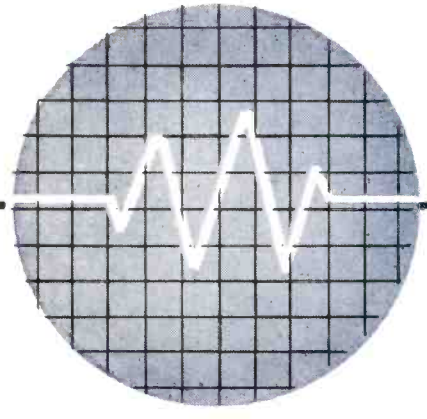
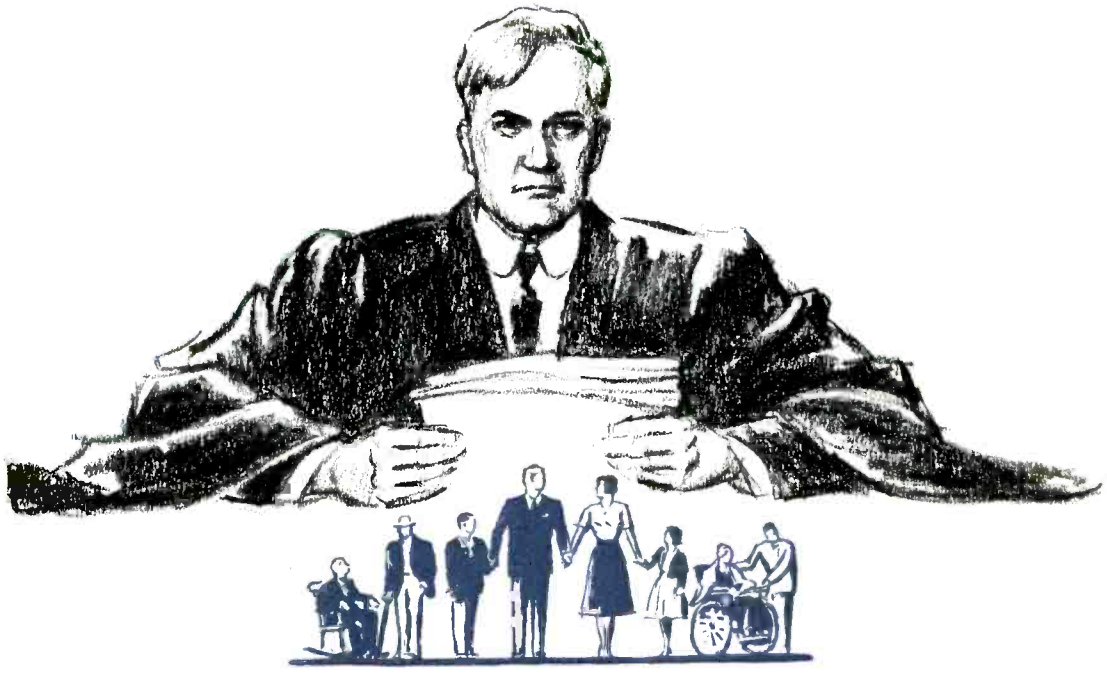


TECHNICIAN ENGINEER

NOVEMBER, 1964

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

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS — AFL-CIO



SOCIAL SECURITY ACT UPHELD BY THE UNITED STATES SUPREME COURT

May 24, 1937

An assault of extensive proportions was made against the Social Security Act, one of the most progressive pieces of legislation passed the last half century, following its passage. The Act was passed August 14, 1935.

An Alabama corporation, the Charles C. Steward Machine Company, sought to recover $46.14 from the Collector of Internal Revenue paid in Social Security taxes. While several arguments were made in court, the basic question involving a matter of constitutional law rested on this: is the tax imposed under the Act an unconstitutional invasion of the state's rights? Numerous arguments were advanced by the battery of distinguished counsel in an effort to upset the law, but basically the question was the age-old one of Federal versus state's rights.

Mr. Justice Benjamin Cardoza speaking for the Supreme Court on May 25, 1937, in a long opinion, demolished all arguments of the petitioners, saying in the course of his opinion, "The Social Security Act is an attempt to find a method by which all these public agencies may work together to a common end. Every dollar of the new taxes will continue in all likelihood to be used and needed by the nation as long as states are unwilling, whether through timidity or for other motives, to do what can be done at home. At least the inference is permissible that Congress so believed, though retaining undiminished freedom to spend money as it pleased. On the other hand, fulfillment of the home duty will be lightened and encouraged by crediting the taxpayer upon his account with the Treasury of the nation to the extent that his contributions under the laws of the locality have simplified or diminished the problem of relief and the probable demand upon the resources of the fisc" (public treasury—Ed.)

Four justices vigorously dissented, but their views were overridden and the constitutional question was resolved in favor of upholding the law, the enactment of which organized labor regarded as a great progressive victory.

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The INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS

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JOSEPH D. KEENAN — International Secretary
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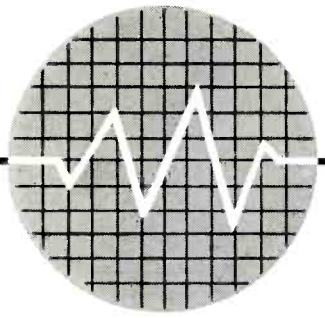
ALBERT O. HARDY — Editor, Technician-Engineer



TECHNICIAN ENGINEER

VOL. 13, NO. 10
ALBERT O. HARDY, Editor

in this issue

the cover

The 1964 Award For Merit for organizing is awarded to Local Union No. 1987, Pittsburgh, Pa., for its organizing progress in the Pittsburgh Metropolitan area, West Virginia, and Southeastern Ohio. Our hats are off to L. U. 1987 and Business Manager John Tipping!

index

For the benefit of local unions needing such information in negotiations and planning, here are the latest figures for the cost-of-living index, compared with 1963 figures: September, 1964—108.4; September, 1963—107.2.

