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INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS — AFL-CIO

LANDMARKS OF LABOR NO. 39



La FOLLETTE SEAMEN'S ACT MARCH 4, 1915

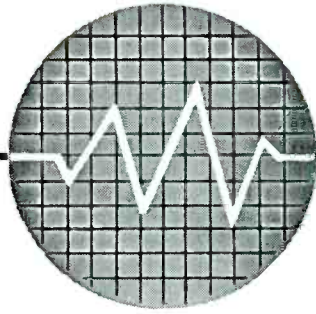
When President Woodrow Wilson signed the LaFollette Seamen's Act on March 4, 1915, he completed the final step of enactment into law of legislation which brought a new measure of advance, comfort and security to seamen on American vessels.

For many years Andrew Furuseth, Norway-born seamen's leader and for 50 years secretary-treasurer of the Sailors' Union of the Pacific, led the fight for protective legislation for seamen. The "Old Viking" enlisted the aid of Wisconsin's great progressive, Senator Robert M. LaFollette, Sr. This dauntless pair, with strong trade union allies, fought for a protective act and a bill was signed in 1915 after passage over vigorous opposition of employers.

The new act abolished imprisonment for leaving ship in a safe harbor; new wage rates were granted; standards of living and food allowances were raised; a nine-hour day in port was decreed; new liability regulations of the owner were passed; new job protection and safety measures were included in the act. These and other improvements in the lot of seafaring men made the LaFollette Act truly a landmark of labor.

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The INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS
 GORDON M. FREEMAN International President
 JOSEPH D. KEENAN International Secretary
 JEREMIAH P. SULLIVAN International Treasurer



TECHNICIAN ENGINEER

VOL. II, NO. 9

ALBERT O. HARDY, Editor

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the cover Station WDCY, Minneapolis, Minnesota, is a "pop" music and news operation manned by members of Local 292. All programming, except news, is on tape. Tape racks hold music, spots, jingles, and switching information. On our cover, Barry St. John cues tape at a control panel. (For more on WDCY turn to Page 10.)

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 1961 figures: August, 1962—105.5 (129.4 on old base); August, 1961—128.0. (Please note: With the January, 1962, index, the reference base was changed to 1957-59—100, from a previous base of 1947-49.)

COMMENTARY

The United States must develop its full economic potential if it is to meet the Communist challenge, AFL-CIO President George Meany has warned in a speech before the American Legion.

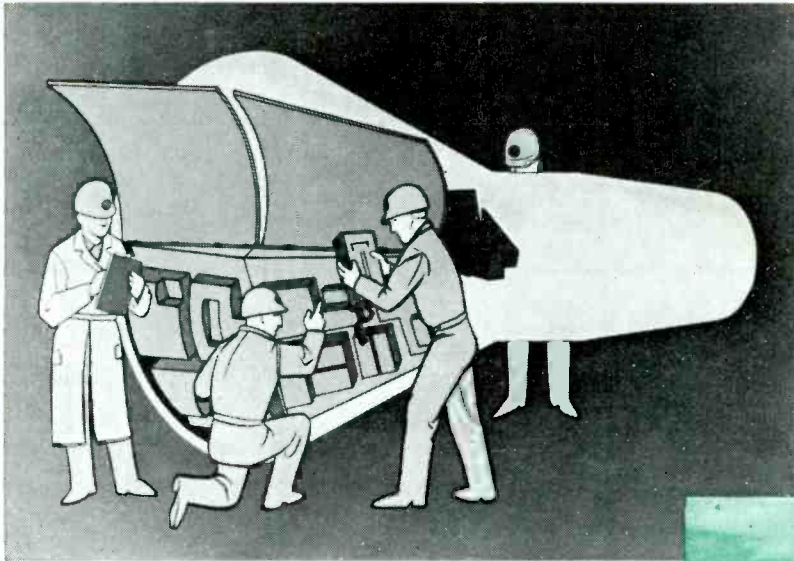
"How can we lead the free world; how can we maintain the superiority of free men over a slave society unless we use the potential that exists in this country?" Meany asked.

Expressing his faith and that of American workers in American democracy and the free enterprise system, Meany nevertheless pointed out that the United States is not expanding as it should. He noted that heavy unemployment has continued for the past five years, that

industrial production has increased only slightly since last April, that the workweek has declined and that other statistics prove clearly that while we have in the United States the greatest productive machine in the world, "it is only running in low gear."

The AFL-CIO President warned that the Communist threat is daily growing more challenging and that the United States cannot afford to become weak either militarily or economically. He called on the Legion and similar organizations as well as organized labor to give of its full strength in the battle to build a powerful America, militarily as well as economically, to defeat the Communist threat.

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LEFT: Gemini transceivers and other equipment are stored in compartments accessible from outside the space capsule. They are arranged in such a way that substitutions can be made in modular form rather than by the time-consuming method of replacing various individual components of each system.

BELOW: Titan II and its two-man Gemini capsule rise from a launching pad in this artist's conception of a blast-off. The Gemini spacecraft, weighing more than three tons, will be placed in earth orbit by a 430,000-pound-thrust booster. The first launch is programmed for the first quarter of 1963.



The Module Concept ... BY GEMINI

Space Capsule Gemini—to go into orbit early next year—will provide radio communications for its occupants via units housed outside the pressurized cabin. The new mounting system, called the module concept, is being developed by several subcontractors on the project.

Collins Radio Co. will provide at least 20 voice communication systems for the Gemini two-man spacecraft.

The contract was awarded by McDonnell Aircraft Corp., the prime contractor for the space capsule. The over-all Gemini program is under the technical direction of the Manned Spacecraft Center of the National Aeronautics and Space Administration.

Collins' role in Gemini, which will be used for extended orbital space missions and rendezvous experiments, will consist of providing the following:

UHF voice transmitter and receiver, the primary voice communication system;

HF voice transmitter and receiver, the secondary voice communication system;

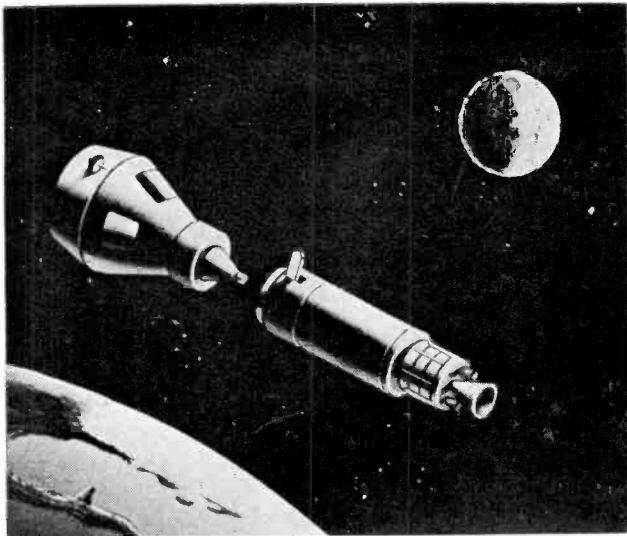
Voice control center, which includes UHF and HF selector switches for the voice communication system and an intercom system for use by the two astronauts.

The equipment is similar to that designed and built for Project Mercury. The UHF and HF transceivers are about 15 per cent larger and weigh about 10 per cent more than the comparable Mercury radios. The increases are due primarily to the increase in circuits required for Gemini.

