

TECHNICIAN ENGINEER

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INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS — AFL-CIO



LANDMARKS OF LABOR No. 28
FOUNDING OF THE ILGWU
June 1, 1890



Progress in all phases of unionization and service in the needle trades mark great advances from the pre-union days of the not so gay '90's of the garment industry. At the turn of the century some of the most shameful working conditions in America were found in this industry in which many of those employed were immigrants or the children of immigrants.

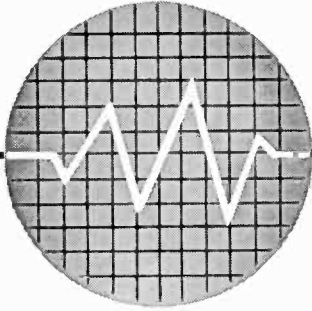
Critical humane and economic needs for emancipating the workers from the ordeal of sweatshop conditions and oppressive contract work led to the calling of a convention by seven local unions on Sunday, June 3, 1890 in New York City. Eleven representatives from New York, Philadelphia and Baltimore met at the Labor Lyceum and founded an organization known as the International Ladies' Garment Workers' Union.

Some 2,000 workers were founder-members of this union which was destined to have a profound and continuing impact on union progress in America. Elected to head the new union were Herman Grossman, president, and Bernard Braff, secretary-treasurer, both of New York.

Today with 442,700 members, the ILGWU can look back with pride at the courage and foresight of this small band of unionists whose forward step that June Sunday in 1890 in founding a new union was a real landmark of labor.



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TECHNICIAN ENGINEER

VOL. 10, NO. 9
 ALBERT O. HARDY, Editor

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the cover The master control room of Station WNTV, Ibadan, Nigeria. The African television station celebrates its second birthday this month. (Turn the page for the complete story.) British photographers describe the cover thus: "The vision mixer is looking down on the picture and waveform monitors. The observation window looks into Studio One on the right."

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 1960 figures: July, 1960—126.9; July, 1961—128.1; August, 1960—126.9; August, 1961—128.0.

COMMENTARY

Radio is America's roommate. We hear its voice from the time we wake up in the morning until we go to sleep at night.

Radio is also America's traveling companion. It travels with us like a welcome shadow.

A neighbor puts a radio in his hip pocket when he goes out to prune the roses. The newspaper delivery boy makes his rounds to the sound of music. I have a radio in the bathroom so I can catch the news while I'm shaving. The automobile radio rides in almost every car pool. And some people are even taking sets to the ballpark so they can keep score on the announcer. I suppose that about the only place radio isn't going with us these days is solitary confinement.

Radio is America's roommate because it's so downright companionable. It goes places, it does things. And, above all, it always takes us along. . . . Behind its air of easy informality radio has tremendous power to inform as well as entertain. It is this power that gives it special responsibilities in the community.

We all recognize that entertainment—that music—is the core around which the day's programming is built. But we also know that more people depend on radio for news as it happens, and for news of community affairs, than they do on any other means of communication.

A recent radio study made use of the grim "rumor of war" research question. As one might expect, seven out of ten people questioned said that they would turn on their radios to verify a report that war had broken out. And with the aftermath of Hurricane Carla, America was reminded of the Herculean service radio provides.

Or take a less catastrophic example. On any snowy morning in winter, sets are turned on all over the house, because people depend on radio to tell them if the schools will be open, if the main roads are passable, if downtown offices expect their people to make it to work. This is just one of the many community jobs which only radio can accomplish.

—Newton Minow, FCC Chairman, before CBS Radio Affiliates.



WNTV

Africa's First Regular TV Service Celebrates Second Birthday

By F. R. Yardley, A.I.E.E., A.M.Brit.I.R.E., and
P. A. Shears, M.A., A.M.I.E.E.

ON October 31, 1961, WNTV celebrates its second birthday and its triumph in pioneering a regular TV service on the African continent. Just two years earlier Chief Obafemi Awolowo, Prime Minister of the Western Region of Nigeria, officially opened the WNTV service. This came only 141 days after signing of the agreement between the Western Region Government and Overseas Rediffusion Ltd., London, to provide and operate the new network—Africa's first—on a 50-50 partnership basis.

The foundations of WNTV were laid in December 1958 when Chief Anthony Enahoro, Minister of Home and Mid West Affairs to the Western Region Government of Nigeria, announced that his government proposed to inaugurate a television service in the Western Region, covering an area of 45,000 square miles and with a population of approximately 6,000,000. Prior to this, Marconi's had undertaken a survey in the region and recommended a transmission headquarters and program originating center in Ibadan, the capital of the Western Region (having a population of approximately 600,000), with a second transmitting station at Abafon, 56 miles to the south, near Ikeja, a large new town in Western Region territory just outside Lagos, the Federal capital. The survey recommended the use of Posts and Telegraph Department circuits for program links and order wire purposes; studio facilities were to comprise Vidicon camera chains, telecine equipment and an O.B. vehicle* containing two Image Orthicon cameras.

* Ed. Note: An "O.B. vehicle" is a mobile unit; literally, "outside broadcast" vehicle.



WNTV's transmitter building at Mapo Hill has wide eaves and "breeze-block infilling" to keep facilities cool in the tropics.



Another view of the studio center building at Ibadan, showing the louvered construction of walls, designed to assist ventilation.

In June, 1959, a partnership agreement was signed between the Western Region Government and Overseas Rediffusion Ltd., and Western Nigeria RadioVision was established to provide radio and television services with the station identification WNTV for television and WNBS for sound. The C.C.I.R. 625 line 50 fields standards were adopted, and application was made to the Posts and Telegraph Department for suitable frequency channels.

Work began immediately and less than 10 weeks later, the Ibadan transmitter commenced test transmissions from Mapo Hill. Construction of the studios and the Abafon transmitting station was undertaken at the same time. A temporary microwave link was installed by Rediffusion from a receiving station at Ipara, relaying "off-air" signals from Ibadan.

When discussions began early in 1959 one of the principal problems which emerged was that of frequency allocations. Owing to the occupation of Band III by the national trunk VHF telephone system, only Band I was available for television. Bearing in mind the future needs of the Federal and Regional Government (the area of Nigeria is greater than that of France and Germany together) an effort was made to obtain four 7 Mc channels in Band I instead of one 6 Mc and three 7 Mc channels which it contains at present. The Posts and Telegraph Department proposed that the channels should be moved 1 Mc up in the spectrum above their standard positions, thus widening the Band from 41.68 Mc to 41.69 Mc.

STANDARD CHANNELS

However, the dislocation which this non-standard channelling would have caused, by delaying the delivery of the equipment and necessitating non-standard turrets for the television receivers, precluded the adoption of the scheme, and eventual agreement was secured to use the standard C.C.I.R. channels E3 and E4. Microwave frequency allocations caused no difficulty, there being little use of microwaves in Nigeria.

