting legislation, hearings and other matters in Washington which relate to patents. Such an office provides an excellent means for the training of engineering graduates who have had no patent experience, and is particularly helpful when other divisions are not in position to undertake such training.

Foreign Patents

Many patent departments also maintain divisions for soliciting and maintaining foreign patents upon their more important inventions. It is advisable that this work be done under the direction of an attorney who is thoroughly familiar with the laws and practices in the important foreign countries. He should be able to solicit the patents directly with foreign patent offices, or to work through a general foreign patent agency, or through agencies in each country experienced in such matters. In addition to having an attorney located in the headquarters office in the United States, some organizations also maintain one or more patent attorneys in the larger foreign capitals.

Foreign patents upon the more useful and important inventions are often of value for many purposes. They may be sold for money or other considerations, or licenses under them may be granted for royalties and other considerations, or they may be used for trading for rights under foreign or domestic patents of others. They are often the means by which both foreign and domestic markets are opened for the products of a business, and they may well be more effective for this purpose than any other consideration or inducement that might be offered.

Foreign patents should be carefully supervised both because of the expense of obtaining them and of the taxes required for their maintenance. Care should be exercised to maintain only such foreign patents as are likely to be of definite benefit to the business.

Clerical

A clerical division under the direction of a chief clerk is an essential part of a properly organized patent department to attend to all docketing, filing, stenography, copying, drafting and other services, including the library. Monthly and annual reports should be prepared by the chief clerk showing the status and progress of the principal work of the department.

Most patent departments also look

after the trademark, design and copyright registration work of their companies and have on their staffs one or more attorneys especially versed in these subjects. In some cases, the importance and volume of trademark or copyright work is such that it is not handled under the direction of a patent attorney, but is conducted by specialists in these fields who report directly to the management of the company.

Manuals

Manuals containing instructions and forms of documents for the direction and assistance of the attorneys and the clerical staffs, and for promoting uniformity of practices, are useful and valuable aids in the operation of a patent department.

Licensing

Since most concerns find it necessary or advisable to acquire patent rights from others in order effectively to meet competition or to provide acceptable products or services, it is only logical and consistent that they should also extend rights under their patents to others who desire or need to use the patented inventions in their businesses. Most organizations

which have done extensive research work, or have developed inventions having wide or general use, sooner or later have found it advisable and advantageous to license others to participate in supplying the requirements of the public for their inventions. This is true especially with respect to organizations having many patents of their own and the right to grant licenses under many or important patents of others.

Although a patent grants to its owner the exclusive right to make, sell and use the invention covered by it, the attempted use of a patent for excluding others from sharing in the satisfaction of a large public demand is short-sighted and often futile. Failure or refusal to provide adequately for meeting public requirements by demanding unreasonable consideration for the use of an invention, or by unduly or arbitrarily limiting the sources or volume of supply, or by unreasonably upholding the price of the patented article, often lead to unfortunate consequences. Many patents have been held invalid or not infringed, or have been completely avoided without litigation, when patentees have over-

(Continued on Page Thirteen)

Dependable

TYPE VP4
BLILEY
CRYSTAL HOLDER
SERIAL NUMBER
FREQUENCY
1714 Kc. 21°c.
BLILEY ELECTRIC CO.
MADE IN U.S.A.
ERIE, PA.

Accuracy and dependability are built into every Bliley Crystal Unit. Specify **BLILEY** for assured performance.

BLILEY ELECTRIC COMPANY
UNION STATION BUILDING
ERIE, PA.

Hollywood News

(Continued from Page Ten)

in Hollywood the past five years . . . Ray single-handedly put over the biggest Christmas Issue campaign ever sent in to the Journal . . . His successes have been many, but most of all let's just say that he is one of the best liked men in the division and that we'll all miss him, but know he'll be back twirling knobs with us again when this is all over . . . In the meantime yours truly will try and keep the ball rolling for Fergy . . .

Married . . . "Mac" MacKenzie, our junior op of years ago and since one of our top mixers, handing such shows as Kraft, Jello, Dupont, etc., has gotten himself married . . . To no less than Trudy Erwin of the Kyser Show, formerly Ginny Erwin of the Crosby Music Maids . . . Congratulations, Mac, old boy, and may the Army spare you for a few months of wedded bliss . . .

New Men . . . A brief mention of new faces in our midst and more about them in future issues . . . First, Ralph Reid, old timer from New York, has transferred out to take Paul Green's place . . . Paul having requested a transfer East to be with his wife, who is singing on New York concert stage . . . Other new men include Thor LaCroix and Bill Comegys from KFAC . . . Johnny Cravens from Langevin Company and CBS summer staff at Catalina Island . . . Ross Miller from a local recording company . . . And George Foster formerly WPG . . . KFWB, etc. . . Welcome, fellows, to our screwy midst.

Mobile Unit . . . After all these years we acquire a mobile unit . . . Mr. Saxton advises that a black Chevy panel truck has been purchased and is now undergoing changes and installation to permit mobile operation of any NBC short wave equipment . . . Mr. M. S. Adams is in charge of the construction.

Misc. . . . At recent IRE meeting, John Hilliard of MGM gave a very enlightening talk on the merits of program limiting amplifiers of special design to remove the bugaboo of high levels from the graying heads of the MGM mixing staff . . . In use with this special amplifier was an interesting foot pedal that raises the cut off six db for shots and other sound effects . . . Quite a discussion was carried on by the radio groups at the meeting with the opinion that radio would soon follow suit and thus permit more attention to production problems and less to level . . . John also mentioned and demonstrated MGM's new earphone monitors using standard W E deaf type receivers in place of the expensive dynamic types previously used . . . He reported that the response was superior to any other headset, including the expensive high fidelity types, and that all mixing on stages and sets at MGM is now being done with these little plug-in ear pieces . . . (Each mixer has his own lucite ear mold cast for his special use.)

