

# TECHNICIAN ENGINEER

JULY, 1965

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INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS — AFL-CIO

# SOCIAL SECURITY ACT

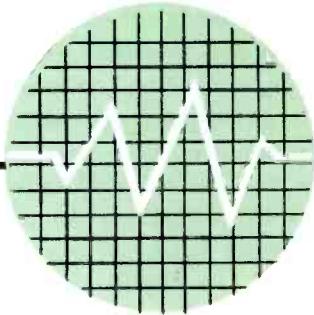
## *Amendments of 1950*

Organized labor has been the most ardent advocate of progress in the field of social welfare and was one of the chief supporters of the original Social Security legislation. The constant urging of labor has resulted in a law which is greatly expanded from the original statute.

Of special consequences are the amendments made to the Act in 1950 in which almost 10,000,000 additional persons were covered by benefits. The urging of labor following the rise in living costs was the primary motivation for the new amendments. Thirty major changes were made in the Act—21 in the Old Age and Survivors Insurance Program, five in public assistance and five in other programs.

Highlights of the changes included: increase in the then current beneficiaries; extension of coverage to 4,700,000 self-employed, to 850,000 agricultural workers, to a million domestic workers, to 1,450,000 state and local government employes (not in a retirement system), and to a million and a half others; extension of public assistance to several groups, and increases for child and maternal health programs. These were not all the improvements in this set of amendments (there were a number of others) which came largely through labor's insistence and can justifiably be called a landmark of labor.





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# TECHNICIAN ENGINEER



VOL. 14, NO. 7

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*the cover* Nerve center of all the color television activity in the RCA Pavilion at the New York World's Fair is this ultra-modern control room, where producers, directors and technicians work in full view of visitors touring the exhibit. In the control room is the latest RCA color broadcast equipment—tape recorders, film projectors, slide projectors, video switching consoles and audio control boards.

*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 1964: May, 1965—109.6; May, 1964—107.9.

*commentary* ON THE OCCASION of signing the "Older Americans Act of 1965", President Johnson made some comments of interest to members of the AFL-CIO. Prefaced with a statement on the objectives of the new law, he said: "The AFL-CIO has done more good for more people than any other group in America. It doesn't just try to do something about wages and hours for its own people; no group works harder in the interests of everyone. It helps the young and old and middle-aged. It's interested in education, housing, and the poverty program, and does as much good for millions who have never before belonged to a union as for its own members.

"That is my conception of an organization working in the public interest. I've wanted to say this for a long time because I believe the American people ought to know the remarkable contribution which organized labor makes to the promotion of sound legislation."

The bill Mr. Johnson signed establishes an Administration on Aging in the Dep't of Health, Education and Welfare and authorizes a five-year program of federal grants to states for research and planning for projects to aid the aged.

# Radio Frequency Radiation Hazards

By **G. M. HEIMER** and **J. R. SINGER**

Electronics-Electrical Design Branch,  
Bureau of Ships, U. S. Navy

*Ed. note:* We are grateful to the authors and the Bureau of Ships for permission to print this paper, of interest to our members working on high-power equipment, on microwave and on radar equipment. The IBEW is represented by Int'l. Rep. R. D. Lighty on the American Standards Association Committee C-9.5, investigating electromagnetic radiation hazards and safety standards.

**T**HE continuing trend toward the employment of more and higher powered electronic equipment in the limited space of a modern Naval ship has made it increasingly important that all personnel engaged in the design, installation, operation, and maintenance of such equipment be aware of the potential hazards of radio-frequency (rf) radiation.

These potential rf hazards may be divided, insofar as personnel are concerned, into a direct hazard and one referred to as an indirect hazard. A direct hazard exists when the electromagnetic energy impinges directly on the human body. An indirect hazard arises when induced electromagnetic energy causes physical shock hazards or unsafe conditions for handling flammable fuels and explosive devices.

Operating personnel should be familiar with the biological effects of the direct hazard associated with rf radiation, the dosage of rf radiation the human body can tolerate, the methods employed to determine potentially hazardous shipboard areas, and the precautions employed to ensure the safety of personnel working in the vicinity of, or actually in these areas.

## **Biological Effects of RF Radiation**

Rf energy impinging on a body may be reflected, absorbed, or passed through. The energy which passes through or is reflected will have little or no effect on the body. That portion of the energy which is absorbed causes heat to be produced in the body as a whole or in localized parts of the body. Within carefully prescribed limits, the heating effect may actually be beneficial; in fact, this is the basis of diathermy which has long been employed therapeutically. On the other hand, excessive heating can produce harmful biological effects.

As a rule of thumb, the whole body or parts and appendages of the body must be the equivalent of at least a tenth of a wavelength at the frequency for radiation for

any significant biological effects to occur. Thus, the likelihood of the occurrence of biological effects increases with an increase in radiation frequency as the whole body becomes increasingly significant in terms of the number of equivalent wavelengths. The depth of the energy penetration depends upon the absorption characteristics of the tissues and frequency of radiation. It may take place deep within the body for frequencies above 200 Mc and below 1 Gc, or near the surface for frequencies above 3 Gc. Fairly complex conditions prevail in the frequency range between 1 Gc and 3 Gc. In general, adult man will absorb 50 to 100 percent of the incident energy in the frequency range of biological interest (300 Mc to 10 Gc), with rf radiation below 3 Gc the most dangerous since electromagnetic energy of these wavelengths can produce dangerous temperature elevations to internal organs without concentrating heat in the region of the skin receptors (before producing the sensation of warmth).

If the body were able to dissipate heat as rapidly as it is produced, there would be no cause for alarm. Heat dissipation in the body is accomplished primarily through the action of sweat glands and by heat exchange resulting from peripheral circulation of the blood. Thus, the body is limited in its ability to dissipate heat, and such organs with poor blood circulation as the eyes, testes, lungs, gall bladder, urinary bladder, and portions of the gastro-intestinal tract are susceptible to rf radiation.

Of the organs mentioned, present information indicates that eyes and testes are the most likely to be biologically affected. An intolerable increase of heat in the eye may cause cataracts or opacities. Unlike other cells of the body, changes in the transparent lens cell of the eye cannot be replaced by regrowth and the damage may be permanent. The testes are more liable to biological injury than the eye. However, it is of less concern since testicular damage usually results only in temporary sterility and not permanent damage.

Heating in the body is a function of the duration and intensity of the incident electromagnetic energy. This threshold power density may be taken as the dividing line between noticeable and unnoticeable biological effects. The question may arise as to the meaning of noticeable and unnoticeable effects; but let it suffice to say that if the power density does not exceed the threshold value for the stated period of time, it is felt that no harmful biological damage will occur.

## **Tolerance Dosage**

The Bureau of Medicine and Surgery has established for the Navy the amount of rf radiation the human body can be subjected to as follows:

- Continuous exposure—average power density not exceed 10 milliwatts per square centimeter (10 mw/sq cm).

- Intermittent exposure—incident energy level not to exceed 300 millijoules per square centimeter per 30-second interval (300 mj/sq cm/30 sec.).

The possible biological effects of peak-power densities of extremely short time duration are not fully understood. Medical research is being conducted into the existence of such effects; however, until more is known about the effects of peak-power densities, no limits have been established.

