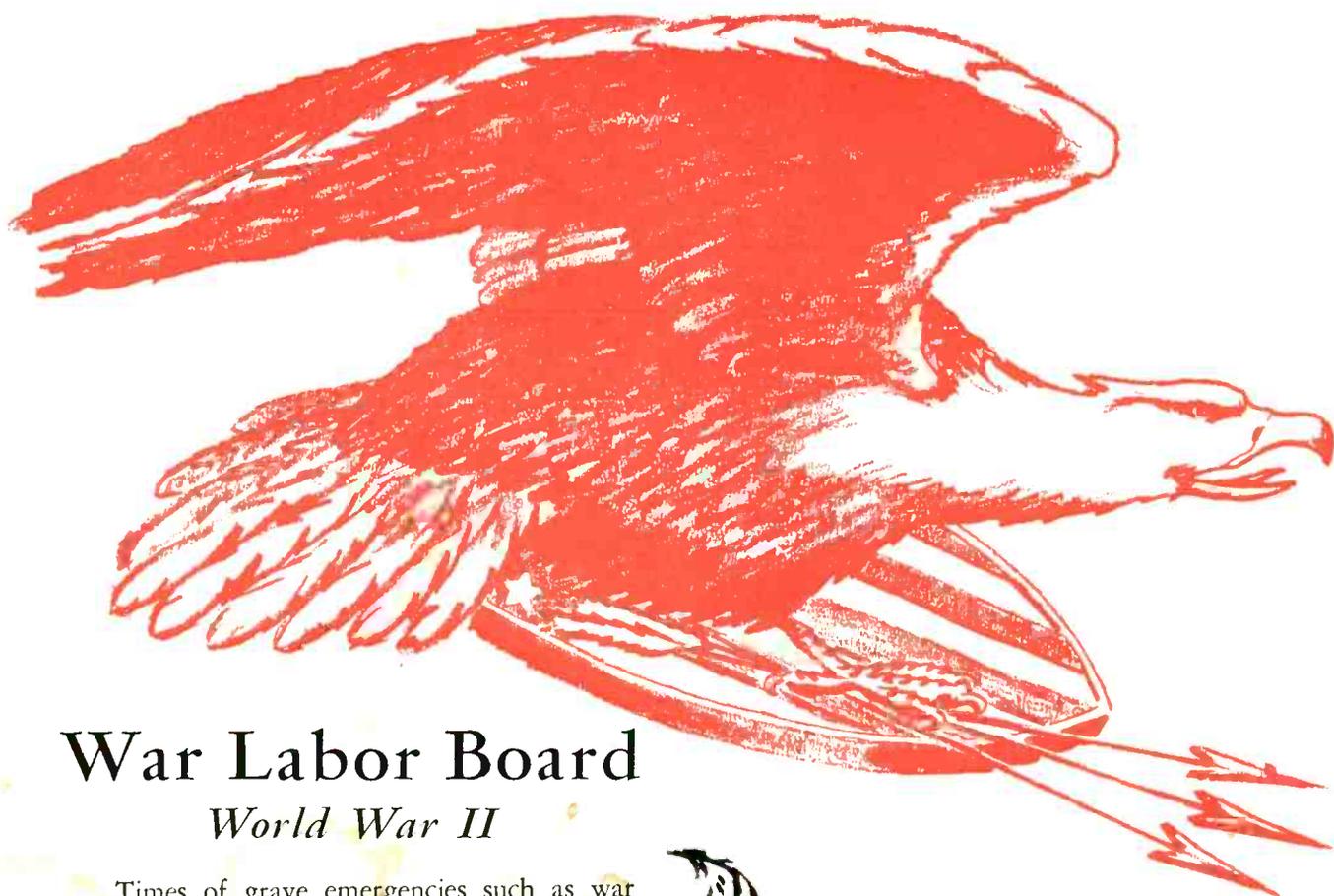


# TECHNICIAN ENGINEER

FEBRUARY, 1965

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



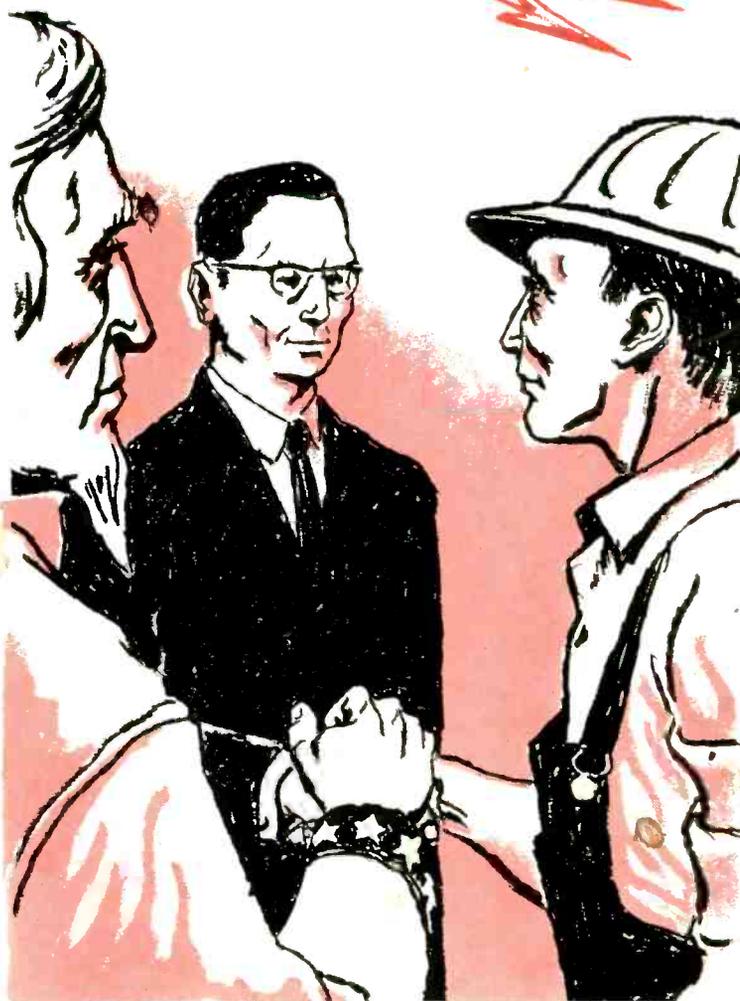
## War Labor Board *World War II*

Times of grave emergencies such as war impose special problems on both labor and management to keep the economy functioning successfully. This situation was especially true in World War II, during which the War Labor Board was established as a functioning agency.

While the Board did not please all, it set a record which might well be reviewed as one of substantial usefulness to the nation. It approved some 415,000 voluntary agreements, involving 20 million workers. It imposed 20,000 disputes settlements. It could and did recommend seizure in extreme cases — 40 times during the war period.

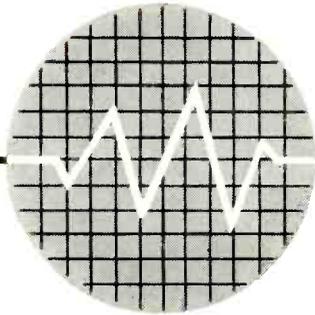
Although labor unions objected to some actions of the WLB, many advances were made in behalf of the workers. Recognition and growth of fringe benefits, equal wages for equal work by women workers, approval of vacation pay, health and insurance funds, maintenance of membership, etc., were among actions taken.

The work of the Board demonstrated the necessity of keeping the economy functioning at top efficiency and also of the role of the Federal Government in working with labor and management in this endeavor. The Board's record might well be called a landmark in labor relations progress.