Tag . . . It's a pleasure to hear every day of more

exploits by ex NBC personnel now in the Army and Navy . . . Yesterday we heard from Dick O'Meara, former page who is now pilot of a flying fortress . . . He's doing all right and so are our engineers running ships for the Navy . . . There will be more doing it soon.

Two Decades of Service

Sun Radio Company, 212 Fulton Street, New York City, suppliers to many broadcasting stations throughout



the country, is celebrating the twentieth anniversary of its entrance into the radio parts field. The firm was founded back in 1922 with a four man staff, and has steadily grown. Originally located at 64 Vesey Street, a site now occupied by the block-long Federal Office Building, the firm has twice found it necessary to move into

larger quarters. Sun's customers come from all corners of the globe—broadcast stations, governmental agencies, radio amateurs, dealers, servicemen, industrial organizations, schools, laboratories, manufacturers, engineers, etc. Gone are the days of Vesey Street and 227 Fulton Street, where Sun passed the period from 1931 to 1938, when it moved to its present quarters in April of 1938. Among the many novel features of the Sun Sound Studio is the push button switching arrangement by which any one of 32 amplifiers and 32 loudspeakers may be combined to facilitate the proper choice of equipment. In addition, a specially designed turntable arrangement mounting four pickups serves to demonstrate the advantages of each for comparison. The mezzanine has been designated as the "Ham Shack." Here, on display and demonstration is a great variety of the latest types of communication receivers.

It has always been the contention of Samuel Schwartz, Sun Radio's sole owner, that upon his salesmen devolve the success of the firm. Of the present staff of 35 employees, 10 are licensed radio amateurs, with many of the others technically well versed in all branches of radio theory and practice. Personal service to the customer is considered of utmost importance and is stressed strenuously. Even in these perilous times, shipments are going forward to scenes of action. A recent shipment including three Mercury 30 watt mobile amplifiers with 12 exponential high-powered speakers was rushed forward via air express to Pearl Harbor—after December 7!

Patent Organization

(Continued from Page Eleven)

charged for the use of their inventions, or have over-reached themselves in their efforts to exclude or to limit.

An important function of a patent department is to prepare, negotiate and administer license agreements. In general, this phase of the work can be directed most advantageously by someone who has had commercial experience and can speak the language of the executives and business heads of the firms with which license agreements are negotiated. The drafting of license agreements also requires the attention of thoroughly experienced and skilful patent and general attorneys in determining the character of the various provisions of such agreements and in clearly expressing their intent.

The most satisfactory license agreements to licensors and licensees are those in which the provisions are clear and concise, and as few and simple as circumstances will permit. This is especially true of the royalty terms and provisions, which after all are usually the most important. The computation of royalties should be made as easy and convenient as possible for the licensee, so as to subject him to the minimum of effort, annoyance and expense, and also to facilitate periodic auditing of his royalty accounts.

Unnecessary limitations and arbitrary and onerous provisions in license agreements are not conducive to harmonious relations between the parties or to the maintenance or permanence of the agreements, nor do they tend to improve the public relations of the licensor.

A licensee who pays for the right to use inventions of the licensor is quite as much a customer of the licensor as the person who buys the licensor's products. His good will is well worthy of cultivation by means of fair and reasonable terms of license agreements.

Technical Service

Licenses may frequently be increased in value, both to the licensee and to the licensor, by technical information and laboratory services maintained by the licensor to keep the licensees informed respecting the latest inventions and how to use them, and also to assist them in testing and checking the performance and quality of their products. Such services should be rendered impartially and without prejudice, and should be directed and conducted by competent and skilled technicians who have the respect and confidence of licensees. These services to licensees should preferably be under the same general directions as the research laboratories of the licensor.

Thus they may be readily coordinated with and benefited by the research activities of the licensor. There should also be close coordination between those who operate such services and those who administer the licenses.

Foreign Licenses

When a business can not adequately or profitably manufacture or exploit its products in a foreign country, the granting of one or more licenses in that country may prove to be the most feasible method by which it can obtain revenue from the use of its inventions in such country. The granting of licenses under foreign patents often requires substantially as much attention of a patent department as licensing under domestic patents. This work frequently involves also the acquiring of licenses or other rights under the domestic or foreign patents, or both, of the foreign licensees as full or partial consideration for the licenses granted.

These activities may be so extensive and complex, and require such a knowledge of foreign business and other conditions, as to require the attention of specialists in these matters and a separate division of the patent department from that which administers domestic licensing. The soliciting and maintaining of foreign patents should, of course, be closely coordinated with the negotiation and administration of foreign licenses.

Foreign manufacturers are often desirous not only of having licenses under the patents of domestic concerns, but also of obtaining technical and manufacturing information which will enable them to produce the patented articles most efficiently and economically. This information may well be of as much value to them as the patent rights which they receive under a license agreement. This may be an advisable source of revenue to supplement that obtained from licenses, when the licensor can not effectively or profitably manufacture or sell in a foreign country.

However, all such agreements should provide that the furnishing of information shall be subject to our laws and to all regulations and orders of our Government. Under present conditions, agreements of this character require most careful administration.

Patent Litigation

Differences of opinion respecting the validity, scope and value of patents, and inability or unwillingness of the contending parties to reach an agreement upon terms of settlement, frequently result in patent litigation. Conducting an infringement suit is a branch of patent law practice which requires the utmost of skill, experience and judgment. It is seldom

feasible or advisable for a patent department to conduct much, if any, of the patent suits in which the business becomes involved. It is generally preferable to engage an independent patent lawyer who is especially qualified for each particular suit.

However, there is much work in connection with patent litigation which can be done most advantageously by a patent department working in cooperation with outside counsel. It includes first the ascertainment and collection of the essential facts in each case as a basis for considering and determining the advisability of bringing or defending an infringement suit. It also includes obtaining and examining the evidence of alleged infringement, directing validity searches, selecting the patents believed to be infringed and to be put in suit, examining of such patents thoroughly to determine their strong and weak points and the available defenses, selecting and obtaining the fact and expert witnesses, and conferring with them and counsel, and assisting in the preparation of bills of complaint and answers and of trial and final briefs—in fact, working with and assisting counsel on every phase of each case.