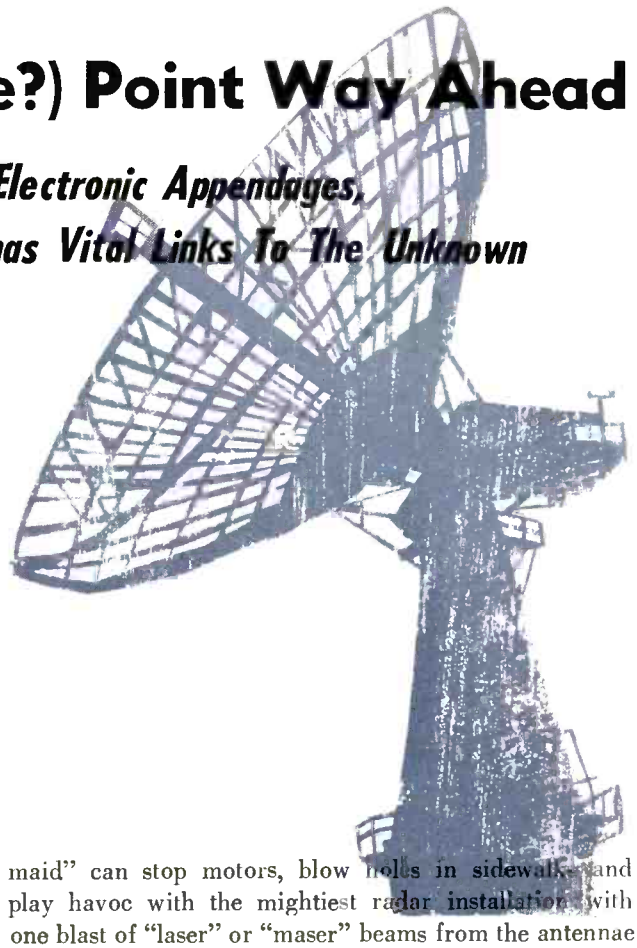
commentary

We are very pleased to announce an annual Award for Merit to local unions accomplishing the greatest percentage increase in membership of any local operating in its field. This award will be announced at and calculated to the date of the Progress Meeting each year. This Award signifies outstanding accomplishment in organizing in the fields of broadcasting, recording, sound and related electronics. The base of the plaque is black, as is the engraving, and the brilliant silver hue of the mounted seal and plate afford a lustrous contrast.

Published monthly by the International Brotherhood of Electrical Workers, AFL-CIO, 1200 Fifteenth St., N.W., Washington, D. C., for the employees of the broadcasting, recording, and related industries. Second class postage paid at Washington, D. C. Subscription, $2 per year.

Antennas (Or Antenae?) Point Way Ahead

Once Considered Merely Electronic Appendages, Recent Developments Make Antennas Vital Links To The Unknown



Antennas . . .

They help the insect to feel his way around, assist the bat flying through the dark, delight television fans who wouldn't be able to watch their favorite programs otherwise, and appeal to sporty motorists as flagpoles from which to fly squirrel tails.

In this age of electronic revolution, however, the antenna fulfills a far more significant role. Without the radical changes in antenna design of recent years, military planning would have been severely retarded, space exploration all but impossible, and worldwide communications systems inefficient and costly.

The part played by the antenna in the space age was spotlighted in panel sessions at the National Electronics Conference in Chicago's McCormick Place during October. Thousands of scientists and technicians from throughout the world attended.

Martin A. Plonus, associate professor of electrical engineering at Northwestern University's Technological Institute, organized the panels and served as co-chairman of a day-long session on new developments in antenna theory. Prof. R. E. Beam, also of the Northwestern electrical engineering faculty, chaired a second antenna session the following day.

Three specific developments are the major reasons for the increase of interest in antenna theory by electrical engineers, said Prof. Beam. They are:

1. The need for means of communicating with orbiting satellites.

2. The need to beam instructions to and keep track of guided missiles and rockets.

3. The emergence of radio astronomy.

COMSAT, the U. S.-sponsored enterprise aimed at establishing an international satellite-borne communications and television net work, would have been impossible without advances in antenna technology, said Prof. Beam.

In the world of electronics, an antenna is a device which can send or receive signals via radio wave, microwave or other electro-magnetic waves. In shape, they range from whip-like aerials such as the ones on automobiles, to circles, to parabolas, to the most widely-distorted geometrical configurations. In size they range from almost microscopic dimensions to giants more than 1,000 feet in width.

Professors Beam and Plonus gave these illustrations, some familiar and some remote, from the world of the antenna:

A current comic strip character known as "Moonmaid" can stop motors, blow holes in sidewalks and play havoc with the mightiest radar installation with one blast of "laser" or "maser" beams from the antennae on her pretty little head.

In the insect world, antenna (more properly known in this context as antennae) protrude from the head of numerous bugs and help them to "feel," to sense heat, moisture, wind, pressure and other physical forces.

Combining Moonmaid's talent for sending beams and the insect's ability to receive outside information via antenna is the bat. In navigating the caverns and abysses at night, the bat actually sends sound waves from its antennae. The waves bounce off nearby objects, return to the bat's antenna and tell him when to fly away from an impending obstacle.

Very bat-like in its behavior is another antenna system, this one manmade, known as radar. Microwaves beamed from the dish-like radar antenna bounce back to the radar receiver when they strike a foreign object in the sky. Radar's use in detecting the presence of enemy aircraft is now legendary.

Among the more interesting of the sending antenna are those devices which send electronic messages from earth to satellites. The signals that told the Mariner vehicle to aim its sensing instruments toward Venus, that told Ranger to start sending television pictures of the moon's surface back to earth, were sent by antenna.

Causing a revolution in astronomy is the radio telescope, itself a giant antenna (the largest of which measure as much as 1,000 feet across). These antenna systems are designed to pick up "galactic noise"—or irregular pulses of electromagnetic energy caused by natural disturbances in outer space.

So far, these galactic radio messages are considered to have been caused by strictly physical or chemical phenomena. When an intelligent being from another planet or solar system finally gets a message through to the earth, however, it will most likly be intercepted by this largest antenna of them all, the radio telescope.

Another new development discussed at the National Electronics Conference was the "data processing antenna," said Prof. Plonus. Such antennas can focus their beams more finely and accurately, and have a longer range than older models.

The military services are using such data processing antennas as artillery spotters, said Prof. Plonus. In a battlefield situation, for example, the antenna could not only detect the origin of enemy artillery fire, but also direct friendly batteries in laying a counter-barrage. Data processing antennas also improve the ability of radar in detecting aircraft more quickly and accurately, he said.

In addition to the exotic, there are also new developments in antennas which will be appreciated by the home folks, Prof. Beam noted. One is the rise of the frequency independent antenna. This device extends the range of a television set and enables the viewer to tune in that otherwise fuzzy channel in a nearby city. Unfortunately, said Prof. Beam, such antennas are still rather large to be conveniently used in home installations.

The two Northwestern professors have conducted extensive research in antenna theory and related fields. Professor Plonus, an expert in the theories underlying radar, recently presented a report on aspects of antenna and wave theory in Tokyo before the International Conference on Microwave Circuit Theory and Information Theory. At the National Electronics Conference, he presented a paper on new means of interpreting radar wave reflections.

Early days of television saw every set with antenna of considerable proportions. Today many viewers find that a self-contained antenna in the set is sufficent.

Professor Beam is a founder of the National Electronics Conference in 1944 and the developer of a compact low frequency antenna used extensively by the armed services and by amateaur radio operators.

One of the latest and most thought-provoking developments in antenna technology is an experimental station-antenna which uses microwave power to keep it hoisted high in the air, under whirring helicopter-like blades. Developed for the Air Force by Raytheon Company, the model is confidently expected to be the forerunner of large TV or radar stations capable of hovering at 50,000 feet. At this altitude, line-of-sight transmission between stations would be 600 miles.