The principle of using UHF radio for space flight communication, advocated and proved by Collins engineers in Project Mercury, will be continued in Gemini. Similar manufacturing methods will be utilized so that the equipment will be able to withstand the vibration and shock of launch, space flight and re-entry.

As in Mercury, there will be dual systems, with back-up transceivers available in case the need arises.

The voice control center will control both the UHF and HF systems, with dual controls for the two astronauts. Each of the pilots will have audio volume and mode of transmission selection, and there will be an



ABOVE: Two astronauts go into orbit, as the booster rocket falls away from the Gemini capsule.

intercom system for the pilots to talk with each other, with or without space helmets on.

One difference in the Gemini and Mercury transceivers is that where the Mercury radios were mounted within the pressurized cabin, the Gemini radios will be outside the pressurized, or crew compartment, area. This means the Gemini equipment must be hermetically sealed to withstand the nearly perfect vacuum and the vast temperature differences of outer space.

This is the fourth manned space communication project in which Collins has been named a participant. Besides the Mercury, Gemini and Apollo orbital projects, Collins previously supplied the communication/navigation equipment for the X-15 rocket plane, the manned craft that only recently explored outer space.

The Gemini spacecraft will be the same basic shape as the Mercury capsule, but will be 50 per cent larger and will weigh two to three times as much as the Mercury vehicle. Increasing the width of the base by about a foot-and-a-half over Mercury and lengthening the two-man craft proportionately will provide the space needed to carry out Gemini's expanded missions. Use of many proven Mercury systems by McDonnell will hasten development of Gemini. The Gemini spacecraft will retain its equipment section contained in the adapter between spacecraft and launch vehicle in orbit, which will make it about 20 to 21 feet long while in the orbit phase.

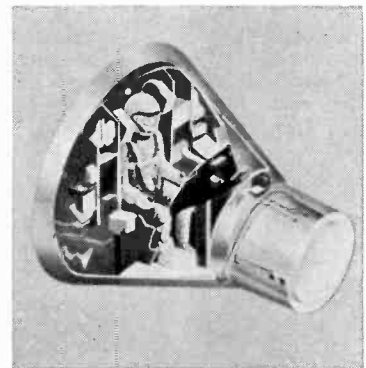
The Gemini program is an extension of Project Mercury. Main objectives of Gemini are to provide an early means of experimenting with manned space rendezvous techniques and long duration flights. The two-

man craft will be capable of earth orbital flights of a week or more and thereby will provide pilot training for future circumlunar flights of long duration.

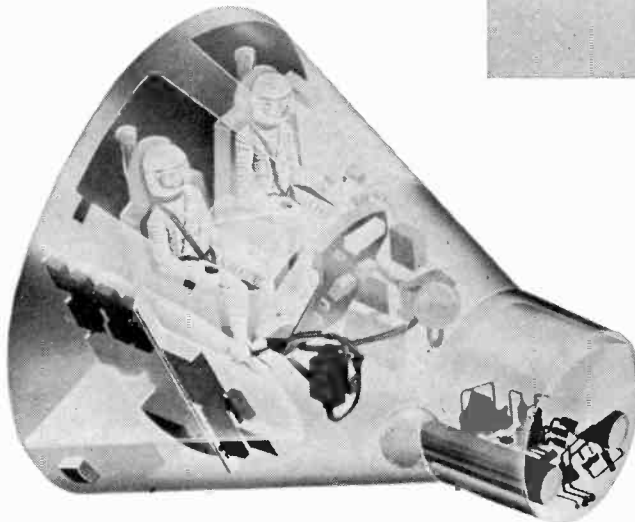
These orbital flights of a week or more will provide valuable data on how man functions under prolonged conditions of weightlessness, and will enable man to carry out a variety of scientific investigations in the space environment.

Rendezvous in orbit is one way of carrying out later manned lunar landing missions. Another possibility is the direct flight approach using a Nova booster. Both methods will be explored in order to meet a national goal of a manned lunar landing by 1970, as outlined in the Apollo program.

RIGHT: The Project Mercury, one-man capsule compared with . . .



LEFT: the two-man Gemini spacecraft, to be launched in a few months.

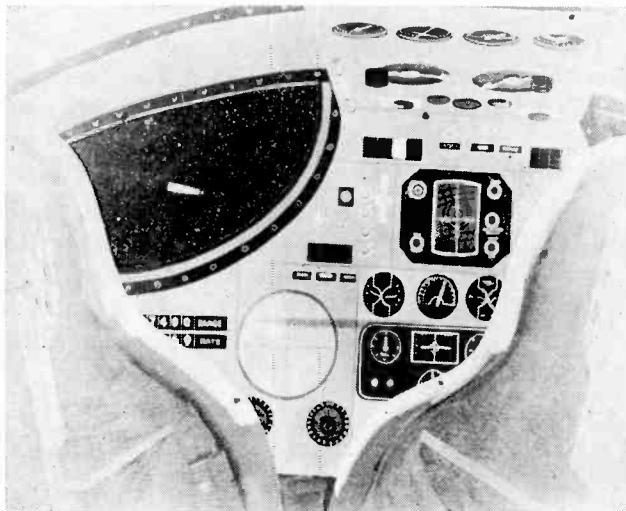


According to officials of the Manned Spacecraft Center, Gemini flights will begin in the 1963-64 period, starting with one unmanned flight from Cape Canaveral, Fla., to test over-all booster spacecraft compatibility and system engineering. Rendezvous and actual docking missions will be attempted in the final flights after the long duration manned flights.

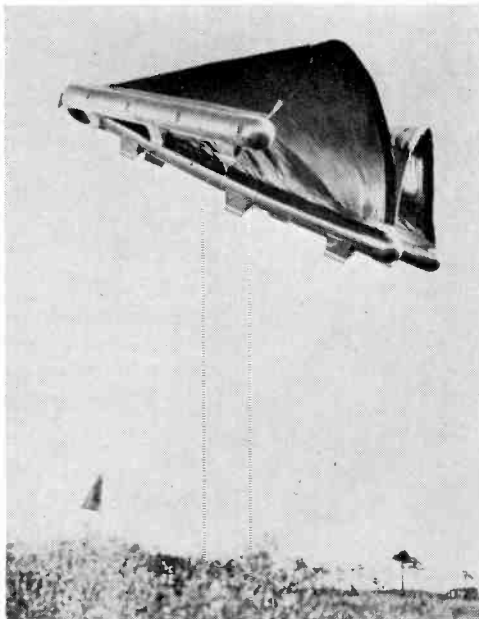
So far, television hasn't been a part of the space-flights picture. Russian TV broadcasts from Red cosmonauts in space last summer prompted U. S. newsmen to ask NASA if similar transmissions would be available from Mercury, Gemini, etc. The answer to date is "no". NASA doesn't consider TV necessary as yet; a

THE MODULE CONCEPT

Continued from preceding page



ABOVE: This is how one side of the control panel in the Gemini capsule will look from behind the astronauts' seats. The rocket booster can be seen in the window at upper left.



ABOVE: This early model of the Rogallo Wing will be used in later flights of Gemini. This wing configuration will be folded inside the two-man spacecraft and during reentry will be deployed like a parachute and glide the spacecraft to an Earth landing. The first programmed flights of Gemini, however, will use "ring sail" parachutes for recovery.