The person in charge of this branch
(Continued on Page Sixteen)



Recommended . . .

for all delicate and precise
Electrical and Laboratory Equipment

**Leaves no residue of
DIRT or STICKY GUM . . .**

Available . . .

in small bottles with applicator,
as illustrated, or in 8 ounce,
16 ounce and gallon containers.

DAVENOIL COMPANY
158 SUMMIT STREET • NEWARK, N. J.

New York News

By Ted Kruse

YES, believe it or not, the above title is correct. First business on hand is to explain why there has been no news from New York for a long time. Many months ago, Ed Stolzenberger asked me to become Circulation Manager for the Journal. Thinking it was an easy job, I agreed. *Brother*, since then I have been busier than a scared cat on a tin roof. Due to spending too many hours a month on that job, I felt that some one else should write the column. The Chapter Chairman tried to find some one to write it but although complaints came in fast and furious as to why no column, no one was willing to do it. Well, anyway, here we go:

Harry Hiller has been elected to fill the unexpired term of Chapter Chairman. A. C. Ewert dropped in the other day to say hello to the boys in the lounge. Arnold was the first New York member to be called to the colors. He has been promoted from Ensign to Lieutenant J. G. Phil Falcone was called back some time ago and the last we heard of him was from Camp Monmouth in New Jersey. There are a lot of new faces around the studios so next month I'll let you know who they are. The number one Television fan has at last been found. He is Bill Perry, who during his vacation last month travelled all the way to New York to watch the fights telecast from the Ridgewood Grove. On his last trip in, Bill was sitting in the lounge watching the first fight when the Video signal went haywire and failed. However, the Audio

signal came through and Bill heard the blow-by-blow description the same as any one who stayed home.

Jack Arber has been transferred from Mr. Milne's office to Maintenance as an Apprentice. Jack, who is about six feet two inches tall, will, I'm sure, be a big help to Maintenance. By the way, all you New York deep sea fishermen, be sure to get your permit from the Coast Guard allowing you to get near the water and on piers. You can obtain them at the Barge Office at the Battery. Ogden Bowman and A. R. Thompson have been promoted to Master Control. Ed Whittaker is at present on his yearly pilgrimage with the GE show and making us feel very badly by sending post cards from Florida. I want to take this opportunity to thank Jake O'Kelly for his nice letters and cards. Jake, I promise to write you soon. No fooling.

For your information I submit the following definitions of military terms: Military Secret—Something you Know nothing about. Mechanized Unit—Three turntables in studio 3E. Submarine Commander—A guy with a long overcoat. Strategy—Excuse thought up by Serge De Somov for something he did. Tactical Approach—De Somov delivering said excuse to Supervisor. Molotov Breadbasket—What Ed Whittaker has hanging in front of him. Task Force—The Midnight crew. Sabotage—Some one bumping the table while you are playing chess.

NEW YORK RECORDING NEWS — By Caranchini

The RRBC (Recording Room Banquet Club, to youse guys) held a blow-out for one of its alumni a couple of weeks ago when we left Bob Study holding the bag in the Recording Room, and hiked up to Larre's French Restaurant for a farewell party for Cliff Paul, ex-clerk in ACR. Cliff, recently in OB's office, has left NBC to join the Navy as Radioman Second Class. Congratulations go to Hal Ritchie for arranging the swell get-together. Incidentally, no sooner had we put Cliff in the Navy, than Hal, himself, was called to the colors at Fort Monmouth.

Jack Holmes, RE, has done it again. Our perennial mover has gone back to live in Verona, N. J., the town of his first love. This makes the third time Jackson has moved within a year. How he gets out of his leases is one of those confidential secrets he refuses to divulge. P. S.: Jack says that for the proper fee he'll be glad to part with the info.

Art Poppele and Mac McCarthy, of Maintenance, have been practically living in ACR the past few weeks during the process of installing a new Recording-to-Studio Signalling System. Boy, we've really got something now!!! You oughta be in Recording sometime when the suction nozzles are all in operation, half a dozen monitoring speakers blasting away and the buzzers and lights of four or five Signal Circuits in operation. Fourth of July pyrotechnics have nothing on us.

Vic Tervola, RE, was a recent visitor to Washington. While there he dropped in on Nick Close, an NYRR alumnus. Vic says Nick has a snap in Washington. Imagine, only four recording machines to operate. A Recording Man's Paradise we call it.

Fred Frutchey, Recording Maintenance Engineer, has been busy the past month installing MI-4875 pickups and associated filters and amps. for our dubbing systems. And did he have trouble with the "HUM BUGABOO." If you want to learn a few choice words, mention the word "HUM" to Fred and you'll have an expanded vocabulary in nothing flat.

Speaking of expansion, the Recording Group has extended itself to sixteen men, eleven recording men and five clerks. The Group is headed by George "STU" Stewart, supervisor. Other members include Holmes and Caranchini, Senior Operators; Tervola, Frutchey, Schabberar, Youngster, McCarroll, Study, Cooley and Beardsley. The clerks are Eitalbach, Tapernoux, Moch, Leighton and Burns.

"RED" Youngster is the first of the Recording Group to go on vacation. He and the wife are headed for Florida. Rumor has it that he took the early period in order to get in some extra golf practice. Understand Holmes has a bet on with Youngster that he is going to keep his score under 90

(Continued on Page Sixteen)

Technical Press (Continued from Page Six)

several illustrations show the construction and basic design of the F-M transmitter.

L-Type Impedance Transforming Circuits

By Philip H. Smith

One of the simplest and most effective impedance matching networks for R-F applications is the half-section L-type circuit, employing two essentially pure reactances. A discussion of this type of impedance network is considered, with many practical examples and profuse design charts. Excellent reference material.

