

# TECHNICIAN ENGINEER

JUNE-JULY, 1962

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

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS — AFL-CIO

# NATIONAL CHILD LABOR COMMITTEE ORGANIZED — 1904



Labor legislation in the United States for all working people has always begun with legislation regulating child labor. An inspector of child labor laws was named in Massachusetts in 1867 and one was named two years later in Connecticut. In 1904 the establishment of the National Child Labor Committee brought into focus many efforts being made in behalf of children.

Earning not learning was the order of the day for children. Children were working in textile mills, factories, glass plants, mines, stores, shops and other workplaces. Educators, clergymen and other public spirited citizens tried to bring a measure of cooperation and coordination in an effort to remedy the blight of child labor.

The National Committee through searching investigations, continuous educational work, agitation and legislative promotion helped build a climate favorable for legislation in the field of minimum wages, improved conditions, night work and education.

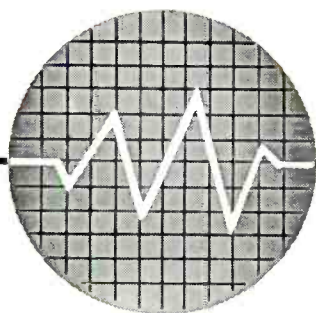
The Committee sponsored a Federal amendment which is an enabling act giving Congress power to pass Federal child-labor legislation. This amendment to the United States Constitution has been ratified by 28 states, eight short of the necessary number to make the amendment operative. No state has approved the amendment since 1935.

The Department of Labor's Bureau of Labor Standards enforces the child labor provisions of the Fair Labor Standards Act (wage-hour), but much remains to be done in the area of child labor. The National Committee is continuing its work and feels that a big job must be done in educating the nation on the need for further progress. The founding of the Committee in 1904 was a landmark which has had continuing impact on the nation.



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# TECHNICIAN ENGINEER

VOL. II, NO. 6  
 ALBERT O. HARDY, Editor

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*the cover* Our June-July cover has a bit of miscellany, but it features primarily Ampex's 340 Ferrite Video Head for its television tape recorder, shown at lower right . . . At upper left, Charlie Clapp of WSJS, Winston-Salem, N. C., patches a taped AM show . . . At upper right, a cameraman for a non-existent station covers the whole operation in a drawing from an art agency's sketch book.

*index* For the benefit of local union needing such information in negotiations and planning, here are the latest figures for the cost-of-living index, compared with 1961 figures: May, 1962—105.2; May 1961—129.1. (Please note: With the January, 1962, index, the reference base was changed to 1597-59=100, from a previous base of 1947-49.)

## COMMENTARY

What is a capitalist?

Maurice H. Stans, economic advisor to the Eisenhower administration, losing patience with a left-winger's rantings against "capitalist" employers, recently wrote a rather thoughtful treatise on the subject.

He points out that you are a capitalist if you own a life insurance policy—there are more than 118 million policyholders in the U. S. If you have a savings account, you are capitalizing some venture or other. You are a capitalist if you have

an interest in a pension plan or a profit-sharing plan. Indeed, you may be considered a capitalist, he pointed out, if you own anything beyond your present needs.

Mr. Stans reminded his readers that Khrushchev's sneering criticism of us is that we are a capitalist society. Mr. K. neglects to say, of course, that the Soviet system depends upon capital, also. There is just the fundamental difference that the Russian system is based upon state ownership and ours is predicated upon private ownership.



## What Price Job Security Agreements?

# INDUSTRY MUST WEIGH ITS HUMAN COSTS, TOO!

WHEN a broadcasting company plans to install new, automated equipment at the studios or the transmitter it calculates its costs to the decimal points—displaced cubic feet of operating space, extra power supplies, taxes, instrumentation . . . This is the so-called price of progress.

There is another price which management should, and must, always consider, and that is the human price involved. This is the cost borne by the workers displaced. For workers with high seniority this may mean shifting to another job—perhaps one with less pay, located many miles away, so far that the laid-off worker and his family must sell a home, uproot old ties, and move to further uncertainties.

For other workers the price of progress is higher still. They lose their employment altogether. They must depend on unemployment compensation until that, too, plays out. Some are too old to retrain for new and skilled occupations.

These human costs—these prices of progress—are what labor unions are talking about when they press employers for job security agreements. Under our economic system, the immediate profits of progress go to the employers. But, without some agreement, the em-

ployers pay only part of the costs of progress—the new equipment costs.

That's not enough, unions justly say. The employer should also have to face the *human* costs of progress. Only then will the employer weigh the real and complete cost of introducing “labor-saving” devices, or whatever he might call automated equipment.

Some people are opposing the efforts of union members to negotiate job security clauses in contracts. Opponents include, of course, many industrialists, some newspaper editors, and a few legislators. Senator Everett Dirksen of Illinois, for example has sponsored a bill to strip away all legal right for unions to negotiate job security agreements.

Opponents argue that employers have an inalienable right to abolish jobs at will. They claim that job security agreements will “free” jobs and prevent a company from making needed technological progress.

It should be understood by management that unions are not trying to thwart progress by means of such agreements. They are merely saying: **Let the employer, who garners the full and immediate gain from technologic advances, bear a portion of the human as well as the machinery costs.**

Some unions try to ease the loss of jobs due to automation through severance clauses in contracts, whereby

the employer guarantees to pay some many weeks pay, according to length of service, at the time the worker is laid off.

Others, including the IBEW, are exploring retraining plans which held a displaced worker move to an entirely new type of job.

Also, unions are exploring ways of easing layoffs due to "attrition."

Under the usual arrangement, the employer agrees to keep employees on the payroll until they are eligible for retirement but hire no replacements, once the old-timers are gone.

This offers temporary purgatory for some workers, but it tends to hasten retirement for many union members who'd like to stay on the job just a few years longer.

The National Industrial Conference Board recently released its findings in a survey of retirement practices among 700 American companies. Only 44 reported any changes in their compulsory retirement ages. All but one of these had amended their plans to put greater restrictions on workers over 65.

Of 542 companies furnishing information, 304, or 56 percent, said less than 5 percent of their employees continued working after 65. At the other end of the scale, some 70 firms, or 13 percent, reported that 75 percent or more continued at their jobs after 65.

Those who want to go on working after 65 generally get more liberal treatment from smaller firms. Seventy-three percent of manufacturers with 5,000 or more employees insist on retirement at the normal retirement age.

The "human costs" of the older worker offer a para-

doxical problem, however, in this matter of job security and automation. In many industries, earlier retirement opportunities ease the effects of technological displacement. Unions, in such cases, often encourage early retirement arrangements with employers.