TV camera and associated equipment would add weight, take up valuable space, use up power and—point of major concern—create a danger of triggering other electronic devices in the capsule. (This last mentioned phenomenon, which would have been called "gremlins" two decades ago, is known as "glitch" in space parlance.)

It has also been reported that NASA prefers to keep the prying eye of television out of its spacecraft . . . for the time being.

AFL-CIO Secretary-

Excerpts from IBEW

MR. CHAIRMAN, Secretary Keenan, officers and delegates to this Convention: I first want to say that my presence here with you this morning is more or less as a substitute, because President Meany had hoped that it would be possible for him to be here with you. But he hasn't returned to Washington yet from an extended trip he made throughout the western part of the country. So what has gotten to be unfortunate for him has gotten to be fortunate for me, not only because I have the opportunity to visit with you for this short time in your Convention, but since I have arrived here yesterday I have had an opportunity to meet a number of delegates present at this Convention with whom I have worked over the years in various parts of the country.

I want you to interpret my visit with you this morning as bringing with it the official greetings of President Meany and the Executive Council of the AFL-CIO.

I am particularly pleased that the IBEW selected Montreal as this Convention site, which, in my way of thinking, gives recognition to those members of yours who reside in this country that is so much a part of us in all of our overall national and international endeavors.

On the way up here yesterday I got to wondering somewhat as to the subject that I might select to discuss with you this morning and got to thinking back to what we were saying last year and two years ago and comparing it to the conditions we find today. I think it is always well to look back a little bit as you plan for the future, because it gives you better insight as to the direction in which you are going.

* * *

I get to thinking at times that we lose what may be a sort of braggart characteristic. I know in my earlier years whenever anybody would listen to me I would tell them about the great things we were doing in the labor movement. I get to thinking at times today that you are not telling your story, you are not bragging about the things you are doing, you are not telling of the efforts each and every one of you is putting forth in your own community to improve your communities.

* * *

If we made a list of the contributions that are made by the trade union movement in building a better community, it would be a mighty lengthy list and in the end you probably wouldn't give the time to read it. But the fact remains that there are too many people throughout the country who do not realize what we are doing because we haven't told our story. Until we go out and tell our story we will have to expect that they won't be applauding for all of these accomplishments of ours and they will find themselves being subjected to the propaganda of the others.

Yes, while all of this is going on I have a complaint, I have a gripe, if that is the proper word for it, because I do find in America that there is a double standard used in judging people. I am not going to get up here and defend what some of the leaders of our movement have done, and which they have admitted under oath. Their removal was a joyous occasion for me because once they broke the faith and trust that was placed in them, they no longer deserved to be a part of our movement and their immediate elimination adds up to our benefit.

But there are other groups around the country that are a substantial part of the national community which can always find something wrong with labor, and some of the stories of what others are doing, or the manner in which they are conducting themselves aren't generally known to the public.

I am going to tell you a little story this morning, because I think you have a lot to do. I have told this story somewhat before, the early phase of it and I am going to run through it rather quickly. There will be enough facts and figures in the proceedings of this convention that you can use it as you go about your daily work at your local or your state level.

Back in the latter part of 1960 and the early part of '61 there was a fellow named F. Meyers Miller, who is the chairman of a national association that they call the Association for

Treasurer Lauds Unions' Records

Convention Address by William Schnitzler

Bank Audit, Control and Operation. He was making a speech to the Ohio State Bankers' Association, and the title of his speech was, "Let's put out the fire."

I saw a little squib in the newspaper. I was flying into Detroit to address the convention of one of our affiliates, and I saw this little thing about Meyers Miller and the title of his speech, "Put out the fire." Well, I figured he wasn't a fireman. I couldn't understand what the fire was about. So, when I got back to Washington I asked for a copy of his speech, and here is what I found in his speech.

He told the Ohio Bankers' Association that in that year, 1960, there were 1,771 instances of stealing, fraud, or embezzlement in the banks of America, and this was a report he said that was put together by the FBI.

Well, he thought so much of that speech he made in Ohio that he went to Arkansas and he made the same speech before the Arkansas State Bankers Convention.

Then he goes on to tell that the FBI had broken down the figure of 1,771 so that the bankers could get a better idea of what was going on in the banks of America. He said that 42.6 per cent of the instances of fraud, stealing or embezzlement was charged to tellers, the regular teller employees around the bank.

Well, that didn't bother me too much, because I know they talk about trade unionists and they talk about tellers in the banks, and they talk about the wages they get . . .

Then it goes on and points out that 30 per cent of these embezzlements were by managers. Those are men who are hired to manage the affairs of the banks, holding executive positions.

Then they go a little further and say 12.8 per cent were cashiers. In the years that I grew up I always learned that a cashier was thought of as a big boss in the bank. He was the fellow that would determine whether certain loans would be made or would not be made. This amount was involved in fraud, stealing and embezzlement.

But then they go on to point out that 8.6 per cent was chargeable to presidents, that presidents were stealing from the banks they served as presidents.

If my figures are correct, 8.6 percent represents 152 bank presidents in that year who were guilty of stealing from the bank of which they were the president.

Oh, they have another figure. Six per cent were vice presidents. Well, I just got to figuring a vice president is so low on the totem pole he could never reach up into the cash drawer, and that's why there were so few of them.

But here is the story, as you put this together. I know you don't know of it. I never knew of it. It was the most shocking thing that I had read in a long time.

Still and all, I know that the bankers of America know this story. Wherever you have an anti-union development you will find the bankers in the midst of it, and wherever there is a drive to put a right-to-work law on the state statute books, you will find bankers among them, and they are condemning the trade unions of America. But never once did they ever tell this kind of a story about what was going on in the banks under their own noses.

Now, you know how I figured this out. We have 133 affiliated organizations in the AFL-CIO. If 8.6 per cent of the presidents of our International Unions were doing the same thing that the bank presidents were doing, it would be that approximately, by average, eleven and one-half International Presidents would go to jail every year.

Can you imagine what kind of a press, radio or television coverage you would have in America if the Trade union movement only came up to the average of the banks of America? That is why I talk about public standards. I am sick and tired of parts of our nation's community condemning and constantly

William Schnitzler,
AFL-CIO
Secretary-
Treasurer.



condemning the trade union movement, and still and all you find this going on.

* * *

There were all sorts of speeches made around among the bankers of America, telling them you'd better get in and clean this up before the government gets into it. You are going to have extra legislation, so I kind of soft-pedaled it a little bit until the reports from 1961 came out and, brother, let me tell you, there has been a substantial improvement—yes siree.

The stealing, the embezzlement and the defrauding that is going on in the banks of America has increased by 26 per cent. Here is a magazine, June, 1962 issue, and let me tell you, brother, you've got to be in the big leagues. You have to be in the big leagues that really get counted around here, because they don't like to count any instances of stealing or embezzlement or fraud that is less than \$10,000. You have to steal more than \$10,000 to get your name in the record.

They point out that in 1960 the losses were \$10,100,000. In 1961, the losses were \$12,900,000. That is the 26 per cent that I am telling you about, and let me give you the other little figure, because it points out in the first instance, as I show you, that there is no difference.

