

RADIO, TV and RECORDING

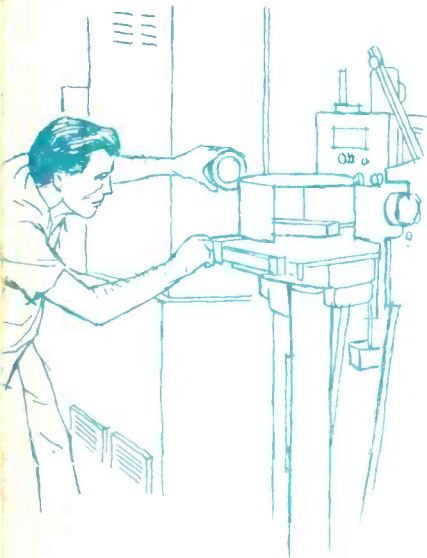
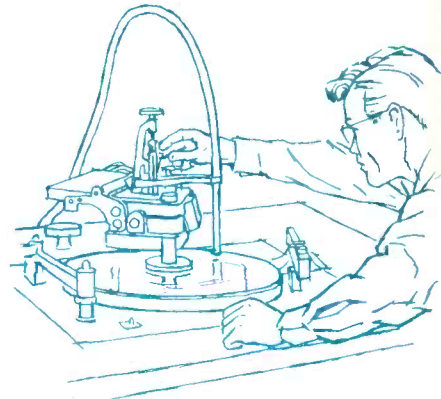
TECHNICIAN-ENGINEER



AUGUST, 1955



GORDON M. FREEMAN



RADIO, TV and RECORDING TECHNICIAN-ENGINEER

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The INTERNATIONAL BROTHERHOOD of ELECTRICAL WORKERS

GORDON M. FREEMAN International President
JOSEPH D. KEENAN International Secretary
W. A. HOGAN International Treasurer

ALBERT O. HARDY

Editor, Technician-Engineer

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... the cover

The new International President of the IBEW is portrayed on our August cover. Gordon M. Freeman succeeds the late J. Scott Milne to the top post of the Electrical Workers' Brotherhood. A veteran of IBEW affairs on the local and district levels, Brother Freeman now assumes the leadership of a 625,000-member organization employed in every phase of the electrical, electronics, and broadcasting industries. A full story on his election to IBEW leadership begins on page 3.

commentary

Our editorial, this month, comes from a recent broadcast by Edward P. Morgan, radio news commentator for the American Federation of Labor. It echoes a hope and a warning already sounded by the leaders of Organized Labor:

"Tonight, there is no dark stain of foreboding. The Communists are singing 'For He's a Jolly Good Fellow' instead of the Internationale. The Kremlin committee, wreathed in smiles, tosses off another toast in champagne at an embassy cocktail party, and comes up with the latest pronouncement of Soviet policy. Maybe, as somebody suggested, we should add Perle Mesta to our team.

"But behind the quips and the caviar canapes, the danger is there. Two dangers. The danger that if we make a mistake this time, it will really be a war to end all wars and everything else. And the companion danger that we may forget that, for once, we are going into a conference with the Russians with our own position strong. The Russians are not thought to be on the verge of collapse, Secretary Dulles' testimony notwithstanding, but we ourselves have never been in better material health, and if we feel our oats carefully, our negotiators won't think they have to make some unnecessary concession to Moscow just to placate a supposed public desire to have President Eisenhower 'bring something home' as a kind of trophy of triumph.

"The worst that could happen at Geneva, one thoughtful observer suggests, would be acceptance of a mood that the cold war is over and we can live happily ever after; irresponsible politicians would trample each other in competing for the most drastic tax-cutting proposals, junking the draft, and the like.

"One of the best things that could happen at Geneva, another highly responsible, internationally-minded American emphasized, would be for us to convince the Russians that we're convinced of our own strength, and in this confidence we'll examine their proposals with care and patience but in a certain 'I'm from Missouri' state of mind."

the index . . .

The July cost-of-living index is delayed. It will not be released until August 24. We, therefore, repeat the June figures: June, 1955—114.1; June, 1954—115.1.

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AFL President George Meany congratulates Gordon Freeman on his elevation to the top post in the International Brotherhood.

Council Elects Gordon Freeman New President

Fourth District Vice President succeeds the late J. Scott Milne in highest office of the Brotherhood.



The new President at his desk in the General Headquarters in Washington. He became an international vice president in 1944.

GORDON M. FREEMAN, former International vice president from the Fourth District, is new International President of the IBEW. The 58-year-old leader was selected by the Executive Council of the Brotherhood at a meeting in Washington, late in July, shortly after the untimely death of J. Scott Milne, who died suddenly at his farm home near Portland, Oreg.

President Freeman is well known to the membership of the Brotherhood, having served the union in various capacities for over 40 years. Born and raised in Portsmouth, Ohio, Brother Freeman went to work as an apprentice inside wireman and was initiated into Portsmouth Local 575 in 1913. He served his local in many offices, including those of president, business manager, and treasurer, all prior to his appointment to the IBEW international staff in October, 1930. He has been an International Vice President since 1944.

The new president made his home in Cincinnati, Ohio, at the time of his election to the top IBEW post. He is married and the father of one son. He plans to move his family to Washington.

In his spare time—of which there has been little—President Freeman likes to swim and to follow the doings of his favorite baseball team, the Cincinnati Red Legs.

He is a modest and practical man not given to talking about personal accomplishments.

“This new responsibility has come to me very suddenly,” he told a reporter, “and many things are still up in the air. I can only say that to the best of my ability, I shall follow the present policies carried out by our past great leader.”

Early this month, President Freeman was elected to the governing bodies of two AFL departments. He is now a vice president of the AFL Metal Trades Department and also a vice president of the Building and Construction Trades Department. He participated in meetings of both groups held recently in Chicago in conjunction with the regular meeting of the AFL Executive Council.