### Calculating Power Density

The energy emitted from an antenna can be divided into two primary regions; 1. the induction field, and 2. the radiation field. The power density in the induction field remains fairly constant with distance and is concentrated in a beam about the same size as the projected area of the aperture. This beam, which extends approximately two wavelengths ( $2\lambda$ ) from the antenna, will not be considered in this article since this distance is too close to the antenna for accurate computations. The radiated field usually is divided into two zones, the Fresnel Zone and the Fraunhofer Zone. The Fresnel Zone extends from about  $2\lambda$  to  $2L^2/\lambda$ , where  $L$  is the largest linear dimension of the antenna aperture. This is the region in which the beam is being formed and both the antenna gain and beam width vary depending on the type of antenna illumination and the distance from the antenna. In the Fraunhofer Zone, the antenna characteristics are well defined and the radiated beam spreads out in such a way that the power density decreases according to the well known inverse square distance law:

$$P.D. = \frac{P_t G_f}{4\pi(d)^2}$$

where

P.D. = on-axis power density

$P_t$  = power transmitted

$G_f$  = far-field antenna gain (power ratio)

$d$  = on-axis distance from the antenna.

However, most biologically hazardous levels occur in the Fresnel Zone, and it is important to account for the loss in antenna gain in any prediction technique. It is known that the far-field gain of the antenna is degraded by the effect known as defocusing (energy spreading). The defocusing can be accounted for in such a way that:

$$G_n = \frac{G_f}{D^2}$$

where

$G_n$  = antenna gain in the Fresnel Zone

$D^2$  = defocusing factor.

It is implicit to this definition that both the antenna gain ( $G_n$ ) and the defocusing factor ( $D^2$ ) be functions of the antenna illumination and the distance from the antenna. Replacing  $G_f$  by  $G_n$  in the inverse square distance law yields the power density for the Fresnel Zone. The derivation of the defocusing factor is tedious and will not be discussed here.

### Precautions to Ensure the Safety of Personnel

While every effort must be made to protect personnel from harmful exposure to rf radiation, it is not considered necessary or desirable, in general, that blanket restrictions on ship's antenna radiation be imposed to achieve this end. The existence of such a policy would tend to restrict maintenance and checkout procedures which could otherwise be carried out in safety, providing proper precautions are taken to keep personnel clear of hazardous intensity levels. These precautions include the following:

- Visual inspection of feed horns, open ends of waveguides, and any opening emitting rf electromagnetic energy will not be made unless the equipment is definitely secured for the purpose of such an inspection.

- Aircraft employing high-power radars shall be parked, or the antennas oriented so that if the radar is energized the beam is directed away from personnel working areas.

- When operating or servicing a shipboard radar, operating and maintenance personnel shall observe all rf radiation hazard signs (BUSHIPS drawing RE 10D-2282) posted in control and operating areas to ensure that the radar is operating in such a manner that personnel on deck or in the superstructure are not subjected to hazardous levels of rf radiation.

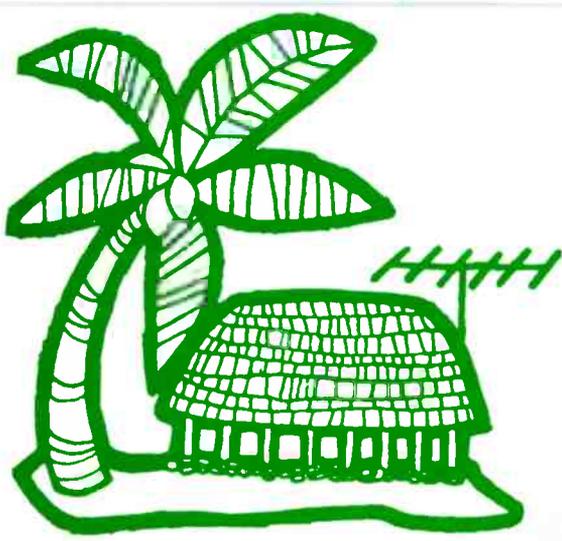
- All personnel shall observe rf hazard warning signs which point out the existence of rf radiation hazards in a specific location or area.

- Steps will be taken to ensure that those radar antennas which normally rotate are rotated continuously while radiating, or are trained to a known safe bearing.

- Non-rotating antennas will be trained and elevated away from inhabited areas, ships, piers, etc., while radiating.

- Where the possibility of accidental exposure still might exist, ship personnel shall station a man topside, within view of the antenna (but well out of the beam) and in communication with the operator, while the antenna is operating.

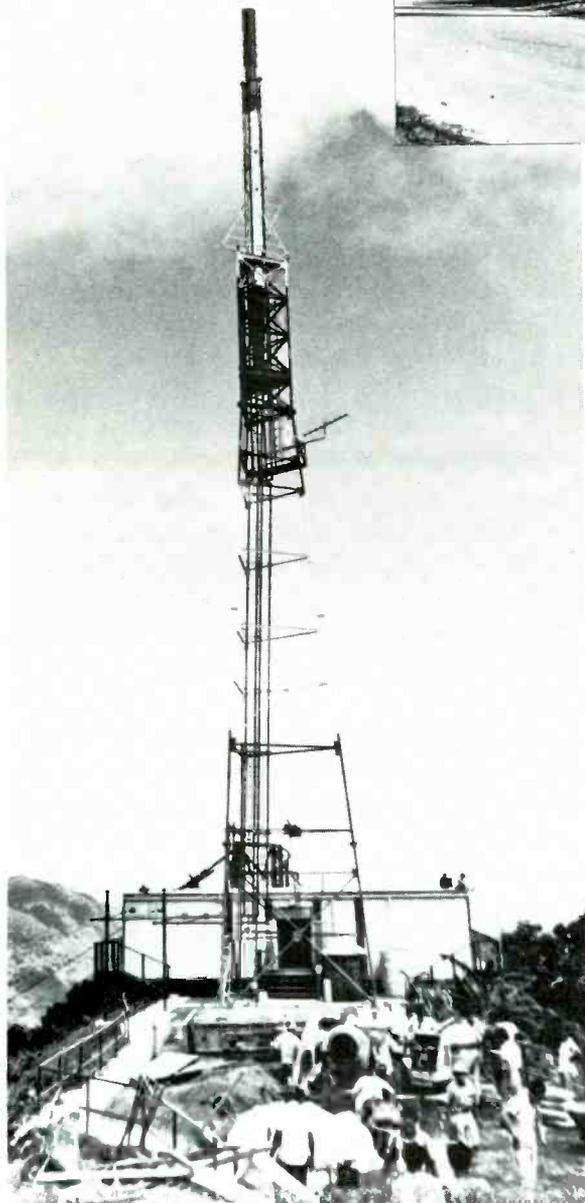
- Steps must be taken to ensure that radiation hazard warning signs are available and used, not only where required to be permanently posted but also for temporarily restricting access to certain parts of the ship while radiating.