COMMUNICATIONS

(March, 1942)

Low Frequency Square Wave Analysis

By Albert Preisman

The importance of the Square Wave as a means of testing the performance of both video and audio equipment, has led to a specialized consideration of the Square Wave by means of the Fourier Analysis. Although the Square Wave is considered here at low frequencies, for purposes of easier interpretation, the results are indicative of the characteristics of the Square Wave at other frequencies. Excellent material for readers interested in high-grade oscilloscope work.

Resume of the Fifth Annual Conference of Broadcast Engineers

A report of the Fifth Annual Broadcast Engineers Conference held at Columbus, Ohio, is a feature of this issue of Communications. Among the technical phases of the meeting considered in this report are (1) WOR's Maintenance System, (2) Emergency Power Plants for Broadcast Stations, (3) Mobile F-M Equipment, (4) and the General Effect of War on Broadcasting in America.

BELL LAB RECORD

(March, 1942)

Grounding of High-Gain H-F Amplifiers

By T. F. Gleichmann

The importance of "common" ground connections for

★ ★ WE CAN HELP YOU ★ ★ KEEP ON THE AIR

Broadcast stations today must be prepared for any and all emergencies. If replacement or maintenance parts are difficult to obtain in view of present production restrictions and allotments, let SUN help you with your problems.

★ WE HAVE THOUSANDS and THOUSANDS of RADIO PARTS

AVAILABLE for INSTANT DELIVERY!

★
Complete Broadcast Equipment
TUBES • METERS • CONDENSERS
RESISTORS • SWITCHES • TRANSFORMERS
RELAYS • WIRE • INSULATORS
SOCKETS • PANELS, ETC.

All Nationally Advertised Products in Stock!
NEW YORK'S OLDEST RADIO SUPPLY HOUSE

Telephone: BArelay 7-1840

Est.
1922



Try
SUN
Service

different parts of well-designed amplifier circuits is considered in this article. Stabilized feedback and similar types of circuits employ a "common" ground return for the current path. It is shown that this so-called "common" ground may, in reality, introduce extraneous or "phantom" impedances—which have important effects on the efficient operation of feedback amplifier circuits. Several diagrams illustrate this little-contemplated "bug" in amplifier design, and suggestions for eliminating the fault are considered.

Behind the Mike By Con Conrad

TO START off this month we have this item from the good ole U.S.A. The Signal Corps of the U. S. Army is badly in need of trained radio men for civilian duty. Their need is for men trained in transmitter work, men with high and ultra high frequency experience. In fact the Signal Corps needs men with any kind of radio knowledge. The duties will be under civil service in connection with the Signal Corps. In many cases the men can be placed on jobs near their own homes. The pay, oh, yes, the pay—well, fellows, the jobs will pay very close to your present salary. For further information write The Chief Signal Officer, Washington, D. C., or get in touch with the Signal Officer of your own Army Corps Area.

Fred Shidel, formerly with the NBC engineering staff

in Chicago, went into active duty with the Signal Corps as a lieutenant a little over a year ago. To date he has been upped twice; he is now a major.

E. G. Eisenmenger, NBC engineer, Chicago, Ill., now on duty in a civilian capacity with the Signal Corps in Chicago. At present he is working in the procurement division.

W. F. Lanterman, NBC maintenance supervisor, Chicago, Ill., conducting classes at Northwestern U. at Evanston, Ill., in connection with radio training.

George Maki, former NBC engineer, Chicago, Ill., and now chief engineer with WIND, Gary, Ind., is spending his nights and free time teaching radio at the Illinois Insti-

(Continued on Page Seventeen)

Patent Organization

(Continued from Page Thirteen)

of the work of a patent department should be thoroughly experienced in patent litigation practice and procedure. He should be able to direct generally and to coordinate the litigation of the business and to help in planning and determining its strategy.

There is no field of endeavor in which the beneficial results of thorough preparation and complete knowledge of a situation become more evident than in a law suit—and this is especially true in patent litigation. A litigation division of a patent department can be especially valuable in obtaining good results.

It is important that the patent soliciting attorneys should follow and participate in the patent litigation in which the business becomes involved and that they should keep themselves informed respecting past and current decisions in patent cases. Failure in these latter respects might well reflect itself in defects in the patents solicited by them which become evident only when suit is brought or is under consideration.

Research Laboratories

There is such close relationship and interdependence of the activities of research laboratories and patent departments that their common executive direction and general administration has been found advisable in some organizations. Also, it is advantageous to locate the headquarters and major portion of the patent department in or near the research laboratories, because that is where the larger proportion of the creative work is usually done. A combination of the research and development laboratories and the patent department constitutes a logical unit of a business for creating and protecting the foundations

for its further development and diversification.

Patents provide a powerful and invaluable stimulus to scientific research. Directly and indirectly they provide the revenue by which research and invention are maintained. Without them but little incentive would exist for undertaking creative work requiring large expenditures and protracted effort. Without them but little possibility would exist for those having vision, initiative and courage to recover their investments or to obtain compensation from those who would copy the results of their work. Patents are entitled to much of the credit for the research and development which have contributed so largely to our industrial progress and to our high standards of living.

Also from the laboratories have come, and are coming, the inventions and developments which are shaping the course, and will ultimately determine, the outcome of the present world war. It is essentially a war of science, invention, engineering and production. It will be won by the side which furnishes its fighting force with not merely the most but also the most effective weapons, munitions and equipment. Before they can be produced in quantity, they must be created and developed in the laboratories and work shops. Their real capabilities and superiority are determined by the degree to which science, invention and engineering are applied to their design before they are produced.

Our safety is dependent upon our attaining supremacy by utilizing the latest advances that have been made in all branches of science and engineering. To this end every possible encouragement and stimulus should be given to our laboratories to make further discoveries and progress in the fields of the present-

ly unknown. There is no better instrument for this purpose than our present patent laws.