Local 1031, IBEW, has mulled over the complexities of job security and the maladjustments often brought on by early retirements and has come up with a contract arrangement with one employer which may offer a solution of the two-fold problem to others.

The contract provides for the "active retirement" of older members. The provisions of the agreement are called "unusual" by labor relations experts and by Department of Labor officials in Washington.

The plan allows an employee of Stancor Electronics, Inc., 62 years or older with over 10 years of service, the option of reducing the working hours to about three per day, earning up to \$1200 a year (the maximum he can earn after 62 and still draw Social Security benefits).

The plan is, in essence, an alternative pension plan, since Stancor does not have a retirement system.

Workers in "active retirement" continue to get full union contract protection and hospitalization benefits. The company regards the plan as a morale booster.

According to latest statistics, about one in every 12 persons is over 65 years of age. Projections by the Census Bureau indicate that in ten years or less the figure will be one in ten.

It becomes increasingly evident that labor and management alike must carefully weigh the human costs of progress, before the machine age swamps us in unemployed Americans without skills or purchasing power.



## **'Nightmare Book' May Follow 'Dream Book' Credit Vacation**

Even the big mail-order catalog houses are now plugging vacation travel trips on the installment plan. You can take the family to Disneyland, Washington, Miami Beach or a hundred different places and all you have to say is "Charge it!" You can even enjoy a European tour for about \$800 a person and take two years to pay for it.

One of the mail-order houses urges that you send for its "dream tour" booklet. The trouble is, the dream book is soon followed by the nightmare book, consisting of the monthly payments you owe, plus the finance charges. We find that the finance charges usually are the equivalent of true per annum interest rates of anywhere from 12 to 24 per cent; most usually 18 per cent.

Some banks also advertise vacation loans. These are really personal loans under a more glamorous name

and usually cost a true interest rate of 9-14 per cent. Thus, bank and credit union loans (usually 8-12 per cent) are reasonable for anyone determined to travel now and pay later.

This department's experience is that a family vacation has become one of the keenest wishes of working people. Unions steadily have increased the amount of vacation time workers get, so that now the majority of contracts provide two weeks, in many cases after three years of employment, and three weeks after, for example, 15 years.

There are good vacation ideas available without going into debt and adding sizable finance charges on to an already big travel bill. Three flourishing trends are family camping, group tours and farm vacations.

—SIDNEY MARGOLIUS, *AFL-CIO News*.



# The FTC Polices 'The Wasteland'

## How high is radio's fidelity?

In a high-ceilinged office just off Pennsylvania Avenue, Washington, D. C., a few weeks ago, William B. Snow, Jr., said: "We're pretty sure that when a dealer advertises a high fidelity radio set for \$49.95 that isn't high fidelity in any sense of the word."

The "we" he referred to is the members and staff of the Federal Trade Commission—a government agency which has policing the merchants and manufacturers of the country since 1915. It's the job of the Federal Trade Commission to expose fraud as it applies to the average American consumer. From payola to model agency "doctors," from warmed-over vacuum tubes to "shaved" sandpaper, FTC runs the gamut, examining and exposing deceptive promotion methods.

Much of the work of the Federal agency affects the broadcasting and recording industries. In March, for example, FTC investigators quizzed a number of TV rating services on the coverage and accuracy of their surveys. The rating people called it "a fishing expedition," but the survey of the surveyors may well result in the establishment of a set of FTC "trade practices" which will serve as an ethical code for rating work in the future.

In January the commission took a hard look at a shaving lather TV commercial and decided that the advertiser was trifling with the truth. The commercial supposedly showed sandpaper being shaved after an application of the lather. The FTC decided that (1) the use of plexiglass coated with sand to represent sandpaper in the commercial was a deliberate fraud, and it's no excuse to say it was necessary to use the prop because sandpaper doesn't look like sandpaper on TV, and (2) sandpaper cannot be shaved clean no matter how much shaving lather is used or how long it is allowed to soak. It contended that:

"The limitations of the medium may present a challenge to the creative ingenuity of copywriters; but surely they do not constitute lawful justification for resort to falsehoods and deception of the public. The argument to the contrary would seem to be based on the wholly untenable assumption that the primary or

dominant function of television is to sell goods, and that the commission should not make any ruling which would impair the ability of sponsors and agencies to use television with maximum effectiveness as a sales or advertising medium.

"Stripped of polite verbiage, the argument boils down to this: Where truth and television salesmanship collide, the former must give way to the latter. This is obviously an indefensible proposition. The notion that a sponsor may take liberties with the truth in its television advertising, while advertisers using other media must continue to be truthful, is patent nonsense. The statutory requirements of truth in advertising apply to television no less than to other media or communication.

"Adherence to the truth should be no more of an impediment to effective advertising in television than in any other medium. But if, though we are inclined to doubt it, respondents do not believe they can effectively market their product on television within the legal requirements of truthful advertising, it does not follow that the commission should relax those requirements. . . ."

In October, 1956, the FTC decided to set up its own monitoring radio-television unit to obtain evidence of fraudulent broadcast advertising. It equipped an office with kinescope and recording equipment, and questionable commercials were recorded sound-on-film by kinescope, with a title card to establish "credits." Commission attorneys and field officers also monitor commercials at home, later requisitioning copies of questionable commercials from their source.

One of the biggest hubbubs over TV commercials arose a few years ago when scores of synthetic white-coated "doctors" invaded the picture tubes to sell home remedies. The American Medical Association and the American Dental Association took violent exception to the hams on the air waves. A Government Operations Committee in Washington became "definitely interested" in the influx of TV "doctors." *The New York Times* called for an end to the "snake oil techniques" of the video practitioners.

The Federal Trade Commission investigated and

eventually entered a "consent decree" which effectively limited the use of the man-in-the-white-coat by one advertiser, and then moved on to investigate others. Meanwhile, the TV Code Review Board of the National Association of Broadcasters went into action and issued a flat directive against appearances of actors garbed as doctors, dentists and nurses. The advertisers quickly switched the programs of their medicine shows, and the donnybrook of the "doctors" was over.

Perhaps the most headlined activity of the FTC in recent years was its attack on payola in the platter-playing circles of broadcasting. News summaries from the commission last year contained such illustrative items as these:

"Three Hollywood, Calif., businessmen have consented to an order forbidding them to pay undercover 'payola' to anyone for broadcasting records they manufacture."

"The Federal Trade Commission today announced approval of consent orders forbidding three record concerns to pay concealed 'payola' to anyone for broadcasting their records."

While the take-home pay of scores of disc jockeys dropped to somewhere in the neighborhood of that of the engineers on the boards. Congress enacted a statute which made 'payola' strictly verboten.