Secretary Keenan Elected to AFL Council

IBEW leader becomes 15th vice president, filling vacancy left by death of Milne

The Executive Council of the American Federation of Labor, meeting in Chicago the week of August 8, named Joseph D. Keenan, Secretary of the IBEW, to replace the late J. Scott Milne on the Council. Brother Keenan becomes the 15th AFL vice president by this action.

Because of its sizeable membership, the IBEW has had a representative on the AFL Executive Council for decades. The late President Milne was elected to the body following his selection as IBEW president. Before that, the late Dan Tracy, president emeritus of the Brotherhood, served on the Council. With Secretary Keenan on the top AFL governing body, our new international president, Gordon M. Freeman, will be able to devote more time to the work of the international union.

Before taking the post of international secretary of the IBEW, Brother Keenan had served as secretary of the AFL Building Trades Department, and he was at one time head of Labor's League for Political Education.

He was born in Chicago, Ill., the oldest of eight children. He began his electrician apprenticeship with Local 134 of Chicago in April, 1914. He was initiated into that local in May, 1918. Employed by the Chicago



Secretary Keenan is welcomed to the Chicago meeting of the AFL Executive Council as a new AFL vice president.

Telephone Company, he continued his electrical training at Lewis Institute after serving his apprenticeship.

In 1937 he was elected secretary of the Chicago Federation of Labor, after serving in Local 134 offices. During World War II he served the nation in various official posts in Washington. In 1948 he was elected first director of LLPE, and in 1951 he became secretary-treasurer of the AFL Building and Construction Trades.

Blankenship Named To 4th District Post



H. B. BLANKENSHIP

IBEW President Gordon M. Freeman has appointed H. B. Blankenship as International Vice President of the Fourth District, the office left vacant by his own elevation to the Presidency. The appointment became effective August 1. Brother Blankenship worked with Brother Freeman in the Fourth District Office in Cincinnati and has been a member of the IBEW for more than 25 years.

Born in Birmingham, Ala., December 4, 1905, Brother Blankenship was initiated in Local Union 306 of Akron, Ohio, March 14, 1930. He is now a member of Local Union 540, Canton, Ohio.

Brother Blankenship's experience included Local Union service in practically every office including that of Business Manager, previous to his assignment to the International Staff as a Representative February 11, 1945.

The Fourth District, over which he will preside, includes the States of Kentucky, Maryland, Ohio, Virginia, West Virginia and the District of Columbia.

Technician-Engineer

TV Turf Patrol

FOLLOWS THE BANGTAILS AROUND THE TRACK

IBEW members of Detroit local union keep a gimlet eye on the thoroughbreds as they race around the oval. Races can be viewed from the \$2-window and the judges' box, thanks to electronic innovation.

Television now keeps an unwavering eye on the bangtails at the Detroit Race Course, thanks to a new organization known as TV Turf Patrol, Inc.

Staffed by five IBEW technicians of Local 1218, Turf Patrol gives the judges and race track fans a constant closed-circuit coverage of every race. Monitors follow each race from start to finish. A camera screens horses going past the grandstand to catch the "photo finishes," and back at the \$2 window, fans can now watch the race without leaving the betting ring.

Twelve cameras are located at different spots around the one-mile course. On the straightaway the cameras are permanently mounted, but those covering the turns are panned to the right or left by motor-driven controls which are operated from the equipment truck by the switching operator. The switcher controls the twelve buttons indicated in the picture as well as the panning mechanism of the cameras covering the turns.

Each race is kinescope recorded and is available for immediate showing after the race to the judges. All the control equipment and the recording equipment is in a truck which is located behind the grandstand.

The five Turf Patrol employees became IBEW card carriers only recently, following spirited competition among five labor organizations.

Harry Cohen, counsel for the closed circuit firm, found himself stumped by the competition. He asked Chairman George E. Bowles of the State Labor Mediation Board to conduct an election. Bowles assigned George Sutton, a member of his staff, to mediate and, if necessary, conduct an election. As a result, the Brotherhood was selected as bargaining agent.

The other unions competing for the five technicians included: NABET, CIO; Local 666 of the International Photographers of Motion Picture Industries, AFL; and Locals 203 and 737 of IATSE.



Members of the Turf Patrol staff check switching and shading facilities set up at Detroit Race Course for coverage of every race.



A Vidicon unit being placed on its housing at Detroit Race Course. Turf Patrol technicians are members of the IBEW Local 1218.



Shelby Storck, general manager of the KETC, watches a station camera move into position.

A general view of the busy KETC studio, with a lot packed in a small working space.



St. Louis Educational Station Shows School-TV's Potential

TEN months ago KETC St. Louis began to telecast. Today, the educational station has solidified its position as a part of the community: adult education programs attract substantial audiences; in-school instruction on TV reaches most elementary and secondary schools in the metropolitan area; after-school children's programs entertain, but also stimulate youngsters to learn; the station has grown into a forum where community issues are threshed out.

In ten months KETC:

Pulled audiences as high as 125,000.

Offered the first college credit telecourse in St. Louis.

Won three national awards for excellence of programs.

Increased air time from 20 hours a week to 34.

Raised in-school programs from 6½ to 15 hours a week.

Doubled the use of TV receivers in schools.

Won praise from both the *St. Louis Post Dispatch* and *Globe Democrat*.

KETC is owned and operated by the St. Louis Educational TV Commission, a non-profit corporation. While the commission represents the interests of the principal educational institutions in the community, it is responsible to a board of trustees composed of leading citizens who serve as representatives of the public rather than of any institution or group. This precludes the station becoming an adjunct of any one institution. Yet KETC is first and last educational; it even shuns newscasts. The board of trustees insists

that educators be satisfied that KETC's programs meet scholastic standards.

But when it comes to putting education on television, the board has been equally firm in demanding a full-time staff of television professionals. They are essential; 50% of KETC programs are live. Shelby Storck, general manager, heads a staff of 44. In addition, 18 student volunteers from Washington and St. Louis Universities, and some 50 Junior League volunteers work regularly at the station.