# Television and Native Huts

**RIGHT:** The Michael J. Kirwan Television center where ETV programs originate in Samoa.

**BELOW:** The television transmitter site on 1600-foot Mt. Alava in Pago Pago Bay.



**R**IDICULOUS—television aerials mounted to the thatched roofs of South Sea island native huts?

Not really. Such strange 20th Century combinations are part of a remarkable experiment taking place in the American possession of Samoa—seven volcanic islands and two coral atolls located 2,270 miles south of Hawaii.

A three-channel educational television (ETV) network is bringing classroom teaching to virtually the dirt floors of remote villages in this South Pacific island chain, which has a land area of only 76 square miles.

Atop 1,600-foot Mt. Alava on the major Samoan island of Tutuila, a transmitter complex has been built to serve the 22,000 American nationals inhabiting the islands. Modern equipment costing \$1 million is housed in an air-conditioned telecasting center.

To give KVZK-TV the necessary professional guidance, an expert in educational television management is on the scene with 16 staffers. Three-hundred 23-inch Motorola receiving sets have been installed in new schools especially designed for classes taught by ETV.

Testing of the system began in August 1964 with regular programming commencing in October of the same year. School officials estimated that during the first few months of broadcasting nearly all of Samoa's 6,000 elementary students, from the first through the eighth grades, were reached. Future plans call for three addi-

**Technician-Engineer**

tional channels aimed at the 2,000 high school students.

The decision to use educational television grew out of the sadly low quality and quantity of Samoan education, according to H. Rex Lee, governor of Samoa and native of Rigby, Idaho. "It was the most shocking thing I ran into," he said.

When Governor Lee first came to the islands in 1961 in his official U. S. government capacity, they were symbolic of a half-century of American neglect. Roads were coral dust pools. Industry of any kind was a dream. The islands' two power plants not only acted like antiques, Governor Lee said, they were antiques of pre-Second World War vintage.

The school system was tragically inadequate. The single high school could enroll only one-third of all qualified students. Native teachers had fourth and fifth grade educations. U.S.-owned and U.S.-governed Samoa was in 1961 precisely what a Reader's Digest magazine article called it—"America's Shame in the South Seas."

But because of Governor Lee, a veteran career official in the Federal Interior Department, Samoa just four years later has come to be recognized as a forward-stepping country with one of the most extensive educational television networks in the world.

Governor Lee's first job was to assess the situation. "It had a good people, a Polynesian culture, and also the legacy of a long indifference by the United States," he said.

The United States acquired rights to Pago Pago harbor in 1872. The U.S. Navy governed Samoa from 1900 to 1951, using it as a fueling station. Then the Department of the Interior took over for ten years. By 1961 the islands had gradually developed into a South Sea slum.

Three weeks to the day after Lee left Washington for his Samoan assignment, he was back in the national capital seeking Congressional aid.

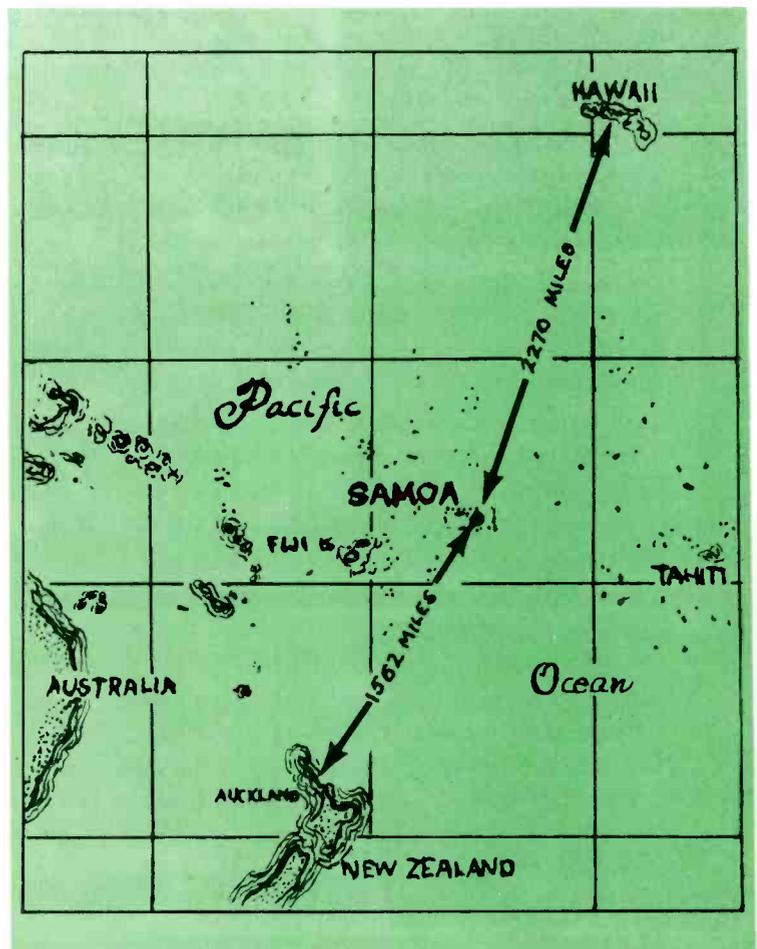
He got full support from Congress obtaining appropriations for capital improvements totalling \$26 million. A jet airport with a 9,000-foot runway was completed. An 800-seat auditorium, 15 miles of roads, and 29 apartments were constructed.

Educational television received a specific allocation of \$1.6 million. Blair MacKenzie, who operated ETV stations at Norfolk, Va. and Central Michigan University, was chosen to head KVZK-TV.

Virtually all formal education in Samoa now will be done by television. Mr. MacKenzie believes ETV is proving as educational to the teachers, who lead student discussions after TV programs, as to the students themselves.

The heart of the entire operation is the telecast center, where on a \$610,000 yearly budget, a staff of 38 state-siders and 30 Samoan understudies work closely with the islands' key educators.

The basic teaching team is a teacher and a producer-



director supplemented by research and library personnel who provide films, books, pictures, and slides. All programs are in English.

In the afternoon after school hours, teacher training courses are held. In the evening the schools serve as community centers for ETV adult programs. Subject matter varies from sanitation to child care.

During the average Samoan school day, which runs from 7:30 a.m. to 2 p.m., classes last 50 minutes. Telecast material fills 10 to 20 minutes of elementary classes and 30 minutes at the high school level. Discussion periods follow led by teachers.

Although all the children speak Samoan, many cannot effectively read or write. Naturally, one of the ETV courses is their native language.

From a technical standpoint, bringing ETV to the islands was a challenge in itself. In 1961 the entire Samoan generating capacity of 2,100 kilowatts was provided by seven 300 kilowatt units.

To satisfy expanding electrical needs, new power plants have been constructed increasing total output to 6,000 kilowatts. When completed, 45 miles of primary lines will serve the islands.

The greatest difficulty encountered by the planners was construction of a transmitter tower. Several of the mountains fringing Pago Pago harbor had to be rejected as sites because of their inaccessibility.

The final choice was 1,600-foot Mt. Alava. Attempts at building a road to the sharply-ridged mountain top were abandoned. The decomposed lava covering the mountain sides proved an impossible road base.