In 1961, there were 530 shortages that were chargeable to tellers or minor employees in the banks, but there were 607 chargeable to officers that you could consider to be executive officers in the banks, but, then, they got a good one here. I want to read it so you don't think that I am dressing this up.

Last year 427 bankers were convicted on violations of the Federal Reserve Act, and approximately 300 officers or employees are awaiting trial or are sought by law enforcement officers. Some of them took the boodle and skipped and they haven't caught up with them yet. Here is 427 convicted. Who had any idea that this was going on among the banks of America, and I am one of them who has gone out and complimented the banking institutions. I believe our type of banking institution is the best in the world. I defended it as an institution, but I cannot in good conscience defend the record of those who are officers of the banks.

* * *

Now, let's turn this coin over. Joe Keenan knows the story because Joe Keenan was one of the members of the committee of the National Surety Association of America, which is an association comprising the fidelity bonding companies of America. When I say our record, it means your record. Joe and I are secretaries. We are only two people and the records of the insurance companies don't reflect us, but it reflects what each and every one of you have done. Because the insurance company had not paid out one single cent under the faithful discharge feature of the Landon-Bearden bonding requirements

Continued on page 12

MAYBE THE PEACE CORPS?

The Peace Corps is now selecting Volunteers to serve in an educational television project in Colombia.

The project initiates a new phase in the opportunities available to Peace Corps Volunteers.

The new project will put the vast potential of television behind a rural development program that is among the most progressive in Latin America.

Two contingents of Peace Corps Volunteers are already engaged in Colombia's rural development program and several of those persons will assist in the new television project as field workers.

The new group of Volunteers will be specialists in television program production.

The project requires a project director and six writers-producers who are specialists in research, scripts promotion, utilization, animation and cinematography.

The purpose of the project is to train Colombians in the preparation and production of educational television programs by giving assistance and at the same time providing on-the-job training.

Education is basic to the progress of the economic and social spheres of Colombia, and, therefore, emphasis is being placed on all fields of education throughout the nation.

However, there is a great shortage of competent teachers on all levels, from primary through university. The

use of mass media such as television could bring quality instruction to schools.

Colombia has the largest television network in Latin America. It is estimated that by the end of the year 90 percent of the 15 million Colombians will be covered by the network.

By then the use of television as a wide-spread teaching mechanism will be easily within reach.

Peace Corps officials believe that this innovation in Colombia offers a challenging potential for development in other countries where education in rural areas is inadequate and often non-existent.

To be eligible for Peace Corps service, a Volunteer must be 18 years of age. There is no upper age limit, however. Married couple without dependents under 18 are acceptable if both can serve as Volunteers in the same country.

Volunteers must be in excellent mental and physical health. For the Colombian television project a background in television production is essential.

During overseas service, Volunteers are provided with housing, clothing, food, medical care, transportation and incidental expenses.

On completion of service, Volunteers receive a termination pay accrued at the rate of \$75 a month for each month of duty.

For additional information on this project, persons

Educational television in South America and electronics research in Antarctica are among many overseas openings

RIGHT: Two Peace Corpsmen with survey equipment returning from a day of training in the Texas hills near El Paso. They're preparing for an assignment in Tanganyika.



Language training is a "must" for most Peace Corps posts.

THE CALL OF FAR



should contact Jules Pagano, Professional and Technical Division, Peace Corps, Washington 25, D. C.

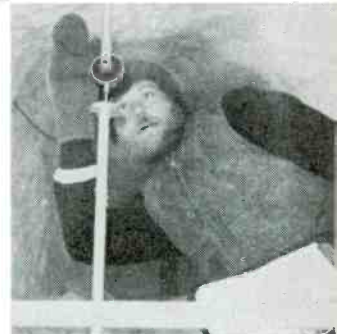
WANT TO TRY ANTARCTICA?

Boulder, Colo.—The Boulder Laboratories of the National Bureau of Standards has opened its 1962-63 campaign to recruit electronic engineers and physicists to serve for 12-18 months in the Antarctic research program, which includes a short training period at Boulder. Applications are now being considered. The recruiting drive is headed by William S. Hough, Field Engineering Section of the Central Radio Propagation Laboratory, in Boulder.

November is the summer season in the Antarctic and is the time when rotation of personnel takes place. Those who have carried on polar projects for the past year will greet the newcomers—break them in on their new jobs—and turn important research projects over to them before returning to the United States.

NBS research projects in the Antarctic are a continuation of those which were begun during the International Geophysical Year (IGY), and will lead to the program known as the International Year of the Quiet Sun (IQSY). Conducted in coordination with the National Science Foundation, the Boulder Laboratories' projects are concerned chiefly with the measurements of electromagnetic phenomena, with the characteristics and be-

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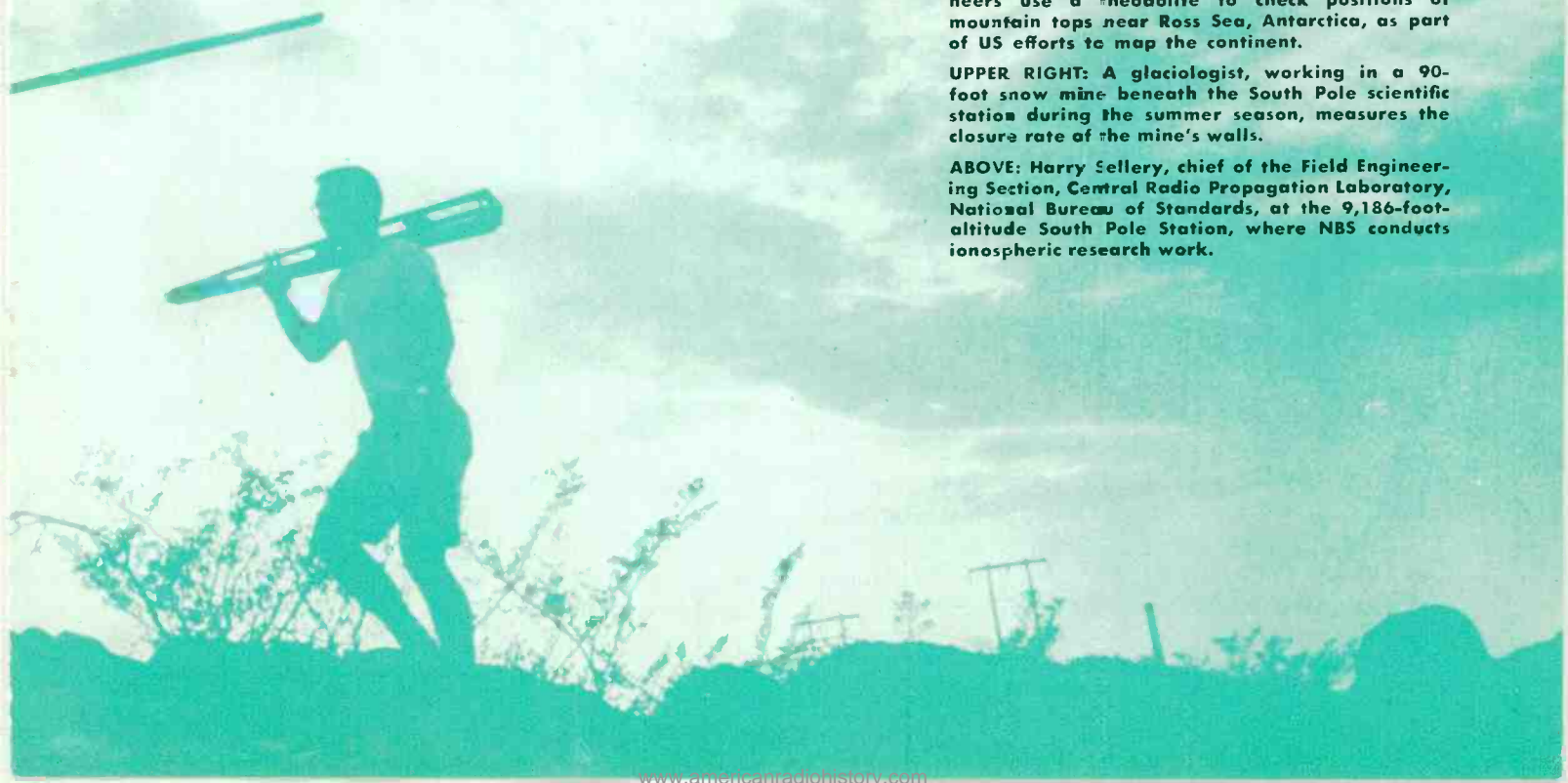