Another technical problem was the link between the Ibadan studio centre and the Abafon transmitter 56 miles away. The P & T had under construction a microwave link between Lagos and Ibadan giving three channels (each 240 circuits or one TV channel) in both directions. However, the scheduled date of completion was a year too late, and therefore an alternative link had to be set up. For a small TV system, links are an economic problem of some magnitude, since the rentals customarily charged by Post and Telegraph Authorities may be beyond the means of the station. The alternative solution, the station setting up its own microwave link, for equivalent facilities, can be comparable in cost with that of hiring. However, a simplified microwave system is now being installed and in the meantime a temporary link is in use.

This employs a repeater on an intervening hill at

NIGERIA is divided into four semi-autonomous regions, each based upon particular tribal groups of the nation. Each region has its own government, with prime ministers, assemblies, and departments. Ibadan and Station WNTV are in Western Nigeria. It was announced early this month by NBC International, Ltd., an NBC subsidiary, that it will send 16 executives and technicians to Lagos, the capital, to establish a federal TV service there. NBC's Nigerian service is expected to start early next year. It will cover both Lagos and Ibadan.



Ipara, 31 miles from Ibadan, where a signal strength of about 1mV is obtained from a Yagi aerial on a 100-ft scaffolding tower receiving the transmission from Ibadan. Sound and vision are demodulated in a good quality receiver with automatic frequency control and excellent adjacent channel rejection, which feeds into a microwave link transmitter mounted on the tower to carry the signal on to Abafon. While this temporary link gives surprisingly good results, it is subject to the inherent limitations of this method of transmission. Moreover, the frequency of 6800 Mc used for the microwave link appears to be somewhat high for the varying atmospheric conditions encountered in a tropical climate, so that occasional severe fades occur on the microwave path due to refraction.

No Posts and Telegraphs private wire circuits were available at Abafon so a VHF link has been provided with Ibadan.

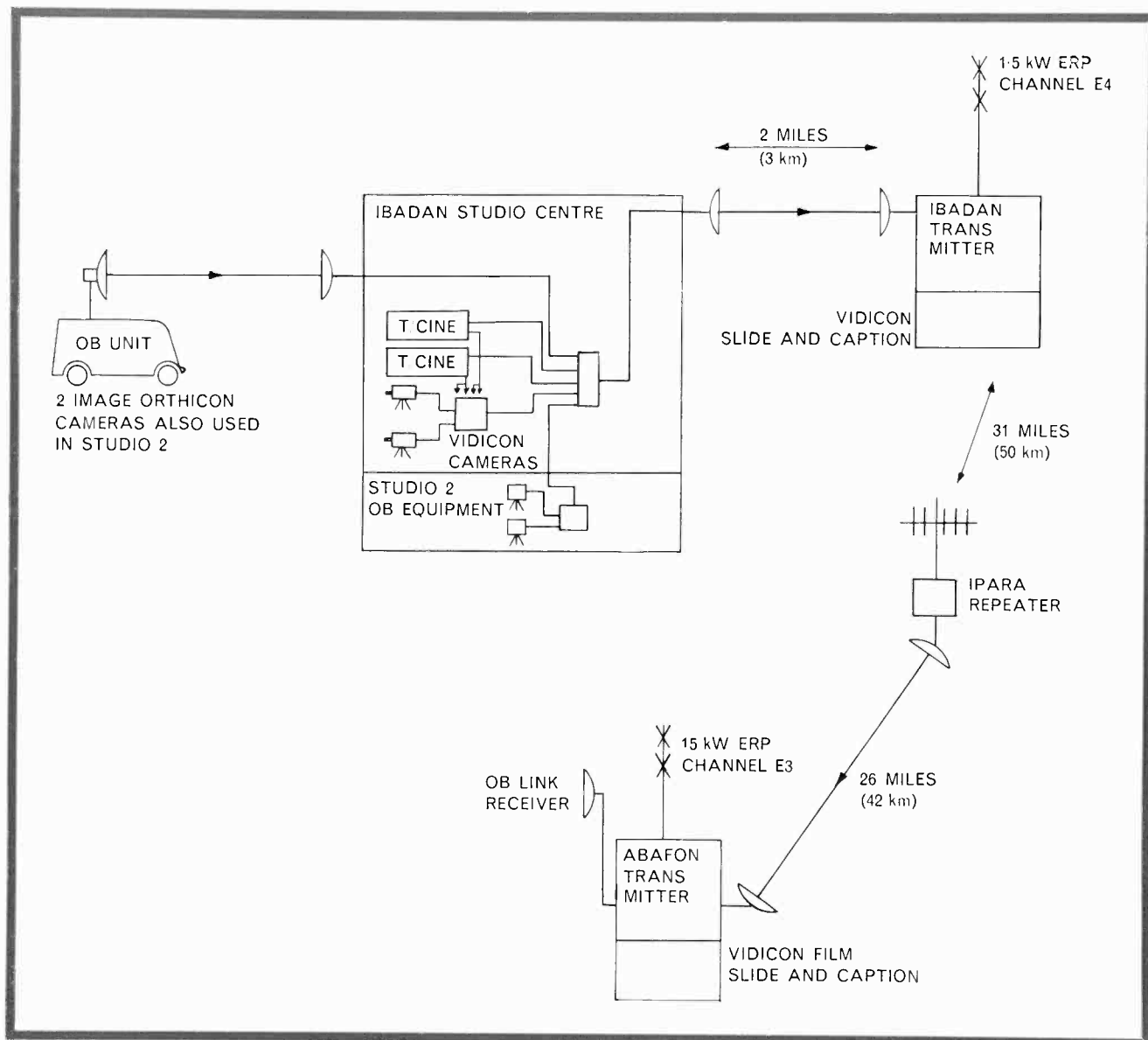
In a prominent central position in Ibadan is Mapo Hill, and this site was chosen for the 1500 watt ERP transmitter and 250-ft. tower. As the available land was not large enough for the studios and offices these were sited at Agodi—an area of new development some 3500 yards away.

The Abafon transmitter site was chosen alongside the main Lagos-Ibadan road on a ridge of land 230 ft. above sea level. Here an ERP of 15 kw with a 400-ft. tower provides strong coverage of the densely populated areas around Lagos and Ikeja, and gives a good signal in the large towns of Abeokuta and Ijebu-Ode 30-40 miles away.

TOWER ERECTION

Work commenced on the Ibadan transmitter site at Mapo Hill, Ibadan, early in June 1959. Despite heavy storms, when an inch of rain sometimes fell in a few hours, the building was constructed, the tower erected and the aerial fitted in only seven weeks. Meanwhile, the transmitter was undergoing tests in an incomplete building and by the planned date, August 14, the builders moved out and the "WNTV—Ibadan" test card was transmitted to the accompaniment of prerecorded music.