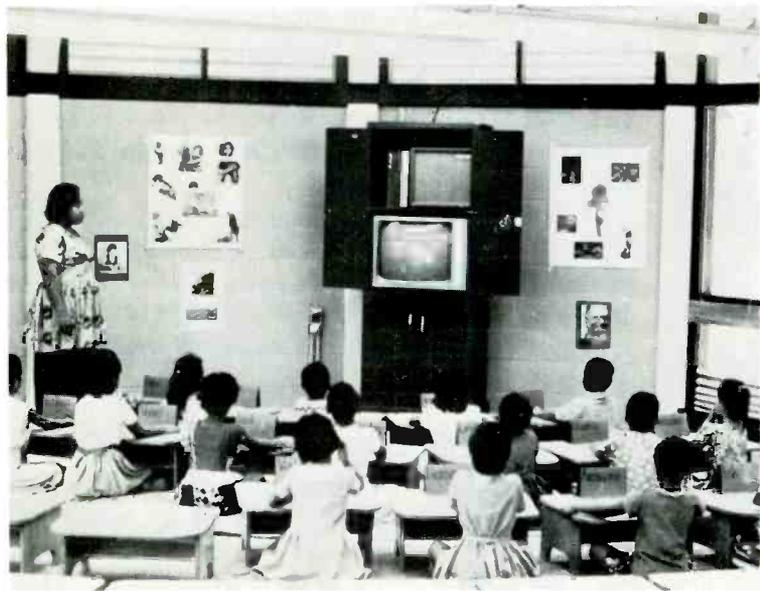
Test runs by helicopters from a visiting Navy ship demonstrated that hazardous air currents would make flying material to the summit impossible.

An aerial tramway, starting from a hill behind the TV station, spanning Pago Pago harbor, and covering a total of 5,103 feet, was the answer. The Interstate Tramway Equipment Co., of Pittsburgh, Pa., completed the job at a cost of \$125,000.

The transmitter tower and antenna stand 226 feet tall and serve the existing three channels with an effective radiated power of 40,000 watts. The structure is built to withstand winds of hurricane strength (force 12 and over).

The aerial tramway uses an enclosed passenger car carrying 16 persons and completes the run to the tower in six minutes. It has become a tourist attraction.

From an educational standpoint, Governor Lee is confident that the advent of teaching by television is certain to raise the levels of learning among both children and adults. "If it works," he said, "it could point a way to bypass the teacher shortage in developed nations and the sheer teacher absence in developing countries."



*At the business end of American Samoa's Educational Television system, children pay rapt attention to lessons on the TV screen.*

*In idyllic setting, which satisfies preconceived notions of what Samoa should look like, new television annex goes up (foreground).*



**Technician-Engineer**

**IBEW Testimony**

# Why CATV Needs Regulation



**Major benefits in centralizing all regulation of CATV in the Federal Communications Commission is maintenance of uniform technical standards, and protection of the public service role of broadcast TV. To avoid confusion, one regulatory body is needed, but it is important to keep it wholly separate from broadcast regulation, because of the unique operation of the TV-by-wire systems.**

Before The  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D. C. 20554

In the Matter of

Amendment of Parts 21, 74 (proposed Subpart J), and 91 to adopt rules and regulations relating to the distribution of television broadcast signals by community antenna television systems, and related matters. } Docket No. 15971

### COMMENTS OF LABOR ORGANIZATIONS AFFILIATED WITH THE AFL-CIO

This statement is filed with the Commission as the joint comments of the American Federation of Musicians, the International Brotherhood of Electrical Workers, the International Alliance of Theatrical Stage Employees and Moving Picture Operators, and the American Federation of Television and Radio Artists; all affiliated organizations of the American Federation of Labor and Congress of Industrial Organizations. The Commission will thus recognize the fact that many thousands of American workers in radio, television and directly-related supporting industries, and including workers in the CATV industry, assert real interest in the Commission's actions—and have a proper interest in the instant proceeding. Further, it should be noted that these workers, together with their families, their interested friends and their fellow-workers in other industries represent a significant portion of the listening and viewing public.

We would remind the Commission of the support of our organizations and the AFL-CIO of the All-Channel Receiver Law, in concert with the proposals made by the Commission. Similar support, involving a great deal of effort, was given to receiver excise tax repeal—a very recent accomplishment which was, at one point, endangered by the inclusion of other tax relief proposals. Finally, we will point to our support of the basic principle of the current H. R. 7715; we strongly support the proposition that the Commission should be exclusively empow-

ered as the regulatory agency in the field of CATV, to regulate all CATV systems.<sup>1</sup> We cite these examples only to indicate our cognizance of the responsibility of all our organizations to the national interest, improving and expanding nationwide communications systems through due and democratic process.

We are aware that there are broad as well as narrow issues involved in CATV regulations. These are of serious concern to us, to the public generally, to the broadcasting industry, the CATV operators, and of very difficult concern to the Commission. The alternative to Federal regulation is the continuance of regulation by local governments. The chief interests of the latter are in the areas of franchises and local revenue, and their attempts to regulate are neither appropriate to the medium nor to the technical and service standards which should be uniformly established and maintained. Such local regulation is not in the public interest, certainly not in the national interest and, in our judgment, not even in the best interests of the CATV operators themselves. We have previously pointed out that the Communications Act provides for the *centralization of authority* of regulation of communications, and have emphasized our strong conviction that only the Commission is competent to regulate CATV.

An orderly system of communications, providing news and news reports, information, education, entertainment or, collectively, the interchange of human intelligence, demands an inherently intelligent and orderly system of regulation. Early in the current century, the then-developing disorder of radio communications was brought under regulation and control first by the Department of Commerce, then by the Federal Radio Commission and, finally, by the Federal Communications Commission. We suggest that the present and further-developing disorder in CATV is not wholly unlike that of the radio spectrum of the early 1900's. The evidence reviewed by the Commission in its *First Report and Order* also convinces us that, unless brought under reasonable and centralized regulation, our national system of free television is endangered and that the national public interest will suffer.

<sup>1</sup> Statement of Albert O. Hardy, International Representative, International Brotherhood of Electrical Workers, AFL-CIO, before the House Interstate and Foreign Commerce Committee on H. R. 7715.

### Economic and Local Issues

CATV is not prospective, it is here. Something more than 1,400 or 1,500 systems are now in operation. In some communities it can be said to be an essential service, providing the only satisfactory source of television signals available to its subscribers. In other locations, direct reception of television signals requires elaborate and expensive antenna arrays and CATV is a better alternative. However, either choice is a difficult one for many viewers because of their economic circumstances. The 1965 *Economic Report of the President* states that 19% of American families, comprising more than 30 million people, have incomes of \$3000 or less. The median income in this group is about \$1800. Obviously, many of these people are hard put to afford television at all and, in many more cases, any cost beyond that of the receiver itself is simply out of the question. It therefore seems quite clear that the optimum public policy should be to encourage and promote maximum primary television coverage; i.e., direct reception without elaborate antennae, and without CATV.

It is perhaps an unhappy fact that CATV doesn't need local television to survive. In fact, CATV would be more attractive to the entrepreneur if local television stations were few, or non-existent. In such latter case, the viewer would have no choice but to pay for his television reception. He would have no local program source, no local news and the local advertiser would be similarly deprived of television exposure. Again, here is an area of regulation—providing that CATV must carry local station programs, and not exclude local stations as competitors.