Reprinted with permission from **THE LABORER**, official publication of the International Hod Carriers', Building and Common Laborers' Union of America.

The INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS  
 GORDON M. FREEMAN International President  
 JOSEPH D. KEENAN International Secretary  
 JEREMIAH P. SULLIVAN International Treasurer  
 ALBERT O. HARDY Editor, Technician-Engineer



# TECHNICIAN ENGINEER



VOL. 14, NO. 2  
 ALBERT O. HARDY, Editor

**in this issue**

<i>Broadcasting's \$2-Million Coverage of Inauguration</i> .....	4
<i>Electronic Indiana Voting Beats Union-Busters</i> .....	9
<i>The Labor-Management Whirl</i> .....	11
<i>Fast Coverage of the Churchill Funeral</i> .....	12
<i>Static Electricity Sparks Copying Boom</i> .....	14
<i>Technical Notes</i> .....	15
<i>Station Breaks</i> .....	16

**the cover**     *The inauguration of Lyndon Johnson and Hubert Humphrey as President and Vice President is the theme of our February cover. Our cover pictures show a portion of the reviewing stand in front of the White House, as it was seen by cameramen covering the event across Pennsylvania Avenue. The small picture at the top of the cover shows some of the President's special guests on the reviewing stand; AFL-CIO President George Meany is at lower left, and IBEW International Secretary Joseph Keenan is at lower right. Among the cameras covering the parade, lower right, is one which uses the new gyroscopically-stabilized zoom lens.*

**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 1963 figures: December, 1964—108.8; December, 1963—107.7.*

**commentary**     *Pres. Johnson's budget and economic report spell out in concrete terms his Administration's programs for achieving the Great Society. The emphasis on continuing economic growth and the federal government's role in aiding and stimulating that growth is proof, in the President's words, that "economic policy has begun to liberate itself from preconceptions of an earlier day. . . ."*

*The President said in the economic report that "I shall be prepared to consider additional fiscal action" if there are unfavorable developments during 1965 "unexpectedly making this budgetary stimulus inadequate to maintaining a strong pace of expansion."*

*A continuing and close review of economic developments is needed, especially in the early part of the year, to determine as quickly as possible the need for additional stimulation. For after the outstanding record of the past four years, a slowdown or leveling off in economic growth this year could only hold back progress toward the Great Society.*

—The AFL-CIO NEWS

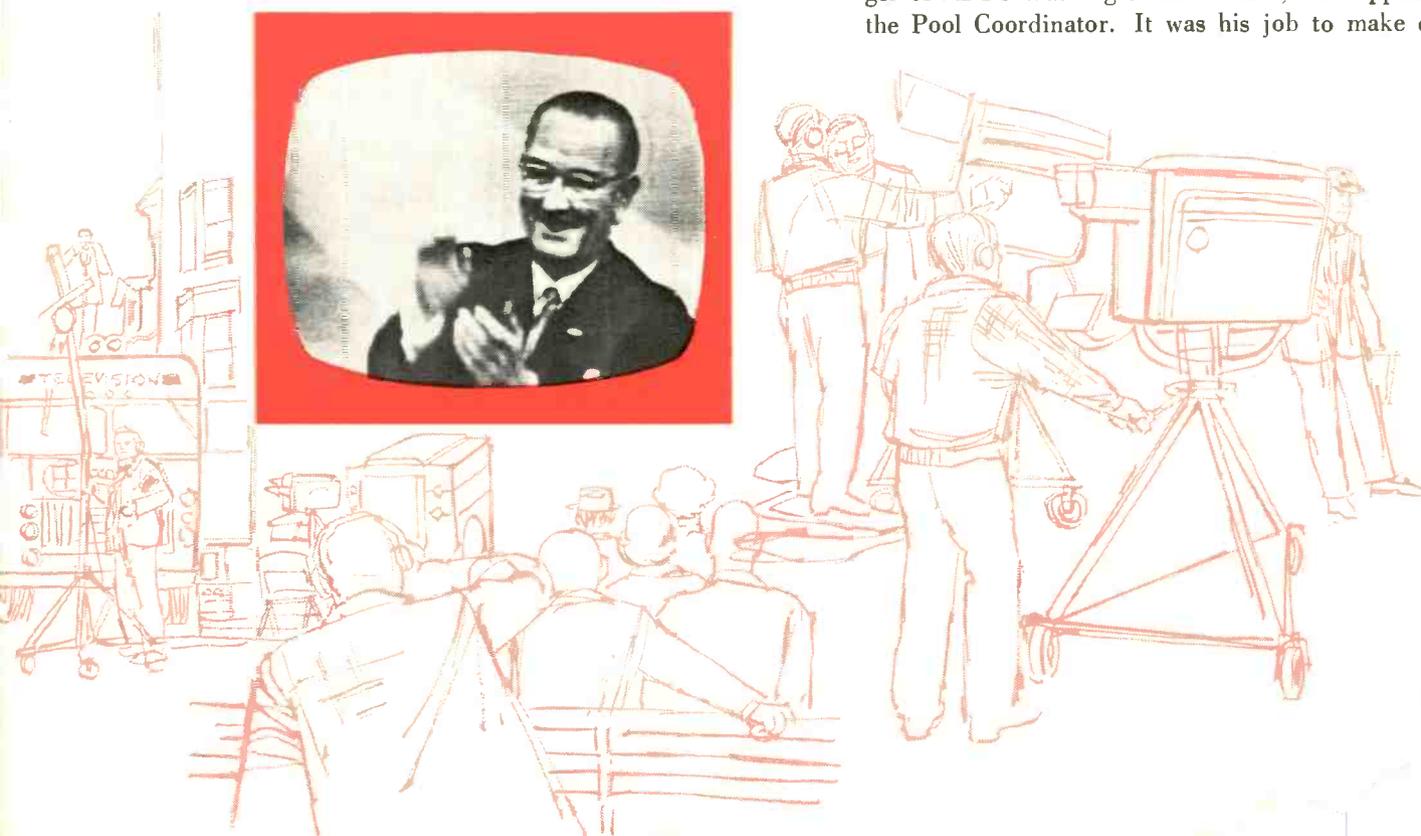
# Broadcasting's Two-Million-Dollar Coverage of the LBJ-HHH Inauguration



The networks jumped in and out of the pool to bring Washington's biggest celebration to a worldwide television and radio audience.

**W**HEN A PRE-PLANNED EVENT of great national interest and importance such as a Presidential Inaugural comes along, the principle of pooled coverage for radio and television is a practical necessity. Networks which have competed bitterly for advertising dollars and viewers' attentions join hands and emergency crews and work in peace, harmony and cooperation.

The Johnson-Humphrey Inaugural was, like all such inaugurals since Truman's in 1948 when television first appeared on the scene, a pool affair. John Lynch, manager of ABC's Washington news office, was tapped to be the Pool Coordinator. It was his job to make certain



that the participating networks (ABC, CBS, NBS, and Mutual) did the best reportorial job possible on the inauguration ceremony and the parade.

The tab for all radio and TV coverage ran to about \$2 million for the day. There were about 740 correspondents, engineers, executives and administrators involved. All their efforts centered on the inquiring eyes of 125 TV cameras, from Capitol Plaza to the edge of Lafayette Park across Pennsylvania Avenue from the White House and literally scores of mikes.

Despite the fact that all TV networks were privileged to pipe from any camera in the pool, each seemed determined that the box carrying their own legend be in what each considered to be the best position. (There has since been some consideration given to a plan to "black out" individual network designations on cameras and other equipment in the future, when they are engaged in pool activities.)