Public Interest

In concluding this lecture, it should be emphasized that patents are granted to serve the public interest. That is their primary purpose and intent. The public interest is dominant. The rights and interests of the inventor and the patent owner are protected *in order that benefits may accrue to the public.*

However, in order that the public may most assuredly receive such benefits, it should also be emphasized that the protection afforded by the patent system should continue to be substantial and real, and that it should not be seriously impaired or endangered either by ill-considered legislation or by excesses and abuses of patent rights.

Any conduct which brings the patent system into ill repute is deplorable. It leads to proposals of unduly restrictive and drastic legislation and to interpretations of existing law which injure and impair the system. It tends to defeat the purpose and intent of the system, to the detriment of the public and of the great body of inventors and research workers and organizations.

Enlightened owners of patents have learned that policies and practices which best serve the public interest are usually also most beneficial and profitable to the inventor and to the patent owner, and are good business. "He profits most who serves best."

All of the activities of a patent department should be so conducted as to reflect credit upon the patent system, and upon the business served by the department, to the end that invention, research and development may continue to be encouraged and to prosper for the benefit of all.

New York News

(Continued from Page Fourteen)

all season. How?? By throwing the "pill" from one hole to the next, no doubt, no doubt????? Speaking of Florida, up above, reminds me that if any of you boys are contemplating a trip to Florida you should first get in touch with Ed Schabbehar, RE. Seems as though Ed knows some one there who can fix you up nicely. That some one goes by the name of "The Widow," so it's rumored.

McCarroll claims he can oil-heat his house for fifty-seven dollars a year. Oh, Doctor, please tell me how he does it?

"Chuck" Beardsley, our newest ACR recruit, has had the graveyard shift for the past couple of months. We'll all have to be re-introduced to the guy when he comes back on days, we haven't seen him for such a long time.

Well, I guess this'll be 30 and 73's for the time being. After all, this is more news than has come out of N.Y. in months.

F. R. Rojas

(Continued from Page Two)

In 1927 he married Gladys Corey of Oyster Bay, and they now live in Malverne, Long Island, with their two charming daughters. He has been active in civic improvement in Malverne and recently, when the first Electrical Board in the village was organized, he was named Chairman of the Board of Examining Electricians.

As hobbies he lists amateur radio, home maintenance and improvement, and revolver target shooting.

Behind the Mike

(Continued from Page Fifteen)

tute in Chicago. This in connection with the government sponsored radio classes now running in Chicago.

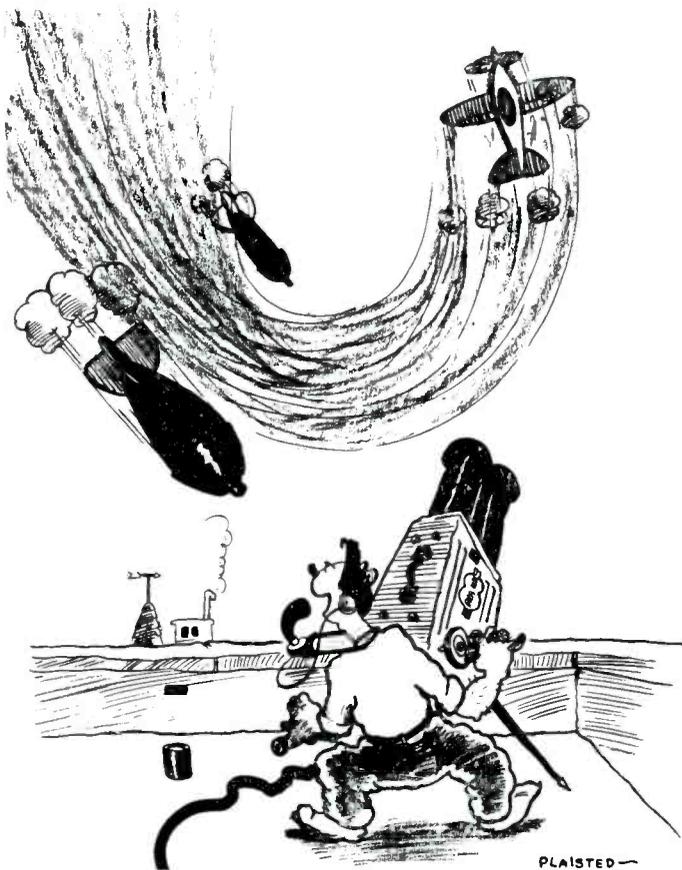
P. J. Moore, NBC transmission engineer, Chicago, Ill., doing more of same at Lewis Institute.

Carrol Philbrook, new to the staff of WHEB, Portsmouth, N. H. Phil hails from Salem, Mass.

Bob Montesano, new to the staff of WIBX, Utica, N. Y. His duties will be as student technician.

Charles Batteau has resigned his duties with WCKY, Covington, Ky., to take up new duties with the navy.

Elmo Reed, formerly of WROK, Rockford, Ill., now with the Signal Corps, has been promoted to the rank of corporal.



BOY! WHAT A SCOOP!!

Donald Parker, also of WROK, Rockford, Ill., has been promoted to the rank of sergeant with the Signal Corps.

P. H. Clark, NBC Control Room engineer, Chicago, Ill., middle-aided it on March 27 with the former Mary Frisch, she of the Dorothy Dorban Dancers appearing at The Edgewater Beach Hotel in Chicago. It's number two for Paul.

E. A. Holm, NBC engineer, is lecturing at Northwestern U. in Evanston in connection with the Defense Radio Project.

Dawkins Espy, formerly of the KFI-KECA, Los Angeles, Cal., staff, is on leave and is acting as research engineer with the Columbia U. National Research Defense Labs.

Ed. Thompson, WMBD, Peoria, Ill., engineering staff, has been drafted and is serving with the armed forces. At present he is stationed at Camp Grant.