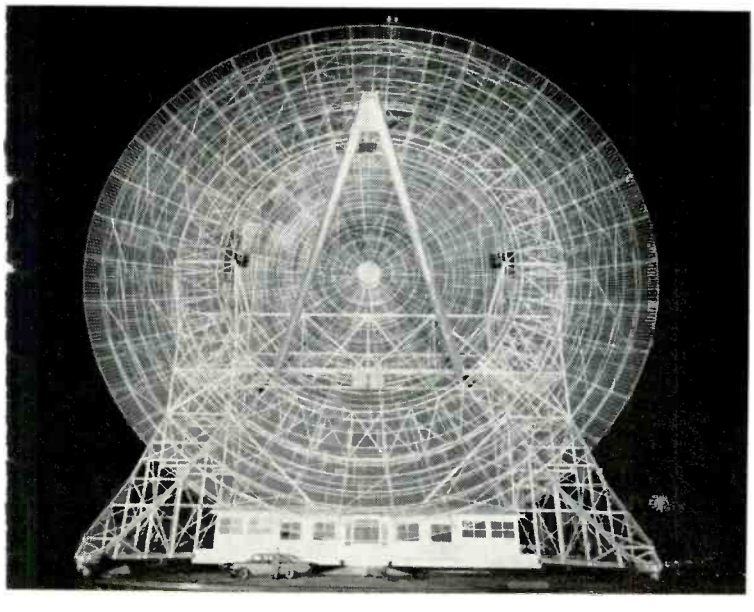
The key to snatching electric energy out of a microwave beam is the silicon diode. Thousands of these, strung together in a grid, turn radiated energy into usuable direct current with reasonable efficiency. In the tests, 100 DC volts were generated to turn the motor from a small electric drill, keeping the model 50 feet in the air. At the antennae, a 2,450 megacycle transmitter beamed three kilowatts at the "bootstrap" antenna and about 10 per cent of this was put to work. There are only relatively low returns right now. But, in years to come, this development may be seen in history as man's first crude but successful effort to transmit electric power without wires.

What would the world be like without modern electronic antennas?

The earth would be engulfed in a labyrinth of wire,

Continued on page 15

Man and station wagon underscore size of huge Stanford University steel and aluminum antenna used in radar astronomy research. It is 160 feet high, uses a 400-kw radar probe to explore sun, moon and planets.



Americans Are Becoming TALLER and HEAVIER

KNIGHTS in shining armor were tigers on the jousting field, but they would be kittens on any professional football team.

By current standards, the Knights were puny. Most suits of medieval armor are too small to fit even an average-sized modern man.

A sizable part of the human race seems to be growing taller and broader, the National Geographic Society says. The growth has been most striking in the United States, pushing Americans up among the biggest peoples in the world. These days, the Green Bay Packers reject 220-pound tackles as undersize, and a 300-pound lineman plays for the Detroit Lions.

American men now average 5 feet, 10 inches—2 inches more than in 1900. Women are taller, too, averaging 5 feet, 5 inches. Weights also have gone up, to an average of 165 pounds for men, 127 pounds for women.

Many hotels and college dormitories are ordering seven-foot beds. Daughters outgrow their mothers' high heels before they outgrow the urge to play in them. Fathers find themselves looking up to their teen-age sons. Seats in new theaters and sports stadiums are wider.

The growth trend has been noted in Europe, to a lesser degree, and in Japan.

French, English, Danish, Italian, and Norwegian military statistics show a pattern of steady growth among conscripts. A 25-year-old Japanese of average size is about 4 inches taller than his 5-foot grandfather, and he towers 9 inches over his grandmother.

The increased stature of Japanese is credited largely to improved nutrition, particularly among post-World War II children. A nationwide school-lunch program makes meat and milk available. The old diet of polished rice was relatively low in vitamins.

Scientists generally attribute the height increase to improved quality and abundance of food in many nations, along with progress in medicine and sanitation. But there are exceptions. Mountain people in the eastern United States tend to be taller than their better-fed city cousins.

Dr. Harry L. Shapiro, chairman of the department of anthropology of the American Museum of Natural History, New York, believes increased human size derives largely from exogamy—marrying outside the group.

Until the industrial age, populations were stable, and people married within relatively small groups. With industrialization and immigration, Dr. Shapiro says, there has been more intermarriage between previously isolated stocks.

Plant and animal experiments have shown that the crossing of inbred strains often results in a hybrid taller and more vigorous than either parent. Intermarriage has created a form of "hybrid vigor," resulting in bigger and taller people, Dr. Shapiro believes.

One Word For Johnson Performance:

'ACHIEVEMENT'

If any one word can sum up the performance of President Johnson in office, that word is "achievement."

A look at the legislation enacted this past year gives eloquent testimony to President Johnson's leadership.

- Congress approved the administration's $11 billion tax slash, which meant the equivalent of a 7½ cent an hour take-home pay increase for the average American worker. Major human rights legislation was signed into law to provide constitutional guarantees for all citizens.

- The President launched a war on poverty in America, and Congress approved a $1 billion measure to begin the battle to help replace despair with opportunity for poverty-ridden families.

- Important changes in the Davis-Bacon Act provided for fringe benefits to be brought under the provisions of the act.

- Everyone who has endured the ordeal of frequent traffic jams—and that includes most of us—will ultimately get relief from passage of mass transit legislation, (which included protective provisions for workers affected by the bill.)

- The temporary food stamp program initiated by President Kennedy was made permanent. Four million needy persons will benefit from this measure.

- The President, by his words and deeds, has made a firm commitment to peace, while keeping our defenses strong.

Here, in brief, are major accomplishments of the Kennedy and Johnson Administrations:

1961—Minimum wage was increased from $1 to $1.25, and an additional 3.6 million workers came under the law. Housing legislation provided $4.7 billion for urban renewal and planning, special housing for the elderly, better housing loan provisions for low and middle income families, construction of more public housing.

A major effort to control pollution of rivers and streams launched an eight-year, $1 billion program to provide more municipal waste treatment plants, and stirred local pollution control action. The Peace Corps was established, putting some 7,500 volunteers to work on projects in 46 under-developed nations.

Social Security benefits were increased. Area redevelopment legislation was enacted. More than 200,000 jobs have been created by this legislation in areas of declining industry.

The Arms Control and Disarmament Agency was set up, making the U. S. the first nation with an official agency of peace.

1962—Basic public welfare reforms were enacted to help jobless parents, their children, the blind, the disabled and the elderly. Key legislation to expand foreign trade was enacted, reducing tariffs up to 50 per cent and giving the President authority for more tariff reductions. Workers adversely affected received protection through a readjustment allowance, job retraining and relocation allowances.

A $435 million program to retrain jobless workers in new skills was approved. It was an important step in dealing with problems of workers displaced by automation.

1963—An accelerated public works program was passed, helping to create jobs by speeding federal, state and local action on hospitals and other community facilities. The legislation meant jobs for some 350,000 workers.

The nuclear test ban treaty was signed by the U. S., the Soviet Union and more than 100 other nations. Key amendments to the manpower retraining program were enacted.

A series of major education legislation was approved to raise the educational level in America and to prepare more young persons for the demands of today's and tomorrow's job market. Together, these bills will add classroom space for an additional 800,000 college students, build 75 to 90 new public community colleges; improve present and help build new community libraries; assist medical and dental school construction and provide loans for medical and dental students who have all the qualifications—except money—for costly graduate training.