WNTV *continued*



A BLOCK DIAGRAM OF WNTV FACILITIES

Concurrently, construction of the studios advanced rapidly and work was started at the Abafon transmitter site; studio equipment installation began at the end of September. Work progressed so fast that live camera training of Nigerian program and technical staff was able to start only three weeks later.

The tower at Abafon proved a serious challenge. Frequent bad weather often held up work for several days, and at times it looked as if it would be impossible to meet the opening date of October 31. However, with barely a week in hand, the Marconi riggers and their team of Nigerians were ready to fit the aerial, and this was connected and tuned with only four days to go—the erection of the entire 400-foot tower and aerial having taken only 29 days.

Testing of the transmitter had only held up because it was not safe to energize the 33 kV overhead power line, which passed only 50 yards from the tower, until the erection rigging was removed. Nevertheless, full power was fed to the aerial on October 29 with the "WNTV—Ikeja" test card showing first-class quality, and viewers in Lagos, who until then had only been able to see the weak signal from Ibadan 70 miles away, switched over to their local station.

The service is now operating for four and a half hours each day—the programs consisting of school broadcasts, news, information, public service and entertainment. Test card transmissions amount to a further three and a half hours daily.

ROOM FOR EXPANSION

The studio accommodation, together with the row of offices along its front, results in a T-shaped design which can easily be extended at a later date by lengthening the office portion and by widening the studio block. An extension eastward has already been erected to accommodate sound broadcasting studios alongside the television studios, and the planned future development, both of sound and television studios is shown on the drawing. Until further extensions are required, the large sound studio is being used both for television and sound broadcasting work.

The structure is reinforced concrete with breeze-block infilling, the design being based on a 10-foot "grid," permitting the repetitive use of shuttering and minimizing building costs. A striking appearance has been achieved by the use of decorative finishes, perforated walls and sun louvers while an aluminum false roof reflects much of the sun's heat off the studio block, reducing the load on the air-conditioning plant considerably. As the ambient shade temperature often exceeds 90°F and the humidity rarely falls below 80 per cent, the building is oriented to face the prevailing breeze, which, flowing through these louvers, does much to improve the comfort of the offices.

SOUND PROOF STUDIOS

The limited program budget (until a reasonable sized audience is established) entailed restricting studio accommodation to the minimum. More than three-quarters of the present programs are on film, so that only the small presentation Studio I has been provided solely for television. Its main functions are continuity working, news, talks and similar programs. The wall treatment consists of alternate plain and slotted asbestos tiles backed by glass wool, providing sufficient sound absorption for television work, while the floor covering is Korkoid, laid on concrete. For more elaborate programs, use is made of the large sound broadcasting Studio II, heavy soundproof double doors connecting the two studios. This studio is partially equipped for television, the remaining equipment being brought in from the O.B. vehicle when required; the high-level control room for this studio can also accommodate the video control gear.

The air-conditioning plant for the television studio, preview theatre and film processing sections of the building has a cooling capacity of 35 tons, this large size being necessary mainly to cope with heat from the equipment and studio lighting. The plant is accommodated within the shell of the studio area to minimize the lengths of the air ducts, which contain filters to prevent noise transmission.

Studio lighting for the presentation studio comprises eight 2 kW and eight 500 watt spotlights, together with 12 fluorescent scoop lamps which operate satisfactorily with Vidicon cameras without flicker, and produce less heat than filament lamps of equivalent illuminating power. The sound/television Studio II has a similar installation but is equipped with incandescent scoops since here the Image Orthicon cameras from the O.B. vehicle are mostly used. Lighting is controlled from a simple switchboard in a corner of each studio. Other ancillaries include a caption stand, a light box for illuminating transparencies and a TSC 4000 Back Projection Unit.

There is a \$76,000 mobile unit for outside broadcasts, which comprises a 30 cwt van, fitted with equipment racking and a production desk. Two Marconi BD. 808 4½-inch Image Orthicon camera channels are provided, together with sound and vision mixing facilities, line clamp amplifier, synchronizing generator and communications facilities. Power supply is brought in through an automatic voltage regulator, the total load including air conditioning, microwave link and VHF radio telephone being some 10 kVA. A diesel Land Rover with a built-in 12 kVA generator driven from the vehicle power take-off is used at locations where no main supply is available.

The station provides its own news service and thus operates a film unit to cover local events. This unit is equipped with three Bolex cameras, two Ficord tape recorders for non-synchronous sound, and two Arriflex cameras complete with magnetic sound head and transistor amplifier for synchronous work. The 16 mm film, which is supplied ready striped, is developed on a Lawley Junior processing machine yielding negative pictures

which, after waxing, may be shown directly on telecine by operating the sense reversal switch.

Besides the output of the film unit, a great deal of film handling is involved in preparing the 2-3 hours of film material, including commercials, shown daily, for which comprehensive editing facilities and numerous items of small equipment are provided.

The most striking feature of the operation is the speed at which it was carried out, the opening date for the service following less than five months from the date of signature of the final contracts. This short period was only possible by using stock equipment, many of the remaining items having to be sent by air, adding to the installation costs.

Other disadvantages also followed from executing the work at such speed. The large amount of overtime and nightwork required, increased the expense of the buildings, although much credit is due to the building contractors in meeting their specified completion dates, despite shipping and other difficulties.

Thus, the principal lesson to be drawn from an operation of this nature is that sufficient time should be allowed to take into account the peculiar problems of overseas territories ranging from communications, power, supply and transport, to housing and staffing, not to mention the vagaries of tropical climates and the implications of these on the engineering and other arrangements.

Today, after two years of operation, WNTV is no longer a toddling youngster, it has come of age. It operates seven days a week for nearly five hours a day. Mondays through Friday the emissions include two hours a day of educational matter.

There are some 10,000 television receivers now installed in the Region and Lagos, a figure which is increasing at the rate of 300 to 500 a month. Just under 2,000 of the television sets have been distributed to schools and other institutions by the government. But the number of sets is, on its own, a misleading statistic since the viewership-per-set is unusually high at between 25 and 35, giving a total viewer audience of around 300,000.

A very high percentage of the shows are sponsored, at the rate of \$134.40 an hour. A 60-second spot costs \$33.60. There is no sponsorship of newscasts as a matter of policy, neither is there any audience rating service.

The language used on programs is English, with some Yoruba. Commercials, with rare exceptions, are all in English. Favorite programs are news bulletins and locally-produced quiz and drama shows as well as a children's hour. Also popular are such "canned" U. S. shows as "77 Sunset Strip," "Fibber McGee," "Laramie," and "People Are Funny." Advertisers include top U. S. and international companies, among them Bendix, Willys Jeep, Pepsi Cola, Ford and Beech Nut.