It then follows that CATV should be considered and treated as a supplementary public service, providing channels in addition to those available by direct reception and/or high-level signals desirable for exceptional monochrome of optimal color television quality. Presumably, those who desire this exceptional service will be able to afford its cost. Together with the fact that CATV is another link in the transmission—a form of relay transmission to receivers—we believe it should be regulated as a supplementary broadcasting service. We further suggest (with serious reservations) that overall CATV program control and regulation may well be appropriate, but *with no connotation whatever* that program regulation of broadcasting itself is appropriate, necessary or desirable.

It is therefore our view that the rules and regulations for CATV should be wholly separate from those which apply to the Broadcast Services, with separate reiteration of those rules which are appropriately common to both Services. In particular, reasonable rules should be formulated with respect to programs and "commercial" practices, prohibiting tampering with programs received from broadcasting stations and expressly prohibiting the independent utilization of programs and program segments by recording (or other means), without specific permission. The deletion of original commercial announcements and/or the substitution of announcements should be similarly prohibited. Just these few cited examples make it quite evident that the entire scope of regulation can be dealt with by only one centralized authority—the Commission. We are otherwise presented, as Governor Hughes of New Jersey so wisely observed, relative to a State proceeding, ". . . with all the attendant hazards to the consumer, of unrestrained competition and service without prescribed standards."

### The Competitive Aspects

The unlimited and unregulated state and growth of CATV is a matter of personal concern to our members. We are interested in jobs, job opportunities and employment stability—both in the broadcasting industry and in CATV. We thus envision reasonable regulation in both fields, with the belief that there is a proper place for each in our society and in our national economy. We are concerned as actors, announcers, stage hands, projectionists, technicians, installers, linemen, musicians, singers, maintenance men, floormen, directors, clerical personnel, and many others. Unfair competition by CATV can eliminate jobs in local and network television—the unreasonable restraint of CATV can eliminate jobs in CATV. We have an equal concern for the welfare of workers in both industries.

Repugnant as it may be to some who have examined and are opposed to the philosophy of doing so, it seems clear that local television stations are entitled to protection against competition

brought into local markets in the form of distant station signals. The refusal of a CATV system to carry local stations could well result in the demise of local stations. Those who oppose such a rule point out that this has not happened (so far), and they say that CATV systems *should* carry local area stations without discrimination. Since there is no apparent controversy of belief in this latter respect, we believe a rule would be appropriate as insurance of understanding. From our own point of view, such a rule would be assuring to the station operators and, in turn, an assurance to station employees.

### Educational Television Considerations

One greatly significant use of television is in the educational field. The AFL-CIO Executive Council issued its most recent statement on this matter on May 18, 1964, saying:

"Educational Television is a medium which can help create better understanding of current social and economic problems, greater awareness of the demands of citizenship in our time, and deeper appreciation of the arts and of our cultural heritage. Educational Television has proved its value, not only in dealing with public affairs but also in dealing with such special problems as teaching adult literacy, lip reading for the deaf, and infant care. Yet, its enormous potential remains to be fully developed."

It is quite possible that the potential of Educational Television may be disrupted by unregulated CATV. In common with the hazard of splintering the total local audience to the detriment of local stations, the local educational station audience may be diminished. In the case of educational television, dependent upon locally-contributed funds, this can become a greater problem, proportionately, than the splintered audience is to a commercial station. The importation of distant stations by CATV should not be permitted to curtail local service, local interest and, in the case of educational stations, local contributions. While the community interest is paramount, here again we have an interest in the employment—and the continued employment of our members.

### Commission Action—Past and Future

We, therefore, generally support the Commission's action in Dockets 14895 and 15223, adopting *Rules For Microwave-Served CATV Systems* as the first step in a proper direction. We also recognize that comprehensive regulation will require time and careful consideration and, perhaps for some time to come, exploration and examination in continuous process. We propose that the Commission adopt interim procedures to introduce order in the present chaos of CATV, pending the finalization of long-range, comprehensive regulation. It seems to us that the Commission's presently-proposed procedures fall somewhat short insofar as they would apply only to communities which actually have television channels allocated to the community and to independent UHF stations. A better impetus to the development of UHF stations would clearly appear to include *all* UHF stations in the Commission's proposal.

Taking the long view, we reaffirm our statement to the House of Representatives—we believe that the Commission's procedures with regard to rule-making, coupled with those of the Administrative Procedure Act and Title IV of the Communications Act, are sufficient to prospectively protect the public as well as private interests.

We can only add that a rule of reason is needed—urgently and as immediately as possible.

Respectfully submitted:

AMERICAN FEDERATION OF MUSICIANS,  
AFL-CIO  
INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO  
INTERNATIONAL ALLIANCE OF THEATRICAL STAGE EMPLOYEES AND MOVING PICTURE MACHINE OPERATORS OF THE UNITED STATES AND CANADA, AFL-CIO  
AMERICAN FEDERATION OF TELEVISION AND RADIO ARTISTS, AFL-CIO

By ALBERT O. HARDY,  
1200 Fifteenth Street, N. W.,  
Washington, D. C. 20005

Dated this 26th day of July, 1965.

# COMMUNICATIONS

**How do you get the message across to the guy who sits beside you?**

by **PAUL HERLINGER**

Public Affairs Director, KTNT-TV, Tacoma, Wash.,  
Member, Local 77, IBEW

**A**T a communications symposium held a few years ago in Seattle, Washington, the noted author and philosopher Mortimer Adler observed that angels are really the only ones capable of *instantaneous* communications with each other. We lowly humans must rely on various media through which to communicate our ideas, thoughts, and emotions. Therein lies our plight; a plight which, hopefully, the following may help to alleviate.

Paradoxically, we in the communications business are sometimes woefully lacking in the power to communicate effectively with one another. We spend hours writing words and devising pictures for mass consumption, but when we try to communicate a simple message to the man in the next office, we often fail miserably. There is a tendency to pass off these failures as mere "misunderstandings," but they are more than that. They are rooted deep in the human mental processes and they often prove to be costly and time consuming errors. What causes these fleeting lapses in the comprehension of verbal interchange?

Effective communication among men (as opposed to Mr. Adler's talented angels) is no easy matter. Many variable factors influence an individual's ability to communicate effectively. Some of these factors include the knowledge he has gained over the years, the experiences he has been subjected to in his environment, the vast range of references, association, and attitudes he has developed, many of which may exist in the individual's sub-conscious.

In addition, man is literally victimized by imperfect and somewhat limited receptive facilities with which to collect incoming verbal information. Then, once the information has been received, some of the above factors come to bear upon the "processing" of this data in man's mind. When the information is once again ready to be transmitted, it must be formed into language, and languages are notoriously poor media for the expression and transmission of ideas.

These are but a few of the main subtleties that influence our communications efforts. Occasionally these subtleties interact in conflict and then, due to conditions seemingly beyond our control, we have a communications failure.

This is a highly simplified explanation of a complicated process, but it should serve only to point out how potentially easy it is to fail in communicating.

How hard is it to succeed?