TOP: Two US Geological Survey topographic engineers use a theodolite to check positions of mountain tops near Ross Sea, Antarctica, as part of US efforts to map the continent.

UPPER RIGHT: A glaciologist, working in a 90-foot snow mine beneath the South Pole scientific station during the summer season, measures the closure rate of the mine's walls.

ABOVE: Harry Sellery, chief of the Field Engineering Section, Central Radio Propagation Laboratory, National Bureau of Standards, at the 9,186-foot-altitude South Pole Station, where NBS conducts ionospheric research work.

AWAY PLACES



THE CALL OF FARAWAY PLACES

Continued from preceding page

havior of the ionosphere, and with the effects of solar activities on radio transmissions.

The study of the electromagnetic geophysical phenomena of the polar regions is exciting and included are aurora, airglow, magnetism, very low frequency emission, riometry, micropulsations, radio noise, in addition to the ionosphere physics. In the Antarctic the land mass has provided permanent fixed locations for scientific stations, making possible the continuous study of the variables of nature without the complications caused by constantly changing position as in the case of Arctic stations located on the pack ice.

The Radio Noise Section operates a network of recording stations throughout the world to determine the level and character of the radio noise (static) with which wanted radio signals must compete. One of the most interesting stations in this network is the one located at Byrd Base, Antarctica. This station is in the unusual geographical location that allows study of the propagation of noise from thunderstorms along the equator over a nighttime path. Also, since Byrd Base is located near the centerband of auroral activity, this is a unique location for the study of the effects of this phenomenon on radio noise and reception. The noise recording equipment is located about a mile from the base camp and is complete with its own diesel-electric generating equipment. The radio noise is recorded automatically on eight discrete frequencies from 51 kc/s through 20 mc/s. The recordings are made on two channels simultaneously and on a time sharing basis so that each frequency is sampled for fifteen minutes each hour.

The corpuscular bombardment effects of energetic particles on the earth's ionosphere will be observed in the Antarctic at the new Eights stations and at Byrd station. Simultaneous observations of very low frequency emissions and whistlers, airglow and aurora, ionospheric absorption, and magnetic micropulsations will be made in a comprehensive geophysical experiment. This series of related experiments will make possible a detailed study of energetic particle behavior as influenced by the earth's magnetic field, and the effect these particles have on the ionosphere. The experiments will permit a detailed study of the relationship between the occurrence of geophysical phenomena as observed simultaneously in the two hemispheres, since similar observations will also be made in the northern hemisphere.

One of the principal instruments to be used in these stations is a vertical incidence, sweep frequency, pulsed radar. Using this instrument, it is possible to determine certain characteristics of the upper atmosphere, including the heights and electron densities of the ionosphere layers. The data from each station are transmitted to the World Data Center in Boulder, where they are available to other research workers for analysis.

Positions are now open for qualified physicists, electronic engineers, or experienced technicians prepared to spend twelve months in the Antarctic to operate the experiments, maintain the instruments and supporting equipment, and participate in data analysis. Personnel who successfully pass the qualifying tests will be given a 30-90 day training period at Boulder Laboratories before departing for the Antarctic. Inquiries may be addressed to the Personnel Officer, Boulder Laboratories, NBS, Boulder, Colorado.

THE COVER STORY—W-D-G-Y, MUSIC AND NEWS, MINNEAPOLIS



LEFT: Paul Johnson with the news. There's a newscast every half hour, with headlines between.

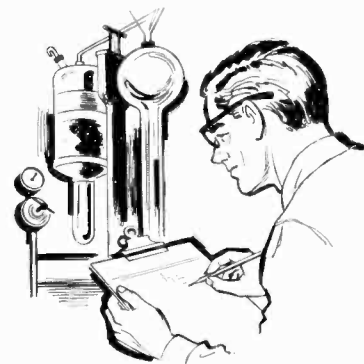
RIGHT: Don Dahl, transmitter supervisor, checking the time and cue sequences for the all-day taped operation.



On the western outskirts of the Twin Cities, just off a new freeway, are the towers of Radio Station WDGY. It's a Storz Station operating on 50 kw during the day and 25 kw at night. Members of Local 292, Minneapolis-St. Paul, handle the technical duties. Most of the

programming consists of the top "pop" music records and headline news. Disc jockeys prerecord music and continuity in a basement studio. Automated racks hold the resulting tapes, plus "the singing clock," jingles, and spot announcements.

Direct Energy Conversion



FOURTH GREAT AREA OF BUSINESS FOR ELECTRONICS

Production of power by direct conversion from light and heat energy will become a fourth great area of business for the electronics industry within the next few decades, said Dr. Elmer W. Engstrom, President of the Radio Corporation of America, at the banquet meeting of the 1962 Western Electronics Show and Convention at Los Angeles. Dr. Engstrom compared the potential importance of new electronic power-producing techniques with that of the key advances that have led in the past to business growth in radio, television, and solid-state electronics.

He said that "the seed of a power revolution" is contained in current research progress toward silent mobile generators employing solar cells, chemical fuel cells, and thermoelectric and thermionic devices to convert light and heat directly to electrical energy. He added: "It now appears technically possible before the end of this century to possess the ability to supply electricity in any desired quantity for any conceivable application anywhere on the face of the earth, beneath the seas, and in outer space."

Dr. Engstrom predicted that development of the new power devices in economical form "can create new applications for electricity and new markets for electronics." In the developing nations of Asia, Africa and Latin America, he added, these new power sources "could produce benefits unmatched by any single trend of science and technology in this century." He pointed out that millions of people in these regions now live beyond the reach of power lines and cannot afford present conventional motor generators or the fuel to run them. "By means of mobile electronic power packages, electricity could be introduced swiftly into countless homes and villages," he said. "This could be done well before it might become economically feasible to construct central generating plants and power distribution networks."

"Such a development could be expected to produce a rapid rise in human productivity and living standards. At the same time, there would be created in these regions a sound economic and social base for the eventual introduction of central power generating facilities."