FTC examiners then issued orders dismissing many specific complaints, stating in each case that "as a result of specific Congressional action, counsel supporting the complaint considers the continued prosecution of this matter an unnecessary expenditure of time, effort, and funds in determining the legality of the alleged practice, since the protection of the public interest is now fully assured by specific statute."

A policing job still being pursued is concerned with picture tube deceptions. In 1960 FTC launched a campaign against TV tube makers who sell old picture tubes without identifying them as "used."

"All we want is for the public to know they're buying second-hand goods," said a commission spokesman.

The first complaint was issued against a company in Pittsburgh, Pa., in May, 1960. By the end of that first year 14 complaints had been presented.

FTC investigators found that picture tubes were being reactivated without inserting any new material on the phosphor screens or the gun assemblies. Some turned a phrase and identified their reconditioned tubes as "brand" new—putting the unit out under a new label!

In typical governmental understatement, the FTC maintained that failure to identify the remakes as "used" misleads purchasers into believing that the tubes are entirely new and free of defects."

In the consent judgments signed by the commission, the guilty firms were required to disclose the true nature of the tubes in advertising, on invoices, in cartons, and on the tubes themselves.

In December, 1960, it was estimated that 3.3 million

deceptive tubes were produced during the year in everything from garages to completely-equipped factories.

Today, almost two years later, there are still occasional companies foisting remakes, advertised new, on an unwary public.

For years, Federal Trade Commission action against the sharpies has been bureaucratically slow. By the time the forces of Uncle Sam could be brought to bear upon the boys in the checkered suits, they had already made their killings and moved on. The "cease and desist" orders had little value then.

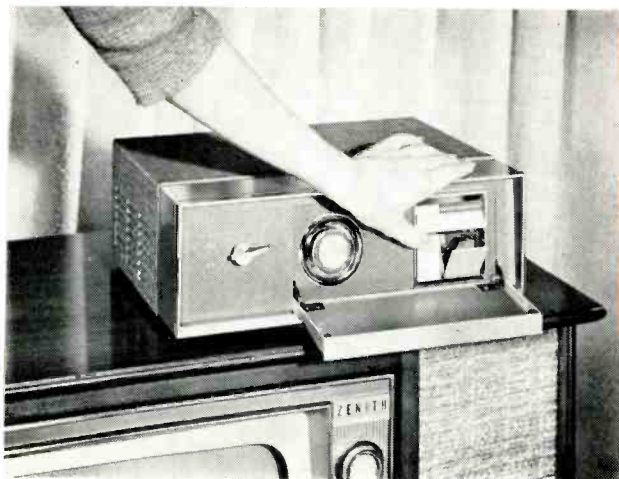
Early this year the agency decided it should get more into preventive actions. It told broadcasters, for example, that it would keep them more fully informed on deceptive advertising. It began distributing its weekly news summaries more widely. It established a new policy of issuing advisory rulings to businessmen who ask about embarking on certain courses. It increased its activities in the area of rules and regulations for various industries.

FTC Chairman Paul Dixon said, "Businessmen in general want to and do abide by the law, and one of our primary functions is to show them as clearly as possible what activities are unlawful before and not after they are used."

For example—and to go back to the beginning—the Commission hopes soon to be able to define for radio set manufacturers just how tweet a tweeter should be and how much woof a woofer should woof to be considered high fidelity.

It discussed the whole subject at an industry convention in Chicago in June, and it hopes eventually to take all of the baffle out of the subject for the consumer by setting reasonable limits beyond which the \$49.95 boys must not go.





**TO PAY FOR SUBSCRIPTION EVENTS PURCHASED, subscriber dials special billing number furnished each month to unlock compartment where billing tape has accumulated.**

## Subscription TV Broadcasts Begin in Hartford, Connecticut

**T**HE world's first large-scale over-the-air subscription television operation had its premier on June 29 over TV station WHCT, Channel 18, Hartford, Conn.

Announcement was made jointly by Thomas F. O'Neil, president of RKO General, Inc., which owns WHCT and conducted the test; and by Joseph S. Wright, president of Zenith Radio Corporation, developer of the Phonevision system of subscription TV and manufacturer of the Phonevision equipment used in the operation.

They stated that the beginning of subscription TV in Hartford marks the climax of a 10-year struggle to give the home box office medium a chance to go on the air.

Channel 18 inaugurated the subscription TV service with a special filmed program hosted by Ralph Bellamy, president of Actors Equity and longtime proponent of the new home box office service. It featured Federal Communications Commission Chairman Newton N. Minow; Senator Thomas Dodd; Connecticut Governor John Dempsey; and Mayor William Glynn of Hartford.

O'Neil said that about 300 Hartford families had front-row seats for the initial subscription TV motion picture telecast, "Sunrise at Campobello," starring Ralph Bellamy.

Specially trained crews of Channel 18 technicians are installing Zenith subscription TV decoders, O'Neil said. "We are starting with 300 homes but will continue home installations as rapidly as possible.

"This is a completely new business," he added. "It is necessary to begin on a small scale to gain experience that will be valuable as we build up the number of subscribers to between 4 and 5 thousand by the end of the year. The experiences of the first subscriber families will give us information that will make it possible to

expand the operation in an orderly fashion."

Wright said that Zenith Radio Corporation pioneered in development of subscription television and is now manufacturing and shipping to Hartford the Phonevision decoders to be used in subscribers' homes.

"We are naturally delighted," he said, "that our over-the-air subscription system will make its commercial debut tonight. At long last the public will have a chance to decide whether or not it wants this new service, without being pressured by propaganda from people who fear that bringing box office entertainment to the home will affect their profits from operating theatres and other methods of theatrical exhibition.

"And we are grateful to Chairman Minow of the Federal Communications Commission for his assurance, in a speech last year to the National Association of Broadcasters, that 'We are going to give the infant pay TV a chance to prove whether it can offer a useful service; we are going to protect it from those who would strangle it in its crib.'"

O'Neil said that the future success or failure of subscription television will be determined in coming months and years by the people of Hartford.

"We will make every effort to provide them with the kind of home entertainment they want," he said, "with a broad fare of theatrical productions, Bolshoi Ballet, top motion pictures, adult and children's educational programs, plus a varied sports bill, highlighted by the first heavyweight championship fight ever to be seen on home subscription TV—the Patterson-Liston fight—direct from the ringside in Chicago next September."

WHCT has long had agreements covering its operations with Local 1294, Hartford-Bridgeport (Conn.) and Springfield, Mass.



