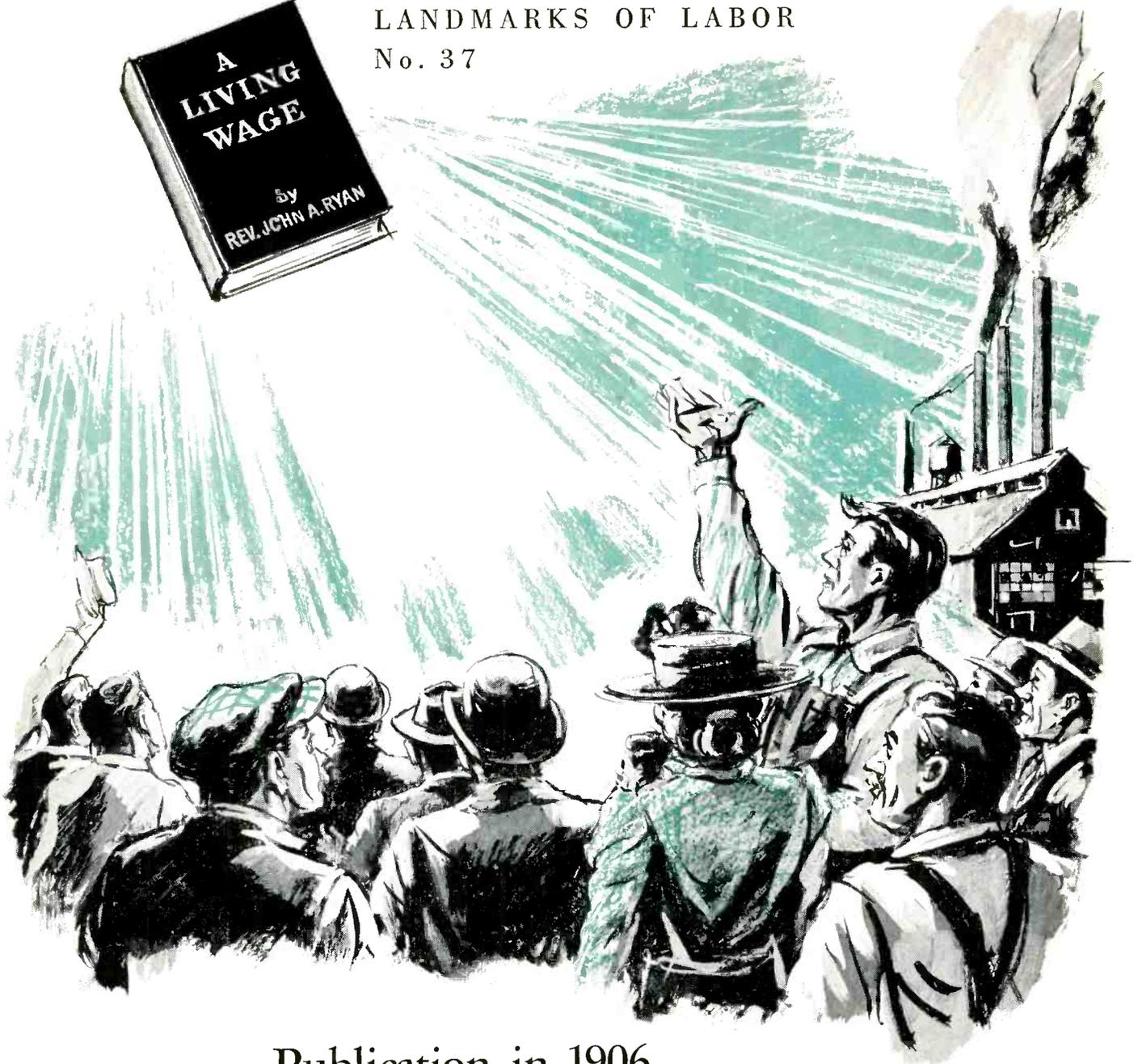
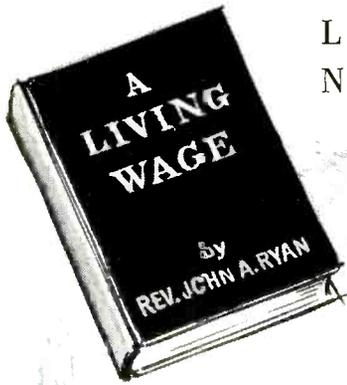


# TECHNICIAN ENGINEER

AUGUST, 1962

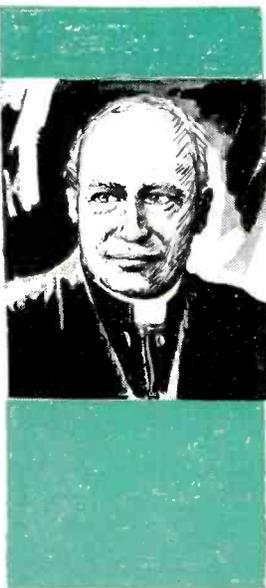
*Published for the Employees of the Broadcasting, Recording and Related Industries*

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS — AFL-CIO



## Publication in 1906 of "A LIVING WAGE"

by Rev. John A. Ryan



Articles, speeches and books have played important roles in the progress of labor in bettering wages, hours and conditions. In this respected tradition a book by a Catholic clergyman and sociologist played an important part more than a half a century ago.

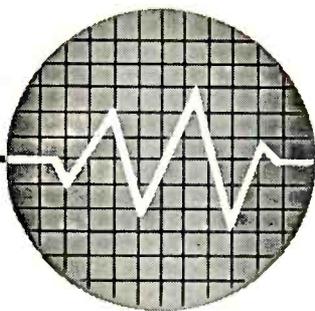
The book was "A Living Wage" and the author was the Reverend John A. Ryan. This book, first published in 1906, was called a "powerful indictment of any system that provided less than a living wage." Father Ryan advocated standards of earnings which would allow a family adequate food, clothing and shelter for health and comfort. He recommended funds for "holiday clothes" so work-

ing people could participate in church, lodge and organization work with dignity.

He advocated at least five rooms as housing and education for children up to 16 years of age as a minimum and income enabling a wife and mother to give all of her time to her family. He also thought working people should have enough income to take care of illness, savings for old age, insurance, recreational and spiritual needs.

This book had a strong impact in its time and its author made a profound impression through his intellectual and sociological leadership in the cause of working people. The book well deserves to be known as a landmark in the forward march of labor.

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# TECHNICIAN ENGINEER

VOL. II, NO. 7

ALBERT O. HARDY, Editor

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*the cover*

*Jerry Bergstrom of Local 292, Minneapolis-St. Paul, Minnesota, helps to set a camera on a dolly before the spectacular outdoor display at Mount Rushmore, South Dakota. His work is part of that done by a team of technicians from the Twin Cities who originated a live portion of the first intercontinental telecast by Telstar—the new orbiting communications satellite. For more about the work of Bergstrom and associates, turn the page.*

*index*

*For the benefit of local unions needing such information in negotiations and planning, here are the latest figures for the cost-of-living index, compared with 1961 figures: June, 1962—105.3; June, 1961—129.2. (Please note: With the January, 1962, index, the reference base was changed to 1957-59—100, from a previous base of 1947-49.)*

## COMMENTARY

The second session of the 87th Congress has moved into the eighth month with the bulk of major legislative decisions still to come.

The shape of those decisions will be the result of the continuing pressure from the White House for its wide-ranging legislative program and the insistent realities of the fall congressional elections.

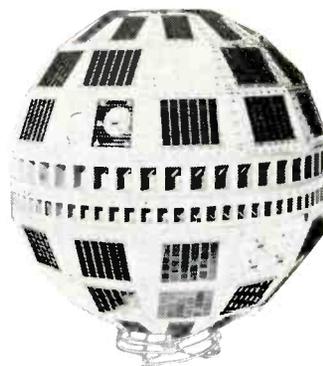
The relatively slow pace of legislative decision-making and the possibility of the current session extending into September hold out the hope, however, that a meaningful record can be written on taxes, trade, health care for the aged, programs to cope with unemployment and a score of other mat-

ters, so that the voters in November will have the basis of an intelligent choice.

There are indications of indecision and uncertainty in Congress on some of the major issues and a searching for voter opinion in the home districts. This is the time, as the record-making reaches the crucial stages, for the letters, the phone calls, the personal visits. They can make the difference.