Milton Hill has joined the engineering staff of KLZ, Denver, Colo.

L. E. Heiden, formerly of RCA-Victor, has joined the engineering staff of NBC, Chicago, Ill. His duties will be that of studio engineer.

Sam L. Maynard, transmitter engineer of KLZ, Denver, has resigned and is now with the Signal Corps, training men for radio in connection with the air force.

J. H. Platz, NBC Control Room engineer, has been upped to the position of senior supervisor, replacing E. C. Horstman, who is now manager of Blue Network Engineering in Chicago. In the move W. K. Cole has moved up to the position of junior supervisor in the NBC Control Room.

C. P. Loonie, WMAQ transmitter engineer, Chicago, Ill., plans on becoming a gentleman farmer this spring, now that he has acquired acreage near Geneva, Ill.

Harvey Kohnitz, formerly of the Illinois Police Radio, has joined the staff of the Blue Network transmitter plant WENR near Chicago.

UP A TREE?

When you're up a tree worrying about getting parts or equipment you need, there's always one sure way out. It's Terminal!

Here you have your most reliable source of supply for Radio and Electronic Equipment . . . plus an intelligent and efficient staff to see that your orders are filled quickly and completely. Our stock is the most complete in our history, and our service is way above par!

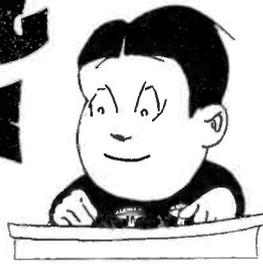
TERMINAL RADIO CORP.

85 CORTLANDT STREET

« NEW YORK CITY »

TELEPHONE WORTH 2-4416

RIDING GAIN



ON THE AIRALTO WITH TONGOOTEE

THIS column gets more of a laugh from the pompous prophecies of radio's alleged sages than from the combined wit of its jesters. One by one, these windbags have been deflated until they haven't a legitimate opinion to stand on. Lately, they've gone crashing to defeat in the matter of afternoon sustainers. For a long time these phoney pontiffs have doomed matinee performers; if you didn't start in the big time arena, they used to say, you'd never graduate into that select circle from an afternoon spot. But Ransom Sherman, deft emcee and comedian, has made the leap from daytime funny-business into his current *Crestfallen Manor* night stanza. A newcomer to night listings (but no stranger to afternoon dial-twisters), the Sherman diversion has made Wednesday p.m. listening brighter—and happier. But the big story is that another of radio's baseless maxims has taken it on the chin; and that's to be applauded by sincere air-workers who like the industry to develop.

When the radio manufacturing industry shut down completely on home-receiver production on April 22nd, the United States had 60 million receivers in use, serving 87 percent of American homes.

* * *

The Army of the United States has one "secret" weapon that is steeped in ironic humor: a method of front-line communications which is guaranteed to baffle and completely confuse any enemy. And it consists of using some of this continent's oldest citizens, the American Indians, as front-line telephone and radio communications operators in certain regions. For instance, two Comanches can get together (by wire or radio) and chatter away incessantly in their own native dialects—and run not a single risk of being understood by any intercepting of the enemy. And there are so many different native dialects, that the confusing combinations are almost unlimited. And the Army reports very successful use of these highly specialized units in the Signal Corps.

* * *

A new night-time variety show is scheduled to bow in soon, called *Your Weight in Gold*, and involving a professional weight guesser. The program will cost either \$10,000 or \$50,000—depending on who is telling the story.

* * *

There are more ways than one for an NBC script writer to earn money on CBS. That, at least, is the experience of NBC scripster George Fisher. Recently he appeared as a contestant on the Bob Hawk Friday CBS comiquiz *How Am I Doin'*—and walked off to NBC with \$270 in his pocket.

* * *

April 28th marks the Tenth Anniversary of the now-famed personal appearance of Leo, the late and well-known M-G-M lion at WBZ in Boston. Scheduled for a publicity interview, Leo didn't manifest very much appreciation for the control-room engineer (here un-named). Just before time to go on the air, Leo leaped through the air some twenty feet, sailed indifferently through two thicknesses of glass in the control-room window, and landed unceremoniously in the lap of the terrified engineer. Long and deep scratches on the panel housing the faders and VI attest to this remarkable jumping feat. But Leo's flight through space was little compared to the speed and sudden departure of the engineer—who left the control-room door open in his great haste. Whereupon the lion took an extended tour of the studios, until he was finally cornered by his trainer and forced meekly

PATERSON: 79 Bridge Street	NEW BRUNSWICK: 54 Albany Street
AARON LIPPMAN & CO.	
246 Central Avenue	Newark, N. J.
Leading Radio Equipment Distributor of New Jersey Prompt Service at No Extra Cost	

Courmettes & Gaul
OPTICIANS
55 West 49th Street R. C. A. Building, New York Main Floor
EYE EXAMINATIONS
Prescriptions Filled . . . Prompt Repair Work

back into his cage. This is what too much realism in radio led to back in April of 1932.

* * *

Statistics on the location of missing heirs, compiled by the *Are You a Missing Heir* program, prove that more heirs are located in America's two largest cities, New York and Chicago, than in any other town or city in the country. This fact also bears out the old theory that people migrate to large cities in hopes of improving their fortunes. It also proves that most people in New York or Chicago are missing—one way or another.

* * *

Added laurels came this month to Jim and Marion Jordan, stars of radio's number one show: *Fibber McGee and Molly*, with their inclusion (believe it or not) in the 1942-43 edition of "Who's Who."

* * *

The newest development in radio-phonograph design, the Philco "beam of light," becomes a successful but short-lived venture—with the complete curtailment of the manufacture of such devices for public use. The "beam of light" principle though highly ballyhooed, is not generally understood. The system employs a sapphire jewel in place of the usual needle. As the jewel "floats" in the grooves of the records, it sways a tiny mirror from six- to seven-thousandths of an inch in thickness. This mirror reflects light rays, directed on it by a small bulb, into a photo-electric cell. The cell then translates the light rays into electrical energy, in the usual manner, in turn setting up sound vibrations.