These people keep their ears close to the ground to learn what their viewers think and say. Recently, a community relations department was organized to channel growing community participation in KETC.

OUTSTANDING CHILDREN'S SHOW

KETC's children's program, *The Finder*, has attracted national attention. The first series of 13 half-hour *Finder* programs has been distributed through the Educational TV-Radio Center and is being telecast over all ETV stations in the country.

ETV is rapidly becoming a regular part of the curriculum in St. Louis schools: 370 elementary and high schools use teaching via TV, an increase of almost 100 per cent since January 1955. There is at least one TV set in each city public school; at least one in 63 per cent of the 193 county public schools and in 75 per cent of the Lutheran schools. A consolidated elementary school 20 miles from St. Louis built outlets for TV receivers in every classroom.



KETC's in-school telecasts include: supplementary instruction, direct teaching, teacher in-service training, and lunch hour shows. Nine different series for classroom use, six of them locally produced, are on the air each week over Channel 9. Each in-school program is repeated five times a week at different hours during the school day so that the maximum number of schools can fit the telecasts into their schedules. KETC recently added a Wednesday noon hour program for viewing in school cafeterias.

Programs on science and music serve the elementary grades. Let's Make Music, awarded an honorable mention at the Ohio State Institute last month, is one of the most popular of KETC's teaching series. It introduces pupils to the instruments of the orchestra. Young musicians from St. Louis schools appear on the programs to demonstrate their instruments and to perform for their contemporaries. Many teachers are using the programs, designed for their fourth to sixth grades, for general music classes in high school. High school classes also watch programs on history, social studies and literature.

Each evening program for adults, from 7:30 to 10, is built around a point of interest and individual crews produce all the shows for a particular night. For example, Tuesday is the night for telecourses; Wednesday, public affairs; Thursday, arts and humanities; Friday, family viewing—Monday has no set pattern.

KETC has telecast non-credit college courses by St. Louis University professors, but in March, 1955, the

first college course for credit was offered, "The Religions of Man," with Dr. Huston Smith from Washington University.

The program drew a registration of 1200 telestudents and an estimated audience of 125,000 viewers. One hundred and forty people paid \$17 to take the course for credit; the non-credit students paid \$4 to receive a syllabus and supplementary study materials. Five hundred copies of the \$4 textbook have been sold by the University of Washington Bookstore alone.

Heavy fan mail shows that office boys and executives are regular viewers. A woman with two children and a full-time job wrote: "Both my husband and myself look forward eagerly to Tuesday night." A local business man said: "Wednesday mornings the car pool engrosses itself in the subject of the night before; last evening friends visited specifically to discuss your last lecture.

Some students have not completed high school; others have advanced university degrees. In age they vary from the 'teens to the sixties. One student is the mother of six children, another is a mail carrier, another is a business executive.

People take the course for credit to raise professional qualifications, to gain credit towards a college degree, to use leisure time more profitably; many of them say that paying the registration fee spurs systematic study.

THE SOAP BOX SHOW

A regular Wednesday evening feature is KETC's much-praised Soap Box where experts and plain citizens discuss and debate St. Louis community problems. Soap Box probes local issues through people who are a part of the problem; tenement dwellers told the story of the slums; a mother whose child had been bitten by a rat told about living with rats; ex-boy gang members answered questions about how they had gotten that way. Sewage disposal, crowded schools, taxes, transportation and politics are some other Soap Box subjects.

This program has generated almost 300 column inches of copy in the St. Louis press. The *Globe Democrat* has praised it for rendering "a distinct community service." The *St. Louis Post Dispatch* called it "valuable" and went on to say, "There is all the difference in the world between a panel trying to strike contrived sparks for entertainment and a group of citizens airing their honest views on a matter that is close to them. Here is the very stuff of democracy."

Almost two years ago St. Louis citizens contributed, sight unseen more than \$100,000 to help get Channel 9 on the air. Today the St. Louis ETV Commission is preparing to kick off another drive for station operating funds, but this time it won't be selling a "pig in a poke." KETC is solidly established in the community's life. The Station's technical operations are covered by an agreement with Local Union 1217, St. Louis.

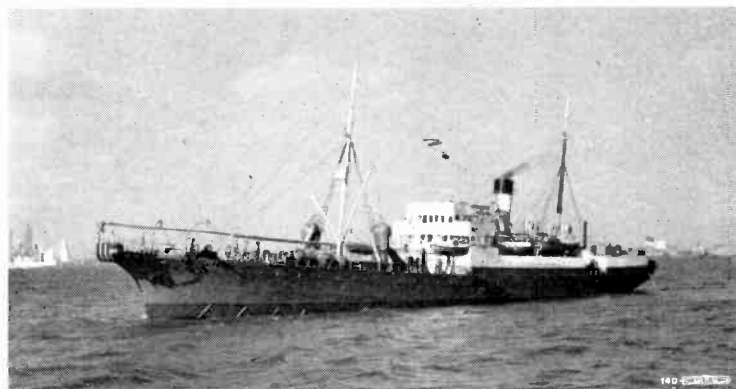
Electronic Devices Aid Cable Trouble Shooter

The sea-going repairmen of the IT&T must untangle fouled-up whales, scrape teredos, and drag grappling hooks for miles to keep the overseas telephone circuits open.



SOUNDING INDICATOR—An engineer of the cables ship *ALL AMERICA* checks a Wheatstone Bridge to get an idea of the contour of the ocean floor. The Bridge measures the resistance of the unbroken part of the cable laid from the shore out into the sea, and by plotting the observed resistance against the known characteristics of the cable, engineers can say with considerable accuracy just how far out the break will be found.

TESTING ROOM—The Cable Engineer checks equipment in the testing room. Crammed with equipment, including the Wheatstone Bridge, the room houses "the brains" of the cables ship.