You can send a 15-word telegram to the President, Vice President, a Senator or Representative, expressing a personal view on a public issue, for a flat rate of 75c plus tax. If the occasion arises, your Western Union office has the details.

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# AMERICA 'LIVE' VIA TELESTAR

*WCCO-TV technical crew originates  
Black Hills portion of Telstar  
inaugural broadcasts to Europe*

by GENE BRAUTIGAM  
Engineering Department, WCCO-TV

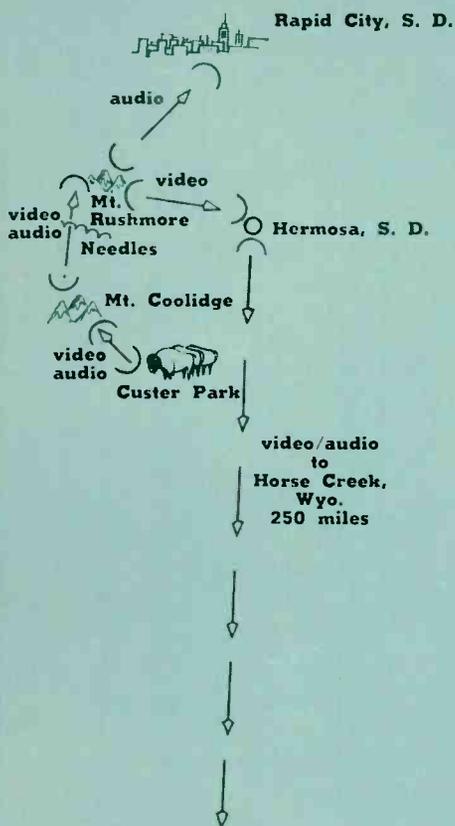
ON July 23 the nations of the world broke free from their limiting horizons on Planet Earth and began beaming video signals from continent to continent in an inspiring demonstration of the world of tomorrow. A small orbiting satellite—Telstar—and years of hard work by hundreds of engineers and technicians brought it all about.

The inaugural broadcast displayed some of the best of America's pride, tradition, and geography. Transmitted to Europe via Telstar on its 123rd orbit were live pickups from the Statue of Liberty, Niagara Falls, San Francisco, the Rio Grande River, a baseball park in Chicago, the State Department in Washington, Cape Canaveral, Quebec, Stratford, Ontario, the Seattle World's Fair, Custer Park, Mount Rushmore with the 312-voice choir of the Mormon Tabernacle, and back to New York and the United Nations—a fabulous communications network, indeed.

The work done by technicians of the Twin Cities, Minnesota, for the Mount Rushmore-Custer Park portion of the telecast illustrates the complexities solved by engineers and technicians who handled the show.

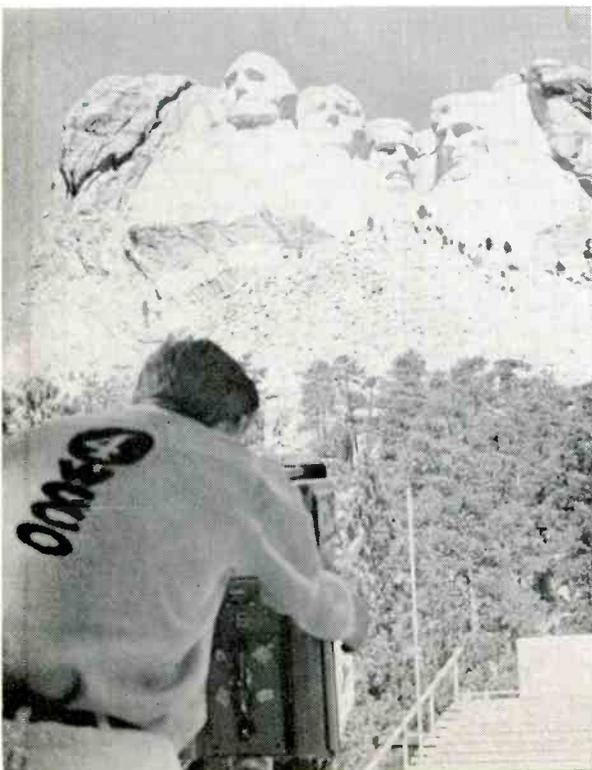
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**Technician-Engineer**

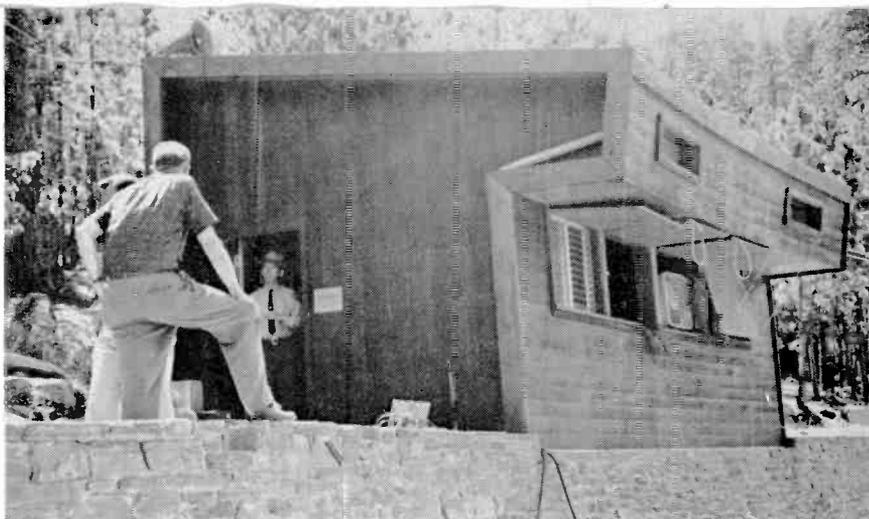


ABOVE: A diagram showing the pattern of the Black Hills remotes.

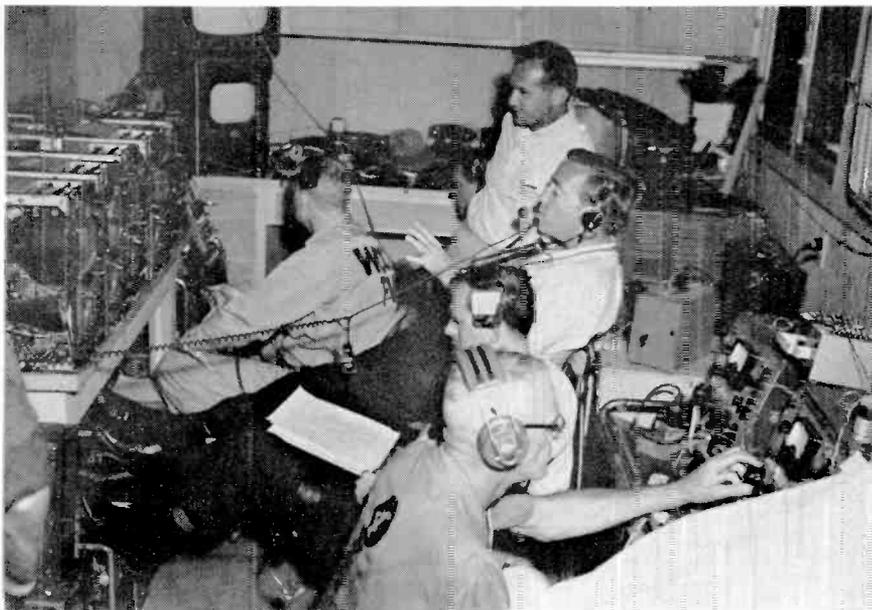
BELOW: Ray Brockhouse on camera at Mount Rushmore.