Acknowledgements: Acknowledgements for help given in preparing this article are due to Western Nigeria RadioVision Service, Overseas Rediffusion Ltd., and the Marconi Wireless Telegraph Co. Ltd.

WNTV FACILITIES

	Presentation Studio I	Studio II	Master Control and Telecine
Size	30' x 24 x 15' ht.	39' x 29' x 20' ht.	30' x 26' x 15' ht.
Cameras	2 XBD 854 Vidicon cameras	2 XBD 808 4½" Image Orthicon cameras from O.B. van	2 x 16mm + 16mm + Slide Vidicon Telecine channels
Vision Mixer	8 channel BD 841 in Master Control	8 channel BD 841 from O.B. van	8 channel BD 656 Master Switcher
Sound Mixer	4 channel BD 554 B in Master Control	4 channel BD 554 B from O.B. van	4 channel BD 554 B



The State of RADIO Today

Radio Consultant Reports to Thirty-First Institute For Education

Senator Jacob K. Javits (R., N. Y.) recently reported to the United States Senate that Mr. M. S. Novik, well known radio consultant in New York, made a speech to the Thirty-First Institute for Education at the Ohio State University on April 27, 1961. This speech has been so highly regarded as to be printed in its entirety in the Congressional Record. Excerpts from Mr. Novik's thoughtful remarks are reprinted here as the Technician Engineer's contribution to information on this controversial subject.

"We are gathered here this year to praise radio—not to bury it. This is quite a difference from four or five years ago, when many in the industry thought we were at a wake. We know that television didn't kill radio—just as radio didn't kill magazines and newspapers.

"It is true that radio today is alive and kicking. It is true that there are more radio stations on the air today than ever before. But it is also true that every radio station is in danger of remaining only so good as its competition. And the level is set by the worst of its competitors.

"Radio today, with some notable exceptions, is a business of broadcasting recorded music and news. The live programs, the talk, forum, discussion, comment, and controversy programs that made radio the dominant medium of communication in the country—all of these programs are just about gone today."

* * *

"Today, with over 3,500 commercial radio stations on the air, even the network-owned stations—once called the flagship or powerhouse stations—are turning into independent operations. And just as the independents now dominate radio, just so, do music and news now dominate the independents.

"Don't take my word for it. I quote from a definite handbook, based on actual station logs, and released this month by B.B.D. & O: 'there has been a basic change in radio pro-

gramming since 1954. Music and news formats have risen to complete dominance. Almost 75 to 80 per cent of the programming of most independent stations is now composed of music and news.'"

* * *

"There are as many ways of reaching the American goal as there are people sitting here today. There are no clearcut directions for what the broadcaster should do to reach that goal.

"But there are some roads that radio should not be traveling.

"Let's look at the Kennedy-Nixon debates; a notable first in modern political history. These were created and produced by the broadcasters. Did every station carry them?

"They did not. According to an FCC report to Congress, 35 independent TV stations in major cities and 10 network affiliates did not carry the great campaign debates. In radio the first debate was carried by 851 stations—the fourth by only 800 network affiliates and not carried by 300 affiliates. But among the 2,500 nonaffiliates, only 45 carried this unprecedented and important series. Obviously, radio ran into a detour on that road.

"Let's look at the subject of political broadcasting. Before the last presidential election the U. S. Senate held hearings on and finally amended section 315 to make the presidential debates possible. The U. S. Supreme Court rendered a decision, and Commissioner Ford, then Chairman of the FCC, spoke out on the need for making time available during political campaigns.

"This matter of political broadcasts was serious enough for the Senate to ask the FCC to send each licensee a questionnaire, to determine their broadcasting policy. Certainly that should have alerted the radio station operators to the intent of the law. But it didn't. Many, if not the majority just wouldn't make time—other than spots available, for local or national candidates.

"Here again radio was on the wrong road. Not because of political prejudice; of that I am certain, but because these programs did not fit station policy . . . the policy of music and news, the policy of no talk.

"Finally, let's look at the recent presidential press conference broadcasts. For years radio and television had asked for equal treatment with the press in covering municipal, state and federal news.

"President Kennedy, faced with many crucial national and international problems, which require a knowledge and understanding of the public, made precedent by permitting the presidential press conference to be broadcast live.

"Logically we might assume that this coverage would be given maximum distribution. Instead we find President Kennedy's press secretary, Pierre Salinger, only last week, telling broadcasters that the White House is getting mail complaining that local stations no longer carry the press conferences. Mr. Salinger said: 'I have a feeling the people who talk about overexposure of the President are falling back into show business terms. They're talking maybe about overexposing a juggler, or a comic.'

"There again radio broadcasting trapped itself on a dead-end street.



YOUR UNION BULLETIN BOARD

. . . is a prime source of information about your job and your organization. Keep posted on local and international union affairs by reading it regularly.

"Who gave the broadcaster the right to decide that the people do not want to hear the great debates or local politics, or the presidential press conferences? Who gave any broadcaster the right to decide that the people want only music and news?"

"Who had the right in Atlanta, Ga., and in other cities, to decide that the people did not want to hear the Metropolitan Opera broadcasts? They were strong enough in enough towns to keep CBS from being able to deliver enough affiliates to keep the opera on the CBS network. Yet enough listeners really wanted to hear the opera so that a specially tailored network had to be provided."

* * *

"The newspapers, bad as some of them may be, offer a choice; a choice of the news or comics or columnists. The reader of magazines has a choice, and so do the readers of pocketbooks. Even the hi-fi fan has a choice in the records he may buy. Only the radio listener has little choice.

"The music and news formula changed the standard of good radio news programing, so that the background news program is now the exception; and the news bulletin, once the exception is now the standard.

"Somebody pulled the plug on public service programing.

"The time has come for all broadcasters to face reality. It is time for radio to realize that television is no longer a threat. Radio has learned to live with television—and lived well. Radio can no longer excuse its program deficiencies by leaning on the crutch of television.

"It is time for radio either to live up to the law or to ask that the law be changed. And the law for the broadcaster is the Communications Act of 1934. That Communications Act sets the rules under which the broadcaster operates. And that Communications Act didn't just happen; it wasn't born overnight. Congress spent years debating the kind of broadcasting system the country should have.

"Congress argued about having Government radio like the BBC; they discussed putting a ceiling on profits; some favored a reservation of time for noncommercial public service programs. Herbert Hoover, then Secretary of Commerce, suggested it be 25 per cent of broadcast time. And Congress finally decided on our present system of commercial broadcasting with the conviction that the American businessman could be entrusted to operate both for profit and in the public interest.

"The basic rules in the Communications Act of 1934 have not changed. Times have changed—people have changed—values have changed. No one changed the rules, but the emphasis has shifted from performance to profit."