An expanded student loan program will enable 70-90,000 additional students from low-income families to attend college each year. Under the Vocational Education Act, facilities to train young people in needed skills will be expanded and modernized. The act provides job training for high school students and for thousands of workers—young and old, unemployed and underemployed.

This is the record, then, of the present administration, a record of prosperity, progress and peace—a record which fully deserved the support given it by a landslide proportion of voters on election day.

Safer Winter Driving

Don't Underestimate the Dangers of Wintertime Operation; Per-Mile Rate Of Property Damages and Deaths Rise Sharply During Slick-Street Months!

WINTER brings added hazards to auto drivers but, with proper maintenance and operating care, the worst that the season can produce usually can be coped with safely and efficiently.

Some local unions have negotiated premium pay rates for time spent in necessary driving, such as negotiating roads to outlying transmitters. This is no more than reasonable, considering the added risks to a private automobile, increased operating costs and the ever-present possibility of becoming weather-bound or stalled when, infrequently, conditions become so severe as to render the road impassable.

Even the most inexperienced beginner can drive safely when summery conditions with dry roads make driving "a pleasure." But wintery woes can call on the last iota of skill and ingenuity by the most-experienced. Driving blunders are more frequent in winter because of the many demands made on the motorist. At best they can cause delays, at worst injury or even death.

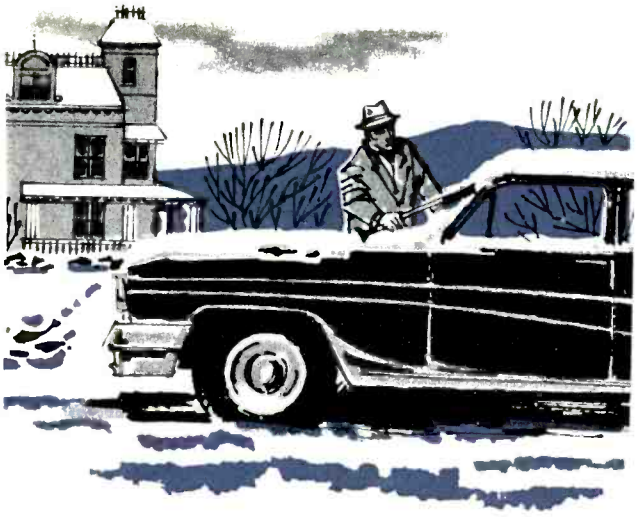
The time to prepare for winter's hazards is before the snow begins to fly. Have brakes inspected and equalized. If linings are badly worn, have them replaced. You need good, balanced braking in slippery going. Check your muffler and exhaust system, for every winter brings news of tragic deaths from poisonous carbon monoxide fumes. Since they can't be seen or smelled, drive with a window cracked open just in case your best efforts to prevent an exhaust leak have failed.

Check windshield wiper blades. If they've dried up and become hard and "dead", replace them. Check the arm tension and make certain your defroster is working. On slushy roads, a windshield washer is almost a must.

Have your headlights, tail lights and directional lights checked. Replace burned-out bulbs. Keep a rag handy to clean them of slush so they are easily visible. Carry spare fuses.

Check your tires. Snow tires are preferred and actually cost you nothing to operate (since your regular tires are not being worn down while you are using the snow tires). Many motorists invest in a sixth rim to prevent cost and delay in having snow tires mounted each winter, then use one snow tire for a spare when spring comes.

USE SNOW TIRES



BE CLEAR-SIGHTED

Skids are more prevalent in wintertime and, while seat belts are desirable at any time, they are particularly called-for during the high-hazard season of winter driving. Install them and habitually use them.

Winter brings with it many hours of reduced visibility. Most state laws demand lights (headlights, not parking lights!) in the period from an hour before sunset to an hour after sunrise. Careful drivers, however, turn on headlights long before the sunset deadline to make certain that other drivers can see *them!* A properly-operating charge regulator will keep your battery fully-charged even though the headlights are burning. Traffic snarls can bring on positively incredible delays with prolonged gas-eating idling so make certain your gas tank is reasonably full at all times. Keeping it full also reduces condensation inside it.

Don't clear tiny peep-holes through windshield, windows and rear window. Clean them fully to allow adequate visibility all around.

There is no room for argument about it; letting air out of your tires will not increase snow traction. Putting weight in the trunk will increase it very slightly, but adds the severe hazard of making big skids out of little ones. Carrying a supply of sharp sand is a good idea but the best way to increase traction and prevent getting stuck is with snow tires or chains.

When slippery going makes getting underway difficult, shift to second gear to start out (if you have a manual shift). In any event, start as gently as you can (apply brake with automatic transmission, car in fast idle, then gradually ease off on the brake). Spinning your wheels merely digs you deeper in snow, polishes ice even slicker. Turn front wheels back and forth to open a path in deep snow.

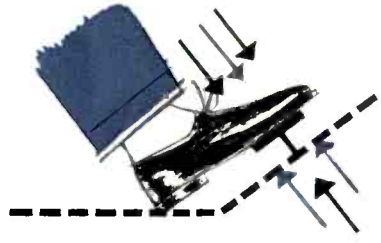
It takes up to ten times longer to stop a car on roads covered with ice and snow than on dry pavement. Remember this and keep plenty of distance between your car and the one in front. He may stop on a stretch of dry pavement and you may be caught on ice. Play safe: stay in the far right lane whenever possible.

"Plan ahead" never meant more than in winter driving. Avoid sudden starts, stops and changes of direction, for these are what bring about disastrous skids Be particularly careful of ice and frost on bridges and shady spots where the sun has protected ice patches.

Just because the sign says "Speed Limit 30 mph" doesn't mean that it's for you! That limit is for ideal conditions. When ice and snow are on road surfaces, speed limits are meaningless. The real limit is your good judgment . . . and don't overestimate your skill! It isn't very far from "skill" to "skid" to "kill"!

If you do begin a skid, steer *in the direction of the skid.* (This means you must have allowed yourself maneuvering room). When you have the skid under control, then carefully steer back into line.

STOP SAFELY



One of the worst causes of winter skids is "standing on the brake." Brakes should be "pumped", which allows each wheel to get a new "bite" on the road each time the brake pedal is depressed. Use second gear for slowing down if you have a manual shift. Watch out for "warm ice"; ice and snow at 30 degrees are twice as slippery as when the temperature is zero. Watch out for hard-packed and polished snow and ice at intersections. Make certain you can stop well within the intersection . . . don't skid in front of a car coming in from the side with the right-of-way.

Watch the condition of your battery. If it appears weak, replace it. One service call on the road caused by a dead battery can cost more than a battery . . . and you will still have to buy a battery!

You can minimize fogging of your auto glass surfaces on the inside by wiping them with soft soap, then polishing clean. (This works on bathroom shaving mirrors, too!)

Don't speed in deep snow, of course, but don't be too much of a Milquetoast either, if you expect to make it to the crest of the hill. Keep moving or get stuck! Take care that you are not going too fast when you do make it to the crest . . . there may be a stalled car or other hazard just over the rise.