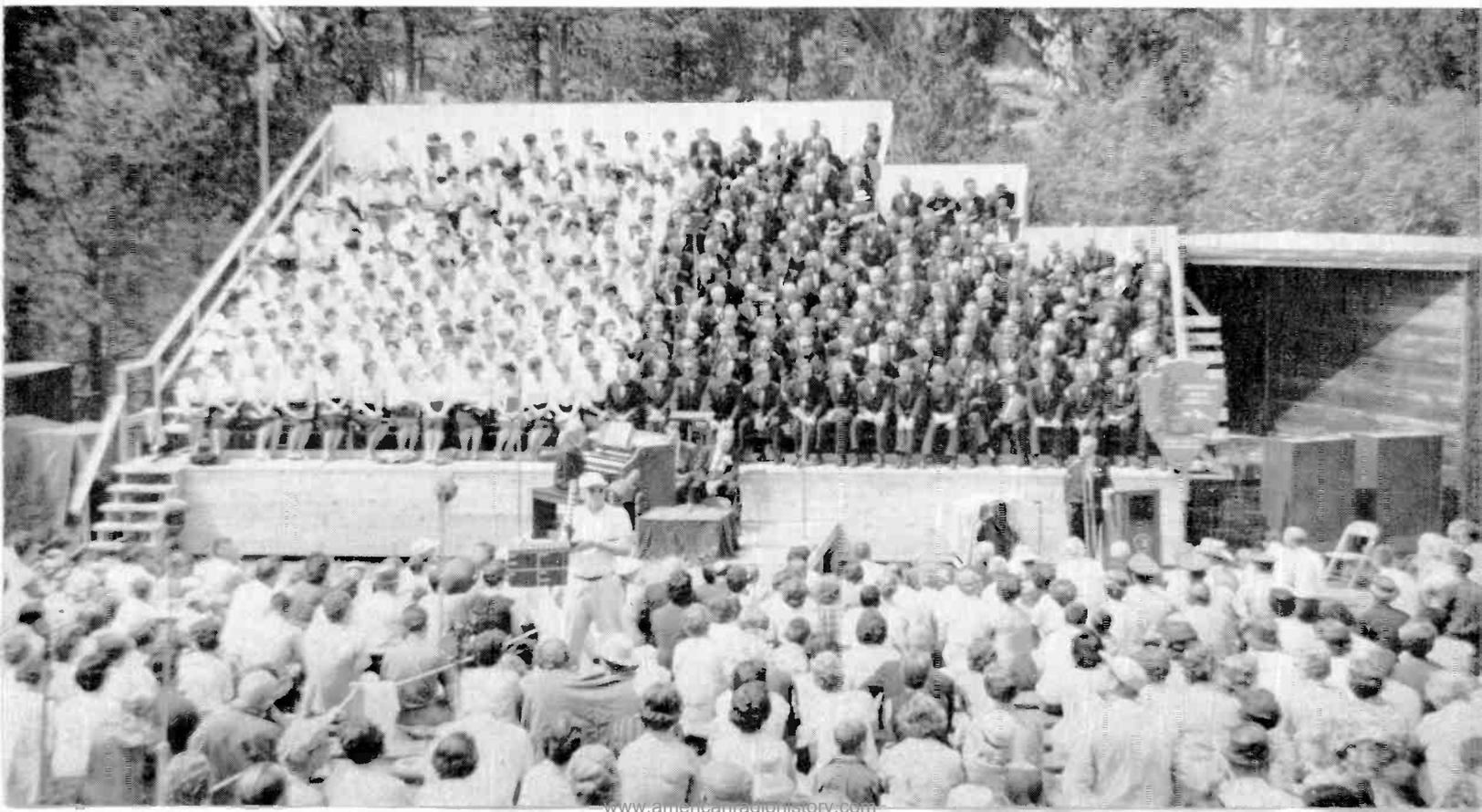
**RIGHT:** The main control room for the Black Hills pickup was located in the projection booth at the Mount Rushmore amphitheater. Here a park ranger gives Twin Cities technicians a rundown on facilities there.



**RIGHT:** A view of main control at Mount Rushmore, showing six camera controls, other video equipment, and audio gear. The top monitor was on Mount Coolidge and Custer Park. The control room crew, clockwise: Henry Sheppard, technical director; Al Siegler, CBS coordinating engineer; Lou Friedman, CBS director; a CBS assistant director; and Gene Brautigam, audio.



**BELOW:** The Mormon Tabernacle Choir at Mount Rushmore. The man at center snaps a clapboard for a motion picture sequence. The choir put in an hour-long performance for visitors following the historic telecast.





Jerry Bergstrom and James Vaughn hand camera controls up to Lew Tapson and Bill Sands, as a setup is prepared at the park amphitheater.



Gene Brautigam, the author, at audio control.

## AMERICA 'LIVE' VIA TELESTAR

CONTINUED FROM PAGE 4

John M. Sherman, Director of Engineering and William J. McGinnis, Studio Chief, of WCCO-TV, Minneapolis, headed a crew of 20 engineers, including 12 from WCCO-TV, 2 from KTCA-TV, 2 from KLZ-TV, and 2 from KOTA-TV, in originating the Black Hills portion of the historic Telstar exchange between the three American Networks and European broadcast originations.

Sherman and McGinnis of WCCO went into Black Hills region the week of July 8th. They then returned to Minneapolis to organize the crew and equipment which departed for Rapid City on July 19th in a caravan of three trucks and three cars.

After staying overnight in Huron, the crew arrived in Rapid City on the 20th, where it headquartered at Jensens Motor Lodge. The same afternoon the crew drove up to Mount Rushmore by car to look over the pick-up points.

Early Saturday morning the entire caravan departed for its respective points—the KTCA-TV truck to Custer Park for the Buffalo Stampede; the WCCO-TV truck plus a filled Hertz truck to Mount Rushmore for set-up as the main switching point; and the KLZ-TV truck to Mount Coolidge, where it was to pick up shots of horseback riders and the Needles rock formations, and act as a repeater point for Custer Park.

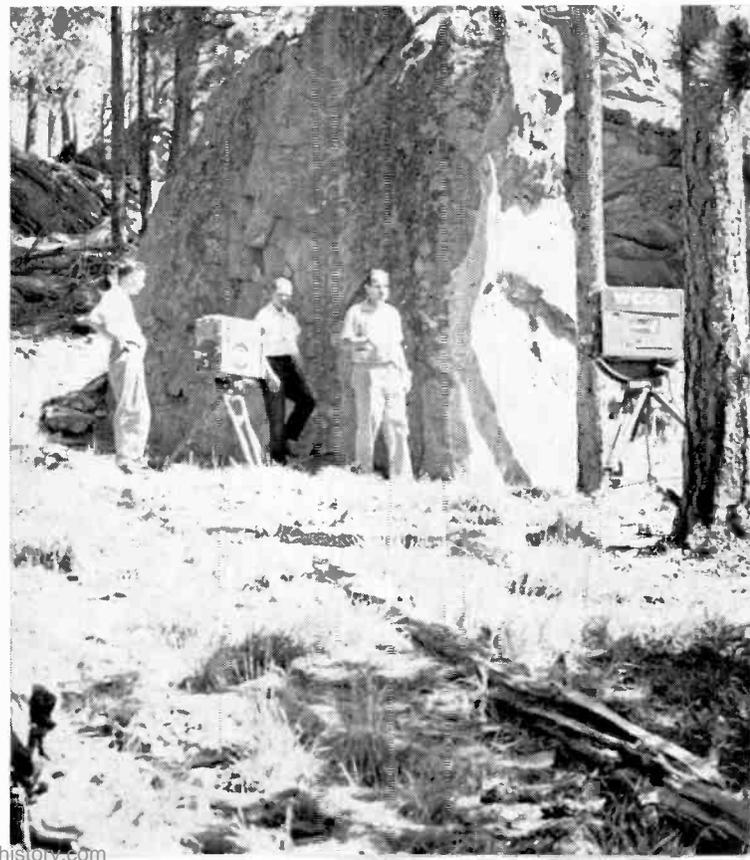
The Rushmore set-up consisted of a one-camera pick-up of a campsite and five cameras located at strategic points to pick up the 60-foot-high faces of a Washington, Jefferson, Lincoln and Theodore Roosevelt, carved

in granite—the Greatness of Mount Rushmore—and the choir.

The microwave points were from Custer to Mount Coolidge to Rushmore. From Rushmore to Hermosa, South Dakota, it was fed into the reversed private microwave system of KOTA-TV, consisting of five repeater points which carried it to Horse Creek, Wyoming, where it was picked up again by Northwest Bell and fed to Cheyenne and so to the Intercontinental AT&T system—and then to New York and subsequently Andover, Maine.

In addition to the microwave system, a radio link had to be set up between Rushmore and Rapid City to carry the outgoing audio circuits. To facilitate cuing, it is necessary to mention the PL's between Chicago, Chicago-New York, Hermosa, Horse Creek. Mount Coolidge

Three technicians go back to nature with their two WCCO cameras.