* * *

"Caught in this quicksand of a quick buck are those broadcasters that are aware of, and try to measure up to their public interest obligations. But how long can we expect so few to carry the burden for so many?"

"The news and music stations are not looking ahead—are not keeping an open eye and mind on the demands of our time and do not even seem to be aware of what the FCC is doing. Indeed, the promotional efforts of some so-called independent broadcasters to create a favorable image without doing anything about their noisy programing is not so much of an image as a mirage and will fool no one."

* * *

"We live in a time of confusion and danger. The American public needs to be informed, not tranquilized. The age of complacency, to which the communication media have contributed, must come to an end for the complacent man is no match for the Communist.

"This industry can—and must—fulfill its responsibility not only to communicate but to inform, not only to entertain but to educate.

"The first step, in my humble opinion, is to end the confusion over public service broadcasting, and restore radio to its rightful role as the key medium of communication in America."

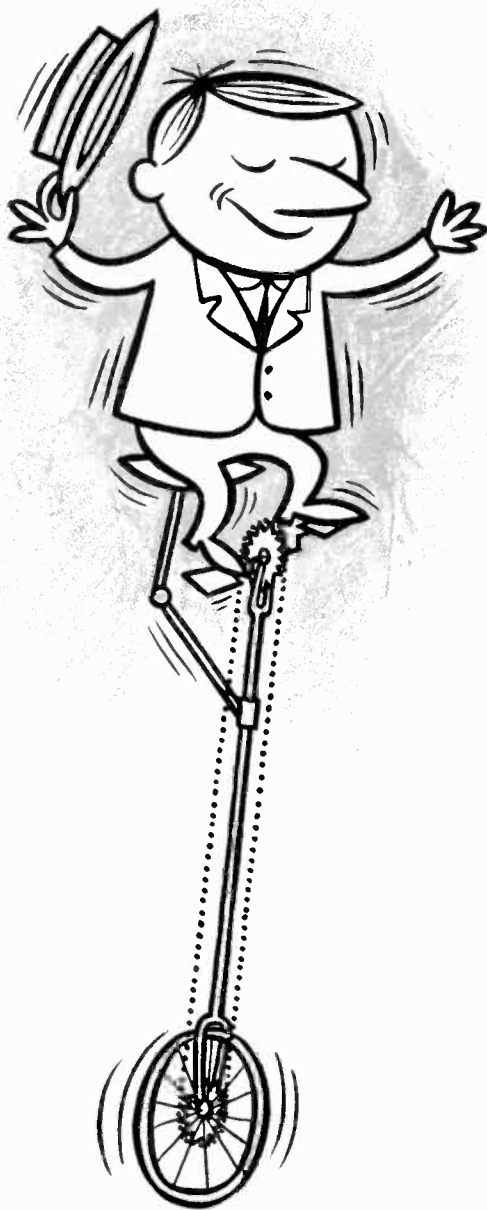


And He Gets to Keep All the Pearls He Finds

Recently the International President approved an Agreement covering the Technicians at a radio and television station which contained an unusual provision . . . at least, for this industry.

"The Employer will provide a safe row boat for the use of the Technician in going from dry land to the Radio Transmitter when the transmitter site is flooded, and also shall furnish rubber hip boots to each Technician required to go to the site under such conditions. Such equipment shall be stored at the transmitter when not required for use."

The WONDERFUL WORLD



of MAIL ORDER

*Some Items Are
Out of this World*

AMERICA has been called the "Land of Opportunity" and rightly so. But one of the opportunities, unless you read the magazines devoted to direct-mail sales, may be overlooked. Here you encounter the opportunity to acquire some of the zaniest, most weird, most unlikely items imaginable.

Some of the items might include whiskey-flavored toothpaste. You have a choice of either Scotch or bourbon. The ad pleads: "Why fight oral hygiene? Enjoy it!" And for those who like their martinis dry, dry DRY, there's a handy little vermouth atomizer at only \$4.95. Now you can just dust your gin with vermouth. If you have the money, you can order dwarf trees or giant strawberries, delivered by a patient mailman.

There's a trick cigarette case that unlocks only at pre-determined periods so you can't get a cigarette in between times. Also available is a handy hacksaw if you develop a nicotine fit before the time lock goes off. There's an Amazing Fishing Lure that positively charms fish until they line up gills-to-tails and wait for your hook. Or how about a global wristwatch so you can know when people in Bangkok are having lunch? For those who have trouble remembering what "going set three doubled and redoubled" amounts to, there's a handy bridge scorer made into a key chain, a bracelet, a tie clasp or a money clip. Tired of letting the dog out? Cut a hole in the door and install an automatic pet door. Then your problem is keeping the dog in! Horse players not yet broke can get, for about \$15, and Electronic Race Results Computer which also predicts probable winners. When everybody at the track has one, the whirl will be enormous and the pay-off will be microscopic . . . everybody will have the electronic winner!

There's a perfectly useless little desk device which, when you touch the switch, causes it to whirl, it twitches, jumps about and then the lid comes up. A hand emerges, turns the switch off, and disappears inside the box. That's all it does; no gumdrops or anything. This will set you back about five bucks, but your friends will figure you're delightfully wacky.

There's a combination computer, calendar and cigarette lighter and a battery-driven pencil sharpener, a voodoo bulb you don't have to water and an instant oxygen supply with mask for those horrible mornings-after. Perhaps you'd prefer a 12-foot-diameter balloon? How about a big wind-up key for your miniature car? It doesn't wind anything up, but the driver behind you will get a yuk out of it.

Finally, if all these things will cost you more money than you can afford, invest first, for only \$1.49, in a deck of marked cards. According to the advertisement, they are "for magic only" but the amazing part will be the loot you can acquire from your unsuspecting friends. Good luck!

NLRB Reverses Indiana Rule

Agency Shop Held Bargaining Right in Case 133 NLRB No. 21

By JOHN M. BARRY

THE National Labor Relations Board, in a sharp policy shift, has upheld the agency shop as a lawful subject for collective bargaining.

The ruling, involving a case in Indiana where the union shop is outlawed, does not necessarily set a precedent for other so-called right-to-work states, a Board spokesman emphasized.

By a 4-1 vote the Board nevertheless reversed a 3-2 decision handed down last February 20, and ordered General Motors Corp. to bargain with the Auto Workers on an agency shop arrangement affecting some 14,000 non-union GM workers in nine Indiana plants.

The majority opinion was signed by the two new members appointed by President Kennedy—Chairman Frank W. McCulloch and Gerald A. Brown—and by two Eisenhower appointees who were in the minority in the February decision—Philip Ray Rodgers and John H. Fanning.

Boyd Leedom, who was in the majority in the February ruling, filed a dissenting opinion essentially unchanged from his earlier views.