Dr. Engstrom cited direct energy conversion as a

principal example of a need for energetic action by the electronics industry to speed the general application of technical advances that are now achieved in top-priority military and space programs.

"As our technical efforts move increasingly to these government programs, more breakthroughs are apt to occur in the highly specialized areas related directly to military and space technology," he said. "This is particularly true of the systems and apparatus. However, the techniques and know-how are of broad general application. We need to recognize this clearly in order that optimum use also may be made in industrial, commercial, and other nonmilitary areas. Otherwise we may find progressively fewer cases of the rapid development of new commercial products and services from the scientific conquests of defense and space."

He also pointed out that the urgent requirements of the government programs necessarily place more emphasis upon results than upon cost, and that many important space and military projects require substantial research and engineering without leading to a requirement for large-scale production facilities.

"Yet, whatever their initial motivation, the majority of our technical programs continue to generate discoveries, inventions, and innovations which increase our potential for new business in growing commercial markets," added Dr. Engstrom. He went on to say that while this trend is in the traditional pattern of electronics, a new and urgent element today is "the need for balance in our total program. Procedures must be established to draw more extensively from the technical advances made in military and space programs and to press their application in all other areas."

"Such an effort will call for added industry investment in research and engineering. It will require each enterprise to review its technical programs in order to ensure that scientific and engineering manpower is being employed with maximum effectiveness. This is essential because there can be no lessening of the effort that is devoted to meeting urgent national needs in defense and space." With energetic steps in this direction, he said, "there is every reason to believe the industry can equal in the next ten years the technical and business growth record of the past half-century."



Lucian Lessard, on the right, supervisor for Videotape Productions of New York, Inc., and Mr. Graham Grove of ABC-TV, pool coordinator for Telstar, finish up the task of editing video tape for the 18-minute account of Astronaut Walter Schirra's flight, beamed via Telstar.

It's a Shrinking World TV KEEPS PACE WITH SPACE AGE

By PHIL NICOLAIDES

An 18-minute video-taped account of Astronaut Walter Schirra's launching into space was relayed by the Telstar communications satellite to 22 European countries beginning at 9 a. m., only 45 minutes after the blastoff at 8:15 a. m., and long before Schirra completed his first orbit. Audiences in Europe were thus able to see and hear the sights and sounds of the launching and preliminary proceedings from Cape Canaveral. An 18-minute video-taped account of the events was compiled and edited on tape recorders at Videotape Productions of New York, Inc., the country's largest independent video tape production center.

The program was relayed to Telstar as it came into range at 9 a. m., and was beamed to European audiences in 22 countries via the British Broadcasting Company and Eurovision. Viewer reactions from "the man in the street" were relayed back to the U. S. networks—also via Telstar. Engineers at Videotape Productions, members of Local Union 1212, IBEW, condensed the taped program from approximately 22,500 feet of tape into only 1,350 feet.

Remember that November 6 is Election Day. Exercise your right and responsibility as a citizen by going to the polls on Election Day.

250 STEREO STATIONS PREDICTED

Two hundred and fifty stations—roughly 25 per cent of presently-operating FM broadcasters—will be transmitting FM stereo radio by the end of this year, Harold L. Kassens, chief of the Federal Communications Commission's Aural Existing Facilities Branch, said recently.

During a press conference following his appearance before a joint business session of the Electronic Industries Association's Radio and Phonograph Sections, Mr. Kassens also predicted that FM stereo ultimately will replace monophonic FM.

Mr. Kassens said that at the rate at which the FCC now is receiving notifications of conversions to stereo, the number of FM stereocasters could go as high as 300 before next January 1.

The size of monaural record libraries impedes the conversion of large stations, Mr. Kassens observed. New stations do not have this problem and the majority of them will be stereo, he added.

Mr. Kassens also discussed the FCC's proposed revision of FM broadcast rules (Docket 14185) to foster the growth of FM. In proposing to license stations in three classes—Class A, with a maximum of three kilowatts of power; Class B, with a top of 50 kilowatts; and Class C, with power up to 100 kilowatts—Mr. Kassens said the Commission intended to limit station power in the most populous areas of the country.

He said the FCC hopes its proposed rules revision will provide frequencies needed to enable FM radio to expand as the country grows.

The Commission believes, Mr. Kassens stated, that broadcasters now operating marginal AM stations will be encouraged to convert to FM when they realize that the new frequency assignment plan will assure them of guaranteed service areas protected against interference.

The range of protection for Class A stations, he pointed out, would be 15 miles, while Class B and Class C operators could anticipate freedom from interference for 40 and 65 miles, respectively.