## Supreme Court Sustains 'Unfair Practices' Ruling

The Supreme Court has refused to hear an appeal by the Kohler Co. from a decision finding the firm guilty of unfair practices in its bitter eight-year dispute with the Auto Workers. The high court thus left standing a decision last January by the U. S. Court of Appeals sustaining the National Labor Relations Board's finding of unfair practices and order for reinstatement, with back pay, of most of the strikers. The appellate court also instructed the NLRB to reconsider the cases of 77 union members discharged on allegations of illegal picketing whom the board said were not entitled to reinstatement.

The UAW estimates that the number of strikers has been reduced by death, retirement and other causes to about 1,700. Originally, 2,779 Kohler workers walked out when the strike began April 5, 1954. Only about 600 of the strikers have been reinstated by Kohler since the NLRB decision in August 1960. The union estimates that the amount of back pay owed the workers under the ruling exceeds \$1 million.

Among other things, the board's decision:

1. Found that Kohler had converted what began as an economic strike into an unfair practice strike about June 1, 1954, when it granted a wage increase to non-strikers without consulting the union.

2. Ordered reinstatement with full seniority and back pay of all strikers who had not been permanently replaced before June 1, 1954, with the exception of 77 whose discharges for alleged cause must now be reconsidered.

3. Ordered the company to dismiss strikebreakers hired as replacements if necessary to make room for returning union members.

4. Ordered the company to bargain in good faith with the union.

"To hold that employe 'misconduct' automatically precludes compulsory reinstatement ignores two considerations which we think important," the court said.

"First, the employer's antecedent unfair labor practices may have been so blatant that they provoked employes to resort to unprotected action. Second, reinstatement is the only sanction which prevents an employer from benefiting from his unfair labor practices through discharge which may weaken or destroy a union."

The Kohler strike became involved in a political feud in 1958 as Republican members of the McClellan special Senate committee instigated a probe of the walkout and turned it into a partisan effort to brand the UAW "violent."

GOP Senators Barry Goldwater (Ariz.), Carl T. Curtis (Nebr.) and Karl Mundt (S. Dak.) successfully blocked procedures drawn up by Chairman John L. McClellan (D-Ark.) and Robert F. Kennedy, then chief counsel of the committee, and took over the questioning of witnesses.

Testimony by the committee's staff investigators, however, revealed that in 1952 the Kohler Co. had bought and stocked away an arsenal of machine guns, tear gas bombs and other weapons shortly after the UAW was chosen by a vote of Kohler employes to displace a company union.

It was Kohler's persistent refusal to negotiate a second-year agreement with the UAW which provoked the strike two years later, the union charged. The company had a long history of fighting and breaking unions.

### FALLOUT PROTECTION

In June the U. S. Army Corps of Engineers began surveying about 200 standard broadcast stations to determine the best method of protecting the transmitter technicians against fallout and similar hazards of the atomic age.

Army engineers will recommend modifications of transmitter buildings and will let contracts for the purpose. Funds totaling \$700,000 are available in the Defense Department's Civil Defense Division to underwrite costs, and the Department has asked for \$6 million more to cover the 200 basic stations.

Where broadcasters want to protect other personnel, the government will modify shelter plans so that stations can, at their own expense, expand protection.

*Every union member is urged to contribute one dollar to COPE. . . . The outcome of the November Congressional elections could well be decided by the success of the dollar drive, says James L. McDevitt, director of the national AFL-CIO Committee on Political Education. GIVE YOUR BUCK!*



### ELEVENTH ANNUAL PROGRESS MEETING

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

## Our Finances, Accurately Reported

Sometimes unjustified attacks and perversions of facts are better left unanswered. However, a recent New York newspaper story has been picked up and reprinted by other papers, on the general theme that the IBEW is "the wealthiest union in the United States."

Total assets of some \$111 million, quoted in the story, were taken from the Bureau of Labor Management Reports records for 1960. This figure is quite accurate but it leads to the erroneous conclusion that this amount of money was in an operating fund—what the IBEW calls its "General Fund." Such was not the case; more than \$102 million was in pension and death benefit funds which cannot be used for any payments except to the beneficiaries of deceased members and to members on pension. Every year, death benefits of more than \$3 million dollars are so paid and pensioned members receive more than \$10 million.

Any IBEW member can calculate the income of the

organization with considerable accuracy and without resorting to its financial statement. The 70-cent per capita (per month) multiplied by the number of members (currently 771,000 in round figures) is the operating revenue of the Brotherhood. The additional 20 cents, of the total per capita of 90 cents, is allocated to the Defense Fund, the Convention Fund and the expenses of the *Journal*.

The newspaper story led readers to believe that the income of \$65.3 million shown in the 1960 report was placed in the General Fund and could be spent for organizing and operating expenses. Actually, about 90 percent of this sum was the matured value of government bonds, reported at face value, and represented pension fund receipts. This is a matter of vital interest to the some 18,000 IBEW members receiving monthly pensions as of July 1962, just as a complete and accurate report of our finances is of interest to and a concern of all our members.

## Ireland's Delegate Wins ILO Election

John Lynch, Ireland's minister of industry and commerce, was elected president of the International Labor Organization's 46th conference in an unprecedented three-way contest at Geneva, Switzerland. United States worker, government and employer delegates voted solidly for Lynch, who won on the second ballot by 152 votes to 136 for Jean-Francois Jarison, the Malagasy Republic's minister of labor.

The Soviet Union made an attempt to get the conference presidency for the Communist bloc but the drive failed when Leon Chajn, Poland's government delegate, was eliminated after running third and last on the first ballot.

In nominating the Polish government delegate to the conference presidency, Soviet Labor Minister A. P. Volkov complained that a Communist state had never held the office. "The time has come to abolish this injustice," Volkov admonished the nearly 1,000 delegates and their advisers. The Communists met their defeat with obvious displeasure, but Jarison rose to pledge continued full cooperation in the ILO's work, saying, "Every man worth his salt likes to fight sometimes, but only the mean in spirit bear a grudge when they are beaten."

The conference received a two-part report from ILO Dir. Gen. David A. Morse, reviewing the activities of the organization over the past year and directing the attention of the 102-nation agency to the problems of older workers. Morse urged the ILO to take the initia-

tive to assure that older people may live out their lives "in reasonable conditions of security, comfort and human dignity."

While the discussion of this problem continues in plenary sessions, conference committees are preparing a series of international pacts on technical items. One of these—placed on the agenda at the insistence of the workers' group on the Governing Body—would ban the sale, hire or use of machinery with inadequate safety guards. Another is a recommendation calling on governments to recognize the 40-hour workweek as a standard to be attained throughout the world. Employer delegates blocked its adoption last year through a procedural device despite a favorable vote of 159 to 7, with 98 abstentions. Worker delegates in the Governing Body succeeded, with the support of enough government delegates, to have the question again placed before the conference this year.