* * *

To the radio industry goes the distinction of sending the first sponsored entertainment unit into the war area in the Panama Canal Zone. Unit was the ciggie-sponsored *Grand Ole Opry* troupe which reached Panama safely—late in March. How and when the contingent departed from the United States is undisclosed, but this much is no secret: the *Opry* is the first show of its kind to play in the Panama Zone since the outbreak of hostilities.

* * *

Monroe Upton, writer for *Al Pearce*, is making plans to join the Merchant Marine soon as a wireless operator. He served in the same capacity in World War I.

If you require information
on insurance of any kind
call



10th Floor
RCA
Building
Suite
1017

Telephone
NBC
Extension
140

HERB RICE

A busy actress is Eileen Tremayne, heard on several CBS dramatic serials. Eileen came to radio nine years ago, after she had attended the University of Oregon and had worked as a librarian, model, stenographer and window dresser. In real life she's married to Actor Les Tremayne. And in her spare time she designs and makes her own clothes, is an excellent cook and owns a collection of over 5,000 recipes, plays a harp for relaxation, and occasionally tries her hand at writing.



(CBS Photo)

Eileen Tremayne

Still holding out against the Japanese invaders (April 2nd) was the tiny island of Cebu—in the Central Philippine Group. There the RCA Communications transmitter is the last reliable means of direct communication with the United States—7,000 miles away. On December 31st, when the fall of Manila was imminent, the U. S. Army destroyed all radio-telegraph and cable equipment, and the Philippines were left without commercial communication with this country. So the small transmitter at Cebu was pressed into service on a commercial circuit—which it has since been faithfully operating, despite the continued Japanese threat against the island. The staff consists of only five men, including the two operators: Sebastian Augusto and Luiz Mendoza. Perhaps even as you read this, Cebu may have been re-attacked and captured. But to the indomitable courage of this group of distant RCA men, may we pay a sincere tribute! And many thanks for this information from Ray Hutchens, of RCA in New York.

* * *

Radio ad agencies are looking for whiz-bang comedy shows for summer commercial fillers. Belief is that as the war drags on listeners will be more and more inclined to favor laugh programs. Also a few new jokes.

* * *

Many of his friends who have been wondering as to the whereabouts and activities of Bill Eddy will be glad to know

(Continued on Page Twenty)

San Francisco News

By Frank Barron

PHOTOGRAPHY enthusiasts please note. E. L. Parkhurst, M.E., while hurrying home happened to glance down on the sidewalk and spotted a single frame of some 8 mm movie film. Retrieving it with difficulty in the heavy crowd, he took it home to examine more closely. Upon first investigation Parkhurst was aware that he really had something, and proceeded to set up his enlarger. The results of the blown-up print proved positively amazing. Having told the boys around the office of the original finding, Parky was duty bound to show the finished results. The finished product now occupies the space formerly devoted to quite a breath-taking calendar, but with a blinder placed over the front of it. The remainder of the camera hounds now walk the streets with howed heads hoping for



In today's exciting episode, boys and girls, Flash Rogers meets a terrible pre-historic monster . . . but first . . . !

a find that will outclass that of Parkhurst. (Note: Postal regulations forbid an outright description of Parkhurst's sidewalk find. All copies of your journal would have to be delivered by express if we were to print a copy!)

C. E. Kilgore, C.S., in charge of schedules, was utterly amazed last week upon the request of H. Ashby, S.E., and the latest newcomer to the S. F. staff. Ashby requested that he be placed on the MacArthur watch continuously for reasons of his own. Upon questioning it developed that Mrs. Ashby has gone down and registered for Volunteer Defense Service, and was immediately placed on airplane spotter service; yes, on the MacArthur watch. Furthermore, she is not allowed to divulge the whereabouts of her assignment each night, as it is a military secret. Ashby and Hirohito are not on speaking terms as a result!

Clark Sanders, F.E., the man of many junkets, has just returned from what he terms a perfect trip to Sun Valley, Idaho, for the Lowell Thomas pickup. Clark is our amateur furniture builder hobbyist. Walking into the twenty bucks per day room furnished for free by the Lodge he

was thrilled to note that the room was furnished with the identical type of furniture that he had always planned to build. We learn from outside sources that Clark spent the better part of three days photographing the interior decorations of his room so as to have a working model when he was back home in his workshop.

As we go to press for this issue, the S. F. office is a bee-hive of industry preparing for the grand dedication ceremonies and broadcasts from the new NBC building. We are unable to quote what program treats are in store for the listeners, but we can assure you that April 26, 1942, should be a hot day for the long-lines. We had hoped to have full information on the dedication ceremonies, but as it is not available we are just putting out a teaser for this issue.

Riding Gain

(Continued from Page Nineteen)

he is in Chicago—and busier than a cat in a butcher shop. He is in charge of W9XBK, the Balaban and Katz Television station atop the State-Lake Building. And in between operations he finds time to instruct civilian defense classes in radio, do recruiting for the Navy, teach several radio classes for the Navy and Coast Guard, and still draw an occasional cartoon in his spare time. A busy man: Bill Eddy!

* * *

This trick question recently stumped the Quiz Kids—and might even cause the wizards of Information Please to ponder a bit. Can you figure out this one?—A woman peeled and crushed a bushel of peaches for some peach marmalade before she remembered that the recipe called for adding one lemon to every dozen peaches; at that late date, *how did she determine the exact number of peaches in the original bushel?*—The answer should be easy! She just counted the peach pits!