A good car, maintained in good condition, properly equipped and skillfully driven in the slower speed ranges demanded by winter's increased hazards, will bring you through the season unscathed and without paying hospital or auto body repair bills.

BROADCASTER BRUTALLY FRANK

Emphasizes Need for Responsibility, Freedom and Order by the Industry

Mr. Cecil M. Sansbury, General Manager of WHP-AM-FM-TV, Harrisburg, Pa., delivered the keynote address to the convention of the Pennsylvania chapters of the Association of Women in Radio and Television, held in Philadelphia on October 10. His remarks were appropriate and timely, as well as provocative.

He began by emphasizing the present need of responsibility, the necessity of freedom and the goal of order in the broadcasting industry and developed his address on those three key words.

On the subject of responsibility, he said: "When we talk boldly about freedom, about the protection afforded our industry by the First Amendment, we are presupposing a clearcut sense of responsibility. When we fail to see the dimensions of that responsibility, when we fail to measure up to this responsibility, we can expect constant threats of restrictions, of policing, the obvious danger being too much order, or order at the expense of responsibility, or freedom, or both. There is nothing particularly new about this: We are in the same dilemma that has plagued scores of other industries for the past 75 years . . . from the railroads and public utilities of the 19th century to the food, drug and tobacco interests of the 20th. This is another inherent problem of our democracy, a problem never fully resolved, where any neglect of responsibility or abuse of freedom, imagined or real, results in the cry, 'There ought to be a law!'" He went on to say: "It is apparent to me that the future of our industry is dependent upon adherence to ethical precepts, upon our ability and willingness to discipline ourselves, upon our acceptance of responsibility. Finally, in this vein, such thinking is applicable to all pursuits, in fact, is the foundation for all human endeavor . . . or at least it should be! Without this type of foundation, which constitutes the moral fiber of society, we will revert to the instincts of the jungle, and soon thereafter would be pleading for a totalitarian state to save us from ourselves . . . that is, if we had escaped a nuclear holocaust brought about by one of the animals among us. There is but one way to cope with such frightening possibilities, and that is to never, for one moment, lose sight of the responsibility end of that freedom-and-responsibility cycle, and we are back where we began, with ethics and self-discipline. More specifically, we broadcasters should see to it that any popular demand for governmental action, any kind of action, is unnecessary, hence unlikely, by exemplifying a trusted stewardship of the public's airlanes. Never forget that our freedom can be diminished, even though we might retain the responsibility on someone else's terms. Without responsibility, our own responsibility, we can have no freedom worthy of the term. Whatever freedom would remain would soon degenerate into chaos, and eventually our way of life would destroy itself."

He drew upon history to illustrate the need of order with freedom, saying:

"Many centuries ago the Greeks developed a civilization supported by a system of self-government that flourished for many years. It provided for a high degree of personal freedom, but little order. Later, the Romans came along with an equally successful civilization, this one based on a high degree of order, but with little freedom. Both civilizations, of course, failed, but from them we have derived much of the culture that has come to be known as Western Democracy. By merely incorporating another ingredient, responsibility, our republic learned how to blend three interdependent factors—the virtue of freedom from the Greeks, the necessity of order from the Romans, and the need for responsibility from man himself—into a stable society. Incidentally, one should never forget that it was the businessmen . . . such as they were . . . of ancient Greece and Rome who financed, with their taxes, the teachers, scholars, philosophers, artists, dramatists and historians whose works gave this classical age its form and value.

"It is most apparent, even to those who would bury us, that we have succeeded where others have failed, while other equally ambitious governments have been toppled, because we have kept each of the factors in proper perspective. Out of this kind of government came the free enterprise system with its checks and balances . . . but being conceived within the intricate workings of an interlocking chain, this system would collapse if we delete a single factor, or place too much emphasis on one, or misuse one to the detriment of the others . . . responsibility, freedom and order, the three most important words in the dialogue of the people as they talk of tomorrow."

On the issue of freedom itself, he suggested that moderation in order may well be appropriate:

"Today we find that there is more order than ever before, less real freedom for the individual, and entirely too much responsibility transferred from the individual to the state. I am not suggesting that we strive for a return to the so-called 'good old days,' nor that we can look forward and backward at the same time. In fact, I am not even suggesting that we 'shoot Santa Claus'—but I am saying to you that it is about time we started anticipating January bills while enjoying the goodies in December! To make it even plainer, let me say that we had better start looking at the price tags, with the warning to look carefully for

hidden charges because, I suspect, in many instances, we are dealing, figuratively speaking, with a loan shark whose interest rates are so high we can never get out of debt.

"I'm going to admit very candidly that in some ways I am a modern Don Quixote, swinging at windmills simply because I cannot put a finger on the exact source of all our troubles, nor can I offer the ultimate solution. However, unlike Quixote in his pathetic crusade against dangerous public enemies, I believe I am truly seeing the effect of devious forces at work, seriously engaged in changing the American way of life . . . and I know I am watching a complacent populace accept changes as a matter of course . . . and I know, too, that it is a touchy thing to question these changes, which are condoned, or at least approved tacitly by our people on emotional grounds, if for no other reason."

His provocative remarks then ended on a note of caution for broadcasters:

"Concluding, may I return to my original thoughts on responsibility, freedom and order, and the need for ethical standards. Broadcasters face serious problems, some of which I mentioned earlier, some I did not . . . problems which will become increasingly more critical unless we as licensees start conducting ourselves like Caesar's wife, above reproach, and start operating in the public interest in a meaningful way. We are laboring under an illusion if we look upon broadcasting, the entire free enterprise system in fact, as sacrosanct because it is not! It is merely one of the rights of a democracy, continguent upon properly discharging the prerequisite of responsibility, which added to freedom eliminates the need for more order. . . . It occurs to me that perhaps we have all assumed too much: our government has assumed we want welfarism . . . and we in turn have assumed that this is the way it has to be . . . but only because we have forgotten about such an elementary requirement for citizenship as responsibility. We in broadcasting, even though we represent but a small cog in the affairs of state, have failed miserably as servants of the people . . . have seemingly deliberately invited more and more intervention by regulatory agencies by our own inept, indecisive handling of industry problems as related to events of the last half of the 20th century."

LABOR SECRETARY AUTHOR

The Secretary of Labor, W. Willard Wirtz has written a book entitled "Labor and the Public Interest" which is most illuminating as to the current administration's position on such matters. He does not pretend to have ready answers for many problems but his ideas as to the public interest in labor-management relationships show his thoughtful and thought-provoking approach. Published by *Harper and Row*, the royalties will be channelled to the John F. Kennedy Memorial Library.

U.S.I.A. Seeks TV Personnel

The U. S. Civil Service Commission has announced an examination for "Television Operations and Maintenance Technicians," with a *closing date* of December 22, 1964.

The examination will be used to fill positions with the television service of the U. S. Information Agency, Washington, D. C. Similar positions in other Federal agencies in the Washington area, in other parts of the United States and in overseas areas may also be filled, where no other appropriate examination for the specific vacancies has been announced.