Telstar came into the inauguration TV picture for the first time, and Europe had live coverage of the event for the first time in history. CBS had the chore of sending 24 minutes of satellite transmission to Europe. Actually, the transmission was "almost-live" since it was videotaped, then sent via microwave from Washington to a ground station at Andover, Maine, from where it was beamed to Telstar II and relayed by the satellite to the British Broadcasting Company. From Britain it was relayed to virtually all of Western Europe, including the Iron Curtain countries of Czechoslovakia, East Germany, Poland and Hungary. The telecast came about 7:30 p.m. British time.

A problem for TV cameramen, only too well-known to viewers, is the vibration picked up by ultra-long lenses. CBS used a gyroscopically-stabilized long lens for ultra-close-ups during the inauguration. Although the distance from the camera to the stand where the inauguration ceremonies took place must have been half a block, CBS gave the vibration-less lens a thorough testing out by zeroing in, during the Inaugural Address, until the President's face filled the receivers' screens. It did not jiggle, thus justifying the faith of the firm which de-



Above: ABC's "Super" kept fresh tuners-in posted as to what was going on. Left: Texas' Governor Tom Connally, wounded in the assassination of Pres. Kennedy, was interviewed during parade. This is scene on screen. See also picture at center of page 8.



Battery of long-lensed cameras levels down on a marching unit as it marches past the Presidential Reviewing Stand.



Solid phalanx of electronic media autos passes down the parade route. From left: Mutual radio, NBC, CBS and ABC.

Left: CBS tried out its new gyroscopically balanced telephoto lens with good results.



An ABC him-and-her team in action across Pennsylvania Avenue from LBJ.





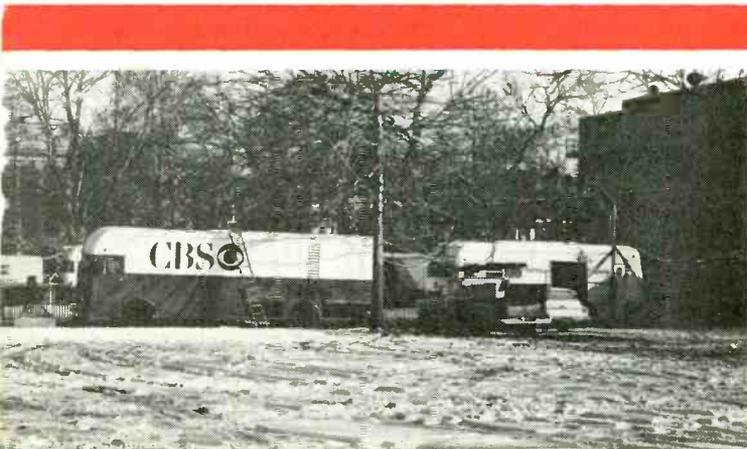
**At left: This installation atop the southwest corner of the Old Senate Office Building caught much of the inauguration plus wintry winds.**



**Inset below: On sidewalk outside Senate Building, this perch was built around traffic light.**

**Below: Vans housing the equipment for NBC's colorcast of the parade as it passed the White House reviewing stand were lined up in the snow which covered Lafayette Park.**

**Bottom of page: CBS vans were also parked on the famed (but snow-clad) Lafayette Park sod. Only NBC had color.**



veloped it, Dynasciences Corporation, Fort Washington, Pennsylvania.

Cameramen, technicians, and commentators ensconced in the stands at Lafayette Park across from the White House experienced considerable cold and hunger during the 1961 inaugural parade. They were cold because a huge pane of glass had to be removed when it was found to cast reflections and hungry because no food was available during the long parade. This time adequate electric heating panels were installed, and waitresses passed soup, sandwiches and hot drinks every two hours.

NBC-TV came off best in the national viewer ratings of the inauguration activities with a 17.7 ARBITRON rating (and a 52% share of the total network audience), CBS-TV followed with a 12.3 (36%) and ABC-TV tagged behind with a poor 4.1 (12%) rating.

One reason ascribed for NBC's higher rating is the "all-out" treatment it gave the inaugural. NBC started inaugural coverage at 7:30 a.m. and continued uninterrupted until 5:20 p.m. CBS started coverage at 10 a.m. and quit at 4 p.m. ABC opened at 10:30 a.m. and closed at 5:10 p.m. All three TV networks gave varying degrees of treatment to the five inaugural balls.

Plans for the technical facilities were made months in advance but a great number of days prior to the big one were long—and cold. None will ever know how many miles of cable were installed or how many changes were made or even exactly how many men were working on tons of equipment shipped in from all over the country.

The Inaugural Eve "Inaugural Concert" by the National Symphony Orchestra was broadcast from Consti-

**The pooled equipment for coverage of the inauguration was protected from the elements by the unheated steps of the Capitol. Personnel were dressed as for Iceland.**





*Left: Williamsburg marching unit in quaint colonial uniforms as they appeared on home receiver screen.*

*Right: CBS rented a Pitman Tower from sign company, normally used for service work. Mobile truck-mounted unit had maximum 60-foot-high reach. Bottom inset: NBC's "cherry picker," normally used on transmission tower repair, reached 85 feet if raised to maximum, a dizzying ride for operator.*

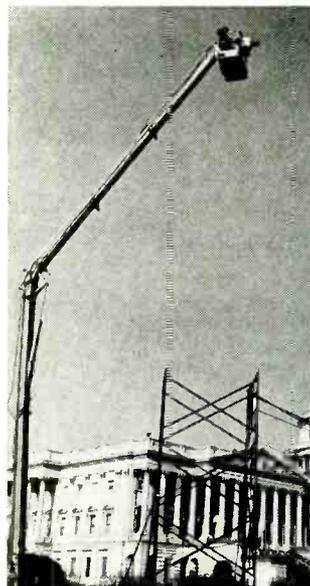


tution Hall. Unfortunately, only a Washington audience was afforded TV coverage of this event. CBS Radio carried the performance live; the television program was recorded on video tape and broadcast on a delayed basis by WTOP-TV, CBS' Washington affiliate. When existing lighting and program conditions are taken into account, this program must surely be accorded at least the appellation of "great". Done as unobtrusively as possible, with no real rehearsal and no special consideration for television, the technical crew truly turned in an outstanding job. Many compliments have been paid this crew (and quite justly so) for near-perfect audio, as well; an element so often leaving something to be desired by television. And in Constitution Hall, as those who have worked there know, a good audio pickup of any event is extremely difficult, at best.

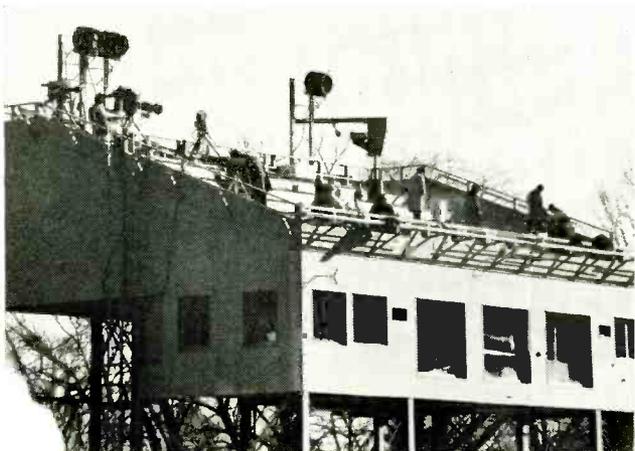
Technicians began their "longest day" at about 4 a.m. when, in pre-dawn darkness, they began to set up equipment. NBC put a cameraman in an 85-foot-high "cherry picker" generally used for work such as repairing transmission towers and power lines. CBS had the cherry-picker truck from a small Maryland fire department spotted on Pennsylvania Avenue, for a bird's eye view of the parade. Topping them all was a WTOP-TV crew at the top of the Washington monument. Their zoom lenses gave inspiring views of the front of the Capitol, the Lincoln Memorial and other skyline scenes.