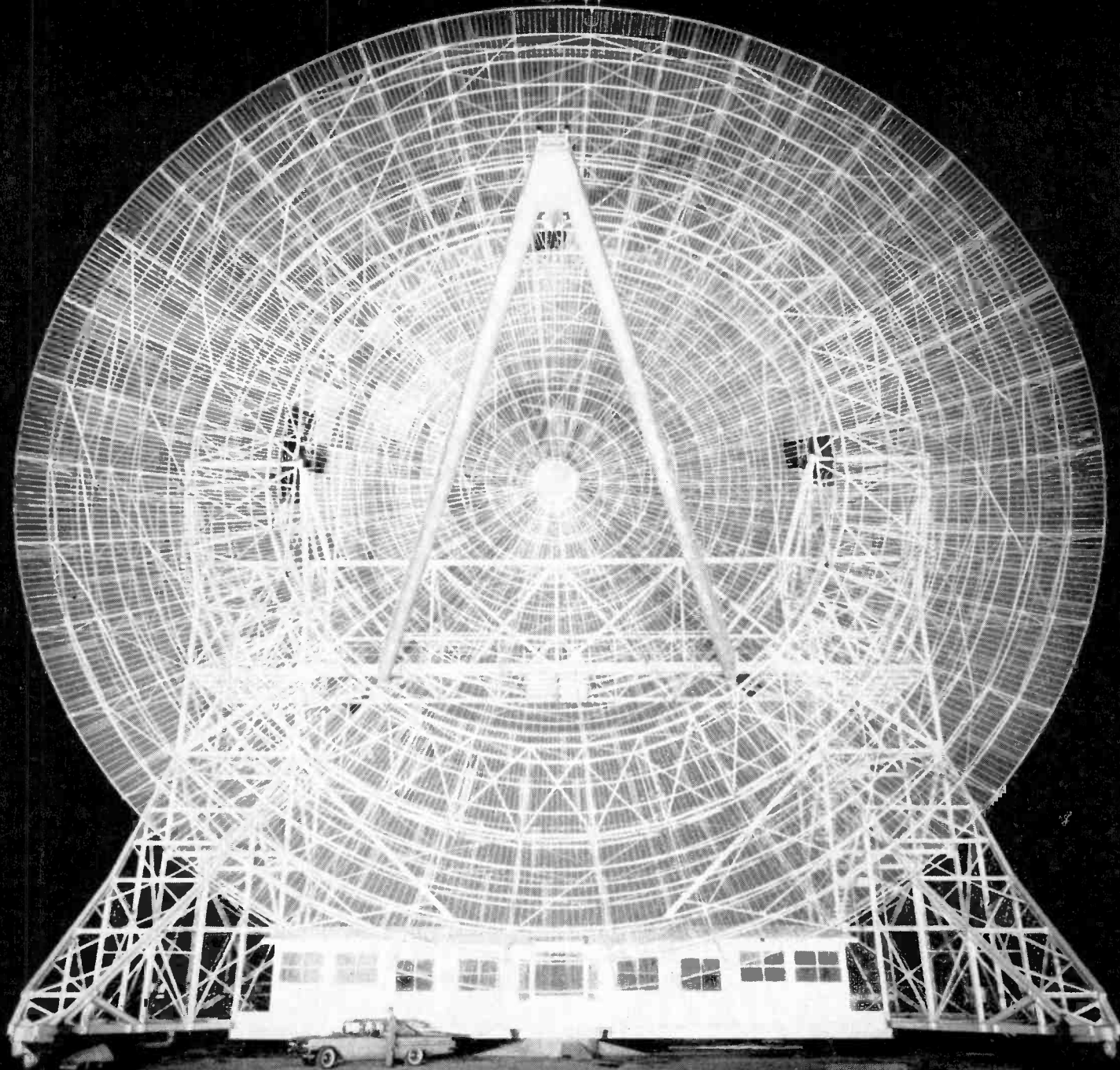
AFL-CIO SECRETARY-TREASURER

Continued from page 7

and we insisted on the complete elimination of that premium, they were good fellows. They voluntarily cut the premium in half so our secretary-treasurers were still fighting for a reduction at a time when the cost of fidelity bonding for trade unionists in America was going down, and the fidelity bonding costs for the banks of America were going up. There are no banks in America that have fidelity bonding coverage that is as cheap as the fidelity bonding coverage we get for our International Unions, and this cannot be questioned by any bank or cannot be charged as being false. We have the records.

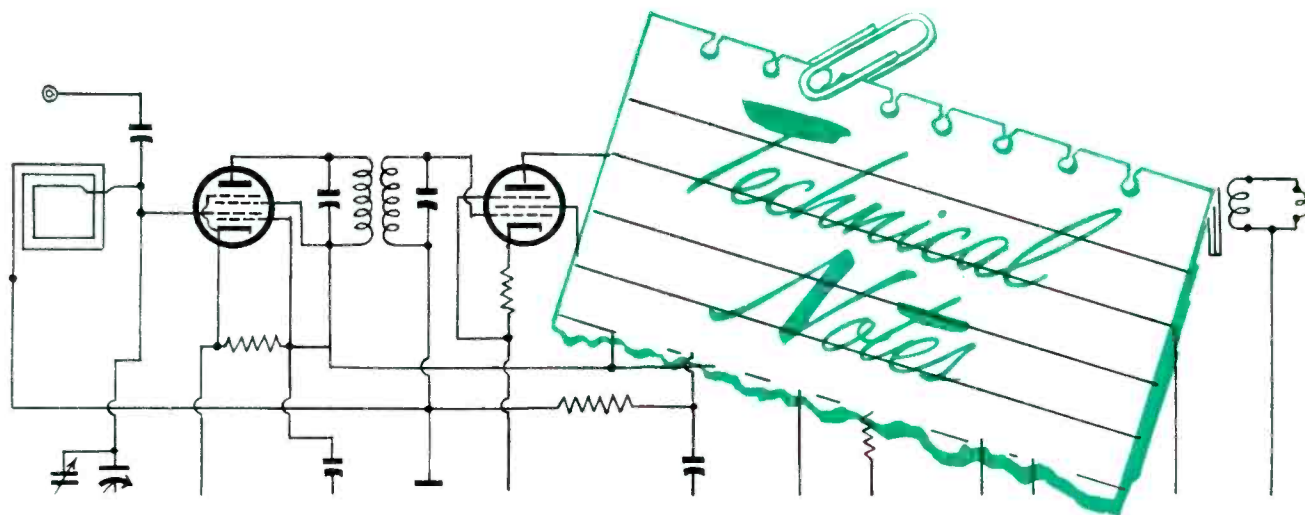
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I want the rest of America to know that the banks of America cannot reach the high standards that we have set in the trade union movement, and I insist that every union be judged, the same as any other citizen in America. If they are judged with the same kind of eyes and the same kind of mentality, we will stand head and shoulders above any national organization in this country, and that is a credit to each and every one of you.



**THE
COMPLEXITIES
OF A
RADIO
TELESCOPE
DISH**

A star-gazing spider web of steel and aluminum, constructed on a Stanford University hilltop, towers 160 feet above the California terrain. One of America's biggest radio telescope "dishes," it will be used in radar astronomy research. The unusual night photograph shown above was made with a single, handheld, 65,000-candlepower light "gun" and wide angle lens by Photographer Lloyd Provan of the Stanford Electronics Laboratories. Built by Stanford Research Institute with Air Force sponsorship, the dish will explore the sun, moon, planets, and interplanetary gases with a 400-kilowatt radar probe when it goes into operation later this year. The peak of the tripod, over the center with one leg hidden, will hold receiving equipment to catch signals reflected from the huge dish surface. An aircraft warning light shines above it, while the built-in house at the bottom contains controls, workshop, and offices. Photo information: 4 x 5 Super Graphic camera, Plus X film, 1:8/65 lens, f 11 aperture, 3.5 minutes exposure.



ALL-CHANNEL STANDARDS

Industry recommendations for minimum technical standards for TV sets capable of "adequately" receiving all UHF as well as VHF stations were submitted to the Federal Communications Commission August 22 by a task force of the Electronic Industries Association.

The report was prepared in response to a request from FCC Chairman Newton N. Minow that EIA transmit industry's views following enactment of the all-channel receiver law and preparatory to the issuance of appropriate regulations by the FCC.

"The industry recommends that the receiver shall be capable of receiving any UHF channel with a noise figure not to exceed 18 db (decibels)," the EIA report said. "The industry recommends that for any given receiver the average of the limits of sensitivity of the UHF channels shall be not more than 8 db below the average of the sensitivity of the VHF channels.

"The industry sees no necessity of specifying additional parameters at this time. It stands ready, however, to assist the Commission should additional parameters become necessary or desirable in the future.

"With respect to the question raised by the FCC staff on 'ease of tuning', the industry advises that push-button, as well as other means of tuning, has been, and will continue to be, actively pursued.

"The industry recommends that the Commission consider a time limit for these standards two years after the VHF-only cut-off date since it is believed that advances in the art, brought on by competition, will, during that time, obviate further necessity for this requirement."

Mr. Wood pointed out that the committee had complied with a suggestion of the FCC staff that industry recommendations be based on the "present state of the art" rather than anticipated improvements in UHF reception. He also said that many manufacturers will produce all-channel receivers with lower noise and sensitiv-

ity figures than the limits recommended by the technical conference.

EIA earlier submitted to the FCC another report based on a survey of all TV set and tuner manufacturers indicating that July, 1964 would be the date when the majority could shift entirely to all-channel set production without upsetting prevailing trade patterns and adopted production schedules.

PORTABLE BROADCASTING SYSTEM

A broadcasting setup which can be transported by plane or helicopter and quickly activated for broadcasts to a civilian population or enemy forces within a few hours is being produced for the U.S. Army Signal Corps by Gates Radio. The system will include two 50 kw transmitters (one standard AM, one shortwave), studio and control equipment, a 150-foot antenna tower that telescopes for flight and 21 "heli-huts," protective shelters which double as airlift containers. The Signal Corps requires that the system be operable at elevations up to 12,000 feet. Consequently, Gates developed new standards in blowers to cool transmitter tubes, higher voltage insulations for wiring and other component protections.