### *A Vacation Reminder*

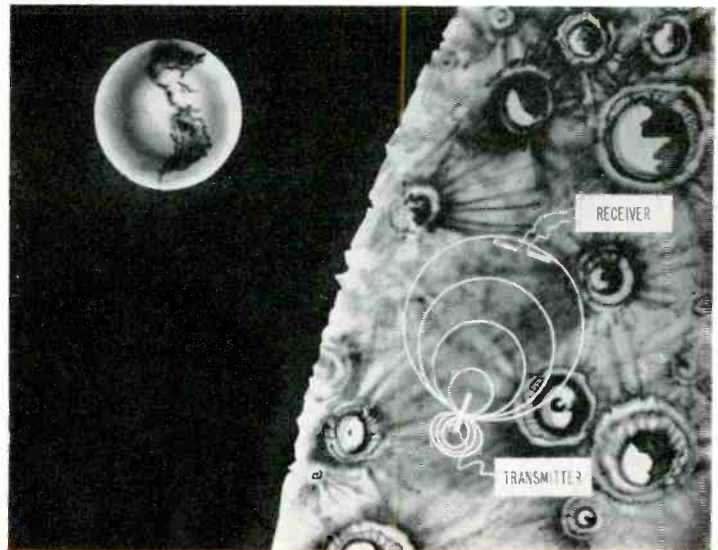
*As you glide gently along the highway in your air-conditioned, forward-looking automobile this summer . . . or sit quietly on a shaded patio contemplating the grilled steak above the glowing coals . . . hark back to the summer of 1937 . . . only 25 years ago!*

*At that time, only four per cent of all union contracts had clauses guaranteeing members paid vacations. Employers didn't believe that men and women who worked by the hour should be paid to take a vacation.*

*Today, thanks to the valiant efforts of organized labor—your union and ours—almost everybody has some form of guaranteed "vacation with pay!"*

## LUNAR COMMUNICATIONS

# point-to-point CONTACT for the MAN on the MOON



Representation of point-to-point radio transmission on the surface of the moon shows radiation pattern originating at traveling wave antenna and reaching the receiver dipole. Study of probable propagation characteristics on the moon led NBS Central Radio Propagation Laboratory scientists to predict that radiophone communication using a 6-kc/s band with at 100 kc/s over the 200-km distance shown would require a 100-watt antenna input. (Artist's conception.)

**W**HEN space travel becomes a reality and man lands on the moon, one of his first needs will be a reliable means of communication. Factors affecting point-to-point communications on the moon are being studied at the National Bureau of Standards by L. E. Vogler of the NBS Central Radio Propagation Laboratory, Boulder, Colo. The Jet Propulsion Laboratory is sponsoring this study, which has predicted that a 16-watt input to a wave antenna at ground level on the moon could be used to maintain reliable low-grade radio telephony communication over 100-km distances on the moon's surface.

Eventually flights to the moon will no doubt include exploration of lunar topographical features observed from the earth and those on the previously unseen side as well. A necessary requisite for such exploration will be a means of communicating with the base site and determining direction in the absence of the directional aids, such as sun position and terrestrial magnetism, that we use on earth.

Logistic limitations on spacecraft payload and equipment portability will influence the specification and design of the radios used. Obtaining reliable communications with a minimum weight of equipment requires that the frequency, antenna, mode of propagation, and power needed be known. Educated assumptions necessary to evaluate each of these transmission parameters were made by Bureau scientists, who then evaluated the inter-related factors to obtain specific recommendations.

The NBS lunar point-to-point communication study

first required that the frequency and mode of propagation best suited for transmission beyond line-of-sight paths on a sphere of the size and presumed composition of the moon be chosen. Next a particular combination of transmitting and receiving antennas was selected. The contributions to system noise were evaluated to determine the signal necessary to maintain an acceptable signal-to-noise ratio at the receiver. This figure and the radiation patterns expected were used to obtain antenna input powers needed for sample distances.

**P**REDICTIONS of the behavior of radio transmissions on the moon would be considerably simplified if its composition and structure were known. All we really know about the moon is that it is a fairly smooth sphere of homogeneous material at the surface having a radius of 1738 km (1080 miles). Its surface is presumed to be dry and light. This, together with the presumed absence of ionized atmospheric layers and the size of the satellite, points to the use of ground wave radio propagation, in which medium-frequency and lower-frequency waves follow paths bending around the curved surface of the sphere at a fairly constant height above it. This type of propagation has been studied extensively at the NBS Boulder Laboratories by K. A. Norton.

Vogler and his fellow NBS scientists surmised that the moon's dry, loose surface material necessitates a relative dielectric constant near unity (like that of free space) and a very low conductivity; figures of 1.1 to 2.0 and  $10^{-3}$  to  $10^{-4}$  mhos/m, respectively, were assumed.

These parameters minimize the advantage of elevating the transmitting antenna above the surface, which would be undesirable because of the structure required. A Beverage antenna (consisting in its simplest form of an end-fed long wire terminated at the unfed end by its characteristic impedance) lying on the moon's surface was selected for the transmitting antenna. Such an antenna has a gain figure much like an antenna in free space, is extremely directional, and radiates with a slight forward tilt, the amount depending on its length, its height, the ground conductivity, and the wavelength used. A short vertical dipole was selected as the receiver antenna.

**R**ECEPTION of radio signals is hampered by noise present along with the signal. Manmade interference will be almost absent from the moon, but reception will be limited by signal loss in the antenna circuit and masking by noise originating in the receiver and external sources. The external noise will consist of galactic, solar and earth noise as well, possibly, as some noise from the surface of the moon. In this phase of the study the signal level needed at the receiver to obtain an acceptable signal-to-noise ratio was evaluated, based on the level of noise expected to be present.

Determinations of the maximum distances at which reliable communication between points on the moon's surface could be held for specific power levels and frequencies were reported in this project. Ground wave propagation calls for use of low frequencies. Propagation from the Beverage wave antenna specified for the transmitter is assumed based on the model of the Norton surface wave. Low-grade voice communication using a 6-kc/s bandwidth, for example, would require a 16-watt input to the antenna to cover 100 km (62 miles) at 100 kc/s. Better quality communication using a 10-kc bandwidth would require a 10-watt input to transmit 10 km at 300 kc/s. Both examples are for the low frequency band (30-300 kc/s), within which it is felt the optimum frequency for over 100-km transmissions will be found by empirical means.