The *ALL AMERICA*, cables ship of the All America Cables and Radio, Inc., an associate of IT&T, in New York Harbor, as she heads to sea to take up one of the loneliest assignments in the maritime trades. The 1,819-ton yacht-like vessel was refurbished and repaired last spring after five years in the Atlantic and Caribbean.

THE cable ship *All America* is a lonely, dogged trouble-shooter which plies the Southern Seas, keeping watch over some 23,000 miles of elusive submarine cable in two oceans.

The *All America* completed five years at sea last winter. Then she was repaired and refurbished at shipyards in New York and steamed again toward the open sea.

Around mid-March the *All America* headed for Jamaica and points south to resume its long work-packed watch.

Once again her 60-man crew is struggling against work-day foes—cable corrosion, chafing, sea canyons, earthquakes, whales, and teredos. Any of these may silence vital messages.

Little guesswork goes into finding a break in a finger-thin thread of wire entombed under miles of lonely sea, the National Geographic Society says. Watchful shore



communication stations detect disturbances and give the *All America* the approximate location as determined by cable resistance to the flow of electricity.

Charts, instruments, and 20 years' experience generally bring *All America's* Captain Frederick Hack to within a half mile of the trouble. There his ship makes runs with grapnels. Sometimes the cable comes up intact; often it snaps despite its eight per cent slack.

"Sometimes the cable is pretty deep," says crisp-voiced Captain Hack, who has worked three-mile sea depths.

MARKER BUOYS ARE USED

A sea-going ship geared for emergency, the *All America* carries red-leaded marker buoys to keep raised cable ends afloat and miles of heavy-armored cable and wire rope of 18-ton strength.

The lonely hours of cable repairing sometimes bring surprises. A sperm whale once was sighted near Lobos Island off Peru, three turns of cable wound about the whale's body.

"He had apparently been feeding along the bottom at 400 fathoms and ran into our cable," Captain Hack says, adding that since a whale can't reverse he kept pushing ahead, finally choked, drowned and floated to the surface. The whale carried a heavy load; such cable in water weighs a ton a mile. Three times in Captain Hack's experience whales have become entangled.

At the other extreme in size is the termite teredo, a borer of tiny holes difficult to see but sufficient to disrupt communication.

SOURCES OF TROUBLE OBSCURE

Other sources of trouble are also obscure. In mid-1942 a cable between the United States and Cuba failed after 22 years of service. German submarines were blamed. Three years later, however, the *All America* found that the sharp edges of an 800-foot-wide under-sea canyon caused the break.

More easily remedied are service disruptions resulting from anchors dropped in busy harbors, over-submersion, chafing and corrosion of cables. Where and when a break may come is, however, unpredictable. Captain Hack tells of some cable lying 60 years without attention; other parts may go bad within months.

Protective steel armor, the captain thinks, is the cable's most important part. Lack of it was blamed for the failure of an early cable attempt between England and France. Success came with the use of armor. Moreover, armor lessens the chance of breakage in hauling cable to the surface.

Since Morse tapped out, "What hath God wrought?" a vast network of some 22,000 miles of undersea cable has been laid to connect the United States with 22 Latin

AUGUST, 1955

One Moment Please



ARCHERY—The bow and arrow are not usually considered tools of the broadcasting trade but that's what saved the day for organist E. Power Biggs, who was scheduled to make his Sunday morning CBS Radio broadcast from a Buffalo church. Unable to hang the microphone in front of the unusually tall organ pipes, a WBEN technician tied a line to an arrow, shot it over the highest arch of the vault. The line was hauled down, a microphone fastened to it and hauled up. And the show went on.—GUYSON MADISON, *CBS Radio*

American countries, and it is the job of Captain Hack and his men to keep it going.

It is a tough job, but not through any fault of the cable. Built of several layers of insulation and steel armor around a copper core, it can stand up under almost anything short of hungry whales and the unexpected pranks of man and nature. The cable may range in diameter from one inch in deep water to four inches near shore and may cost up to \$5,000 per mile when especially heavy armor is necessary.

EXTRA BATHS FOR PROTECTION

When all the armor is in place the new heavy cable is passed through a bath of asphaltum, given a layer of jute, a final bath of asphaltum and a liberal coating of talc to keep the cable from sticking when it is coiled.

At several points in the production of the cable it is tested for conductivity, and elaborate precautions are taken to see that the insulation is perfect. A defect is considerably easier to remedy in the plant than it is half a mile down on the sea floor, or on the heaving deck of a ship.

Senate Committee Head Lists Unfinished Work

As Congress adjourned for the summer, Chairman Warren G. Magnuson (D., Wash.) forecast a busy session of the Senate next year for his Committee on Interstate and Foreign Commerce.

He said many important matters are pending that his Committee was unable to thoroughly study during the session just ended and added these would be completely investigated by the Committee staff during the recess. The staff, he said, would have the reports ready to submit to the Committee when the second session of the 84th Congress opens in January.

"We want to improve and expand the Nation's television service so that every part of the country, including the small towns and communities, will have ample and satisfactory TV.

"In this field are included regulation and expansion of the present broadcast bands, investigation of the operation of the networks, ways to make better use of

the spectrum and the problem of the use of Very High Frequency broadcasting and of the use of Ultra High Frequency broadcasting. At present about 85 per cent of the broadcasting is on VHF stations and the market is limited for the UHF stations.

"One of our primary concerns is to get the manufacturers to produce 'all channel' sets on which the viewer can receive both VHF signals and UHF signals. If the manufacturers do that the distinction between VHF and UHF in the viewers' minds would be eliminated and a new market would be opened up to our advertisers on the UHF stations. To help dealers produce 'all channel' sets we have asked the Senate Finance Committee to eliminate the excise tax on such sets which would bring them into about the same range cost as the present UHF and VHF sets."