Effective communication is very much within the bounds of our control, provided we put forth some effort. It is incumbent upon us, living as we do in a fast moving, communication-oriented society, to strive for such control. Indeed it is especially urgent for those of us in the field of mass communication to do so lest we find our little day-to-day failings beginning to undermine our broadcasting efforts.

Based on a number of years of experience in comparatively successfully communicating (and just a few dismal failures along that line) here are a few simple precepts to follow in every day "sending and receiving."

## **1. Listen With Both Ears!**

Many verbal communications between two people are doomed simply because of inadequate listening habits on the part of the communicants. It is the old story of "in one ear and out the other." Learn to "take in" whatever is being said with *both* ears and a whole mind, no matter how familiar the material may be, or how violently you may agree or disagree with it.

## **2. Be Sure Both Parties Are On The Same Track**

Failure to heed that obvious rule has led to more than one unfortunate communications breakdown. Every verbal stimulus may convince you that you and your partner are both talking about the same thing and yet you may be miles apart and going in opposite directions. If you have the slightest doubt about anything, don't hesitate to ask one or two silly, naive questions just to make absolutely sure you are both headed in the same direction.

## **3. Skip The "Memo" If You Can Say It In Person; Get To The Point**

This will not make a big hit with memo pad manufacturers, but writing has a tendency to be rather impersonal and therefore misleading, unless of course you happen to be a budding Hemingway or Faulkner. People come to know each other as personalities and not as scribbles on a memo pad. Writing styles often

differ vastly from speaking styles. Indeed memos are sometimes convenient outlets for frustrated would-be writers. Communications are bound to be far more effective on a person-to-person level.

#### **4. Avoid Sweeping Generalizations;**

Effective personal communication is a far cry from after-dinner speaking or political oratory. You are not trying to entertain or impress an audience, nor are you playing verbal tic-tac-toe. You are delivering a special message to one or more select people, and the longer you delay the point of that message, and the broader its scope, the better are the chances of a communications mishap. Be simple, direct, and concise, and you will be understandable.

#### **5. Learn The Other Fellow's Code**

Although we all use the same language, no one uses language in the same way. Words are mere symbols. We all devise our own meanings for those symbols, and we may choose more than one symbol to represent the same thing. The meanings we give to words are derived from our experience and environment. In effect, then we build our own individual "codes" with which we try to communicate. Unless we make a real attempt to learn each other's peculiar little codes, how we use words and what meanings we assign to them,

we might as well be dealing in smoke signals or heiroglyphics for all the effective communication we will achieve.

An incisive little cartoon in a recent issue of the Saturday Review of Literature depicted two men seated facing each other in easy chairs. They are about to pursue an intellectual conversation. One man is obviously a Beatnik-type, while the other appears to be an older gentleman of some means. The Beatnik sets aside his drink and exclaims: "Before we can get anywhere in this discussion we're going to have to break the language barrier."

It seems odd that people speaking the same language should have a language barrier, but in a very real sense we do not really "speak the same language" all the time. Many factors militate against our doing so, often making the delicate task of effective, meaningful communication insiduously difficult. In an age already complicated by an exploding technology, where the fate of the world hinges on a hot line, and where, as some scientists propound, we are already overburdened with communications, it is more than ever vital that we make our daily person-to-person communications as simple, direct and effective as is humanly possible. Who knows? Some day, despite our human shortcomings, we may even reap praise from the angels.

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## **Here's What the Excise Tax Cuts Mean If They Are Passed On to You**

Federal excise taxes worth \$1.75 billion a year were pared or cancelled recently after President Johnson signed the \$4.66 billion tax cut bill passed overwhelmingly by Congress. The bill will chop another \$1.6 billion a year off these taxes next Jan. 1, with the remaining cuts spaced out to Jan. 1, 1969.

To what extent consumers benefit will depend on whether manufacturers cut their prices by the amount of the excise tax where such tax has been levied at the factory level.

Where the taxes are imposed at the retail level, the important thing for consumers is to make sure these tax cuts are passed on to them, not pocketed by the merchants and dealers. Here's a table to help you, as a buyer, on this:

- Jewelry, furs, cosmetics, toiletries, luggage and handbags. On any of these you buy after June 21, you should not be charged the former 10 per cent federal tax on the retail price.

- Sporting goods (except fishing equipment), phonograph records, musical instruments, TV sets, radios, phonographs, photographic equipment and film, pens and mechanical pencils, cigarette lighters, and business machines. On any of these you buy after June 21, the price should be lower by the amount of the former 10 per cent federal tax on the factory price. This may mean a cut of 5 to 7 per cent in

the retail price. Prices should be lower also on playing cards and matches.

- Refrigerators, freezers, and electric, gas and oil appliances. On any of these you buy after June 21, the price should be lower by the amount of the former 5 per cent federal tax on the factory price. This may mean a cut of 2 or 3 per cent in the retail price.

- Air conditioners. If you buy or bought one after May 14, the price should be lower by the amount of the former 10 per cent federal tax on the factory price.

- New cars. If you buy or bought one after May 14 you should pay only 7 per cent (not 10 per cent) of the factory price as a federal excise tax. Look at the detailed price list posted on the new car to check on this.

For the future, this federal tax on new cars will drop to 6 per cent next Jan. 1, to 4 per cent on Jan. 1, 1967, to 2 per cent on Jan. 1, 1968, and to 1 per cent on Jan. 1, 1969.

On phone bills (for both local and long distance calls), the federal tax will drop next Jan. 1 from the present 10 per cent down to 3 per cent. Each succeeding Jan. 1 it will drop another 1 per cent until it is fully repealed. The phone companies say they will pass these cuts on to their customers.

On amusement places, such as theaters, race tracks and nightclubs, the federal excise tax will end at noon next Dec. 31.

These are the more important tax cuts enacted by Congress, on LBJ's urging. One aim of the cuts was to spur consumer buying and ward off any economic slowdown. Another aim was to "sweeten the pill" of higher Social Security taxes that will be coming along next Jan. 1.

Also, the President urged "every manufacturer and every retailer" to "pass along to the consumer the full amount of the reduction in the tax."

LBJ also declared that when the next tax cuts are proposed, they would be geared to aiding the poor.

#### **Safe Car Clause Loses**

In the final congressional jockeying on the tax bill, an important reform pushed by Senator Abraham Ribicoff (Dem., Conn.) got knocked out. Ribicoff tried to make the last 4 per cent of the auto tax cut contingent on the auto makers building their new cars according to federal safety standards.

Ribicoff's plan passed the Senate, but the auto makers kicked at it, and the House-Senate conferees who shaped the final tax bill dropped the "safe car" plan out of the bill.

Ribicoff rapped this as "tragic," pointing out that highway deaths have soared from 38,000 in 1961 to 48,000 in 1964. He vowed to keep up the fight to get Congress to impose safety standards on the automakers directly, rather than through a tax device.

# A UNION MEMBER'S DICTIONARY



*This is the first of a new feature series planned to keep you better informed on the meanings of terms related to collective bargaining, union contracts, and union business. Follow it closely, and your union membership will become more meaningful, and your ability to participate in decisions which affect your future and security will be strengthened.*

## A

**ability to pay:** In collective bargaining, the ability of management to meet the financial demands of a union. (This depends on the financial condition of the company and is often hotly disputed.)