The crew took a five-minute rest beside a South Dakota highway, and the author took a picture. From left are: Bill Baeten, William J. McGinnis (studio chief), Doug Cole, Bill Sands, Jerry Bergstrom, Henry F. Sheppard (technical director), Elmer Theisen, Ray Brockhouse, Jim Vaughn, Amby Hartman, Lew Tapson, and Bill Sherwood.

and Custer Park—all tied in at Mount Rushmore along with an interrupted cue circuit. Setting up of all the equipment at Rushmore was accomplished in the projection booth overlooking the amphitheater, with special risers constructed for the choir.

First order of business was set-up of a sync generator and multi-burst to get video information through to Horse Creek via Hermosa. By 1:30 p. m. Saturday afternoon, July 21, we were checking camera shots from all points along with audio fax. Sunday was spent rehearsing with New York along with all the other scheduled originations.

The Mormon Tabernacle Choir arrived Monday morning, July 23rd, in Rapid City at Ellsworth Air Force Base after flying from Denver via five chartered Western Airlines DC7's, and then by bus to Mount Rushmore—just in time for the latter portion of a dress rehearsal with New York. Approximately fifteen minutes was then spent in checking microphone placement for picking up the choir to the satisfaction of Mr. Evans, assistant choir director, before rain interrupted any further proceedings.

The weather, which had been beautiful Friday, Saturday, Sunday and Monday morning, suddenly changed to a terrific downpour including hail, lightning and thunder. This all started at 10:45 a. m., Rapid City

time, and continued until 11:30 a. m. Air time was somewhere between 11:45 a. m.-12:30 p. m. Rapid City time. To say there was concern is putting it mildly, and close touch was kept with the radar tracking station of the weather bureau at Rapid City who informed us that it should pass over and clear in time for the telecast. This it did. The Mount Rushmore portion of the Telstar transmission to Europe came at 12:08 p. m.

Fortunately, our only loss due to the storm, was a telephone cable containing our interrupted cue circuit. We were able to get around this with an air monitor of KOTA-TV which received the program via a Community Television Antennae System, having given up its normal network reception fax to the Telstar transmission.

After completion of the telecast, the choir was able to give a performance for the benefit of the live audience of some 13,000 who were attracted to Mount Rushmore by the event. Then the rain set in again and we had to go about tearing down all the gear and rolling up all the cables.

The comments from New York were good and we were a very thankful crew that the downpour had let up long enough for us to participate in this historic live telecast via Telstar to Europe which television officials estimated would be watched by some 200 million viewers on both sides of the Atlantic.

Selby Coffeen in the middle of a recording session for Dee Jay Records.



# The Nashville Sound



ABOVE: Tom Sparkman and Mort Thomasson consider the position of a studio mike.



ABOVE: Glen Snoddy rewinds a tape reel.

BELOW: Vincent Liebler and Glen Snoddy discuss a problem with Bill Denny, manager of the Nashville operation.



**O**UR story in pictures this month is of the Bradley Recording Studios division of Columbia Records. This is the home of "The Nashville Sound" and the best of Country and Western music, in particular.

Its technical operation was under IBEW agreement prior to the purchase of its operation by Columbia Records and it employs some mighty fine control and recording room talent. The combination of this talent, the unique acoustics and accomplished musicians generate the much-envied "Nashville Sound."

Almost literally surrounded by music publishing houses and recording company offices, the Bradley studio is turning out recordings for almost all the major companies and a large proportion of lesser-known labels. Nashville is the birthplace of more than half of the country and western records, estimated to be turned out by more than thousand musicians, over 300 song writers and the home of more than 100 music publishers. Decca, Capitol, Mercury, MGM, Columbia—you name the label—the Bradley Studios are a major factor in "The Music City."

Right next door, Capitol is building an office and operations center.



Decca Records has just opened its new office across the street.



**Technician-Engineer**

# FCC Proposes To Change Operator Requirements

On August 2 the Federal Communications Commission released a notice that it proposed to change operator standards for broadcast stations.

This is a new but parallel issue in the long list of rule relaxations and rule changes in which the IBEW has formally expressed its interests for many years. This notice by the Commission is must reading, of course. Much more importantly, it should evoke letters to the International Office, expressing the views and comments of our members and readers. However, letters which simply state that "I'm against it" will be of little or no value. Why you are against the proposed amendments, supported by technical reasons and by significant data, a recital of experiences and incidents—this is the kind of information needed.

The IBEW will file comments with the Commission but supporting data and arguments must come from YOU. Time is short—may we hear from you right away?

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington 25, D. C.

In the Matter of  
Amendment of sections 3.93,  
3.265, 3.565 and 13.21 of  
the Commission Rules and  
Regulations to modify the  
operator requirements for  
standard and FM broadcast  
stations

Docket No. 14746  
RM-294

## NOTICE OF PROPOSED RULE MAKING

1. Notice is hereby given of proposed rule making in the above-entitled matter.

2. Present Commission rules permit non-directional standard broadcast stations operating with not more than 10 kilowatts power and FM broadcast stations operating with not more than 10 kilowatts transmitter power output, to use persons holding non-technical radio operator permits to conduct the routine operation of the transmitting apparatus. When this is done the stations must also employ at least one licensed radiotelephone first-class operator on a regular full-time basis, to make repairs and adjustments and perform preventive maintenance requiring technical skill. This latter requirement is intended to assure that a qualified operator will be available at all times to insure proper operation of the transmitting apparatus.

3. It has been suggested that a single qualified and experienced radiotelephone first-class operator, could provide the required technical advice and service to several stations located in the same general area. The licensed operator would perform maintenance on a regular schedule and would be available "on call" to make essential repairs and adjustments or correct any condition of improper operation which might occur during the regular operation of such stations. We have also received a petition (RM-294) filed by Samuel Miller and Mark E. Fields on behalf of a number of unspecified FM broadcast stations to amend our rules so as to permit the routine operation of such stations by non-technical operators, regardless of the power employed.

4. Although modern broadcast transmitters have been perfected to a point where they no longer require constant super-

vision by a technically skilled operator, they may require frequent adjustment during normal operation to compensate for changes in the sound level of program content and variations in the line voltage. Furthermore, the operator on duty must maintain certain records, be able to recognize conditions of improper operation which require immediate attention by a technically qualified operator, and be generally aware of such things as authorized hours of operating, CONELRAD procedures, etc.

5. It has become increasingly apparent that holders of restricted radiotelephone operator permits in many cases are not qualified for the duties that must be performed. A sampling of nearly 500 recent inspection reports reveals 444 log deficiencies, a distressing number of which involved incorrect meter indications due either to inability on the part of the operator to read the meter correctly or the deliberate entry of fictitious meter readings. In 83 instances the output power of the station was beyond the allowable tolerance. There were 47 CONELRAD violations including 33 instances where the CONELRAD receivers were not turned on. There were 42 violations for failure to post the operator permit, 37 violations for over or under modulation, 21 violations for defective frequency or modulation monitors including 5 instances where the operator was unaware that the monitor was defective and one case where the operator failed to turn the monitor on, 21 instances in which the operator on duty did not know how to adjust the transmitter power, read meters, turn the equipment on and off, etc., and 18 instances in which remote indicating meters or controls were defective but the stations remained in operation.

6. The restricted radiotelephone operator permit is the lowest class of operating authority issued by the Commission. Applicants are merely required to sign a declaration to the effect that they are familiar with the regulatory provisions governing the authority granted and understand their responsibility to keep currently familiar with the provisions of the rules. They are not required to demonstrate through examination or otherwise that they do in fact possess the required knowledge. We are convinced that the bare knowledge required of a restricted radiotelephone operator permit holder is not adequate for performance of the tasks that are expected of them at a broadcast station. Familiarity with aural broadcast regulations, sufficient skill to read meters accurately and ability to recognize symptoms of trouble when they occur, should be among the minimum requirements for any operator attending a broadcast transmitter.