The agency shop differs from the union shop in that employees are not required to become members of the union representing them, but must pay the union an amount equal to initiation fees and regular dues.

Indiana's "right-to-work" law was not at issue in the case, both GM and the UAW agreed. The company contended, instead, that the agency shop proposed by the union was outlawed on the federal level by the Taft-Hartley Act.

The NLRB majority nevertheless noted that the Indiana Appellate Court, on June 19, 1959, had found the agency shop to be legal under the state's "right-to-work" law. That case involved Meade Electric Co. and the International Brotherhood of Electrical Workers.

The NLRB spokesman said the effect of the Board's ruling was to establish the agency shop as a lawful subject for collective bargaining in all states that do not have "right-to-work" laws and at least in Indiana among the states that do.

It remains to be seen what the Board will decide if similar cases arise in other "right-to-work" states, the spokesman said. He noted that because the parties had agreed to bypass the state law, the NLRB majority reached its decision under Sec. 8(a) (3) of the Act—

which permits union-security agreements—and did not reach the question of Sec. 14(b)—which permits states to outlaw the union shop.

Nineteen states now have "right-to-work" statutes in force. Some of them purport to ban the agency shop along with the union shop, while others make no mention of the subject. In Florida as well as Indiana state courts have ruled the agency shop to be a legal form of union security.

The Board spokesman noted that while interest in the agency shop has grown in recent years, that type of union security clause actually pre-dates the Taft-Hartley Act. The first agency shop on record, he said, was negotiated in 1939 by the IBEW with the Utah Power & Light Co.

He added that federal statistics show that about 6 percent of all contracts now contain the agency shop.

FOLLOWED COURT RULING

The UAW case arose following the Indiana Appellate Court's 1959 decision. The union submitted proposals for an agency shop to cover GM employees at the nine Indiana plants and filed an unfair practice charge after the company refused to bargain on the subject. The complaint was dismissed in the NLRB ruling last February.

The Board voted to reconsider the case at the request of the UAW and the NLRB general counsel. Supporting briefs were filed by the AFL-CIO, the Retail Clerks, the Commercial Telegraphers, the Steelworkers, and the Indiana Building & Construction Trades Council.

In reversing the earlier decision, the NLRB majority held the agency shop to be a lesser form of union security than the union shop, declaring that there was "no doubt" as to the legality in the light of the legislative history of the Act, plus Board and court decisions.

The majority cited a Supreme Court decision of 1954, which said:

"This legislative history clearly indicates that Congress intended to prevent utilization of union security agreements for any purpose other than to compel payment of union dues and fees.

"Thus Congress recognized the validity of union's concern about 'free riders,' i.e., employees who receive the benefits of union representation but are unwilling

to contribute their share of financial support to such union, and gave unions the power to contract to meet that problem while withholding from unions the power to cause the discharge of employees for any other reason."

"Certainly," observed the NLRB majority, "the Supreme Court clarified that which Congress sought to permit in the area of union security and that which it sought to limit."

SUBJECT TO APPEAL

The ruling may be appealed by GM to the federal courts. The Supreme Court already has been asked to

review a decision of the Kansas courts holding that the state's generally-worded "right-to-work" law bars agency shop agreements as well as the union shop.

In his dissent, Leedom argued that Indiana's "right-to-work" law had a direct bearing on the case that the majority was applying a broad definition of union membership in one section of the Act and a narrow definition in another.

He contended, further, that under the agency shop non-members would not be entitled to some benefits "guaranteed union members" but would have the same dues-paying requirements.

KENNEDY AIDES DEFEND INTEGRITY OF JOB FIGURES

Reader's Digest article stirs quick response

Two cabinet members and the chairman of the President's Council of Economic Advisers have publicly defended the integrity and value of the government's statistics on employment and unemployment, which were attacked in a Reader's Digest article as deliberately "juggled" to "magnify" joblessness and promote "spending" programs.

Labor Sec. Arthur J. Goldberg, Commerce Sec. Luther H. Hodges and CEA Chairman Walter W. Heller in speeches or statements declared that the jobs and joblessness figures published by the Bureau of Labor Statistics are accurate and unbiased.

BLS Commissioner Ewan Clague, who has served under both Democratic and Republican administrations, denounced the Digest article—written by a staff editor, James Daniel—as distorted and laced with errors.

Clague, in a letter to Digest publisher DeWitt Wallace, asked space for another article that "might at least partly repair the damage." Clague's office said on October 5 that the commissioner had received no reply.

The thesis in Daniel's article was that the BLS juggled figures "to show progressive deterioration in the U. S. economic system."

The "claimed rise in unemployment from recession to recession has to a large extent been engineered," he charged. "The worse unemployment grows—or can be made to appear—the easier it is to push Uncle Sam into new federal spending programs and new controls over the economy," he asserted.

Heller, in a speech September 29 to a group of specialists, referred to a "rash of uninformed and unscientific attacks on the unemployment statistics of the U. S. government."

Citing the BLS and the Census Bureau, the latter of which actually gathers the statistics Clague's bureau publishes, Heller paid tribute to their "competence and integrity" despite "occasional vulgar attacks."

The Council of Economic Advisers, he said, saw "no misleading signals" arising from present techniques of gathering information on jobs and joblessness. Other evidence, to the contrary, "indicates clearly that the overall statistics are delivering their message loud and clear," despite "biased broadsides and barbed innuendoes" against them.

"I have every confidence" that the Census Bureau's surveys of employment and unemployment "are based on the most advanced methods devised for sample surveys," said Hodges. He continued:

"The results give us an accurate picture of what we have chosen to measure, namely, the extent to which we are fully utilizing our available manpower. . . . We have sought, and will continue to seek, the most accurate picture of employment conditions in the U. S."

Goldberg, asked directly about the Digest article in an October 2 press conference, pointed out that the techniques for gathering the job figures "have been developed throughout the years through several administrations, Republican and Democratic, based upon the advice of the best experts available."

"They are the most accurate of any nation in the world," he said, "and reflect the best-informed judgment on how figures of this type should be maintained."

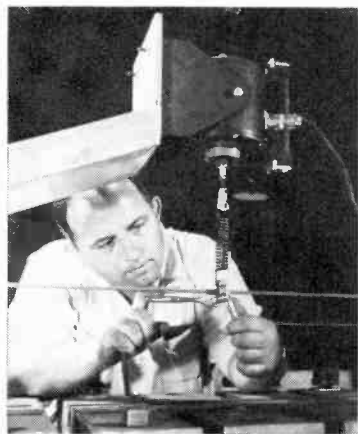
NEW COST-OF-LIVING BASE

The United States Bureau of the Budget has recommended the 3-year period 1957-59 as the new standard base period for general-purpose index numbers prepared by Federal Government agencies, beginning with the January 1962 indexes where feasible. Consequently, as of January 1962, the Bureau of Labor Statistics will convert the Consumer Price Index to the 1957-59=100 base from its present 1947-49=100 base.