The lunar point-to-point communication study demonstrates the need for more accurate knowledge of lunar electromagnetic constants. Prior to the time when lunar propagation measurements are possible the validity of some of the assumptions used in this study can be tested by terrestrial measurements in areas simulating lunar surface conditions. The work done so far has assumed the absence of both lunar subsurface layers and ionized atmospheric layers. Presence of such layers would add to the propagation possibilities, perhaps making possible communication at higher frequencies and lower power over the same distance with the same bandwidths. Theoretical studies of such strata effects are being conducted, also under the sponsorship of the Jet Propulsion Laboratory.

## *Breaks in the News*

### **HASTY HANDBOOK**

In New Orleans, six-year-old Eric Santton went to a church carnival with his parents and won, as a gate prize a pony whose name, he later learned, was Shop Steward. Eric's prize was duly publicized in the newspapers, which only increased the boy's jubilation.

Three days later, however, young Eric received in the mail an impressive-looking letter from a large book publisher, "Dear Sir," said the letter, "We understand that you now have a Shop Steward in your family. We are sure that he will not always want to remain a Shop Steward. Therefore, we want to tell you how you personally can help him go on to better things. You can present him with our set of six volumes titled "How the Shop Steward Can Prepare Himself For Positions in Top Industrial Management." Because these volumes were published a number of years ago we can offer them to you at a substantial discount. The full set of six for \$31.98. The Shop Steward in your family will thank you as he finds how easy it is to climb the executive ladder with the proper training."

### **WELL SAID!**

Excerpted from the editorial of the June issue of *Surface Scratch*, monthly publication which goes to the members of Local 1200, Washington-Baltimore:

"Every now and then I think it is good for all of us to stop and consider for a moment the extra work that our officers have to put in to keep our local running smoothly. It's hard enough in normal times to do this work, but when you run into a heavy period of overtime with only one or two days off a month; you have summer house guests; or have a vacation fall within the usual monthly effort that has to be made, it often gets very difficult if not impossible to find the hours required in the day.

"Our officers are doing a demanding, difficult, time consuming job that has to be done to keep the union running smoothly. They are putting in this effort because they think it is their duty—someone has to do it. They are all doing an excellent job and deserve our heartfelt thanks for their effort."

### **ANOTHER WAY OF SAYING IT**

Instead of the common "Please Stand By" etc., used in the United States, one of the overseas TV stations puts up a slide reading, "We entreat your patience. Our skillful Artisans are striving to restore the entertainment with all possible speed."



**QUEEN ELIZABETH HOTEL**—At left above is the headquarters hotel for the International Convention of the Brotherhood, September 10-14, at Montreal, Quebec. At right is St. James Cathedral Basilica, "Mary Queen of the World." In the foreground, tourists discuss a tour of the city with a carriage driver.

## RADIO-TV-RECORDING

### ELEVENTH ANNUAL PROGRESS MEETING

The Royal Embassy Hotel

3407 Peel Street

Montreal, P.Q., Canada

**SEPTEMBER 7, 8, 9, 1962**

Hotel Reservation and

Information Cards

Have Been Mailed

To All Interested

Local Unions

## The Difference Between Winning and Losing

**B**LAINÉ Peterson and John Murphy are the names of two men who ran for the U. S. House of Representatives in 1960.

Lee Metcalf and Herschel Loveless are the names of two others who ran for the U. S. Senate.

And Matt Welsh and Orville Freeman are the names of still two more who ran for Governor of their states.

All of them were supported by their state AFL-CIO Committee on Political Education.

All of them were in elections that were won with less than 52 per cent of the vote.

Three of them won. Three of them lost.

Peterson won in Utah by a majority of only 64 votes out of 131,586—or by 50.02 per cent. But Murphy lost an election in New York that saw the winner receive only 80,243 of the 164,544 votes cast—or a mere 48.4 per cent. Murphy got 77,506 votes—or 47.1 per cent. A third party candidate received the remainder.

Metcalf won his Montana election by a majority of 5,340 out of 277,394 votes—or just 51 per cent. But Loveless was defeated in Iowa by 46,748 votes in an election of 1,232,498 ballots. The winner's majority was 51.9 per cent.

Welsh carried Indiana by a majority of 23,682 out of 2,098,808—or 50.6 per cent. But Freeman—now Secretary of Agriculture—lost Minnesota by 30,504 votes out of 1,525,580. The winner's majority was 51 per cent.

As a matter of fact, 120 of the 419 Senators, Representatives and Governors who had opposition won their 1960 elections by 55 per cent of the vote or less. That

means 28.6 per cent of them won races that were in doubt right down to the wire.

That includes 11 of 31 Senators (35.5 per cent); 92 of 361 Representatives (25.4 per cent); and 17 of 27 Governors (62.9 per cent).

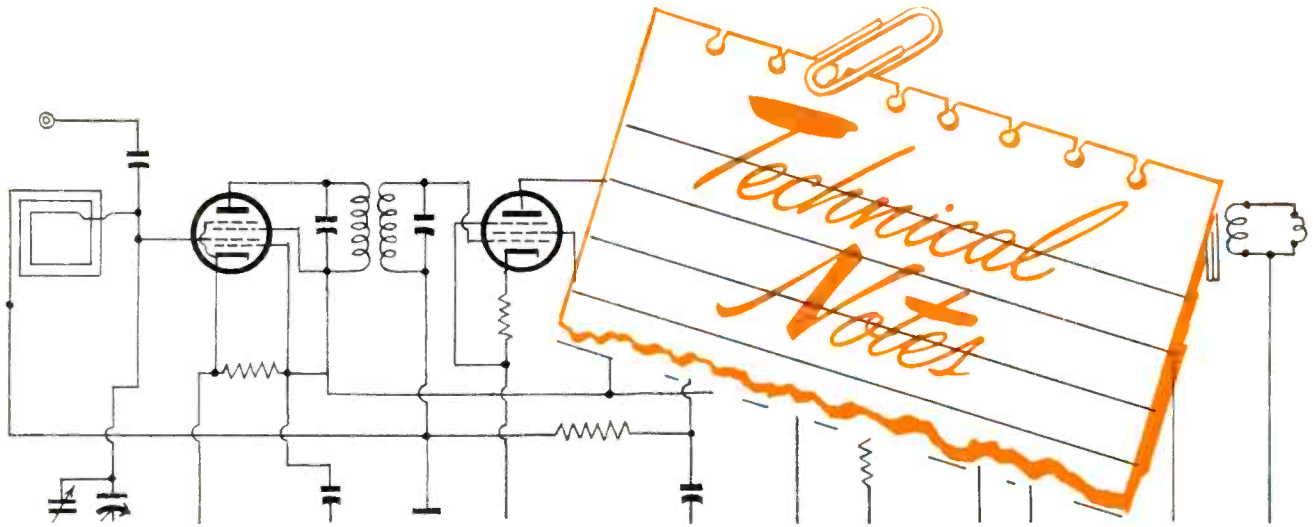
Those facts—together with the close margin by which John Kennedy and Lyndon Johnson were elected President and Vice President—points up one lesson which COPE has repeated over and over and over again. This one:

A few dollars can mean the difference between victory and defeat—between seeing a pro-labor candidate running on a liberal platform go into office and watching an anti-labor man pledged to fight for special interests take his seat in Senate, House or State Capital.