Magnuson said that the recent action of the Federal Communications Commission in authorizing construction of low powered TV stations would be an aid in bringing television to small communities but if that did not solve the problem the Committee would take action to bring the small towns and far away communities satisfactory TV service.

The Chairman said another problem facing the Committee is the question of pay-as-you-see or subscription television. The FCC now is studying the question.

One Moment Please



REVELATION—In taping his CBS Radio program, Bing Crosby often ends by announcing his guest for a subsequent broadcast. Sometimes he announces a fictitious name, which the tape editor erases after he has "timed the show." Once *The Groaner* said "... My guest will be Fred Schlumberger" and the announcement reached the air through a technical error. Listeners were mystified until Crosby entered St. John's hospital recently for surgery. It seems there really is a Fred Schlumberger. He is the singer's family doctor.

—GUYON MADISON, *CBS Radio*

Reading Time

Automatic Record Changer Service Manual with Tape Recorder Service Data, Catalog No. CM-6, Howard W. Sams & Co., Inc., 2201 East 46th St., Indianapolis 5, Ind., 288 pages, 8½" x 11", paper bound, list price, \$3.

This sixth of the Changer Manual series covers 20 different basic changers and recorders. The Photofact technique is applied throughout the manual.

From a laboratory examination of the equipment, complete data is presented on operation, adjustment, trouble-shooting and service for each unit.

The exclusive "exploded-view" diagrams along with photographs, parts list and complete write-ups make each service problem easy to diagnose and remedy. Wherever they apply, Photofact Standard Notation Schematics are also included.

A Cumulative Index of this manual and the five preceding manuals in the series enables the technician to quickly locate the data on any specific unit.

An additional feature is the list of receivers by the manufacturer's make and model showing which basic mechanism was used in a particular set. This cross-reference listing provides for the maximum use of the manuals in determining the particular unit used and in obtaining necessary replacement parts.

An Explanation of CAMERA VISION

CAMERA Vision is considered by many motion picture and television experts to be the most revolutionary development in the field of motion picture production since the advent of sound more than 25 years ago.

Basically, it is a marriage of two cameras, a motion picture camera calibrated with an electronic (television) camera. This combination is able to effect a monumental reduction of the cost of production of motion pictures for theatrical or television use. Such reduction in cost will run as high as 50 per cent or more.

Since the development of television, the dream of both the motion picture and TV industries has been to link the cameras of each to put into practice the theory of a viewing action as it is being filmed. Camera Vision is the only invention to accomplish this calibration successfully, while retaining top photographic quality.

The standard motion picture camera, although a perfect instrument photographically, is nevertheless blind, since it cannot reveal until its film has been exposed and processed—usually 24 hours later—what it has actually photographed.

On the other hand, the electronic camera affords instantaneous viewing but it cannot provide the perfection in permanent photographic quality of the motion picture camera.

By the marriage of the motion picture and electronic camera, Camera Vision, for the first time, provides the motion picture camera with eyes and the electronic camera with permanent photographic quality of the highest standard. This result is achieved because the two cameras function as one unit.

While it basically effects the marriage of the two cameras, it goes far beyond developments already in existence in the motion picture field in self-contained mechanical inventions in optics and electronics which afford to motion picture filming mobility, fluidity and accuracy never before achieved.

Aside from its revolutionary aspects in the field of motion pictures for theatres and television, the process makes it possible for the first time to photograph a *live* television show directly on top quality motion picture film in color as well as black and white.

At present, as we all know, live television shows can be recorded only on kinescopes which have the twin advantages of being able to be filmed only in black and white and which afford poor photographic quality.

Today, as a result of Camera Vision, live shows which sometimes cost well into the hundred of thousands of



THE CAMERA VISION CAMERA UNIT—To the left is the electronic (television camera) which is calibrated to the motion picture camera (right). Above the latter is the 33-minute film magazine. The camera unit contains automatic, manual and remote iris and focusing controls and many other technical advancements. By a system of intricate parallax controls, the motion picture camera photographs exactly what the electronic camera sees.

dollars can be recorded on top quality motion picture film, thus affording them a life far beyond their original showing. They can be run and re-run exactly as if they had been filmed in the first place.

PERSONNEL INVOLVED

Camera Vision is owned by Camera Vision Productions, Inc., headed by Philip Rivero and Arthur S. Lyons.

Chief contributors to the technical development of the process include: Harry Cunningham, inventor of the Cunningham Combat Camera; Harold Jury, formerly with CBS; Gil Weyland, currently with CBS; James Cunningham of Techno-Instrument Co.; Glenn Robinson, John Willot and Roy Helfengstein of Aremac Associates of Pasadena; Jack Strauss; and Bert Glemon, A. S. C.

Camera Vision has been in the process of development since September, 1949. The first working model was completed one year later and was first tested at California Studios, Hollywood. Work has continued since that time. The total cost of the development of the wedded cameras as it stands today is slightly in excess of \$675,000.

PHYSICAL COMPONENTS

Camera Vision is a multiple camera system which operates with two or more cameras as the magnitude of the production requires. Each camera unit consists of a motion picture camera coupled with an electronic camera and housed in a blimp.

In addition to the cameras, the blimp houses automatic, manual and remote iris controls; automatic, manual and remote focusing controls; a 33-minute film magazine and many other technical developments including a viewer which enables each operating cameraman to see exactly what his camera is viewing.

By means of a system of intricate parallax controls, the motion picture camera photographs exactly what the electronic camera sees.

Owing to the technological advancements of Camera Vision, each camera unit may move freely—forward, backward or around—in accordance with the type of shot or angle desired. Thus, the need for laying and employing dolly tracks, camera guide marks, tape measures and the like is completely eliminated.

The 33-minute film magazine with which the motion picture camera is equipped as compared with the 10-11-minute magazine presently in use, reduces by as much as 300 per cent delays in production brought about by the necessity of reloading the camera with film.