Well in advance of the change, the Bureau of Labor Statistics will publish a full explanation of the methodology involved in making this conversion to the new reference base. It will also, on request, make available to users of this index, by means of appropriate publications, all information necessary to link the index on its new base with the historical series.



ABOVE: An Alcoa engineer measures the amplitude of vibration of an indoor span of 1.60 inch diameter expanded ACSR aluminum cable. Technicians seek methods of damping natural vibration of such large conductors.



ABOVE: A laboratory technician adjusts the connections between an electro-magnetic vibration motor and a span of ACSR conductor. The motor, attached to a powerful amplifier, is similar to the conventional loud speaker, except that it vibrates a cable instead of a paper speaker cone. The cable is vibrated in "standing waves" to study fatigue life of the cable, and methods of improving its performance.

RIGHT: Alcoa workers with instruments used for the measurement of electrical characteristics of conductors. The engineer at right adjusts a standard inductometer and a potentimeter, while another watches.

Testing

Steel-Reinforced Aluminum Conductor

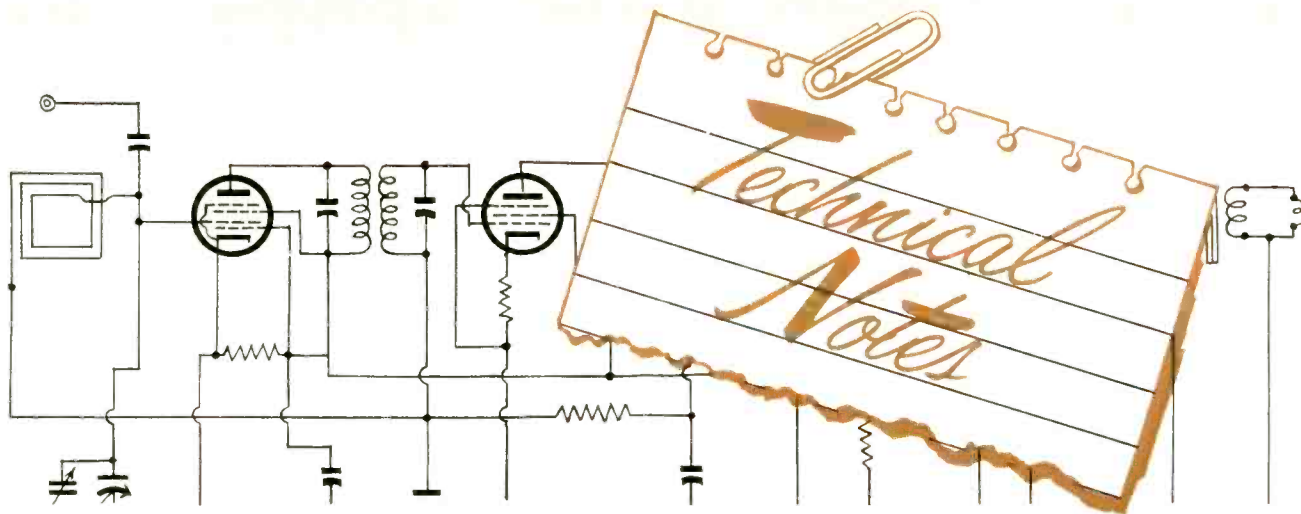


AT LEFT: An Alcoa laboratory technician at the Massena Works connects testing apparatus to a span of ACSR cable to test electrical characteristics.



Steel reinforced aluminum conductor cable is in great demand today for high voltage alternating current transmission lines. Strong and corrosion proof, it has the added advantage of being light, requiring fewer towers for cross-country installations. ACSR, as it is called in the sales catalogs, was first produced by the Aluminum Company of America at its Messena, N. Y., plant, where the accompanying pictures were made.

In 1957 manufacturers began covering the cable with a highly-durable plastic insulating coat made of polyethylene material. Thicknesses of these protective coats vary, depending upon the needs of the electrical industry.



NEAR Speeds Raid Alert

A new super-speed air raid alert system called NEAR seems to be the best answer to alerting all the population in a hurry. A small device, a little larger than two decks of cards, would plug into your house current in any base-plug outlet and sound a warning by special signal.

The search for a dependable indoor warning system started in 1952. Authorities wanted a system which would be absolutely reliable, available to everyone, and economical. Various ideas, including radio relays, were considered and discarded in favor of one which would operate over power lines. Radios might be turned off, but power lines inside homes, schools, office buildings and industrial plants are always "on." But how to trip such a device?

Technicians have devised a system whereby a small portion of the 60-cycle current is converted momentarily to 240-cycle. It would not endanger regular continuity of the 60-cycle current. The device is considered absolutely reliable; not subject to unknown malfunctions. It has safeguards in it against sounding false

alarms such as might be occasioned by a nearby lightning flash. (One of these is a small timing mechanism which delays sounding an alarm for 10 to 15 seconds. This delay eliminates the possibility that a sudden, brief surge of electrical power will result in a false alarm.) A pilot light shows if the unit is properly plugged in and receiving current.

NEAR are the initials for National Emergency Alarm Repeater system. In the event of an alert, either for an impending attack by a foreign power or to signal the approach of a natural disaster such as a flood, hurricane or tornado in a local area, the 240-cycle signal is fed into the system by special generators. The alarm sounds for 50 seconds. People with NEAR alarms can then get details from their radios via regular stations or on the Conelrad frequencies.

It is estimated that, when the system is complete, the entire nation can be alerted within 60 seconds with 95 per cent effectiveness.

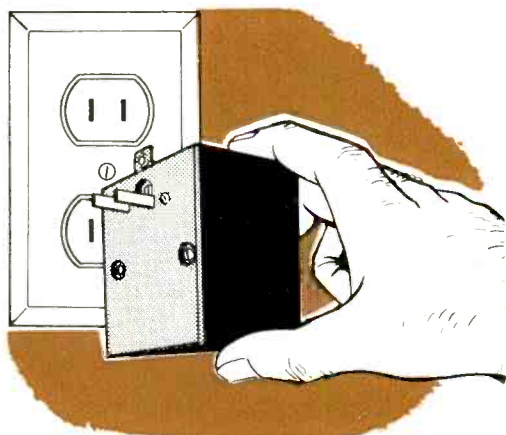
The 400 to 600 special generators needed will cost about \$50 million. The cost of the individual NEAR alarm box will be somewhere between \$5 and \$10. The cost of operation is negligible; less than 50 cents a year.

The Office of Civil Defense Mobilization says the system is perfected now but details as to production, installation, maintenance and operation of the system are being worked out by the OCDM, the power industries and manufacturers of electrical equipment.