Who knows but what a few more dollars contributed by working men and women meant victory for Blaine Peterson and Lee Metcalf and Matt Welsh—and many, many other labor-backed candidates?

Who knows but what a shortage of just a few dollars means that John Murphy and Herschel Loveless and Orville Freeman—and other COPE-endorsed office-seekers—lost because they couldn't make that last TV appeal, or run a couple of more ads, or travel to a few more towns for personal appearances?

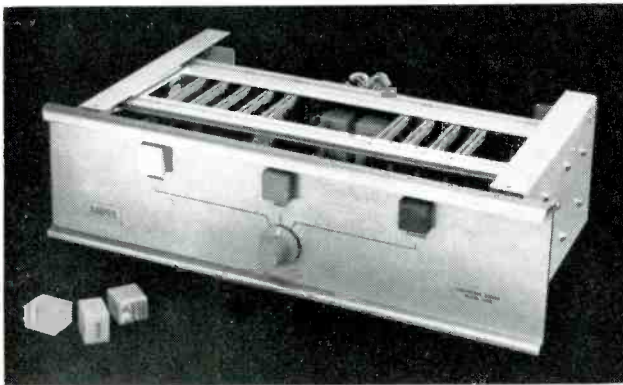
The dollars that trade unionists contribute voluntarily to COPE can tip the scales toward victory. The money COPE collects is used to help liberal, forward-looking, public-spirited candidates win election to office so that they can make laws that will benefit all the people.



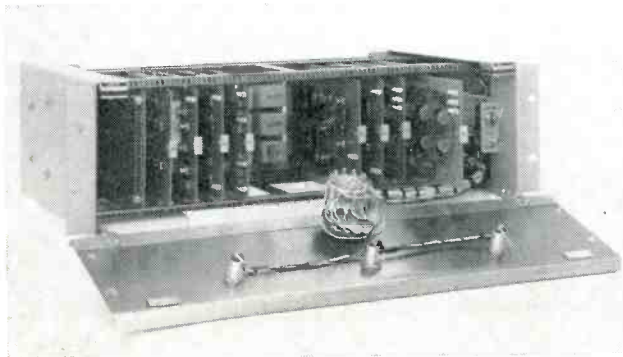
## ELECTRONIC EDITOR

Since the introduction of video tape recording as a practical medium some six years ago, a first catch-as-catch-can editing technique has progressed to a highly-accurate method of cutting and slicing. The material cost, the time and trouble involved, however, are factors which, under many circumstances, provoke objections. The Ampex Corporation offers an answer to the problems of editing and avoids the physical deterioration of the tape and its attendant cost in its "Electronic Editor."

On a "splice-by-splice" basis, electronic editing takes about half the time to accomplish. There is no need



THE AMPLEX ELECTRONIC EDITOR—Above, the front view, and, below, the rear view of a versatile addition to the growing list of television recording equipment.



to unthread and rethread the tape, no chemical solutions are involved and the entire length of the tape is still available after editing—nothing remains on the "cutting-room floor" except the recorder and the technician. From a quality standpoint, it is also important that there need be no tape discontinuities, no change in tape thickness (no splicing tape) and no additional head wear. Any recorded segment of program material can be substituted, changed, deleted or joined—without physical alteration of the tape.

This package of near-miracles is a standard rack unit, with three push-buttons and a three-position selector switch, easily added to a VR-1000B (or later) recorder. With the switch on "Normal," the recorder operates just as it did without the addition of the editor. Switched to "Assemble," a new control track is recorded along with the sequence of separate segments.

The "Insert" mode permits recording with the retention of the existing control track (of the original recording). Thus, a scene already recorded can be played back and immediately upon its end another scene can be recorded with the control track synchronism uninterrupted—on the air it appears that a camera switch has been made. The *insert* mode involves the delay of the application of record current, after the *record* button is depressed, until the point at which erasure begins has reached the record head—thus recording begins immediately when the previous recording sequence ends. This amounts to a splice-as-you-go technique, with perfection of performance depending almost entirely upon the efficiency of communication between the recordist and the source of material (studio, field, another recorder, etc.), in terms of cues.

## NEW COLOR CAMERA CHAIN

A lightweight, low-cost color TV camera chain, able to pick up both live and filmed programs, was featured at the EMI/US exhibit at the recent convention of the Society of Motion Picture & Television Engineers in Los Angeles. Described as "the camera chain that will

let the small-market TV station get into color," the EMI/US vidicon camera chain is priced at \$40,000 about 25 per cent less than a competitive orthicon color chain usable only for live programs.

EMI/US also displayed a new modular, solid-state video monitor, said to be the first of its kind to go into regular production, and a solid-state TV distribution and switching system designed for use with video tape as well as with conventional signal originating equipment. This switching system, which can be expanded to handle 70 inputs and 80 outputs, has already been installed at WNEW-TV New York and at WCCO-TV Minneapolis.

### FRENCH 625-LINE SYSTEM

The French Broadcasting System has announced that its new television network scheduled to start in 1963, will use the 625-line standard. The existing network uses the French standard of 819 lines.

The principal reason for the decision to use 625 lines, according to M. Leschi, technical director of FBS, is the wide acceptance of that standard by other European countries and the difficulties encountered by the current 819-line network connection to the Eurovision hookup.

Mr. Leschi said that a 625-line standard will eliminate many problems when color television is introduced to the Eurovision network. Recent experiments have indicated a noticeable loss in picture quality by the conversion of line standards, he said.

FBS said it plans to maintain its 819-line standard on the existing network since a change would affect more than three million receivers that are currently in use.