The set-up can operate with Cinemascope and any other process employing anamorphic lenses whether photography be in color or in black and white.

The 40-foot mobile control unit is equipped with (1) master control room, (2) audio room and (3) high speed film processing room.

1. The master control room is equipped with individual viewers which are connected in closed television circuits with the camera units. Additionally, there is a master monitor screen which depicts those images selected from each of the smaller monitor screens which collectively will constitute the actual motion picture take.

Seated in the master control room are the director, film editor, cinematographer and electronic man; the function of the latter is to switch from one camera to the other at the orders of the director.

2. Seated in the audio room is the sound engineer equipped with a complete mixing panel, tape recorder, sound effects board and other required equipment. He has a master monitor, thus, also enabling him to see what the director has selected for the final take.

3. The high speed processing room is equipped to house the new processing equipment developed for Camera Vision by Houston Fearless Division of Color Corp. of America. This new equipment will enable the director, as well as the film editor, cinematographer

and key production personnel to see within 60 seconds a complete kinescope film recording made for the specific purpose of previewing and pre-editing a shot, a scene or an entire half-hour film before it is photographed by the motion picture camera.

Obviously, the delay in viewing rushes of the previous day's shooting is eliminated since it is now possible to see before, and during, actual shooting what will be recorded on the motion picture film.

The usual editing time, which takes weeks after the completion of the picture, is almost completely done away with since actual selection of scenes now will take place before and during camera work.

Important, too, is the fact that never before has the team responsible for the making of a motion picture—the director, editor, cinematographer, and sound engineer—been able to work as one unit under one roof in consulting with each other and in selecting scenes immediately for inclusion into the final film version, or to see what the camera is recording in terms of acting and lighting before or at the moment of shooting the scene.

The calibration of the motion picture camera with the electronic camera as Camera Vision has accomplished it, is but one revolutionary aspect of the process.

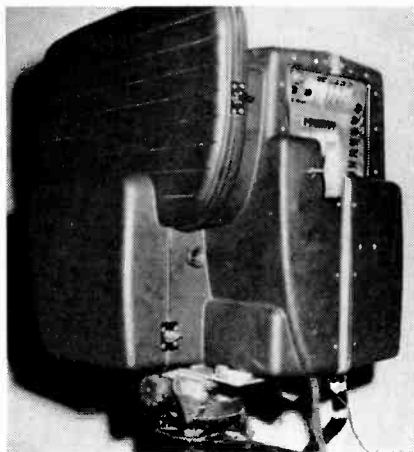
The mechanical developments in the optical phase of Camera Vision,

the automatic and manual iris controls, the automatic and manual focusing controls, are even more revolutionary in their direct effect upon the reduction of cost while maintaining top photographic quality.

It is owing to these practical accomplishments that special process will photograph an entire scene with general set lighting, thus eliminating the necessity of varying camera setups, of relighting and of refocusing for each long shot, medium shot or closeup.

It is owing to these practical accomplishments that Camera Vision reduces drastically the current process of exposing from 100,000 to 500,000 feet of raw stock for a feature motion picture from which emerges some 7,500 to 10,800 feet of final edited film. It is also owing to these accomplishments that Camera Vision makes it possible for the first time to photograph a live television show directly on top quality motion picture film in color as well as black and white.

It should also be remembered that it is equally effective for interior or exterior filming. The mobile control room is easily transportable to location sites by means of its special tractor unit.



THE CAMERA VISION BLIMP—The specially-designed blimp which houses the CAMERA VISION camera units (motion picture and electronic cameras) is manufactured of spun-glass. As can be seen in this rear view, the controls and gauges are easily accessible to the operating cameraman. The top of his viewer is slightly to the left of the handle.

Market Note for Uranium Hunters

Manufacturer adds Geiger counters to its already-bulging catalog of sales items.

Six models of Geiger counters with ranges in sensitivity and price to meet the requirements of the nonprofessional and professional uranium prospector, as well as the technician in medical and industrial laboratory work, are being introduced by the RCA Tube Division, Radio Corporation of America. The counters were displayed for the first time at the Radio Parts and Electronic Equipment Show in Chicago in May.

Simplest of the instruments are the WF-10A and WF-11A. These two counters are intended basically for the weekend and vacationing prospector. Each model weighs only 5 pounds, including batteries and carrying strap, and measures only 8 inches by 7½ inches by 3½ inches. The apparatus is installed in a weatherproof cabinet, built to withstand rugged outdoor work. Model WF-10A uses a standard Geiger tube. Its counterpart, the WF-11A, is equipped with a bismuth-type Geiger tube which has more than twice the sensitivity of the WF-10A.

The Geiger tube consists of a specially designed envelope filled with an inert gas in which is placed an insulated plate. When a radioactive particle strikes a gas molecule inside the tube, the gas is ionized and electrons are liberated. The electrons, being negative, are attracted to the plate, causing a pulse to register in the counter circuit. A meter, connected in the circuit, is calibrated to indicate the number of counts or pulses per minute. When the battery switch is turned on, a meter gives a direct reading instantly. Sensitivity of these units can be demonstrated by holding the counter close to the radium dial of a wrist watch. The low order of emission from the watch dial gives a reading on the meter.

Each of the models has three sensitivity scales in units of 100-, 1000-, and 10,000-counts per minute (CPM). These values are adequate to locate ore and evaluate its radioactivity. To enable the user to make a quick recheck of the readings, RCA's counters are provided with a small push-button which resets the meter to zero and prepares the counter for a second reading to compare with the accuracy of the first reading.

Facilities also are provided in these RCA Geiger counters for three-way indication of radioactivity. Each time the counter discharges, when picking up radiations, the operator is signaled in three ways. The meter registers the relative intensity in CPM. At the same time a neon light flashes and, if the operator

wishes, he may plug the headphone, provided with each unit, into a jack on the case and listen to the audible clicks.