The wage rates offered depend upon the qualifications and experience of the applicant. However, the wage range is from $144.40 to $211.20 per week, based upon a 40-hour week. Additional compensation is provided for overtime and a 10% differential is paid for night hours. All basic salaries are subjected to a 6½% deduction for retirement benefits.

For general information about citizenship and physical requirements, veterans preference, etc., refer to the Civil Service Commission Pamphlet No. 4, "Working for the U. S. A." For further details about this examination, see Announcement No. 341B, available from the Commission Regional Offices in Atlanta, Boston, Chicago, Dallas, Denver, New York, Philadelphia, St. Louis, San Francisco, or Seattle or by addressing the Executive Secretary, Board of U. S. Civil Service Examiners, United States Information Agency, Washington, D. C. 20547.

READING TIME

Review of Current Books on Labor, Broadcasting & Recording

Electronics Assembly Methods, *by S. R. and R. L. Duarte, Industrial Technology Department, Compton College. Published by McGraw-Hill Book Company, 330 West 42nd Street, New York, N. Y. 10036. 242 pp. illustrated, $5.95.*

Written primarily for the electronic equipment assembler, this basic book may serve as a brush-up text for the working technician, particularly in the section on assembly techniques. The first five chapters review basics of electronic knowledge, from electricity through transistor principles. The next 12 chapters discuss in detail construction and assembly techniques, and the final portion examines fundamentals of power supplies, amplifiers, oscillators and converters.

The subject material of the text is limited to broadcast radio receivers, their associated circuitry, and test equipment. Practical exercises following each section enable a beginning student, supplied with household radio equipment, basic tools and test instruments, to learn fundamental construction and test techniques.

A Programmed Course in Basic Transistors, *by the Staff of the Electrical Technology Department, New York Institute of Technology. Published by McGraw-Hill Book Company, 330 West 42nd Street, New York, N. Y. 10036. 473 pp., fully illustrated, $7.95.*

A thoroughly planned and tested excursion into the relatively new field of programmed instruction—the do-it-yourself approach to learning—this text leads the student smoothly from one self-check point to another, at his own pace. Verbal content is carefully matched to the illustrations which are used wherever they aid understanding.

The text is a well-integrated package of instruction which teaches transistors from the ground up. Assuming a basic knowledge of electronics, the book explores the chemistry, physics and mechanics of transistor science and their application to amplification, and describes circuitry mathematics. With the groundwork laid, the text teaches bias stabilization, characteristic curves and charts, design of audio, tuned and wideband amplifiers and LC type oscillators using transistors. It concludes with examinations of transistor construction methods, reading transistor specifications, and transistor measurement.

Written primarily for the technician, the text incorporates all of the mathematics required for comprehensive, working knowledge, but skirts heavy theory unlikely to be of much help in day-to-day contact with electronic equipment.

NOTICE TO ALL LOCAL UNIONS

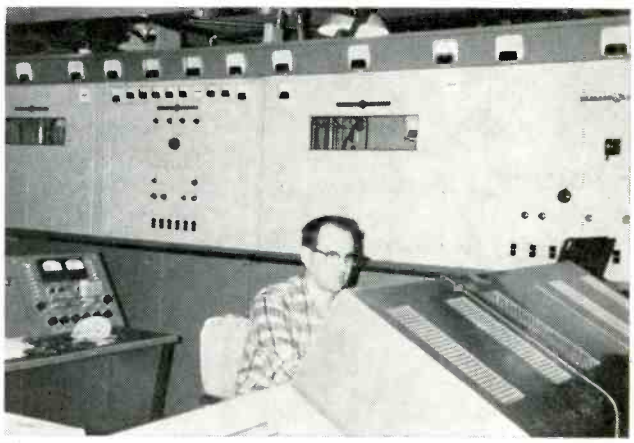
Effective November 1, President Freeman appointed W. L. Vinson to be International Vice President for the Ninth District. The District office address is unchanged —910 Central Tower, 703 Market Street, San Francisco, California—and mail to that address should be directed to Bro. Vinson.

W. L. VINSON

The new Vice President is well known to a large segment of the Brotherhood. His long tenure as Business Manager of Local Union 125, Portland and his service as Chairman of the Law Committee for the 1954, 1958 and 1962 International Conventions and more recently as a member of the Ninth District staff has made him a familiar figure in IBEW affairs.

NO-RAID DATA REVIEWED

The AFL-CIO Executive Council has surveyed the record of operation of its Internal Disputes Plan, from the beginning of 1962 to the present. In just a little less than those 3 years, it was found that 322 cases arose, 190 were resolved by mediation and 14 were still in the mediation stage at the time the survey was made. In 101 cases, the impartial umpire was called upon to rule and he found violations in 73 cases of the 101. As a result of his findings, 32 appeals were taken to an Executive Council subcommittee—28 were subsequently denied, one was withdrawn, 2 were referred to the full Council and one was in the process of being referred to the Council at the time of the survey.



ERRATA—Our October issue reported the change by WEEK-TV from Channel 43 to Channel 25 and this report was supposed to have been accompanied by a picture of Brother Robert Swadener, Executive Board member of L. U. 1292 (shown above). For the omission of the picture and separation of the story, our apologies to all concerned and particularly to Brother Swadener.

THE LABOR-MANAGEMENT WHIRL

Managers Beware!

IN GENEVA, SWITZERLAND, business executives who all along have figured that only production workers and white collar employees would be hit by automation may have a hell of a jolt coming. Professor Thomas Whistler, of the University of Chicago Graduate School of Business, told the International Institute for Labor Studies that automation is already moving in on the jobs of bosses who have always assured themselves that they were safe.

"It comes as a distinct shock," said Dr. Whistler, "to find that at last a technology has appeared which affects not the worker but the manager. Decisions are now being made by a man-machine system instead of a man system. Middle management ranks may . . . thin out." In many instances, said Dr. Whistler, the traditional type of boss is already on the skids. "Involved in the decision process now are new kinds of people," he declared, "the systems people, the operations researchers, the computer people, and the economists." Is this threat to the bosses a matter of the vague future? Not at all. Dr. Whistler reported the case of one American corporation in which the introduction of computers "reduced managerial jobs by 30 per cent in a two-year period."

The Gambling Bricklayers

IN STURGIS, SASK., CANADA, probably the wildest on-the-job experience ever enjoyed by union bricklayers occurred during construction of this town's new medical center. The bricklayers were given a large quantity of red and buff bricks, but conspicuously missing was any prescribed pattern. The bricklayers inquired and to their amazement were told that there just wasn't any pattern.

They built the clinic, but by a method probably never used before in the history of bricklaying. They rolled dice. The first throw turned up nine. That meant nine bricks. The second throw was two-and-two. Four buff bricks hit the mortar. The next throw was three. Three red bricks. And so on.