Presumably, about 85 million people viewed all or portions of the inaugural.

NBC's color coverage was concentrated from the stand in front of the White House. There was no colorcast from the Capitol Plaza for lack of available space for the bulkier color cameras. Booths there were 12½ feet



*Below: Equipment begins to be set up in the stands for TV and radio across from Presidential stand. Big lights were not needed for end of parade since it was briefed.*

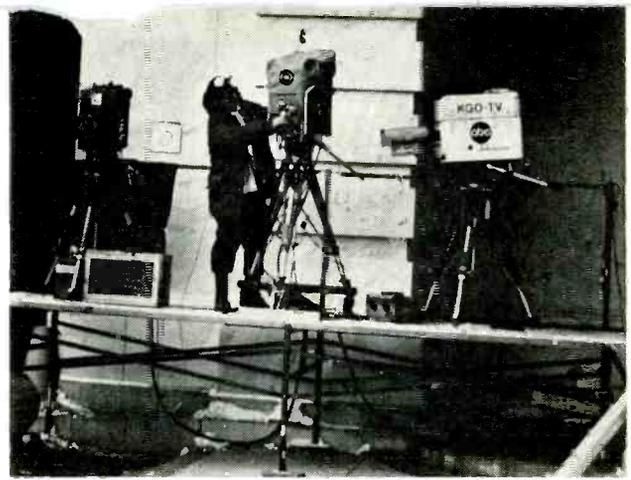


*"They also serve who only stand and wait" was never more true than when the inaugural events were to be covered. Many units spent more time standing by than operating.*

*Many in the crowd carried non-electronic "viewers" in the form of periscopes made of cardboard, but the best view of the affair was on the home TV screen.*



At right: These cameras and their operators, clad as if for Arctic explorations, were placed to cover arrival and departure of dignitaries at the Capitol.



deep. A request has been made for a five-foot extension at the inauguration in 1969 to allow color cameras.

Camermen worked in the open air atop the newsstand erected facing the portico of the Capitol in the cold weather. Beneath them, enclosed and considerably warmer, were the radio network newsmen, TV commentators and cameras trained on the latter.

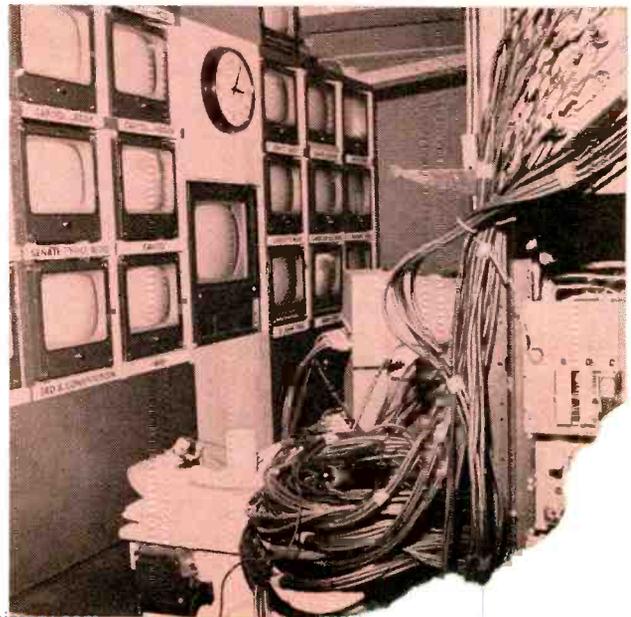
"Creepie-peepies" were valuable for obtaining spectator-eye views of the marching units and close-ups of the pretty girls who starred in the passing parade.

Most unbiased observers agreed that the best seat for seeing the events connected with the inauguration was before a television receiver. Real "aficionados" rolled the portable in with the family console and kept monitoring at least two of the three channels, according to many reports.

Most of the previous inaugurations have had big bombers and jet planes roaring and swooshing overhead with a generous larding of military hardware into the line of march. LBJ said NIX. As a result, the parade lacked a lot of the military pomp of former ones.

TV news department personnel are now largely content to sit back and enjoy a brief lull. Most of them have been on the go since last summer when the political conventions began, followed by the campaigns, followed by the elections, followed by the inaugural, followed by a great big long sigh . . .

Extent of installations and intricacy of same, which contributed to total cost of \$2 million for coverage, is indicated in view of portion of NBC's master control which was located in the historical Willard Hotel.



Real red-blooded All-American boy and girl gave color to the inaugural parade

Below: Texas Gov. Connally was interviewed by ABC as he rode in the parade, was possibly first time such a coup was effected. See page 5 for what was result.



Smart marching unit with shiny helmets swings along to cadence count.



# Union-Busters Beaten In Electronic Indiana Voting Action

## INDIANA REPEALS 'R-TO-W'

For the first time since 1957, the workers and employers in Indiana have the right to negotiate union shops in their contracts. This was brought about by that state's repeal of its "right-to-work" law, last month.

Upon hearing the news that the state legislature had voted overwhelmingly to scrap the anti-union statute, AFL-CIO President George Meany termed the repeal "good news" for Indiana and "a heartening portent of things to come" for the 19 other states.

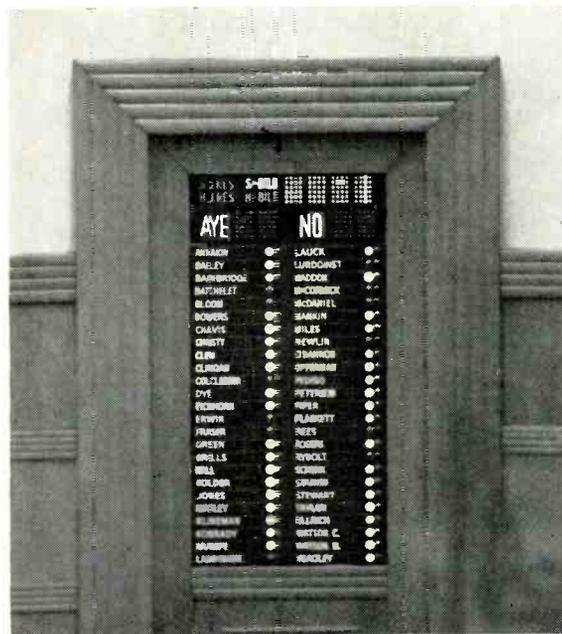
He expressed confidence "that Congress will follow the Indiana example" by repealing the "unique and inequitable" Section 14(b) of the Taft-Hartley Act, "which has made it possible for short-sighted anti-labor forces to saddle America with so-called 'right-to-work' laws."

## The Government Can Take it or Leave it

General Electric, which operates its labor relations policies on the basis of the notorious philosophy of Boulwarism, was cited by the NLRB for bargaining in bad faith by employing a take-it-or-leave-it attitude toward negotiations with unions.

A short time afterward, the conservative New York Herald Tribune reported that big business and industrial firms were adopting a take-it-or-leave-it attitude in their commercial negotiations with the U. S. Government. In case after case, private contractors doing business with the Government have refused to open their books to permit auditors to check whether the nation's taxpayers are getting a fair shake or a gypping.