Inside An Explosion

The U. S. Naval Ordnance Laboratory, White Oak, Md., has developed a motion picture recording technique which permits "observation" of the interior motions of an explosion which can only be inferred from external photographic records.

Devised by NOL's Explosion Dynamics Division, the technique provides rapid visualization of the solutions to explosion dynamic and flow problems obtained with an electronic computer.



NEAR would be simply inserted into a home receptacle. A small flange at the top of the unit with a punched hole in its center permits stable screw-in installation.

Each explosion and shock problem submitted to the computer for solution is set up as a grid system in which the intersecting points correspond to positions in the actual explosive system. "Detonation" is affected mathematically and the computer calculates and collects numerical data representing the motion of the grid points. Periodically, the new positions of all the calculated points of the grid system are simultaneously displayed as dots on an oscilloscope screen and photographed in a frame sequence.

When the individual frames are animated and shown in motion picture form, an invaluable overall picture of the explosion can be shown. As a typical example, a solid cylinder of explosive contained in a steel shell was mathematically "detonated" on the computer and its recorded sequence displayed on a motion picture screen. In this case, the detonation wave, the outward motion of the steel cylinder, and rarefaction wave sweeping back into the gas were clearly demonstrated.

On the other hand, the recorded sequence can be used for a frame by frame comparison to obtain such data as the speed and the increase in speed of the steel container parts as they fly out from the explosion.

This data is not obtainable to such a degree of accuracy from actual photographs of an explosion.

NOL scientists responsible for this new application of the recording method are Dr. A. D. Solem, Dr. Hyman M. Sternberg and Mr. Bernard E. Drimmer.

Electronic Movement



Technician above inserts "tuning fork" of microsonic electronic wristwatch which keeps time by vibrating 31 million times during a 24-hour period. It will not gain or lose more than a minute per month and runs for a year on a tiny power cell. This is same timing mechanism found in U. S. satellites. Bulova Watch Company, maker of "Accutron," believes it may eventually replace conventional type of watch mechanism now used.

October, 1961

New Portable TV Camera



Cameraman demonstrates new lightweight video-tape camera which was developed specifically for taping on-location commercials. The camera is handled like a U. S. Army bazooka anti-tank weapon.

MGM Telestudios has developed a lightweight, hand-held TV camera, which is said to facilitate the taping of commercials on location. The new equipment—a 40-pound, stripped-down version of the standard studio image orthicon camera—is fitted with a bazooka-type grip and is operated in the same manner as the military weapon. The cameraman holds it with one hand, braces it on his shoulder and sights through a specially-built finder.

George K. Gould, president and general manager of the MGM-TV subsidiary, claims the new camera produces commercials of equal quality to ones shot with standard video tape equipment. He says the camera, which is equipped with a Zoomar lens, solves the former taping problem of shooting in cramped quarters on location.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, JULY 2, 1946 AND JUNE 11, 1960 (74 STAT. 208) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF TECHNICIAN-ENGINEER, published monthly at Washington, D. C., for September, 1961.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, International Brotherhood of Electrical Workers, 1200 15th Street, N. W.; editor, Albert O. Hardy, 1200 15th Street, N. W.; managing editor, none; business manager, none.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.) International Brotherhood of Electrical Workers (an unincorporated labor organization), 1200 15th Street, N. W., Washington 5, D. C.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required by the act of June 11, 1960 to be included in all statements regardless of frequency of issue.) 11,644.

ALBERT O. HARDY,

Editor.

Sworn to and subscribed before me this 13th day of September, 1961.

(SEAL)

LAWSON WIMBERLY,

Notary Public.

(My commission expires September 30, 1962.)



STATION BREAKS

It Pays to Belong

Millions of the country's workers received wage increases last year. Many did not. Who got the increases? Who did not?

Thanks to the U. S. Department of Labor's Bureau of Labor Statistics those questions can be answered with unassailable facts, no matter what George Sokolsky, Henry J. Taylor or Westbrook Pegler may say.

The Bureau's figures show that wage increases last year went to 87 per cent of production workers in union companies as compared to 59 per cent of those in non-union companies. The figures also show that workers in 41 per cent of the unorganized plants received no wage increase at all.

The most common increase was between 9 and 10.9 cents per hour. This increase went to 30 per cent of the workers in organized firms and to only 8.9 per cent of those workers in non-union plants.

West Coast Boycott

IBEW members at Oakland, Calif., recently refused to handle scab-produced video tape offered by KXTV of Sacramento. Local 202 members at KTVU, Channel 2, turned down the VTR reel, pointing out that their contract with the station provides that they are not required to "handle or air any program produced or processed in an establishment listed as unfair."

The video tape involved in the boycott was of an ice show at the North Sacramento Arena, taped three weeks earlier by non-union technicians of KXTV, Channel 10. With KXTV standing as high as it does on the union unfair list, the deal died then and there, a strike publication of NABET reports. NABET-AFTRA pickets have been walking a beat at the station for more than a year.

Meanwhile, another West Coast boycott is in progress. AFTRA is seeking a strike settlement with KFWB, Los Angeles, and has asked other unions with members at the station to invoke a listener boycott.

Musicians Urge Local Music

The Musicians have asked the Federal Communications Commission to require all television stations to program some live, musical shows and revoke licenses when stations fail to live up to program pledges.

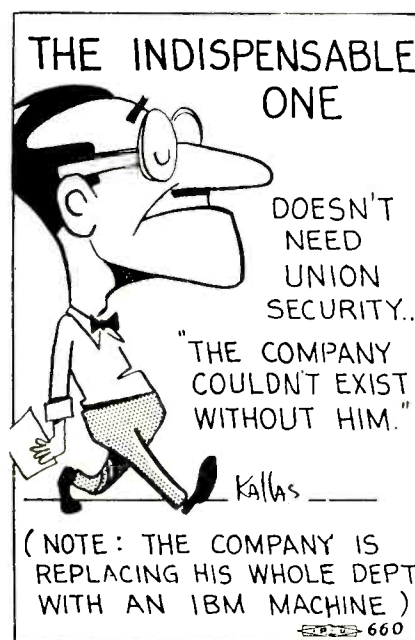
In a brief filed with the FCC commenting on the agency's rule-making proposals, the union endorsed a proposed requirement that applicants for a television channel be required to list steps they will take to encourage local musical and dramatic talent.

The same requirement, the Musicians said, should be set for radio broadcasting license applications.

The union said "live music as an outlet and opportunity for local self-expression . . . is practically nonexistent. It has been replaced by a garbage heap of tapes and cans and by unregulated Madison Ave. assumptions and dictations of public need."

To bolster their general drive for more local music, AFM has issued a booklet entitled "Subsidy Makes Sense," calling upon Congress for aid.

LAST LAUGH



Technician-Engineer

ALEXANDER BROWDY
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