Since contamination picked up in mines or on surveying trips would result in faulty readings, RCA counters are housed in a case made of polished aluminum which can be wiped clean with a damp cloth.

BATTERY OPERATED COUNTERS

Batteries needed to operate the RCA WF-10A and WF-11A consist of two small-size 67½ volt batteries (VSO16) and two flashlight cells (VSO36). Approximately 200 intermittent operating hours may be obtained from the 67½ volt units, and about 50 hours from each of the small cells.

For use where a more versatile counter is needed, RCA is making available models WF-12A and WF14A. These units are housed in approximately the same size case as the WF-10A but constructed of stainless steel, and are equipped with an external probe which aids in examining openings in rock formations and test bores or other inaccessible places where the complete counter cannot reach. The only basic difference between these models is the use of a bismuth-type Geiger tube in the WF14A.

TWO MODELS SUPERSENSITIVE

The RCA type WF-15A is a supersensitive radiation detection instrument designed for uranium prospecting, ore-assaying work and for use in school, industry and medical laboratories.

This unit includes many design refinements not generally found in ordinary Geiger counters. It contains ten Geiger tubes making it at least three times as sensitive as one-tube counters. It is especially effective in measuring low-level radioactivity of the degree encountered in some radiation surveys and in prospecting from the air or from a moving vehicle.

The WF-16A is the most sensitive instrument in the new RCA Geiger counter line. It can measure radiation in certain types of surveys conducted from the air and moving vehicles. As a counter for the professional prospector, the WF-16A is built to withstand the abrupt extremes of temperature from below zero to 100°F which are frequently encountered during a day's work at high elevations. Its sturdiness permits it to withstand the severe jolting of backpack transportation without damage to the instrument or its calibrations.



Sleight of Camera

The technical crew of KRON-TV, San Francisco, pulled a little "sleight of camera" recently to produce color station identifications during a color network show . . . *without using color cameras.*

They made three color separation title cards and focused a black and white camera on each one. Then they fed the signal from each camera into one of the color inputs of the encoder, which combined it all into a composite color signal.

In still another demonstration of technical ingenuity, KRON engineers recently used color cameras to improve their black-and-white.

According to the station, the "3-V" camera accepts a wider range of tones and it results in a greater amount of detail in black-and-white sets. Additionally, KRON-TV reports, the "3-V" has a higher signal-to-noise ratio which cuts down on the possibility of "snow" on the picture tube.

The addition of the "3-V" camera, KRON-TV says, makes it the "only TV station in northern California capable of originating any type of local program in color."

Pigmy Crystal Holder

Sage Laboratories, Inc., Waltham, Mass., announces a new miniaturized crystal holder, designated the SL-101, which has been designated for use with the new Sylvia Tripolar crystal diode—types 1N358, 1N369, and 1N369A.

The new holder incorporates a broad-band bead, which provides a minimum bandwidth of 1 to 12.4 kmc. When the holder is terminated in a matched load, the maximum VSWR is 1.6 over the specified frequency range. The input is a type N male connector, the output is a 50 ohm Microdot receptacle. The signal out-



Sage's SL-101 crystal holder.

put from the mount is negative. The maximum overall length is 2", the maximum diameter is 25/32".

The holder, with crystal inserted, can be used as a video detector or as part of a crystal mixer. In conjunction with conventional waveguide to type N coaxial adaptors the device provides a highly sensitive—yet simple—and inexpensive detecting arrangement for all waveguide bands.

The Tripolar crystal diodes are outstanding in their high sensitivity and uniform characteristics over wide frequency bands. This holder permits full utilization of the excellent broad-band properties of the crystal.

Typical tangential sensitivity measurements made, using the SL-101 holder and the Tripolar crystal diode are in excess of -45DBM over the specified frequency band.

New TV Standards

Two television standards have recently been approved by the American Standards Association as American Standards. The method of measurement, equipment required, set-up details and general information on sources of interference of TV receivers is explained in the *American Standard Methods of Measurement of Interference of Television Receivers in the Range of 300 to 10,000 kc*, a booklet issued by ASA, 70 East 45th St., New York 17, N. Y.

How to measure aspect ratio and geometric distortion of TV cameras and picture monitors, and the kind of equipment needed is covered in *American Standard Methods of Aspect Ratio and Geometric Distortion of Television Cameras and Picture Monitors*.

Both standards were submitted to ASA by the *Institute of Radio Engineers*.

Farnsworth System

An improved industrial television system featuring a high definition picture that makes it adaptable to an extremely wide range of applications has been developed and is being produced by Farnsworth Electronics Company, Fort Wayne, Ind., a division of the International Telephone and Telegraph Corporation.

The standard Farnsworth industrial TV system is comprised of two units consisting of a small camera

and a monitor interconnected by a multi-conductor cable. This provides a closed-circuit TV chain that will reproduce scenes on which the camera is focused.

The camera, a small compact unit weighing ten pounds, utilizes a photoconductive tube which works into a high-quality five tube preamplifier. The result is a 600-line resolution picture of exceptional clarity and definition as reproduced by the monitor.

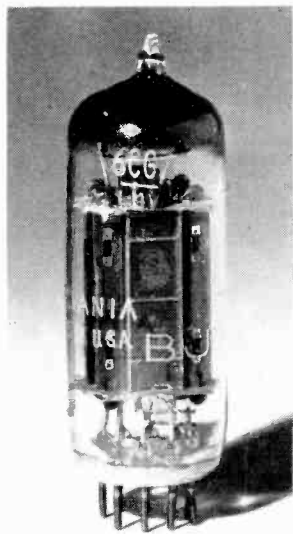
The monitor is also a compact unit approximating the size of a table model TV receiver. It incorporates all controls for the system—a viewing screen, power supply for the camera—and, with the exception of the preamplifier in the camera, all video amplifiers, which are built into the monitor chassis.

All controls necessary for the operation of the industrial TV system, including the optical focusing of the camera lens, are mounted on the front panel of the monitor underneath the viewing screen.