7. The present situation requires correction in any event. It becomes more important if the concept of contract operation is adopted. Therefore, we are proposing several steps in this proceeding. We propose to amend the rules to allow licensees of AM stations authorized to operate non-directionally with no more than 10 kilowatts power and FM broadcast stations authorized to operate with transmitter power output not in excess of 25 kilowatts, either to employ one or more radiotelephone first-class operators as full-time members of the station staff or contract for the services of such operators on a part-time basis. We do not believe that operation of higher powered FM transmitters should be entrusted to the care of non-technical operators. The radiotelephone first-class operator or operators so employed would be required to perform the duties spelled out in the proposed rules but would not have to be physically present at the transmitter site or authorized remote control point, at all times. In his absence, the routine operation of the transmitter may be performed by a lower grade operator. A noncommercial educational FM broadcast station authorized to operate with transmitter power output of no more than 1 kilowatt, may use a radiotelephone second-class operator in lieu of the first class operator required for other classes of stations. At the same time,

we propose to raise the minimum operator requirement for routine operation of the transmitter at all aural broadcast stations from restricted radiotelephone operator permittees to radiotelephone third-class operator permittees. This is still a non-technical type of operator permit but the applicant is required to pass a written examination given under the supervision of a Commission representative. A series of questions designed to determine the applicants qualification to perform the operator duties expected of him at a broadcast station, would be added to the present examination for radiotelephone third class operator permit. These questions would be given only to those applicants wishing to qualify for employment at broadcast stations. It is proposed that stations currently authorized to use restricted radiotelephone operators for the routine operation of the transmitter and which employ one or more radiotelephone first-class operators on a full-time basis may continue to use the restricted radiotelephone operators until (one year after the effective date of the proposed rules, if adopted). All new stations and any existing stations wishing to use a part-time radiotelephone first-class operator would be required to employ radiotelephone third-class operators who have qualified under the new examination, for the routine operation of the station when the first-class operator is absent.

8. Accordingly, it is proposed to amend sections 3.93, 3.265, 3.565 and 13.21 of the Commission Rules as set forth in the attached Appendices. Sections 13.61 and 13.62 of the rules, in which the operating authority under the various classes of commercial operator licenses is stated, would be amended editorially to reflect the changes made in Sections 3.93, 3.265, and 3.565.

9. Authority for the issuance of the proposed amendments is contained in sections 4(i), 303(f), (l) and (r) of the Communications Act of 1934, as amended.

10. Pursuant to applicable procedures set out in section 1.213 of the Commission Rules, interested persons may file comments on or before October 3, 1962, and reply comments on or before October 22, 1962. All relevant and timely comments and reply comments will be considered by the Commission before final action is taken in this proceeding. In reaching its decision in this proceeding, the Commission may also take into account other relevant information before it, in addition to the specific comments invited by this Notice.

11. In accordance with the provisions of section 1.54 of the Commission's Rules and Regulations, an original and 14 copies of all statements, briefs, or comments shall be furnished the Commission.

#### FEDERAL COMMUNICATIONS COMMISSION

BEN F. WAPLE,  
*Acting Secretary.*

Attachment

Adopted: July 25, 1962

Released: August 2, 1962

#### APPENDIX

1. It is proposed to amend § 3.93 (b) and (c) to read as follows:

§ 3.93 Operator requirements.

\* \* \* \* \*

(b) In cases where a station is authorized for non-directional operation with power not in excess of 10 kilowatts, the routine operation of the transmitter may be performed by an operator holding a valid first-class or second-class radiotelephone or radiotelegraph operator license or a radiotelephone third-class operator permit which has been endorsed for broadcast station operation. The operator shall be on duty at the transmitter or authorized remote control point and in actual charge thereof. Stations currently authorized to employ persons holding valid restricted radiotelephone operator permits may continue to do so until one year from effective date, after which date such operation is no longer authorized. Except at times when the operation of the station is under the

immediate supervision of an operator holding a valid radiotelephone first-class operator license, adjustments of the transmitting equipment shall be limited to the following:

- (1) Those necessary to turn the transmitter on and off.
- (2) Adjustments of external controls as may be required to compensate for voltage fluctuations in the power supply.
- (3) Adjustments of external controls to maintain modulation of the transmitter within the prescribed limits.
- (4) Adjustments of external controls necessary to effect routine changes in operating power which are required by the station's instrument of authorization.
- (5) Adjustments of external controls necessary to effect operation in accordance with a National Defense Emergency Authorization during a CONELRAD Radio Alert or for participation in a drill or test of the Emergency Broadcast System.

It shall be the responsibility of the licensee to insure that the person who may be required to perform these tasks as well as to perform other non-technical duties (such as reading meters and making log entries) is properly instructed so as to be capable of performing the duties required of him at times when not under the immediate supervision of a radiotelephone first-class operator. Should the transmitting apparatus be observed to be operating in any manner inconsistent with Commission Rules or the current instrument of authorization for the station at any time when an operator holding a valid radiotelephone first-class operator license is not immediately available and none of the above adjustments is effective in correcting the condition of improper operation, the emissions of the station shall be immediately terminated.

(c) Where the routine operation of the transmitting apparatus at a standard broadcast station with power of 10 kw or less and non-directional antenna is performed by an operator other than a radiotelephone first-class operator pursuant to the provisions of paragraph (b) of this section, the licensee shall either employ one or more operators holding a valid radiotelephone first-class operator license as a full-time member of the station staff or in the alternative contract for the services of one or more such operators. The radiotelephone first-class operator or operators shall perform transmitter maintenance and shall be promptly available at all times to correct conditions of improper operation beyond the scope of authority of the lesser grade operator on duty. Where such services are on a contract basis, a signed copy of the agreement shall be kept in the stations files and at the transmitter or control point and be made available for inspection upon request by any authorized representative of the Commission. The duties of the radiotelephone first-class operator responsible for the proper operation of the transmitter and associated equipment, whether a full-time employee or a contract operator, shall include the following:

- (1) A complete inspection of the transmitting apparatus shall be made at least once each day, 6 times a week, including such tests, adjustments, and repairs as may be necessary to insure that the operation of the transmitter will conform to Commission Rules and the current instrument of authorization for the station.
- (2) In the course of the inspection, a determination shall be made that all required indicating instruments are functioning properly.
- (3) Lesser grade operators, employed for the purpose of operating the station in his absence, shall be thoroughly instructed in their duties and, when necessary, printed step-by-step instructions shall be posted for those transmitter adjustments which the lesser grade operator is authorized to make.
- (4) Signed entries shall be made in the station operating log describing all tests, adjustments, and repairs made, and the time devoted to such duties. Upon completion of the inspection, the radiotelephone first-class operator shall

certify in writing that the transmitting apparatus is functioning in accordance with Commission Rules and the terms of the current instruments of authorization for the station.

2. It is proposed to amend § 3.265 (b) and (c) to read as follows:

§ 3.265 Operator requirements.

\* \* \* \* \*

(b) In cases where a station is authorized to operate with a transmitter power output not in excess of 25 kilowatts, the routine operation of the transmitter may be performed by an operator holding a valid first-class or second-class radiotelephone or radiotelegraph operator license or a radiotelephone third class operator permit which has been endorsed for broadcast station operation. The operator shall be on duty at the transmitter or authorized remote control point and in actual charge thereof. Stations currently authorized to employ persons holding valid restricted radiotelephone operator permits for the routine operation of the transmitter, may continue to do so until one year from effective date, after which date such operation is no longer authorized. Except at times when the operation of the station is under the immediate supervision of an operator holding a valid radiotelephone first-class operator license, adjustments of the transmitter shall be limited to the following:

(1) Those necessary to turn the transmitter on and off.

(2) Adjustments of external controls as may be necessary to compensate for voltage fluctuations in the power supply.

(3) Adjustments of external controls to maintain modulation of the transmitter within prescribed limits.

It shall be the responsibility of the licensee to insure that the person who may be required to perform these tasks as well as to perform other non-technical duties (such as reading meters and making log entries) is properly instructed so as to be capable of performing the duties required of him at times when not under the immediate supervision of a radiotelephone first-class operator. Should the transmitting apparatus be observed to be operating in any manner inconsistent with Commission Rules and the station's instrument of authorization at any time when an operator holding a valid radiotelephone first-class operator license is not immediately available and none of the above adjustments is effective in correcting the condition of improper operation, the emissions of the station shall be immediately terminated.