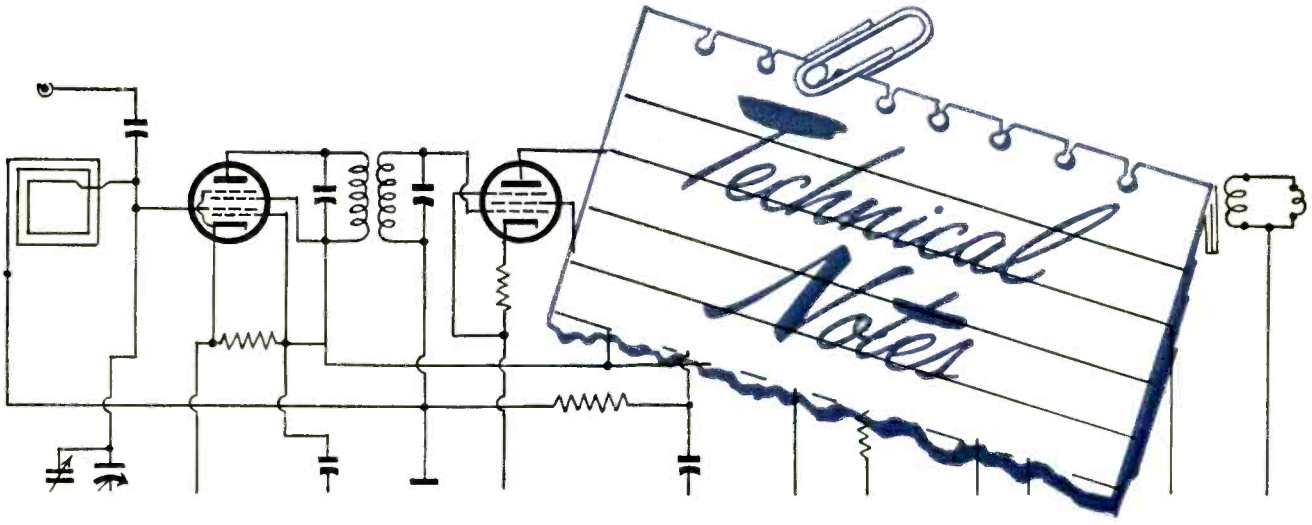
The most incredible part of the whole thing has been the steady stream of compliments from visitors and residents on the ingenious and artistic color scheme of the bricks!

The Correct Time Is ????

IN STEUBENVILLE, OHIO, a man who commutes from this town to work in another town can never be entirely sure whether he'll be late or early. Along just the 35-mile stretch of road between Steubenville and Moundsville, West Virginia, the worker drives through seven different time zones. To solve such problems as this the Committee for Time Uniformity was organized. The Committee points out that Daylight Saving Time does not start in all the states at the same time, nor even at the same time within a particular state. That means, according to the Committee, that 84,000,000 Americans are now out of step with 100,000,000 other Americans.

3½ Mile "Bird" Tunnel

IN BERNE, SWITZERLAND, ornithologists (bird experts) weren't sure whether their legs were being pulled, but they prepared to investigate anyway. What they were slightly skeptical about was a report by workers who have just finished digging the new "Great St. Bernard Tunnell" through the Alps. Construction men who finished the tunnel reported—maybe with tongue in cheek—that they observed that swallows migrating south were now flying through the 3½-mile tunnel in order to avoid winging over the icy mountain pass which is 8000-feet high. The workers have stuck to their reports so the ornithologists will investigate—even though they're terribly afraid that a lot of people on both sides of the Alps will be laughing at them next month.



RADAR PINPOINTS BROADCAST TARGETS

A new technique for finding the best frequency and antenna for high frequency radio broadcast transmissions has been developed by Stanford University's Radioscience Laboratory for the U. S. Information Agency and Voice of America.

By measuring the time and frequency changes of radio "backscatter" (the return echo of a transmitted radio signal) with relatively inexpensive radar equipment, scientists are able to determine the exact receiving position of one-hop radio transmissions.

Tests of the system were made last summer on the Munich to Istanbul broadcasts of Voice of America transmitters. The echo signal returned from the ionosphere was measured for time and frequency. The continuing broadcast signal from the transmitter, which would normally drown out the weak return, had its frequency shifted 2.5 kc, for intervals of 2/1000ths of a second. This was so brief that radio listeners could hardly detect the change, but enough to make the necessary measurements.

The radar equipment, tuned to the slightly-shifted frequency, was set up 18 miles from the broadcast transmitter to place it outside of the ground signal area. As a double check, the broadcast signals were also monitored in Istanbul, and test data from each site corroborated the accuracy of the radar-measurement system.

Scientists say the technique should work up to distances of 2500 miles.

AGENCIES USE PICTUREPHONE

Use of the new Picturephones for transmitting TV Commercial ideas or presentation suggestions among advertisting agencies, clients, and broadcast stations was tested recently by the N. W. Ayer & Son agency of New York, and WTTG (TV) in Washington, D. C. In the test, *Broadcasting* Magazine reports, both live demonstrations and film were transmitted from New York to Washington. An agency television producer used the live portion to show how a commercial should be presented on air.

Just entering commercial service, the Picturephone is at about the same stage of development as commercial television before World War II. The Bell System has installed Picturephone Centers in New York, Chicago and Washington for demonstration and promotion purposes. The N.W. Ayer & Son transmission was made from the center in New York's Grand Central Station.

SPLIT MOTION/STILL FILMS

ABC introduced a new technique for presenting sporting events on its October 10 Wide World of Sports Program. A dual camera shoots standard motion picture film and high-speed stills at 100 frames a second simultaneously, to enable programmers to switch from normal motion presentation to sequenced stills. In the ABC premiere of the technique, the changeover to still was made as the horses neared the wire of a Paris race.

Developed by ABC Sports artist-photographer Robert Riger, the camera also provides stills suitable for rapid projection, giving a semi-animation effect.

HOME TV RECORDER

For only $3,000, *Broadcasting* Magazine reports, you can have a video-audio recorder for home use, which offers impressive fidelity. Not yet available to consumers, the equipment will be made in West Germany by Loewe-Opta A. G., and was demonstrated this fall. Unlike designs for lower-priced home recorders (Fairchild, Telcan and Par Vision models, designed for the $200-500 bracket) the German prototype uses a moving head, with a speed of 20 meters (787.4 inches) per second. Tape speed is six inches per second, for a running time of one hour with an eight-inch reel of tape one inch wide. Fully transistorized, the recorder may go into production in 1965, with a possible 3,000 units off the assembly lines by the end of that year.

Once the price hurdle is cleared on the Loewe-Opta

moving head recorder design; you can save money on tape. The less expensive fixed-head designs whip tape past the head at 30-120 inches per second—moving into the high end of the income tax brackets at about $40 per 8-inch reel.

OF HOGS, HAMLETS, AND HAMS

Many an amateur radio "ham" has recognized the sad fact that, if he is going to ride his hobby, he is going to be universally referred to as "a ham." Sometimes the term is so accepted that the subject doesn't even wonder how or why he has turned out to be a fried second cousin to a pig.

Actually, there is no relation between a radio ham to either a living ham-lette or a dead Hamlet. The English are to blame, not the farmers or the Danes.