In one recent instance, the U. S. Comptroller General found that Alcoa, in making aircraft forgings, refused to let auditors look at its cost data. But the Government found that Alcoa's "prices exceeded production costs by nearly \$900,000 or an average of 51 percent." Sonotone Corporation, producing storage batteries for the Air Force, also refused to reveal its data, but the Comptroller General found that on one contract for batteries the price "exceeded cost by about \$704,000 or 58 percent." The newspaper concluded, "As noted by one U. S. official, many companies which are the sole source of equipment essential to the U. S. tell the Government to 'take it or leave it.'"



The electric scoreboard on the wall of the Indiana Senate Chamber illuminates the 38-12 vote for repeal of the state's "right-to-work" law. The lighted bulbs, beside each name, register the vote for repeal.

The repealer was signed by Governor Roger D. Branigin (D), on January 28, who noted that the repeal was "in the public interest" and that it was the first bill passed this year.

Led by labor and a broad coalition of citizen groups, Indiana's repeal drive began immediately after "right-to-work" was steam-rolled through a Republican-controlled legislature eight years ago.

## ELECTRONIC VOTING PUSHED

In the October issue, we made note of a proposal by Rep. Everett Burkhalter (Dem.-Calif.), that Congress adopt an electronic, push-button system of voting.

Recently, Senator Russell Long, Senate Majority Whip, came out in favor of getting such equipment in the Senate.

Under the present system, it takes about thirty minutes for the House staff to call the roll. In contrast, electronic voting takes only twenty to thirty seconds. Of course, the Senate vote would take even less time.

It is interesting to note that thirty-one states already have this equipment in one or both of their legislative houses, including Sen. Long's home state of Louisiana.

As was stated in our previous article, each Congressman would have two buttons on his desk. Upon pressing one button or the other, his vote would be recorded in half a minute, on a huge board located somewhere on the floor of the House. On this board would be each Congressman's name with a red and a green light beside it. Red would indicate a "no" vote, and a green, a "yes" vote. This vote would also be electronically recorded on paper.

## MISSISSIPPI SUIT FILED

### ***Protection for Brotherhood Organizers***

Confronted with threats of mob violence in Simpson County, Miss., interference from police who not only failed to provide police protection, but interfered with and halted the distribution of union handbills and other obstructions, representatives and members of the International Brotherhood of Electrical Workers (AFL-CIO-CLC) filed suit in the Federal District Court in Jackson, Miss., on January twentieth. The suit alleges a conspiracy on the part of some 20 state and local officials and others, and asks for protection of the constitutional rights of I.B.E.W. organizers and \$125,000 in money damages for injuries inflicted by the defendants.

The I.B.E.W. is seeking to organize the employees of the Simpson County, Mississippi, plant of the Universal Manufacturing Corporation, a wholly-owned subsidiary of the Philadelphia and Reading Corporation of Philadelphia, Pa.

The Universal plant was built with the proceeds of a county bond issue of \$1,200,000 and furnished to the corporation by the county. The plant is located between the cities of Magee and Mendenhall, Miss. The mayors of both cities and their aldermen are named as defendants together with State Highway Patrol Director General T. B. Birdsong, C. G. Rotenberry, Mayor of Mendenhall,

and O. J. Biglane, Mayor of Magee. Company officials are also joined as defendants.

The two International Representatives assigned to this project, E. C. Fiering and Wallace G. Wickliff, were threatened with injury or death by a mob of 8 at their lodgings on May 24, 1964, if they did not leave Simpson County, Miss., within 12 hours. They allege that attempts to obtain police protection and the arrest of the mob were fruitless. In addition to the two International Representatives, two I.B.E.W. members, local residents of Mississippi, are named as plaintiffs in the action, Billie C. Eisert and Estes Taylor.

Dixon L. Pyles of Pyles and Tucker of Jackson, Miss., filed suit here. Associated in the legal proceedings are Sherman, Dunn & Sickles of Washington, D. C.

On December 14, the I.B.E.W. found it necessary to file a suit in the Federal Court under the civil rights statutes attacking the constitutionality of Jackson's anti-handbilling ordinance. I.B.E.W. International President Gordon M. Freeman then pointed out that the 850,000 member organization has 22 local unions in Mississippi dating back to 1927. These local unions now have collective bargaining agreements in Jackson, Meridian, Vicksburg, Pascagoula and in ten other Mississippi cities.

## THANKS TO C.O.P.E.

### ***Second Installment of The Tax Cut***

For almost a year now, you've been taking home an extra 7½ cents an hour as a result of the tax cut of 1964. That adds up to a good piece of change in anybody's book.

You know what helped make it possible? Your COPE dollar, the buck you gave to the AFL-CIO Committee on Political Education. Here's how:

Your dollar joined others voluntarily contributed by union members. Together, they helped elect liberal candidates to the U.S. House of Representatives and U.S. Senate. And the overwhelming majority of these COPE-supported candidates voted to cut your taxes, to give you more spending money.

The total cut will add up to 7½ cents an hour more in take-home pay for you and your family.

So, you can look upon your COPE dollar as an investment that pays dividends.

Of course, there's more to be done, much more. And this means more COPE dollars will be needed.

For example, pivotal congressional elections are coming up in 1966. These could be make-or-break for Great Society programs.

Traditionally, off-year congressional elections bring a sharp drop-off in House and Senate seats held by the party in control of the White House.

Because many liberals captured seats in normally conservative districts as a result of President Johnson's sweep in 1964, the threat of such losses will be doubly dangerous in 1966.

The conservative forces know this, too. The political arm of the National Association of Manufacturers has launched its fund and organization drive and already has announced it will zero in on 102 marginal House seats in 1966, most of them now held by liberals.

Also, the medical association's political action arm, AMPAC, has sent out this call to doctors: "The time has come to begin work for tomorrow."

So the conservatives will be busy between now and November, 1966. They mean to bring about the biggest off-year party switch in history.

Would you rather fight, or switch?

You can fight, and you can start now by contributing your dollar to COPE.

# THE LABOR-MANAGEMENT WHIRL

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



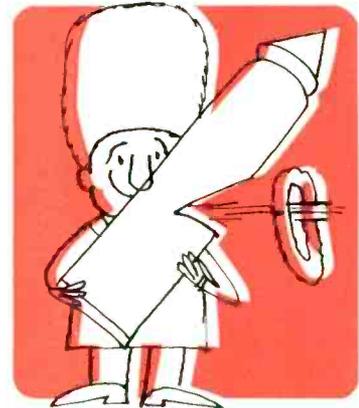
## Automation Is Good for Janitors

● IN LOS ANGELES, automation backfired at the six clothing stores of Phelps Terkel and, to the general rejoicing of employees, the punch card accounting system was junked. Phelps Terkel customers received with their monthly bill the usual punch card with this message on the back: "Please fold, bend, mutilate or staple. You are holding the last punched card you'll ever receive from Phelps Terkel. We've tried to make our peace with automation, but it hasn't worked. Consequently we are reverting to our slightly archaic—yet highly personalized—accounting methods. We think you'll like it better; we know we will."

Actually, the unhappiness of its customers was only part of the reason why Phelps Terkel discarded automation. Sheer inefficiency was the other part. "We figured we'd had it from the big, brainy machine," said one company official, "when it issued one of our janitors a pay check for \$5,000 for two weeks' work!"

## The Cost of Whistles Is Going Up

● IN NEW YORK CITY, the magazine, Good Business, related the story of an American manufacturer who was showing his plant to a prospective customer from behind the Iron Curtain. When the noon whistle blew, thousands of men stopped work and hustled out of sight. "They're all escaping," the amazed visitor cried. "Can't you stop them?" "Oh, never mind," said the amused manufacturer, "they'll all come back." And to the further amazement of the visitor they did—when the starting whistle blew. Later, concluding the plant tour, the manufacturer said, "Now I hope you have decided to buy some of our machines." "We'll talk about the machinery later," said the still-shaken visitor. "Right now, tell me, how much do you want for that whistle?"