(c) Where the routine operation of the transmitting apparatus at an FM broadcast station is performed by an operator other than a radiotelephone first-class operator pursuant to the provisions of paragraph (b) of this section, the licensee shall either employ one or more operators holding a valid radiotelephone first-class operator license as a full-time member of the station staff or in the alternative contract for the services of one or more such operators. The radiotelephone first-class operator or operators shall perform transmitter maintenance and shall be promptly available at all times to correct conditions of improper operation beyond the scope of authority of the lesser grade operator on duty. Where the services of the required radiotelephone first-class operator are obtained on a contract basis, a signed copy of the agreement shall be kept in the station files at the transmitter or control point and be made available for inspection upon request by any authorized representative of the Commission. The duties of the radiotelephone first-class operator responsible for the proper operation of the transmitter and associated equipment, whether a full-time employee or a contract operator, shall include the following:

(1) A complete inspection of the transmitting apparatus shall be made at least once each day, 6 times a week, including such tests, adjustments, and repairs as may be necessary to insure that the operation of the transmitter will conform to Commission Rules and the current instrument of authorization for the station.

(2) In the course of the inspection a determination shall be made that all required indicating instruments are functioning properly.

(3) Lesser grade operators, employed for the purpose of operating the station in his absence, shall be thoroughly instructed in their duties and, where necessary, printed step-by-step instructions shall be posted for those transmitter adjustments which the lesser grade operator is authorized to make.

(4) Signed entries shall be made in the station operating log describing all tests, adjustments, and repairs made, and the time devoted to such duties. Upon completion of the inspection the radiotelephone first-class operator shall certify in writing that the transmitting apparatus is functioning in accordance with Commission Rules and the terms of the current instrument of authorization for the station.

3. It is proposed to amend § 3.565 (a), (b), and (c) to read as follows:

§ 3.565 Operator requirements.

(a) The following operator requirements apply to non-commercial educational FM broadcast stations:

(1) If the station is authorized to operate with transmitter power output in excess of 25 kilowatts, one or more operators holding a valid radiotelephone first-class operator license shall be on duty at the place where the transmitter is located or at the control point of a station authorized to operate by remote control and in actual charge thereof at all times when the transmitter is in operation.

(2) If the station is authorized to operate with transmitter power output of 25 kilowatts or less, the routine operation of the transmitting apparatus may be performed by a lesser grade operator pursuant to the provisions of paragraphs (b) and (c) of this section.

(3) If the station is authorized to operate with transmitter power output of 1 kilowatt or less, an operator holding a valid radiotelephone second-class operator license may be employed, in lieu of a radiotelephone first-class operator, to operate the transmitter or perform the duties required under paragraph (c) of this section.

(b) In cases where a station is authorized to operate with transmitter power output not in excess of 25 kilowatts, the routine operation of the transmitter may be performed by an operator holding a valid first-class or second-class radiotelephone or radiotelegraph operator license or a radiotelephone third-class operator permit which has been endorsed for broadcast station operation. The operator shall be on duty at the transmitter or authorized remote control point and in actual charge thereof. Stations currently authorized to employ persons holding valid restricted radiotelephone operator permits for the routine operation of the transmitter, may continue to do so until one year from effective date, after which date such operation is no longer authorized. Except at times when the operation of the station is under the immediate supervision of an operator holding a valid radiotelephone first-class operator license or in the case of stations authorized to operate with transmitter power output not in excess of 1 kilowatt, holding a valid radiotelephone second-class operator license, adjustments of the transmitter shall be limited to the following:

(1) Those necessary to turn the transmitter on and off.

(2) Adjustments of external controls as may be necessary to compensate for voltage fluctuations in the power supply.

(3) Adjustments of external control to maintain modulation of the transmitter within prescribed limits.

It shall be the responsibility of the licensee to insure that the person who may be required to perform these tasks as well as to perform other non-technical duties (such as reading meters and making log entries) is properly instructed so as to be capable of performing the

duties required of him at times when not under the immediate supervision of a radiotelephone first-class operator or in the case of a station authorized to operate with transmitter power output not in excess of 1 kilowatt, under the immediate supervision of a radiotelephone second-class operator. Should the transmitting apparatus be observed to be operating in any manner inconsistent with Commission Rules or the current instrument of authorization for the station at any time when the responsible radiotelephone first-class or second-class operator, specified in this paragraph, is not immediately available, and none of the adjustments within the scope of authority of the operator on duty is effective in correcting the condition of improper operation, the emissions of the station shall be immediately terminated.

(c) Where the routine operation of the transmitting apparatus at a noncommercial educational FM broadcast station is performed by a lesser grade operator pursuant to the provisions of paragraph (b) of this section, the licensee shall either employ one or more operators holding a valid radiotelephone first-class or second-class operator license if the station is authorized to operate with transmitter power output in excess of 1 kilowatt or one or more operators holding a valid radiotelephone second-class operator license if the station is authorized to operate with transmitter power output not in excess of 1 kilowatt or one or more operators holding a valid radiotelephone second-class operator license if the station is authorized to operate with transmitter power output not in excess of 1 kilowatt, as a full-time member of the station staff or, in the alternative, contract for the services of one or more such operators. The radiotelephone first-class or second-class operator or operators shall perform transmitter maintenance and shall be promptly available at all times to correct conditions of improper operation beyond the scope of authority of the lesser grade operator on duty. Where the services of the required first-class or second-class operator are on a contract basis, a signed copy of the agreement shall be kept in the station files at the transmitter or control point and be made available for inspection upon request by any authorized representative of the Commission. The duties of the radiotelephone first-class or second-class operator responsible for the proper operation of the transmitter and associated equipment, whether a full-time employee or a contract operator, shall include the following:

(1) A complete inspection of the transmitting apparatus shall be made at least once each day, 6 times a week, including such tests, adjustments, and repairs as may be necessary to insure that the operation of the transmitter will conform to Commission Rules and the current instrument of authorization for the station.

(2) A determination shall be made that all required indicating instruments are functioning properly.

(3) Lesser grade operators, employed for the purpose of operating the station in his absence, shall be thoroughly instructed in their duties and, where necessary, printed step-by-step instructions shall be posted for those transmitter adjustments which the lesser grade operator is authorized to make.

(4) Signed entries shall be made in the station operating log describing all tests, adjustments, and repairs made, and the time devoted to such duties. Upon completion of the inspection the radiotelephone first-class or second-class operator shall certify in writing that the transmitting apparatus is functioning in accordance with Commission Rules and the terms of the current instrument of authorization for the station.

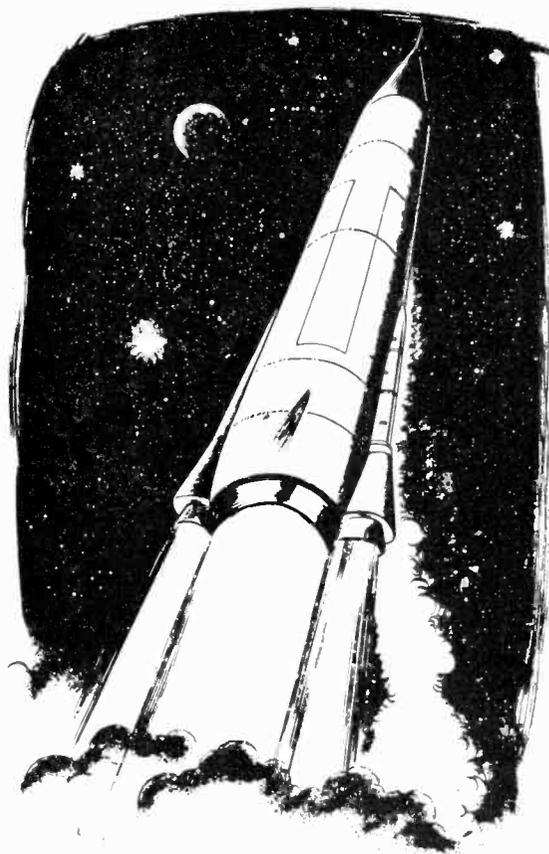
4. It is proposed to amend §13.21 by adding a new paragraph 9 to read as follows:

§13.21 Examination elements.

\* \* \* \* \*

(9) *Basic broadcast.* Basic regulatory matters applicable to the operation of standard, commercial FM, and noncommercial educational FM broadcast stations.

## The Penalty for Work



*Much has been said and printed about the missile program and the delays ostensibly caused by labor troubles. Sometimes it appears, as Mark Twain once said in an entirely different connection, "Such reports are highly exaggerated."*

*However, President C. J. Haggerty of the Building and Construction Trades Department of the AFL-CIO has, in this editor's judgment, called a spade a spade and has put the subject in its proper perspective. It makes worthwhile reading and thus his statement is reprinted here, in part, from *The Construction Craftsman*.*

—The Editor.