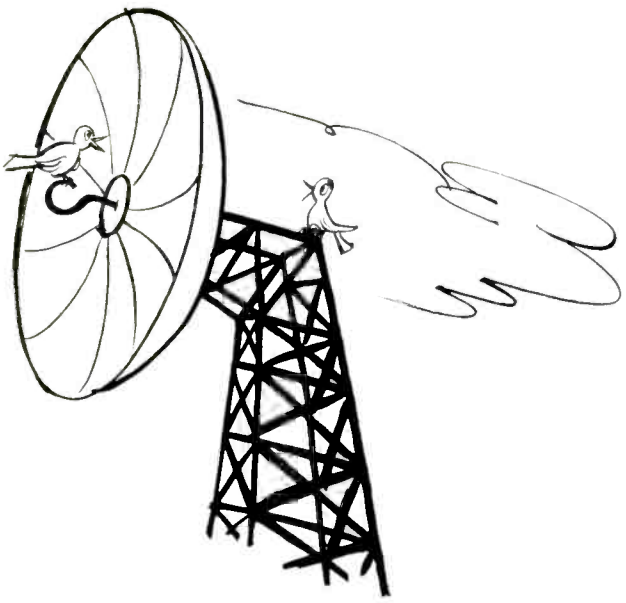
When amateur radio was in its infancy, the English were quite active in it. As is the Henglish custom, they hinvariably put an "H" in front of every vowel without one and, to even matters up, they always add an "H" to words hordinarily spelled without them.

So when the English radio experimenters referred to themselves, or others like them, they called them "hamateurs." This was eventually shortened to "hams" . . . at least that's what we are told by the National Geographic Society.

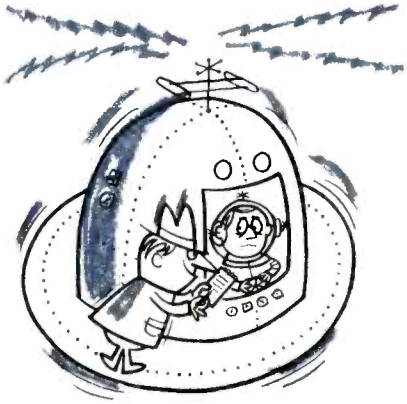
The World of Antennas

Continued from page 5

such as telephone wires. To the esthetic sense, the eventual elimination of the use of wire in communications may be the greatest benefit brought by the antenna. Man might otherwise not only be literally wrapped in wire, but would be held earthbound by it forever.



Hey Gus, Look! I'm a 'technical difficulty'!



"Sir, would you trade your Interplanetary Trolley for a used fronkelsnortz with transverse gridge?"

For sheer fun and nonsense—a commodity which seems to be in shorter supply these days—an advertiser in the Edmonton, Alberta, Journal, in Canada, pleads his case for business with the following item:

Fronkelsnortzes? Well, Why Not?

EDMONTON, Alta., Canada—Anyone who manufactures fronkelsnortzes can find 31 possible buyers in Canada, particularly if they come equipped with transverse gridges and other special accessories.

G. T. Wheatley, advertising manager of the Edmonton Journal, ran an ad for a fronkelsnortz in his own paper the other day and got a pleasing commentary on advertising readership.

The model he advertised came with a transverse gridge, special power dippoleck and left-handed zoenstiff.

Thirty-one persons wrote back. Only five asked what the machine was, if it was a machine. The others carried on the fun.

One firm said it would buy the fronkelsnortz at 10 per cent below the original price if it was a Mark IX model.

One man offered 450 herns or a straight trade for two 1948 sorlit-sfitzers (one on skids).

Finkeleheimer's Multi-Shnorkel Machine Shop wrote three letters offering 10,000 equity units providing it could be paid off in payments of 100 units per month.

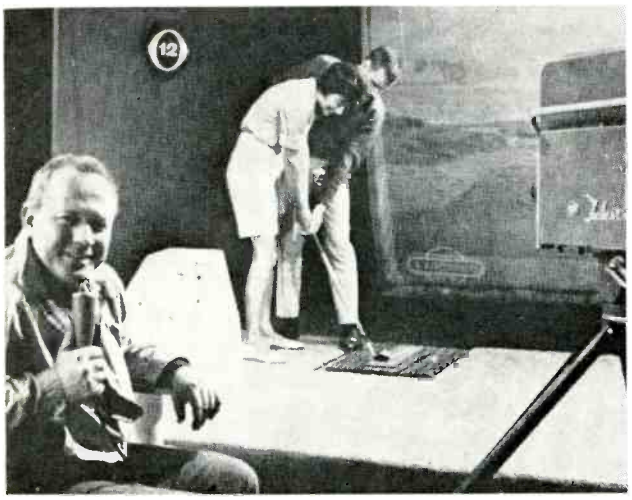
Many trades were offered. These included a variable-preble lapse tuner (with a complete set of stainless steel gropers thrown in gratis), a 1957 Veeble Feetzer with an output of 17 blink-kovac and a 1958 Splitzenkister with self-lubricating glok-spleen and hoffer shaft.

We are all out of Fronkelsnortzes, but we do have some new and used construction, mining and logging machinery. Please call Val Galleron, Don Burrus or Dave Fritschi at Reno Equipment Sales, Inc., 1510 West Fourth Street, Reno, Nevada.

STATION BREAKS

PLAY GOLF INDOORS

WISN-TV, Milwaukee, which employs members of Local Union 715, has installed the first-known indoor "golf course." The system, called Golf-O-Tron, was introduced on a new local sports program, Inside Golf.



Dick Johnson, WISN-TV sports director, as he describes the instruction John Smeeton, golf pro, is giving the program's student-hostess, Nancy Cudahy.

The Golf-O-Tron projects the background from several top U. S. courses onto the rear screen, which serves as the net catching the studio player's drive. A computer system measures both force and angle of drive and advances the picture slides and visual marker registry. The player can actually simulate his stroke-by-stroke advance around the particular course chosen. The system also includes a studio green with putts up to 25 feet. Cost is around $6,000.

ONE YOU CAN DO YOURSELF

Swiss watchmakers, combining their ancient skill with the electronic age, have invented a "reminder clock," *Insider's Newsletter* reports. You record on tape what you plan to do at a future time, set the clock's alarm, and when it rings you hear yourself give yourself give instruction . . . Now there's a gadget you ought to be able to put together yourself.

FOR HARD OF HEARING

A radio station at Fort Lauderdale, Florida, has begun daily broadcasts of news especially prepared for persons with defective hearing. Backed by a grant from the Department of Health, Education, and Welfare, the pilot project aims at improving communication with the partly deaf through the use of special vocal and electronic techniques.

The news staff of WWIL screens regular news broadcasts to eliminate hard-to-distinguish words or phrases. The revised news then is delivered slowly and clearly. New proper names are repeated. In addition, WWIL plans to transmit the program only in the range of frequencies best heard by the partly deaf.

TV AND RADIO SETS ON INCREASE

Sales and production of monochrome television and radio sets were up in September compared with the same period last year. Sales and production for the nine months of 1964 were ahead in all categories, except for radio set production, which dropped slightly.

LAST LAUGH

"That's the trouble with you fellows with non-union hours! You don't know when it's quitting time!"