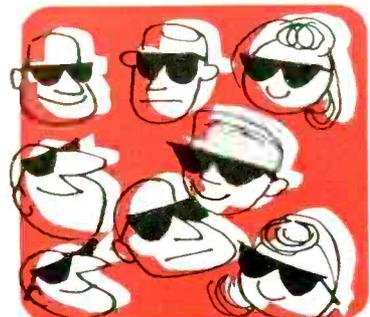
## To "Luv" Is a Habit

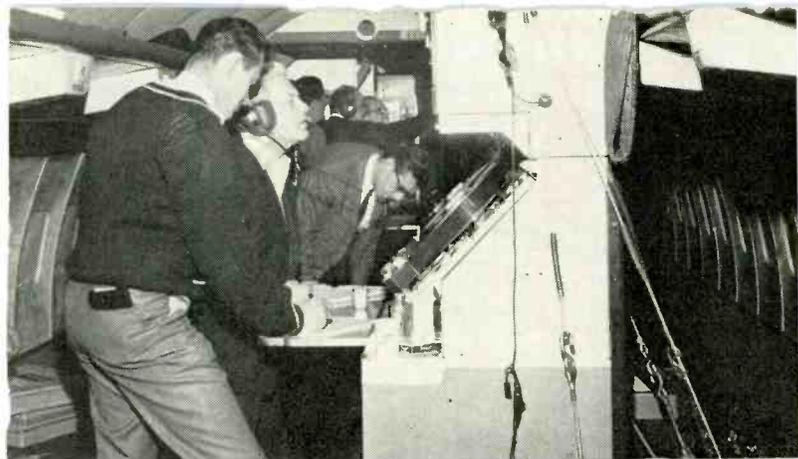
● IN YORK, ENGLAND, union telephone operators were surprised to find the public on their side—or at least the male half of the public—in a battle over their right to use a term of endearment to customers. At issue was the traditional practice of the operators addressing men customers as "Luv." After many decades of accepted usage the telephone company suddenly decided that "Luv" was undignified and ordered the girls to substitute "Sir." In short order the males of the community rebelled and some even threatened to have their phones removed. The company quickly discovered that no amount of instruction or threatening could induce the girls to give up "Luv." "Luv" was just too deeply ingrained a habit, and that's how the operators will continue.



## Wear Sunglasses!

● IN LOS ANGELES, CALIF., a technique by which factory foremen can tell which workers in the plant dislike them—and conversely let workers know if the boss harbors an antagonism toward them—was suggested here by Dr. Eckhard H. Hess. He reported that when individuals look at something they like, the pupils of the eyes grow larger; when they view something they dislike, the pupils contract. The technique proved itself among a group of university students who favored President Johnson's candidacy. There was one puzzling aspect of the test, however. The pupils of the pro-Johnson students enlarged 4% to 5% when they viewed the President's picture, but enlarged as much as 41% when shown pictures of the opposite sex.





Views of the NBC crew and equipment aboard the Boeing 707, getting ready for the race with time.

## BROADCASTING'S MOVING TRIBUTE

# Unprecedented Transatlantic Coverage Of Winston Churchill's Funeral

**T**HE significance of the death of Winston S. Churchill prompted the U.S. broadcast industry to call forth extraordinary and unique measures to bring the moving spirit of his funeral to the American viewer.

For the first time in electronic journalism, this major news event was edited and shaped into a TV news special in mid-air. For its network presentation at 4:00 PM, EST, on Saturday, January 30, NBC removed many of the seats from a TWA Boeing 707 transport, and installed two RCA TR-22 television tape machines, for mid-air editing and narration of BBC and network tapes recorded in London.

TV coverage of the earlier funeral events—lying in state at Westminster Hall, and visits by the Royal family, Churchill's friends, and respectful British public—had already begun in the U.S. This was provided by video tapes flown back, as well as by live Telstar broadcasts when the satellite was in favorable positions.

CBS set up its editing facility at Halifax, Nova Scotia. Videotapes picked off the air in Ireland were put aboard another jet liner and whisked to Halifax. There, two videotape machines installed by crews from Boston and Montreal were used to edit the programs. Microwave links relayed the signals to Canada, and from there they were carried by cable to U.S. viewers.

Telstar also played a remarkable role in the coverage. Twice during the day of the funeral, once in the early morning and again in early afternoon, it was in a position to relay pooled funeral coverage directly from London to the U.S. Many viewers saw a remarkably good live picture, underscored with the simple explanation, "via Telstar."

But the broadcast industry had no monopoly on the use of jet-speed facilities to beat tight deadlines with comprehensive coverage of the Churchill funeral. LIFE magazine, even though it delayed its deadline three

days to get full color layouts of the funeral in its February 5 edition, still needed the magic of 600-mph transport, for a working crew of editors, to put the magazine on the presses.

Tailored to the requirements of the printed word-and-picture press, LIFE's stratospheric editorial office accommodated a photo laboratory with six technicians, and the facilities necessary for 34 other editors, writers, reporters and typists. Thorough forethought had even put a compact library related to Churchill, his time and his places, on board.

**N**BC's facilities, however, required the most detailed preparation and coordination. Late Wednesday night, January 27, a crew of NBC technicians from New York moved into the cabin of the Boeing 707, already gutted down the right side by removal of the seats. For more than a day—mostly without sleep—they installed and checked out the two videotape machines. Just after 10:00 PM on Thursday, it was time for the crucial test flight, which would determine if there was any adverse interference with the plane's navigation and communication equipment from the tape machines and two generators carried aboard the plane. Also, the technicians wanted to make sure the plane's signals would not interfere with the tape equipment.

Tape machines had never operated above 5,000 feet before, so there were some unknown elements in the entire operation. If the machines failed at the 28,000-foot cruise altitude of the jet liner (most of the equipment was in the passenger compartment, held below 10,000 feet by pressurization) the preparation and planning time would have been for naught.

Just after midnight on Friday, January 29, the airborne television editing studio got the OK. No interference either way, and it was ready for the editorial personnel.

By 4:00 AM Friday, the technical crew had been joined by about half a dozen editors, directors and reporters and the plane was on its way to England. David Brinkley arrived later by a commercial flight.

Brinkley's job, with the assistance of Frank Slingland, who works with Brinkley in the Washington NBC offices, was to get on-the-spot coverage of the funeral procession in the Ludgate Hill area. This was to be incorporated with the BBC pooled feed material, and edited down to a 50-minute program.

About 3:00 PM Friday, London Time, the editorial and technical crews were on the runway at London Airport. All but two of the complement were going to be tied to the aircraft until a departure around noon, London time, the next day. Last-minute checks had to be run on the equipment during the afternoon and evening, and some of the preliminary events put on tape.

**W**ITH the start of formal funeral events Saturday morning, the crew began a steady pace of work that would last until late that evening. Pooled BBC signals, with background noises but no commentary, were fed into an NBC mixer location elsewhere at London airport. From the BBC feed, NBC collected about five hours' worth of tape. There were also the signals from the NBC mobile units covering the Ludgate Hill procession, with Brinkley's commentary.

After mixing, these came into the plane via video and audio lines. During the morning, some preliminary editing was done in the aircraft, but the bulk of it had to wait for the conclusion of recording and departure for New York.