**across-the-board increase:** A general pay increase affecting equally all or most of the employees covered by a contract. May be in percentage or cents-per-hour.

**administrative officer:** Title, in certain unions, of business agent.

**affecting interstate commerce:** The point that determines whether an enterprise is subject to federal regulation. The NLRB has ruled that manufacturers who buy or sell \$50,000 worth of goods a year across state lines, and retailers with a gross volume of \$500,000 or more, fall under its jurisdiction; the courts have agreed.

**affiliation:** The association of a local or international union with a larger group, e.g., of a state, national or international labor union federation.

**agency shop:** A collective bargaining agreement providing that employees covered by the contract who refuse to join the union must pay a service fee to the union equal to union dues. This is predicated on the fact that by law, a union must give full and equal protection to all members of the bargaining unit it represents.

**agreement, collective:** A contract (agreement and contract are used interchangeably) between a union, acting as bargaining agent, and an employer, covering wages, hours working conditions and fringe benefits.

**allowed time:** For incentive workers, time allowed for tool care, fatigue and personal needs.

**American Arbitration Association:** Private group offering expert arbitration services in labor and other disputes. Non-partisan and non-profit.

**annual improvement factor:** Contract clause providing for annual wage increase of stated amount as a share in increased productivity.

**annual wage:** Guarantee of a minimum income and/or hours total, during a year.

**antitrust laws:** Designed to bar unlawful restraints and activities affecting trade and commerce, these federal and state statutes were once used as anti-union weapons.

**apprentice:** In the skilled trades, a learner who is under supervision as to his work experience, often with re-

lated classroom studies. Completion of 4-5 years of apprenticeship leads to journeyman status. (See journeyman.)

**appropriate unit:** Decision, by an NLRB examiner, after hearing, of what constitutes (who is to be included in) an appropriate unit for purposes of an NLRB representation election and subsequently collective bargaining.

**approved pension plan:** A retirement plan meeting regulations of the Treasury Department and enjoying tax advantages therefrom.

**arbitration:** Submission of a labor dispute to a third party for judicial settlement. Most frequently applied when labor and management disagree on interpreting contract language applicable to a grievance. (See grievance.) Procedures are customarily specified in the collective bargaining agreement; decisions are customarily final and binding. (See conciliation, mediation.)

**area differential:** See geographic differential, regional differential.

**area-wide bargaining:** See multi-employer bargaining.

**arm's length bargaining:** Genuine, across-the-table negotiations between an employer and the union of his employees.

**assessment:** A levy by a union upon its membership other than for regular dues purposes, e.g., to meet heavy strike expenses or to replenish a depleted defense fund.

**attrition:** Shrinking of employee rolls through death, resignation or retirement.

**authorization card:** A card signed by a worker in a plant being organized, authorizing the union to be his collective bargaining agent. To get the NLRB to order a representation election the union must prove, through presenting such cards, that it has signed up at least 30 per cent of the workers.

**automation:** In manufacturing or processing, the substitution of machines for men, including the use of computers, feed-back controls and other automatic or semi-automatic devices.

**automatic progression:** Automatic pay increases at set time intervals until maximum rate for job is reached.

**average straight-time hourly earnings:** The actual earnings per straight-time hour. This excludes shift differentials and overtime pay, but includes incentive and merit payments. (See straight time.)

# THE LABOR-MANAGEMENT WHIRL

As reported by Les Finnegan in CAVIL-CADE, distributed by Press Associates, Inc.



## Election . . . What Election?

● *IN BIRMINGHAM, ENGLAND*, a funny thing happened to Miss Valerie Cresswell on her way to a union meeting. While walking to the headquarters of the Birmingham branch of the Electrical Trades Union, unbeknownst to her Miss Cresswell was nominated for the presidency of her 2500-member local. She arrived in time to discover that her election had been unanimous.

Miss Cresswell at 19 became not only the youngest union leader in the country but also its prettiest. "I didn't even know they were having an election," said the new president a bit sheepishly. "I was on my way to the meeting just to pay my dues."

## Autopensive

● *IN WASHINGTON, D. C.*, the U.S. Senate embraced a new form of automation but not a Senator could be found who would admit it. Hidden away in the Senate Office Building basement is a new \$1200 device which reproduces a Senator's signature perfectly tens of thousands of times. The Autopen, as it is called, permits the Senator to sign thousands of "personal" letters to constituents with no chance of writer's cramp. One Senatorial secretary remarked, "I hate to go down to the basement; it makes me feel obsolete."



## Tart Proposal

● *IN LONDON, ENGLAND*, a letter written by famed playwright George Bernard Shaw proposing the formation of a prostitute's trade union was scheduled to be auctioned off, with a number of labor officials bidding against each other. Shaw wrote that "the union should be led by a very energetic, muscular and violent woman, with the devotion of a saint and the arbitrariness and executive power of a prizefighter."

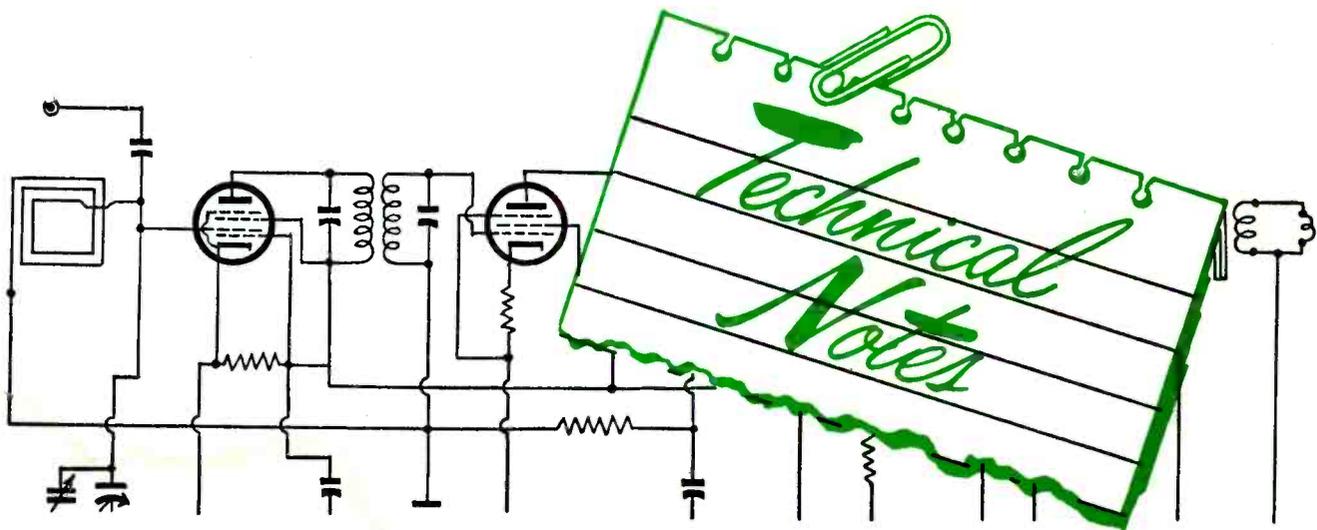
## For Backsliding Pickets

● *IN ATLANTIC CITY, N. J.*, a new weapon for use against strikers and civil rights demonstrators was the main attraction at the annual convention of the National Sheriff's Association. A bubble-blowing machine, originally developed to extinguish mine fires, will be highly effective against pickets, the sheriffs were told. The machine spreads a heavy layer of soapy bubbles over a large area making pavements and even turf impossibly slippery. The system has only one drawback, several sheriffs conceded; it is just as slippery for police horses as for pickets.