# Stoppages In Missile Base Construction

By President C. J. Haggerty, Building and Construction Trades Department, AFL-CIO

WE have a tremendous job to do—a job not for any private employer, *but for our country*. The missile base construction program is the key to our national defense. All our hopes to preserve world peace, to safeguard the free way of life, to deter further Communist aggression and to promote the future well-being of ourselves and our families depend upon the speed and the excellence with which the missile bases are completed.

During the last eight months of 1961, our men did a wonderful job. Time lost due to shutdowns on missile bases was reduced to the vanishing point. As a result, the missile base program is now on schedule—in some instances ahead of schedule.

But things have deteriorated in the first quarter of this year. In fact, there is serious, official concern about the increasing number of work stoppages. Again we hear threats from those in Congress who are out to smear labor and enact further anti-union legislation. We cannot afford to ignore the danger signs. The trend of the last few months must be halted and reversed. I am confident of the full cooperation of American building tradesmen once they know all the facts.

The causes of the stoppages fall into two main categories. First come disputes resulting from unsatisfactory working conditions. Second are those developing from jurisdictional disputes. I have traveled back and forth across the country repeatedly in the last two years to learn from direct inspection just what the problems are at the various missile bases. No one knows better than I the terrible conditions under which our men have been forced to work and live at certain far-flung sites. The human factors involved in some of these disputes cannot be overlooked. But in spite of the irritations and the provocations and the red tape that cause tempers to flare up, *I say to you as strongly as I can that there is absolutely no justification or valid excuse for a work stoppage at any missile base at any time.*

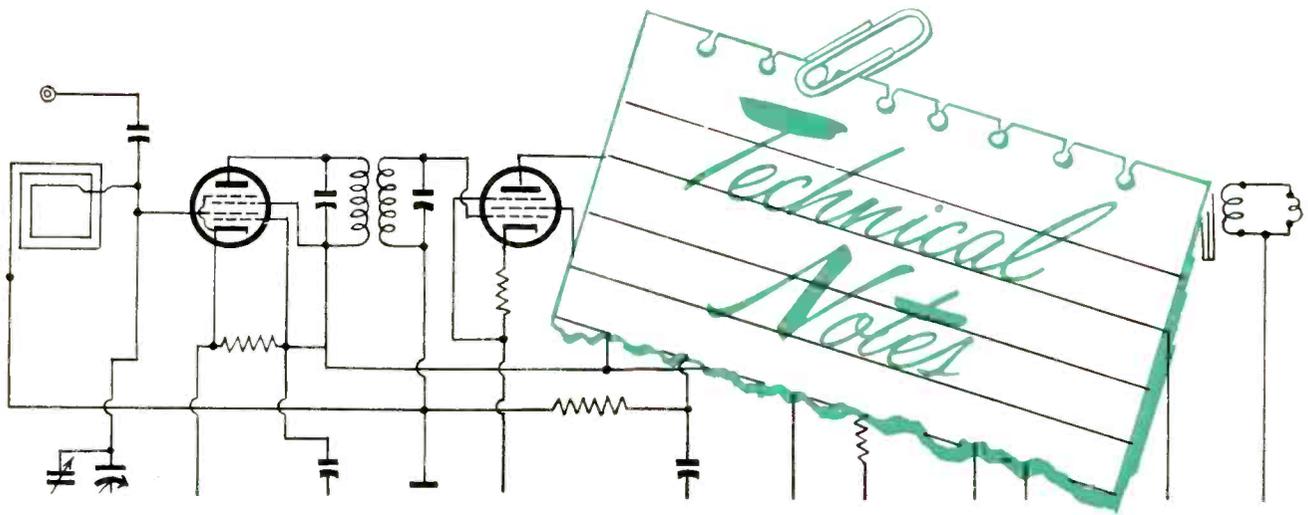
That is a sweeping statement. I would be the last one to make such a statement unless there was overwhelming evidence to prove it. In the first place, the Presidents of each of the International Unions affiliated with this Department adopted a clear-cut policy with regard to the missile base program on Feb. 15, 1961.

Recognizing the urgency of that program, the Internationals notified each of their local unions that they were under obligation to give notice to International headquarters and secure approval before engaging in any work stoppage. Not a single International Union has since that date given its sanction to a local work stoppage. On the contrary, the officers of the International Unions have expended much time and effort to prevent local walkouts, to end them promptly when they do occur and to halt wildcat action of all kinds.

Secondly, in behalf of the entire trade union movement, AFL-CIO President George Meany gave President Kennedy a solemn pledge a year ago—a pledge not to halt work at any missile base. That pledge is binding not only on this Department and its affiliated International Unions, but on every one of their local unions. It places an obligation upon every individual member of the building trades unions. On the strength of labor's pledge, President Kennedy created the Missile Sites Labor Commission with machinery both at the local level and the national level to remedy injustices, inequities or valid grievances. It doesn't take a work stoppage to make this machinery move. The whole purpose of the Commission is to convince everyone concerned that justice can be obtained promptly without resorting to extreme action.

\* \* \* \* \*

THE present situation is critical. Each building trades worker, each local union official, must understand this responsibility and carry it out faithfully. I appeal to you to do so. We have a big job to do. It cannot wait. In the days and months ahead, it is up to us to strengthen America's main line of defense—its missile system. We've got to take into consideration the whole picture, not merely what's happening right under our noses. Our grievances on the job are minor compared to our main grievance against the Communist leaders who are threatening us and all free men so boldly. Unfortunately, we can't get that problem settled by an impartial commission, as we can with our job problems. Remember, if the Kremlin prevails, we won't have to worry any more about anti-labor legislation. The penalty for work stoppages will be death at dawn before a firing squad.



### 'MILE-A-MINUTE' TAPE RECORDER

A "mile-a-minute" tape recorder, believed to be the fastest in existence, has been developed by the Radio Corporation of America's Surface Communications Division at Camden, N. J., S. W. Cochran, Vice President and General Manager of the Division, has reported. The machine, which records 15 channels of information on tape running at a speed of nearly 60 miles per hour, was developed for radar application.

The tape is guided through the recorder by compressed air "bearings" to allow the seven miles of tape stored in the machine's 30-inch reels to travel at such a fast rate without undue mechanical wear. "Because of the very high speed of the recorder," Mr. Cochran said, "we have incorporated some unique devices to protect it in the event of accidental loss of power, tape breakage, or improper operation." For instance, "emergency brakes" are automatically applied the moment trouble is sensed, and, if the trouble is loss of primary power, an auxiliary compressed air system is cut in to keep the air bearings and guides operating until the recorder can stop itself. These and other safety functions are accomplished by the use of air and electrical interlocks, tension sensors, and other protective devices.

An air turbine capstan drive, using both radial and thrust air bearings, is among the design features which make such a high tape speed possible. The recorder, which has its complete run programmed once the start button is pressed, uses a mile of tape to get up to speed and a mile to brake down and stop, Mr. Cochran said. The extreme accuracy of its running speed, within two parts in one hundred thousand over the 5 miles of tape, is accomplished by using one of the 15 channels for stability control of the recorder, giving five miles of usable tape having 14 data channels each with an eight-megacycle bandwidth.

Each of the tape reels, which achieve peripheral speeds up to 120 miles per hour, has its own servo

motor, providing very constant tape tension throughout the run. Faithful recording of the radar data is further enhanced by low tape distortion—20 millionths of an inch or less across the full one-inch wide tape—and uniformity of output between channels of 1 db. Bearing run-out or wobble, a common recorder problem, is eliminated by the air bearings. High frequency jitter, caused by unsupported lengths of tape at the recording head which compromises fidelity in conventional recorders, also has been virtually eliminated in the RCA recorder by the use of a grooved capstan. Another unique feature made possible by the air guides is a built-in, 1000-inch loop of tape which can be quickly threaded into the recorder for quick test purposes without loading the reels.

The recorder, which has a signal-to-noise ratio of 40 db, is being used for recording operational analog data from a missile tracking radar.

### WIRELESS POWER POSSIBLE

An Air Force project at Purdue University gives promise of the development of wireless transmission of domestic power. Experiments at microwave frequencies point to the feasibility of doing so; 60 per cent efficiency has been achieved with no "new hardware," according to the Purdue laboratory.