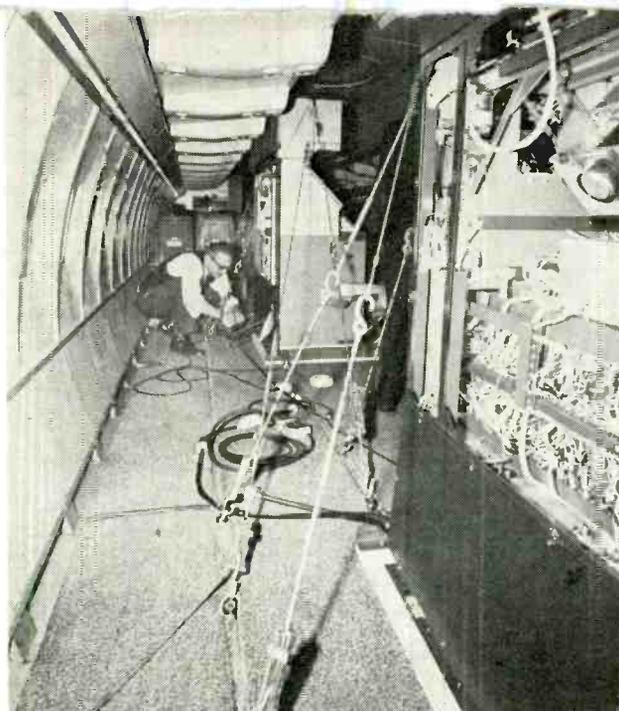
At about the time that Churchill's coffin was piped aboard the special barge for its voyage on the Thames, David Brinkley sped to the airport, the plane was closed up, and headed back home.

Almost as soon as they were airborne, the editing began. For close to seven hours, tape was cut and commentary was written. The last splice was made just about the moment that the "fasten seat belts" sign blinked on in the cabin.

Brinkley was provided with a soundproof studio on the plane, for recording additional commentary as he reviewed the edited output. The booth had to be proof, of course, from the sound of the engines as well as the other noises of flight, a difficult trick to pull off in the limited time that was available.

Waiting at TWA's gate 7 at Kennedy International were temporary studio facilities for actual broadcast of the taped material and some live Brinkley commentary. Seats had been removed from the passenger waiting area, and 2 mobile units moved in for Brinkley's arrival.

He rushed from the plane to the Gate 7 Studio, and made final preparations just in time for a 4:00 PM EST air time.



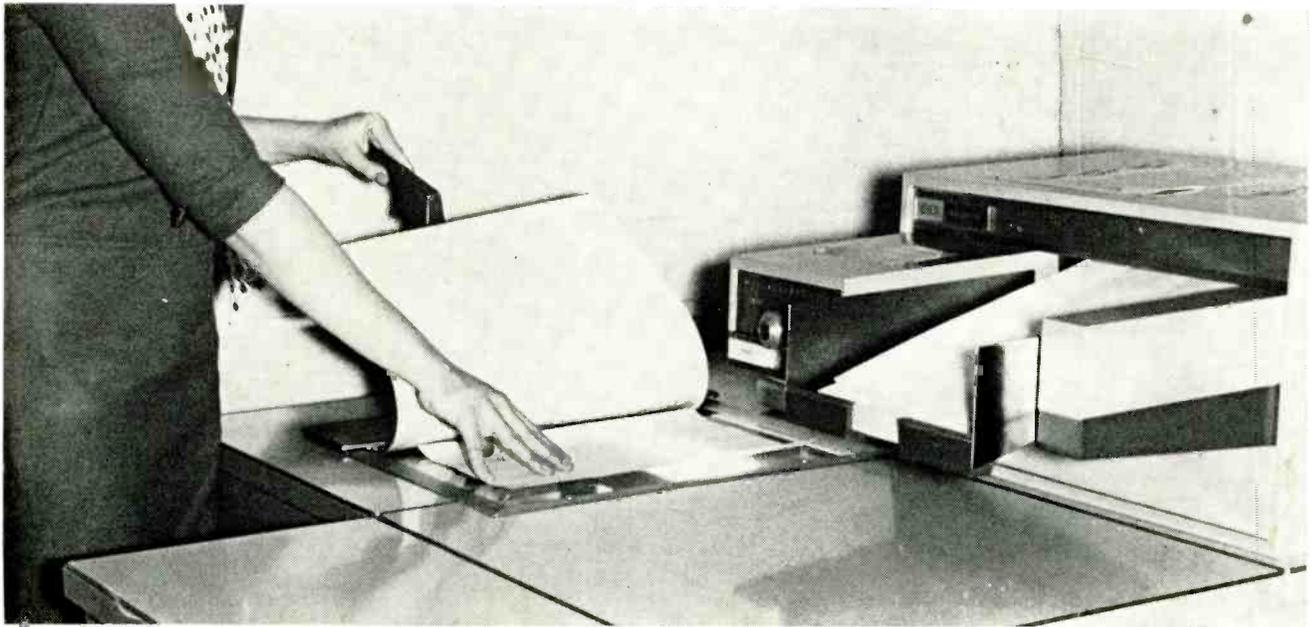
*An NBC technician checks the cables securing the special video tape equipment to the cabin of the plane.*



*Commentator David Brinkley gets a preview of the edited tape, as he prepares his narration.*

The bone-weary crew of technicians who had set up and cared for the special jet editing studio were happy to relinquish the aircraft to others on arrival. About the time that Brinkley was rushing to Gate 7, the aircraft was beginning a trip to Hangar 12, where it had initially been converted to a flying studio.

There, another rested crew was waiting to strip the electronic equipment, and return the aircraft to the more mundane job of passenger transportation.



## Static Electricity Sparks Copying Boom

**IT ALL STARTED IN A ROOM BEHIND A BEAUTY PARLOR ON LONG ISLAND**

**S**TATIC ELECTRICITY, which makes hair crackle under a comb, has sparked a worldwide copying boom.

Electrostatic copying of information that needs to be duplicated is fast, easy, and economical. By pushing a button, a secretary can make an exact copy of almost anything. The machines require so little effort and skill that a company experimentally taught a chimpanzee to operate one. The cost per copy is only a few cents. Most important of all, stenographers are freed from time-consuming typing chores.

The method does not require any pressure on the paper or other material. Hence it can be adapted to such unlikely surfaces as a potato, a cotton ball, a pill, or the yolk of a raw egg.

Xerography, or dry writing, is probably the most popular electrostatic process, the National Geographic Society points out. Its inventor, Chester Carlson, was working as a patent attorney when he noticed how much trouble it was to make copies of patents. In 1935 he began trying to find an effortless way to reproduce documents. Since several large companies were already experimenting with chemical processes, he turned to static electricity.

Carlson was experimenting in a room behind a beauty parlor in Astoria, Long Island, when he finally made xerography work. Using a cotton handkerchief and a sulfur-coated aluminum plate, he successfully transferred the notation "10-22-38 Astoria"—the date and place of his discovery.

Not surprisingly, the attorney drew up all-encompassing patents to protect his invention. He received his first patent in 1940, but could not persuade any manufacturer to build and market the machines. Finally, in

1944, the Battelle Memorial Institute, of Columbus, Ohio, agreed to develop the process in return for a share in the royalties. Eventually, it reached a manufacturing agreement with the Haloid Company (later the Xerox Corporation).