## No Fair Smoking

● *IN NEW YORK CITY*, executives of the world's biggest and richest electrical manufacturing firm, General Electric, developed the reddest faces yet seen at the World's Fair. More than 1000 visitors to the GE Pavilion had to be evacuated when a power transformer overheated, began smoking and threatened to catch fire. You guessed it! It was a GE transformer!



### DIEBOLD ORDERS 250 CCTV CAMERAS

Diebold, Inc., has placed an initial order for 250 of RCA's new all-transistorized TV cameras for use in its drive-in banking and bank surveillance systems. They will install the compact, solid-state cameras in its "Vue-Matic" drive-in banking units which provide two-way "hear-see" communications between a bank customer at an outdoor station and the bank teller inside the bank building.

Diebold, a leading supplier of banking equipment, has been using RCA cameras for the past two years in "Vue-Matic" systems installed in banks throughout the country. CCTV permits the drive-in teller to work within the bank's main business area and the drive-in station to be located at a distance from the building. In addition to sight and voice communications, the two points are connected by pneumatic tube through which currency, bankbooks and other items are exchanged at high speed.

The cameras are part of a new line of "Professional Television" equipment, designed especially for closed-circuit use in industry, education and elsewhere. Introduced earlier this year, the line also includes monitors, switching and distribution systems and other gear needed for full closed-circuit TV service. Transistorization and operating simplicity make the PK-301 camera especially suited, according to RCA engineers, to applications like the Diebold drive-in and surveillance systems where good picture quality and freedom from adjustments are essential over extended periods.

### STATION AIDS SPACE STUDY

WTOP in Washington, D. C., recently assisted the National Aeronautics and Space Administration in getting more information out of a brief ionosphere rocket probe flight.

During the flight of the sounding rocket, a Nike Apache which was launched from Wallops Island, Virginia. WTOP transmitted a steady modulated tone so

that scientists could measure the interaction of the WTOP signal on a signal of different frequency being, transmitted from a ground transmitter at Wallops Island. The experimental transmission from WTOP was broadcast about a half hour before the station's normal air time.

### SUN-POWER PORTABLE

A compact portable radio introduced by the Zenith Sales Corporation carries a group of solar cells in its handle for power to play the radio without batteries, or recharge the internal batteries.

When the sun goes in, the radio is powered by four nickel cadmium batteries, or AC house current. The radio also has a built-in AC battery charger, for those long spells of dreary cloud cover that usually come when you're taking your vacation at the beach.

The firm claims that with average use of four hours a day, and frequent recharging, the nickel cadmium batteries will last as long as five years.

### 'SEEING' BY FEEL

About one person out of every ten has the ability to distinguish between black and white simply by running his fingers over the surface of the material, according to recent limited tests. There are even a few people who can distinguish every color by feel, and the claim has been made that Russian scientists are teaching people to read printed words by feel. Whether this claim is true or not, there is at least one well-documented study of an American woman, 43-year-old Michigan housewife, Patricia Stanley, who can discriminate all colors by feel, although she cannot read this way.

There is increasing scientific interest in this little-studied phenomenon, in the hopes that learning more about the processes involved may lead to teaching the blind to read by feel.

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# STATION BREAKS

## STRIKEBREAKER BANS OUTLAWED

A recent opinion issued by the State Attorney General's office maintains that ordinances recently enacted by six northern California cities to ban professional strikebreakers are invalid because the field is preempted by state law.

The opinion, written by Deputy Attorney General Jan Stevens, said that there are already state laws on the books covering referral or solicitation of workers by employers whose regular workers are engaged in a labor dispute.

These laws, he said, prohibit certain employment agencies from sending part-time or temporary workers to firms involved in labor disputes and prohibit others from sending workers to such firms without telling them of the dispute.

Stevens said that the state laws and past court cases indicate "an attempt to deal with the subject" of the anti-strikebreaker ordinances and that, therefore, "the field has been completely occupied" by the state.

The six northern California communities that have enacted anti-strikebreaker ordinances in recent months are: San Francisco, San Jose, Pittsburg, Albany, Berkeley and Fresno.

The ordinances in question would prevent the employment of "any person who customarily and repeatedly offers himself for employment in place of an employee involved in a labor dispute."

The opinion, requested by Assemblyman Jerome Waldie (D-Contra Costa), said the state, having enacted various Labor Code sections that were cited in the opinion, has shown an intention to preempt the field.

The City Attorney of San Francisco, Thomas O'Connor, challenged the opinion and maintained that San Francisco's ordinance "is valid unless and until federal and state laws take over. . . . The subject is not covered by state or federal law," he asserted.

The impact of the opinion, however, may dampen current drives to enact similar ordinances in other cities. It may also provoke a court test of the issue.

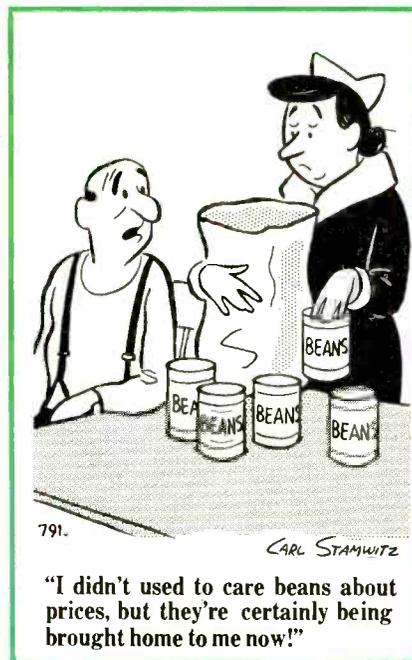
## IBEW AIDS ATOMIC TRAINING

"Thanks to the International Brotherhood of Electrical Workers, thousands of American and Canadian workers have received special training in the uses, hazards and controls of atomic energy in private industry. With the help of industry and the Atomic Energy Commission, the IBEW pioneered the highly successful program in 1961. Now this milestone in training and education is being offered for public sale in book form. The IBEW is donating all of its royalties from the books to the Peace Corps, to purchase electrical equipment for underdeveloped nations. We in the AFL-CIO salute the foresight and generosity of our fellow trade unionists."

—Edward P. Morgan, AFL-CIO newscaster

## 14th ANNUAL PROGRESS MEETING

The 1965 Progress Meeting is scheduled for August 24, 25, and 26, New York City. Delegates, please note: "Legal Day" will be Thursday, August 26. Don't plan an early departure!



791.

CARL STAMWITZ

"I didn't used to care beans about prices, but they're certainly being brought home to me now!"