### SPEAKER RATING SYSTEM

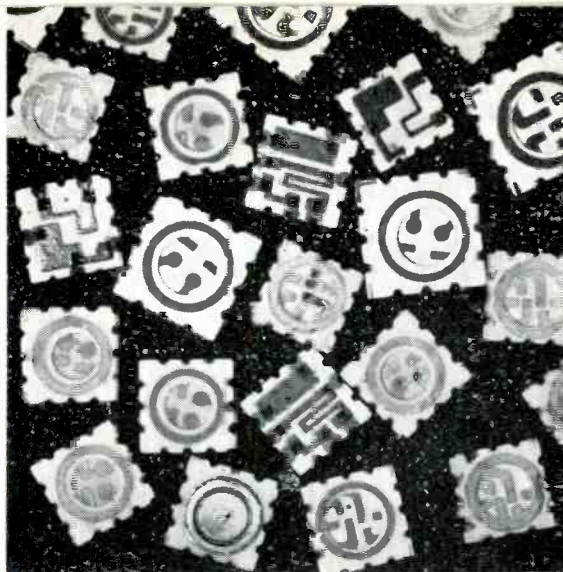
The American electronics industry is exploring the possibilities of a loudspeaker color-rating system.

It would give the industry, which produces 40 per cent of its speakers and 85 per cent of its speaker parts in the Chicago area, an extra dividend in the form of a way to distinguish an imported loudspeaker from one produced in the United States.

That this happenstance would be regarded widely as a boon to the industry can be judged from the fact that loudspeaker imports last year equalled about 40 per cent of total U. S. production of approximately 42.5 million speakers.

Brushing away technical details, the loudspeaker rating system developed by Lincoln Walsh, Walsh Engineering Company, Millington, translates results of scientific measurements of speaker quality into colors and symbols which manufacturers may imprint on their products and which buyers may learn to recognize.

Eight colors are used to identify various ranges of sound frequencies. Seven symbols are employed to express power handling capacity of speakers in terms of acoustic watts.

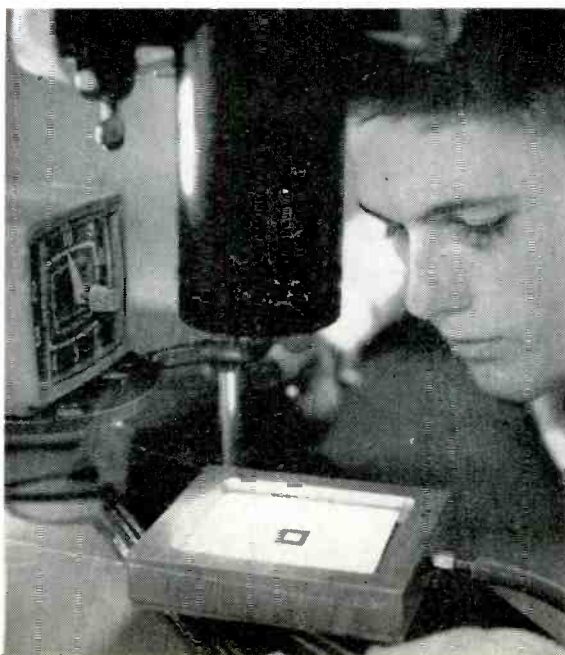


**SOLID CERAMIC CIRCUITS**—The tiny circuits which can perform all electronic functions from signal amplification to computer switching, shown during various stages of their production . . . approximately actual size.

### CERAMIC CIRCUITS

Electronic circuits printed on wafer-thin ceramic tiles may open an ingenious new approach to miniaturization. RCA is experimenting with tiny wafers, like those shown above. Production methods run thusly: First, a ceramic sheet three times thinner than the page on which this story is printed is prepared. Next, several circuit patterns, in the form of a metallized ink, are printed on the sheet and allowed to dry. The sheet is then cut into wafers which conform to these patterns; holes are punched where interconnections will be required, and the wafers are stacked in accordance with the circuit's preconceived design. At this point, each stack is fired a high temperature until its various layers fuse together to form a solid, hermetically sealed ceramic chip. In final processing, active semiconductor pellets corresponding to transistors and diodes are bonded into the circuit at the top of the chip in a tiny cavity designed for this purpose. The cavity is then sealed and the circuit is ready for use.

**ELECTRONIC CIRCUIT PRINTING**—Electronics has borrowed techniques of printing and photography to produce miniature ceramic circuits, as shown above.





# STATION BREAKS

## SPECIAL NET FOR WORLD'S FAIR

Several IBEW-manned stations in the Northwest have participated in daily closed-circuit hookups of news and information about the Seattle World's Fair. The special net offers a 4½-minute service four times daily, covering weather information, attendance at the fair, performing arts, special events, and material. Motorists are given information about lodging facilities, parking and other topics.

Among the 28 stations in the net are these IBEW operations: KPUG, Bellingham, Wash.; KBRC, Mount Vernon; KRKO, Everett; KAYO and KOMO, Seattle; KMO, KTAC, and KTNT, Tacoma; KGY, Olympia; KBKW and KXRO, Aberdeen; KELA, Centralia; KEDO, Longview; KXLE, Ellensburg; KXLY, Spokane.

## L.A. TO D.C. FOR FILM

Station KNXT(TV), a Los Angeles station employing members of Local 45, recently sent 12 children to Washington, D. C., where they participated in the filming of two one-hour documentaries for showing later in Los Angeles. Titled, "For Which We Stand," the films were presented to familiarize children with the background and traditions of our government.

## CHANGES IN SCHEDULE FOR WWVH

The National Bureau of Standards proposes to make minor changes in the broadcast schedule for radio station WWVH in Maui, Hawaii. The changes are to become effective July 1, 1962. They were requested by the National Aeronautics and Space Administration and are not expected to interfere with other users of the transmissions from WWVH.

### Present Schedule

Continuous except for four 3-minute silent periods each hour, the first commencing on the hour and the other 3 on each quarter hour thereafter, and a 34-minute silent period each day at 1900 UT.

### Proposed Schedule

Continuous except for one hourly silent period from 15 minutes to 19 minutes past each hour and a 34-minute silent period at 1900 UT.

The present transmission schedule of WWV, Beltsville, Maryland, will be retained including the hourly silent period from 45 to 49 minutes past each hour.

Thus the time signals of either station may be received four minutes out of each hour without interference from the other. A change in the transmission of the binary time code from station WWV will be made so that the amplitude between pulses on the 1 kc sub-carrier will be about one-third of full amplitude instead of going to zero.

## CUTOFF FILTER, ANYONE?

Federal Aviation Agency research has developed a theory that there are frequencies generated by Lockheed Electra turboprop engines which attract starlings. During those seasons when the birds' food supply is relatively low, starlings are observed to follow the taxiing airplanes. They are believed to be attracted since the sounds are similar to that which might be caused by an enormous chorus of crickets. The suggestion has been made that the exhaust system be modified to eliminate the confusion. ("No, Junior, those airplanes are *not* for the birds").

## LAST LAUGH



"Sorry, Whiplash, old boy... You're our fifth personnel manager who's failed to break the union!"

ALEXANDER FROWDY  
1962 S STEARNS TR  
LOS ANGELES 24 CALIF  
F 11