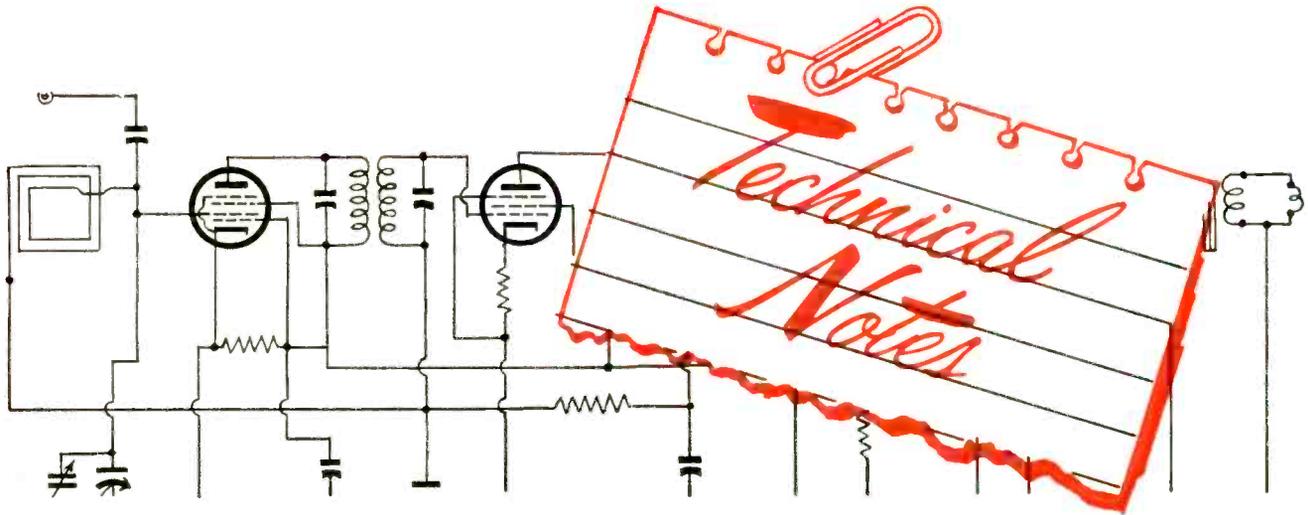
The first machine reached the market in 1950. Sales were slow. In 1960, however, an improved model appeared and was an immediate success. The machine could register the image of almost anything, including a little girl's rag doll.

Other companies, among them American Photocopy and Smith-Corona Marchant, have now brought out dry copiers. Inventors have also improved wet chemical methods. With the office copying machine becoming as popular as the water cooler, salesmen are promoting more complex machines that require some training to use.

An article to be copied is placed on a xerographic machine's "window." The image is reflected by mirror onto a drum charged with static electricity. The drum has been coated with the chemical element selenium, which has the curious property of conducting electricity in light but not in darkness.

The positive charge drains away from the lighter parts of the image's black-and-white pattern on the drum. Next a fine black powder, or toner, is released over the electrified drum. The powder sticks to the dark areas of the image to be reproduced.

A piece of ordinary paper is now placed over the plate and given a positive charge. The charge attracts the powder from the plate and forms a visible image on the paper. The paper is heated quickly to melt a resin in the powder and fuse the image, thus completing the process



### NEW COLOR-TEMPERATURE VALUES

The National Bureau of Standards has recently revalued the lamps it maintains as the national color-temperature standards. In this revaluation, it was found necessary to increase slightly the values for the voltages required to produce particular color temperatures. The same increased values should be applied by users of lamps recently issued by NBS.

Color appraisals of industrial materials and manufactured products are often made by visual or photoelectric inspection under a standardized light source. Such a source is frequently a tungsten-filament incandescent lamp calibrated by the NBS Institute for Basic Standards. Each year, dozens of these lamps are issued with an accompanying report listing each of the voltages required to make the lamps operate at specified color temperatures.

In addition to their color-control applications by industry, the Bureau-calibrated incandescent lamps have other uses. For example, they may serve directly as color standards for incandescent lamps, or they may be employed to check the performance of photocells and photographic materials.

It is recognized that, with use, slight increases in the values assigned to the voltages may become necessary to make the lamps operate at the color temperatures given in the report. Hence, the standard lamps maintained by NBS for conducting lamp calibrations are periodically revalued by comparison with the national color-temperature scale.

### ZENITH DOUBLES ON COLOR

Zenith Radio Corporation has announced that a major color picture tube production facilities expansion program now underway will almost double the company's production capacity for all types of color TV picture tubes.

Joseph S. Wright, Zenith president, said that despite the company's rapidly expanding production of color

picture tubes this third major expansion of Zenith's \$15,000,000 color tube plant was required to keep pace with the explosive growth of color TV set sales. "Our color tube plant is working around the clock on a three-shift basis," he said, "and we are working overtime at the main plant to build extra color sets to fill our record backlog of orders."

### ONE-IN-FOUR WRENCH



A new socket wrench, called "Sock-a-Matic," does the work of four individual wrenches. The new tool, produced by Silverbrook Manufacturing Company, eliminates the need to select a new socket wrench for each different size hex head type screw or nut. Instead, the wrench is pressed over the nut or screw and turned. The proper size hexagon socket automatically "socks" onto the screw or nut. Insert sizes are 1/4-inch, 5/16-inch, 3/8-inch, and 7/16-inch.

### RESPONSE TO REQUESTS

In our December issue, we ran a short article about stainless steel pliers. Those interested in further information about these pliers can contact: Witherby Products Division, John H. Graham & Co., Inc., 105 Duane Street, New York, N. Y. 10008.



# STATION BREAKS

## IN MEMORIAM

It is our sad task to record the passing of Brother O. H. "Doc" Graham, Business Manager of Local Union No. 253, Birmingham, Alabama, on January 24, 1965. "Doc" suffered a coronary attack and was hospitalized in Birmingham for only a few days prior to his death.



GRAHAM

He was very active in IBEW affairs and in civic interests. He was also well known for his geniality, his concern for his fellow man and selfless devotion to the cause of organized labor. He was born in 1910 and was initiated by Local Union 253 just a few days after his 25th birthday. He became the Business Manager of his Local Union in 1959 and his sixth anniversary in that post would have almost exactly coincided with the 30th anniversary of his membership this year.

## CHARGE PLAN DOESN'T ORBIT

El Lago, a new community of about 1,000 persons south of Houston, Texas, and "the home of the astronauts," decided a few weeks ago to start charging the radio and TV stations and networks for the privilege of broadcasting near astronauts' homes. Since newsmen had to saturate the town during space flights, the city council proposed an ordinance calling for a \$250 filing fee, \$500 for the first 72 hours of operation of heavy broadcasting equipment and \$150 a day thereafter, plus the posting of a \$500 bond to assure that no city property is damaged.

Mayor George Walraven said that the city wasn't out to make money in space flights. The money would be spent to pay special police to control crowds during the flights. (The town has only a lone marshal.)

Now the plan has been scratched, because the Harris county sheriff's office has agreed to maintain order.

## SUPREME COURT BACKS CATV

A renewal of Wall Street interest in the community antenna television (CATV) industry has been triggered

by a recent Supreme Court decision. A lower court decision was upheld by the high court, which permits a CATV operator to send signals by direct wire from an antenna receiving three Salt Lake City stations into territory served by station KLIX of Twin Falls, Idaho. The audience for this CATV operation, which now numbers some 1.5 million, is expected to increase 20 per cent annually, due to the elimination of this legal obstacle, at a cost to each subscriber of up to \$100 for installation, plus \$4 to \$5 per month. A CATV system provides a natural base for subscription TV, should it ever come into being.

## KNIT-WIT TAPE RECORDER

Here's another use for the family tape recorder, as suggested by *Popular Science* magazine: put your wife's knitting instructions on tape. After a little practice, you can dictate them at about her knitting speed and, in addition, a foot switch will enable her to stop the tape whenever she pleases.

## LAST LAUGH



842

CARL STANWITZ

"I know how you feel, Sam. I felt the same way when I first joined the Union!"

JACK O'CONNOR  
1573 HAZELIN  
MAYFIELDWOOD CA  
1965