The present experiments point to the possibility of transmitting power to satellites, where power packages are at a premium and a new source is needed for such functions as changing orbital directions and powering radio, TV and other equipment. Several years ago, an efficiency of transmission of around 30 per cent was achieved. By optimizing diode circuits, equipment utilizing standard tubes and semiconductors can now reach the 60 per cent level.

There is an expectation that the cost of 200 to 400 kw output capability can be held to around \$10 per kilowatt. Thus, the transmission of high power, even a relatively low efficiency, could become practical.

## NEW TV STEREO PROPOSAL

A recent IRE conference brought forth another proposal for stereo audio for television. Mr. R. B. Dome, of the General Electric Co., described a system based upon the Left-plus-Right signal being a 50 to 15,000 cycle band, the positive half of the Left-minus-Right signal being positioned at 23,625 kc. (equivalent to halfway between the fundamental frequency and the second harmonic of the horizontal scan frequency) and the negative half of the Left-minus-Right signal at the midway point between the second and third harmonic of 15,750 cycles. All of this is predicated, of course, on a high-fidelity channel of about 50 kc. in an FM transmitter and receiver system.

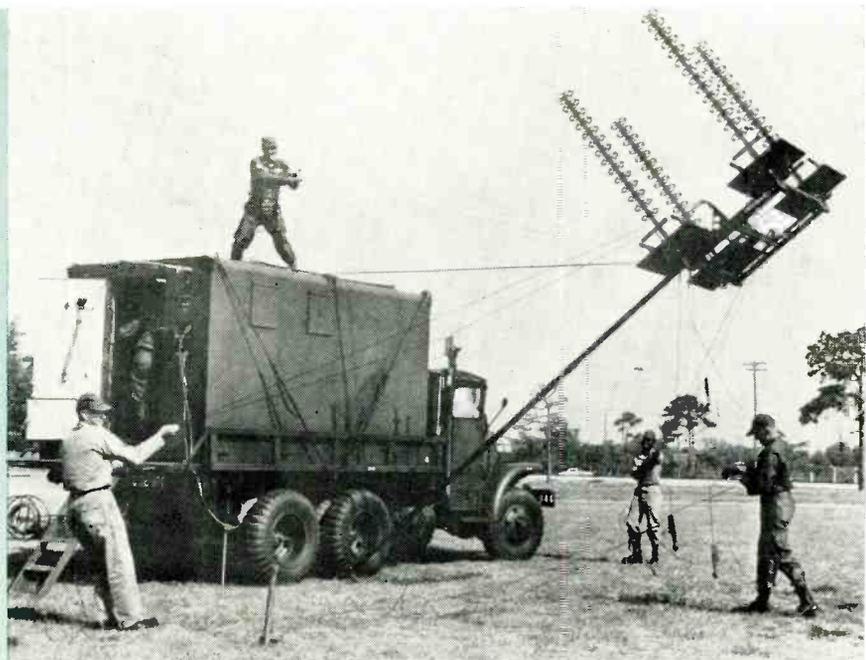
Signal degradation of 23 db (compared to monaural) is claimed—something comparable to FM stereo. However, the whole idea is considered by those in design engineering as probably being about two years ahead of the consumer market.

## F.C.C. MODIFIES ANTENNA RULE

On July 13, the Federal Communications Commission amended Section 3.188 (d) of its Rules to permit roof-top antenna use for up to 1 kw. AM stations under certain conditions. In order to minimize cross-modulation, the FCC will not authorize "(1) new stations, (2) major changes of facilities of existing stations, (3) a change in transmitter location of an existing station or (4) an auxiliary transmitter for use with other than the authorized antenna system of the main transmitter, if such new station, physical facilities of an existing station after major change, transmitter or auxiliary transmitter would be located in such areas or would utilize roof-top antennae and the operating power would be in excess of 1000 watts."

## INSTANT RADIO STATION

MACDILL AIR FORCE BASE, Fla.—Military communications are keeping pace with the split second requirements of the space age. Newest thing is what might be called the "instant radio station," a self-sufficient shelter that can be on the air within minutes after its arrival in the field. Developed by the National Company of Malden, Mass., the station was recently shipped to the U. S. Air Force Systems Command for use in a trans-European communications link.



ELEVENTH ANNUAL  
PROGRESS MEETING

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Radio—TV—Recording  
September 7, 8, 9, 1962  
Montreal, Quebec

## PLANE MONITORS CUBAN TV

Fidel Castro's communist government won't allow export of news film, so CBS-TV and CBS News have developed a scheme to overcome the blackout.

Through use of an airborne listening post over the Carribean, any event aired of Cuban TV can be seen the same day by the U. S. audience. First use of the technique was seen May 1 on *CBS News with Walter Cronkite*. Viewers saw Havana's May Day celebration, complete with parade and a speech by Fidel Castro.

A TV recording of CMQ-TV Havana programs is made from a DC-3 flying 65-75 miles off the Cuban coast at elevations of 9,000-12,000 feet. Previously, CBS News monitored CMQ-TV at Key West, Fla., but reception was unsatisfactory.

## QUOTABLE QUOTE

Mr. Herbert Maneloveg, media director, B. B. D. & O. advertising agency; "The rock and roll age is over. Remember, you have to yell only if you have nothing to say."



# STATION BREAKS

## URGENT! IMPORTANT! BEWARE!

The *Trade Union News*, based in New York City, has launched a new, nation-wide drive aimed at conning innocent, unsuspecting labor people into giving this disreputable sheet an aura of respectability.

The *Trade Union News* is a private, commercial operation that has *no connection whatever* with the AFL-CIO. The people who operate it are in many cases former employees of *The Trade Union Courier*, which was successfully prosecuted by the Federal Trade Commission for falsely posing as a labor paper, misrepresentation in other respects, etc.

Any employer who takes an ad in this publication, thinking he is buying space in a labor journal, is a sucker. Any union officer who so much as gives this outfit the time of day is damaging the good name of the labor movement.

Please: Alert your people to this new drive by *The Trade Union News*. Tell them to send their "awards" to the International Labor Press Assn., 815 - 16th St. N. W., Washington, D. C., and to ignore the flattery. And make sure the employers in your area also know this outfit has no labor connection. If there's a Better Business Bureau in your town, pass the word along.

## WAGE GAINS "NON-INFLATIONARY"

Labor Secretary Arthur Goldberg recently hailed the overall results of collective bargaining in the first half of 1962 as being "clearly non-inflationary."

Goldberg cited a Labor Department analysis of major new union contracts signed in this period. The median, or middle, wage gain in these contracts amounted to 3.2 per cent, without counting new fringe benefits.

## IF YOU'RE A RAILROAD BUFF

William Schultz, veteran Arkansas railroader who became an author at 83, reports that the third printing of his book, "Historical Sketches of Early Railroading Days," has now rolled off the presses.

This pictorial volume is built primarily around the Cotton Belt Railway, for which Schultz worked over 40

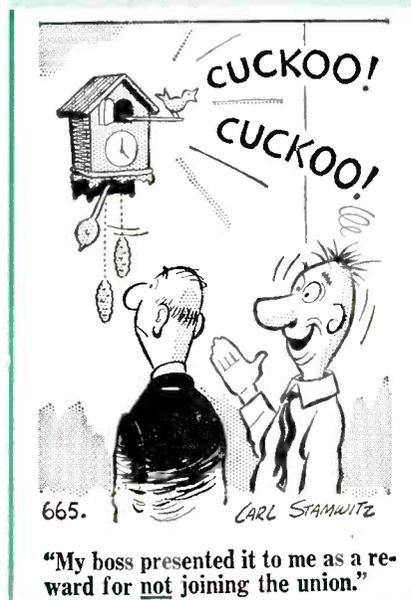
years until he retired in 1941. He was then a bridge and building foreman, and an active member of the Brotherhood of Maintenance of Way Employees. He has kept up his card in that union and in the Brotherhood of Railway Carmen.

Schultz reports that the 50-page volume contains a number of new photos that did not appear in previous printings. Price of the book is \$1.10 a copy, postpaid, and can be ordered from him at 627 W. Jefferson Ave., Jonesboro, Ark. Schultz, who's now 84, asks readers who order from him to be patient. On account of his arthritis, he says, there may be slight delays in mailing.

## UNION LABEL WEEK

September 3-September 9

## LAST LAUGH



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