TV SIGNALS VIA LIGHT WAVES

A group of West Coast scientists have successfully transmitted microwave signals, using light waves as the carrier.

The achievement was called the first step in making use of enormous wideband potentialities of laser-produced "coherent" light for communications, including the potential of a single beam of light carrying a hundred million TV programs simultaneously.

The successful experiment took place August 15 at Stanford University's Electronics Labs. The key to the demonstration was the development by the Stanford University group of devices for demodulating the light

beam. One of them is a microwave phototube, which Prof. Anthony E. Siegman of the Labs. likened to the first crystal receivers in the early days of radio.

The Stanford University research is being supported by the Air Force and the U. S. Army's Signal Corps.

COMPACT MORSE CODE TRANSLATOR

An automatic Morse code translator, small enough to be carried by hand and capable of recognizing manually keyed telegraphic signals over a wide range of speeds without adjustments, has been developed by the Surface Communications Division of RCA. The successfully tested laboratory model automatically translates the Morse signals into lighted letters and numerals on a panel from which a typist can copy them, according to Stanley W. Cochran, Division Vice President and General Manager.

The unit incorporates about 120 transistors, and is extremely small in comparison with other translating equipment now in existence, measuring roughly 5 x 5 x 8 inches. It operates on a power of 9 watts. Besides its small size, the system has the advantage of being able to recognize Morse signals that are imperfectly transmitted unless they are completely slurred, in which case it will reject the information.

The translator might well eliminate the Morse code training period now required by military and commercial communications agencies; and in certain sensitive areas could free operators from tedious and continuous monitoring tasks.

NEW VIDEO TAPE RECORDER

Mach-Tronics, Inc. of Mountain View, California, has just marketed a tape recorder which is completely portable (90 pounds), requires little more than 400 watts from a 117-volt power source and offers fidelity of ± 3 db from 10 cycles to 3 mc.

Gold-plated printed circuitry of the machine and extensive use of solid state design in the audio, video and servo departments account in large part for its small size. Only 24" wide, 11" high and 15" deep, even a monitor is included—which can be switched to the recorder input or to the playback output.

The machine uses 10 $\frac{1}{2}$ " reels of 1" tape; 3600 ft. provides a maximum of approximately 96 minutes of record-playback time at 7 $\frac{1}{2}$ " ips. Helical scanning, with a 180° tape wrap, involves two recording heads. Separate audio and control track heads are mounted next to the capstan and a second audio channel may be added as an additional accessory. The manufacturer claims that the combination of high-precision bearings, specially designed hysteresis synchronous motors and torque motors produce smooth and stable operation. Constant tape tension is maintained in a "closed loop" system which employs a unique tape tension arm and brake assembly.

The machine is designed for a 75 ohm terminated input with a composite signal level of .5-1.5 volts. Its output is also 75 ohms, .5-2.0 volts (p-to-p). A signal-to-noise ratio of 40 db (or more) is claimed as standard.

The audio input can be either 600 ohms (unbalanced) or a high impedance microphone; audio output is 600 ohms, unbalanced. Overall audio response is ± 2 db from 60 to 10,000 cycles; s-n ratio of 40 db or more.

A swing-forward control door to the right of the monitor screen reveals a meter which can be switched to Video Record Current, Control Track Record Current, Control Track Playback Level, and Bias. Audio Input, Audio Output and Video Input level controls are on this same panel.

Front-panel internally-lighted push buttons are utilized for record, play, stop, rewind and fast-forward control, mechanically interlocked. Input and output, power connections and an on-off switch and a power line fuse are on a panel on the rear of the machine.

The MVR-10 is designed for reference recording (with a video tuner, off-air recordings are feasible), aviation and aerospace training utilizing television in simulators, radar air traffic control information recording, a variety of military training programs and the like, as well as closed-circuit TV.

PICTURE TUBE DEVELOPMENT

A new process of manufacturing TV picture tubes, developed early this year by Kimble Glass Company, promises to eliminate the safety shield now covering most tubes, substituting a built-in safety apparatus which protects tube handlers and TV viewers equally as well.

Under existing standards, a separate glass shield is installed in the front of the TV set, or else a shield is laminated to the face of the tube. Kimble's new process makes the shielding unnecessary, for it incorporates safety features in the tube itself, permitting a mild and safe devacuation should the tube be cracked or broken. Called Kimcode (i. e., Kimble method for controlled devacuation), the process has three major elements: two metal bands and a fiberglass skirt.

Kimcode will lighten a 23-inch tube by almost 10 pounds. It will also permit shorter and more economical envelopes. The process has been recognized as an acceptable system by the Underwriter Lab.

TELEVISION AUDIO FOR AUTOS

There's a device now being marketed on a limited basis which permits auto-radio pickup of local TV audio. The FM audio signal may not be worth listening to when the kids' cartoons are programmed, but, then again, there are some TV shows which entertain even when you go to black.



STATION BREAKS

COLOR TV REPORTS FROM NYC

The Local 1212 News reports these color TV developments in New York City and environs:

ABC-TV has begun closed-circuit color tests to its network during non-network hours in the morning and early evening.

CBS-TV is "dusting off its equipment, modernizing some and ordering other items," but so far has done no testing beyond the studio confines.

Most New York Telco video circuits will handle color signals since the company has been replacing old circuits for the past several years. The new equipment is more than adequate for the critical tinted video.

KSD-TV AT THE FIRE SCENE

A recent remote at KSD-TV, St. Louis, Mo., actually wasn't remote at all. Fire broke out in the building next door to the downtown studios, while a regular daytime show featuring Charlotte Peters was on the air. Miss Peters donned a fireman's helmet and raincoat, went out into an adjoining alley with technicians of Local 4, and broadcast an ad lib, hour-long report on the fire fighting for her listening audience. A TV camera, shielded from water by an umbrella, covered the event. The fire got so close at one point, that studios were temporarily evacuated.

MORE VOCATIONAL AID

The United States should put far more funds into the nation's vocational education system than it is doing now, in the opinion of AFL-CIO Education Director Lawrence Rogin.

Appearing on a network radio interview over Mutual Broadcasting System, Rogin said the \$56 million budget for vocational education programs is "far too little." "While there are a large number of children involved in vocational programs of one kind or another," Rogin said, "the bulk of those going through school or dropping out of school have not had any specific job training."

A report by the Presidential panel, currently examining the nation's vocational education system, is expected

early in November. The report, Rogin believes, will be the basis of legislative recommendations by the President to Congress in January.

"This," Rogin said, "may be the most important thing that has happened to vocational education since the passage of the original Smith-Hughes Act in 1912."

In addition to the need for increased federal appropriation, Rogin noted on the weekly Labor News Conference program, the public must be made aware of the vital need for such education.

"Academic education is understood; vocational education for skilled work is understood," Rogin said, "but the training for mass production, the training for service jobs in most areas is not tied in either to the school system in a meaningful way or to the employment possibilities in a meaningful way."

Rogin was questioned by Theodor Schuchat of *School Shop Magazine* and Harry Conn of Press Associates (PAI).



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