Although the system is normally supplied with 50 feet of interconnecting cable, it can be increased to 500 feet, the maximum cable length recommended for use between the camera and the monitor.

General Purpose Tube

A new general purpose medium-mu twin triode tube, designated the 6CG7, has been added to the company's line of 9-pin miniature types, according to an announcement by Sylvania Electric Products Inc.



The 6CG7 is intended particularly for use as a vertical deflection oscillator and horizontal deflection oscillator in television receivers. It may also be used as a phase inverter, multivibrator, sync separator and amplifier, and resistance coupled amplifier in electronic equipment. The new type, similar to the 6SN7GT in characteristic, is in a T6½ envelope. It is designed with a 600 ma heater, having a controlled warm-up time to insure dependable per-

formance in television receivers employing a single series connected heater string including the heater of the picture tube.

Design features of the 6CG7 include a structure which permits cool operation of the grids, with the result that emission from them is minimized. The structure also incorporates an internal shield which provides effective shielding between the triode units that prevents electrical coupling between them.

Miniature 9-Pin Tube

A new tube type, the 6BA8, a miniature, 9-pin, medium-mu triode and sharp cutoff pentode, has been announced by Sylvania Electric Products, Inc. The new tube is intended for service in television receivers employing a series heater string.

The pentode section of the 6BA8 has a plate dissipation rate of 3.25 watts and is designed to serve as a video amplifier. The triode section has a Mu of 18 and is suitable for applications where a low-mu triode is desirable, such as sync amplifiers, etc.

The 6BA8 contains in addition a 600 ma heater with controlled warmup ratings. With the 6.3 volt heater rating, it can of course be used in conventional transformer sets.



Sound-Wave Relief

High frequency sound waves that can't be heard are bringing spectacular relief to an increasing number of disabled veterans suffering from painful amputation stumps, most rheumatic diseases and some painful nerve and muscle conditions.

Veterans Administration, which was the first to use ultrasonic therapy in this country, already has installed the equipment in nine hospitals and one regional office.

VA said it will make additional installations of ultrasound equipment as qualified personnel are trained in the use of the equipment and in the application of the therapy.

To date, VA said, it has obtained excellent results in a variety of painful conditions, some of which responded poorly, if at all, to other therapies.

The treatment involves the use of an electrical apparatus in which a quartz crystal oscillates between 800,000 and 1,000,000 cycles per second in a small soundhead. These high frequency sound waves are directed into the body through a coating of heavy mineral oil on the skin or underneath water because air absorbs the waves.

The treatment first was introduced in Europe in 1928 and its use quickly spread throughout the continent for such an astonishing variety of pathological conditions that it provoked a healthy skepticism in this country. It was not until many years later that Dr. Friedland decided to try it in this country for the first time. Its use here has since spread.

Station Breaks



Film Lab Men Needed

There will be a great shortage of skilled personnel in the film laboratory field soon, unless the industry takes positive action to relieve the situation. That was the recent prediction of Herbert E. Pilzer, president of Circle Film Labs, New York.

He said the demands made upon film laboratories by TV and color films have caused such an expansion that the pool of skilled help has been depleted. Pilzer recommended that a training program be conducted on an industry-wide basis, with the help of trade unions, and that schools be induced to conduct courses in motion picture laboratory work.

Animators Needed

Another suggestion of a labor shortage in the television industry came from Walter Lowendahl, executive vice president of Transfilm, Inc., and president of Film Producers Assn. of New York.

In anticipation of the expected demands of color television, the present shortage of motion picture animators will pose a serious industry problem, says Mr. Lowendahl. He said that TV commercials will rely heavily on animation because such films allow for greater color control than live action.

The current shortage, brought on by the demands of TV, exists among all the skills necessary in animation production including designers, inkers, in-betweeners and opaquers. He stressed the great need and opportunity for specialty schools to train animators. There are no such private schools today. At least two of the major theatrical animation companies conduct limited training programs but they are not extensive enough to meet the demands of the industry, Mr. Lowendahl said.

Mr. Lowendahl stated that attractive salaries which animators earn should stimulate interest in the field on the part of artists whose talents can be adapted to animation.

Confidence Men Pose

Two fast-talking confidence men, posing as union representatives, almost played havoc with the good name of trade unionism in the little Southern town of McCormick, S. C., recently. They were quickly exposed as fakers and ended up with jail sentences.

It all started out when John Allen Starks came to town and spread the good news around that two television towers were to be constructed in the area. He was lining up workers.

Starks painted a breath-taking picture in this low paying community. He promised that those who worked on the ground would receive \$1.40 and the higher the workers worked on the tower the more pay would increase.

In addition, he produced some crudely lettered handbills which promised free insurance, vacations with pay, hospitalization and numerous other benefits.

The gimmick was that no one could work unless he paid \$5 "union dues" as a prerequisite to the job. So, with the help of a local confederate, Ralph "Preacher" Talbert, Starks started collecting "dues." About 20 persons "joined" the union.

In the trial before Judge T. B. Grenaker, the handbills promising all the "fringe benefits" were produced.

"What about this," asked the judge.

Starks looked right at the judge and replied, "Now, judge, you know as well as I do that these guys ought to have had more knowledge than to think I could get them a job like that."

Conducting his own defense, Stark said that he did not hold a pistol at anybody's head. When word spread about the community about the "job" and the "union" the citizens shoved the money at him, waking him up at night to take it.

"As near as I can make out," he said in his plea to the jury, "the solicitor has got me charged with quick snatching and fast running with intent to steal of a high and aggravated nature."

Starks even quizzed one of his victims to learn why he would give \$5 to a complete stranger, saying: "If you had 10 gallons of alley bourbon, would you trust to pour it in a keg with no bottom?"

Starks, who had a record covering several pages of an FBI report, was given one year in jail. His buddy, Talbert, received a one-year suspended sentence and two years of probation.