* * *

RADIO IN 1962! (Late radio news reports from this Column's *Twenty-Year-Ahead Reporter*;) Radio City will shortly be torn down to make way for a modern skyscraper; network officials feel present building too old-fashioned. Radio quiz programs are desperately in need of new questions. It is rumored that a certain day-time serial will complete its story any day now; but network actors nod otherwise, knowingly. Orson Welles is scheduled to play the lead in the new movie "The Life of Don Ameche." A South African tribe is requesting air time; program will feature the Ubangi Barnstormers, a voodoo band, sponsored by a chain of local witch doctors. A portable television set costing only \$2 was put on the radio market this week. And radio operators are wondering about the famous shortage of radio men existent about twenty years ago, and sighing for the "good old days."—But this, of course, is in 1962.

Avenge Pearl Harbor!

Every American has one thought . . . Avenge Pearl Harbor! We are certain the avenging will be accomplished in typical American fashion and with a convincing thoroughness that will cause our enemies to remember the name of Pearl Harbor for many, many years to come. American manufacturing methods coupled with our enormous facilities for producing needed materials will be an important factor in winning this war. We're in it . . . and we'll win it!

Every member of the Hallicrafters Company takes pardonable pride in the Hallicrafters communications equipment we are shipping to our armed forces.

the hallicrafters co.
CHICAGO, U. S. A.
Keep Communications Open



CAPPS*

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

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

Imitated but not equalled

FRANK L. CAPPS

244 W. 49th STREET

NEW YORK CITY

Telephone Circle 6-5285

*Reg. U. S. Pat. Off.

ABC of RADIO

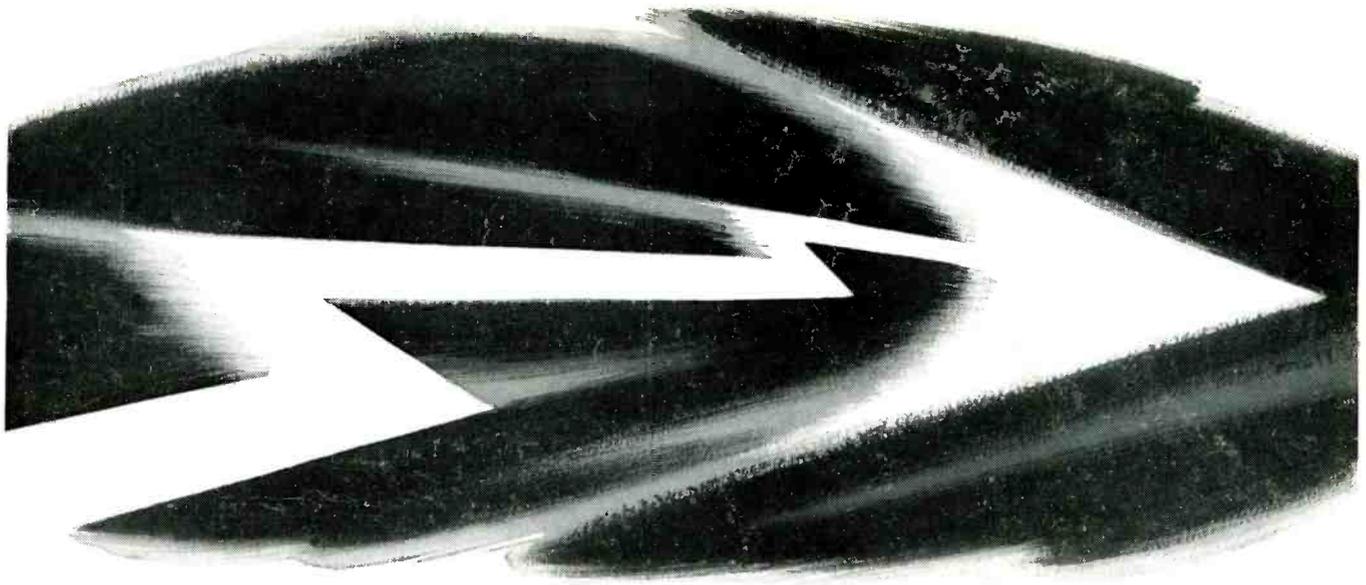
Long ago we learned what it means to serve engineers in all branches of the Radio Industry. Based on this acquired experience, we have developed a keen sense of responsibility and the high degree of efficiency necessary to meet their requirements. Today, as never before, we are fulfilling our obligations with flying colors. Now, under the most trying conditions, we are equipped to offer the fruits of our experience to the Radio Industry. Yes, you can always depend on Terminal for your radio and electronic equipment.

TERMINAL RADIO CORP.

85 CORTLANDT STREET

« NEW YORK CITY »

TELEPHONE WORTH 2-4316



RADIO: SPEARHEAD OF VICTORY!

COMMUNICATION, swift and certain — to coordinate every unit in action — is the first requirement of modern “lightning” warfare. Radio is keyed to the demands of such communication. And, fortunately, America has the greatest radio equipment in the world . . . thanks to research and engineering.

R. C. A. Communications, Inc., transmits and receives messages regularly and reliably to and from more than 45 foreign countries. Equally efficient is the ship-to-shore service of Radiomarine Corporation of America. In the plants of RCA Manufacturing Company, radio equipment for military purposes is coming off the production-

lines in volume—equipment that could not have been constructed in *any* quantity only a few short years ago! Through the National Broadcasting Company and the Blue Network, radio serves on still another front—keeping Americans unified and informed, through 55 million radio receivers!

On the overseas front, NBC operates two powerful short-wave stations—WRCA and WNBI at Bound Brook, N. J. They help to hurl America’s answer in the “war of words.” Their short-wave beams carrying authentic news, are spearheads of truth through the darkness of war. Today freedom rides America’s radio beams to all the world.



RADIO CORPORATION OF AMERICA

Radio City, New York

The Services of RCA:

RCA Manufacturing Co., Inc. • R.C.A. Communications, Inc. • Radiomarine Corporation of America
RCA Laboratories • National Broadcasting Co., Inc. • Blue Network Co., Inc. • RCA Institutes, Inc.