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UNDER CONTROL

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Editorial:-

ON MARCH sixth Congressman Richard Welch of California introduced in the House a bill that is of vital concern to radio and every man in it. The bill, which is known as HR-5336, provides that in the future an applicant for a commercial radio operator's license be at least 21 years of age.

It seems to us that while no one will question the importance of the part played by the youthful experimenter in the development of radio, there is today a sore need for the legislation provided in this bill.

Radio is no longer a fascinating innovation but one of the biggest and most powerful utilities in the country. It should be operated accordingly.

Among the numerous favorable aspects of the bill, one of the most important is the guarantee of security it would give to both the broadcast and the marine operator. Youthful operators on land and sea may be credited with many notable achievements; but because of their inexperience they can also be credited with a goodly share of the anti-labor and strike breaking activities of the past few years.

Also in favor of the bill is the most logical argument that a commercial air line would not entrust the safety of its passengers to the judgment of an inexperienced pilot. Why then, should not broadcasting and shipping, which affect and concern the lives and welfare of millions, take similar precautions.

As for the men under 21 who will be affected: passage of the bill would not preclude their activity in the field; and it seems to us that in the long run they, as well as the industry and those now in it, would be greatly benefited.

(There are several pertinent measures now in committee in Washington. Information regarding them may be had by writing to the editors of Under Control.)

Under Control at the Key

By J. F. Turner
WHN Engineering Staff

AN OCCASIONAL bit of commendation for the valorous performances of marine operators is not amiss. Many of our own fellows who are now chasing decibels around a control panel have spent a deal of time pounding brass on the brine. Some of them have even had the experience of sending the dread SOS, while others have played important roles in rescue work on the high seas. So, appropriately this month, a word of respect

for the fidelity to duty of the sea-going ops, especially those whose names fill a "black space."

When the great, "unsinkable" Titanic slid to her doom beneath the ice strewn waters of the Atlantic the hand of her senior wireless operator was still on the key, flashing out bearings and other information up to the last moment. And though his efforts fell far short of success in saving most of those aboard the ill-fated liner on her maiden voyage from Southampton to New York, for over 1500 perished, failure was not due to a lack of cool courage. As a tribute to the bravery of "Sparks" Jack Phillips a memorial fund was suggested by the New York Times shortly after the disaster.

But there had been others before the Titanic hero, and many after, who unselfishly sacrificed their lives while adhering to the radio man's traditional code of loyalty in the saving of all others before he, with the captain, could abandon a sinking vessel. Thus the fund was later extended to include these men, and on May 12, 1915, a memorial fountain and cenotaph—**Erected in memory of wireless operators lost at sea at the post of duty**—was formally presented to the City by the Maritime Association of the Port of New York.

In accepting the memorial Acting Mayor McAneny made an all too true prophecy when he observed, "You have on your beautiful shaft here the names of ten men who have given their lives for others, and the black space remaining is a melancholy reminder that perhaps other names will have to be added." On this, the 22nd anniversary of its dedication, there are 26 names on the monument.

Each of the following brief inscriptions is a condensation of a tale of heroism, with the name of a chap who knew he faced death and still had the courage to keep his heart and hand under control.

GEORGE C. ECCLES—S. S. Ohio. Foundered 1 A. M. Aug. 26, 1909. Pacific Coast.

STEPHEN F. SCZEPANEK—S. S. Pere Marquette Car Ferry No. 18. September 9, 1910. Lake Michigan.

JACK PHILLIPS—S. S. Titanic. April 15, 1912. Atlantic Coast.

LAWRENCE PRUDHUNT—S. S. Rose Crans. Jan. 7, 1913. Pacific Coast.

DONALD CAMPBELL PERKINS—S. S. State of California. Aug. 18, 1913. Pacific Coast.

FERDINAND J. KUEHN—S. S. Monroe. Jan. 30, 1914. Atlantic Coast.

WALTER E. REKER—S. S. Admiral Sampson. Aug. 25, 1914. Puget Sound.

CLIFTON J. FLEMING—HARRY FRED OTTO—S. S. Francis H. Leggett. Sept. 18, 1914. Oregon Coast.

ADOLPH J. SVENSON—S. S. Hanalei. Nov. 23, 1914. Pacific Coast.

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SEVEN DAYS A HILL-BILLY

By Syd Bergere

SOME two hundred years ago a primitive race of people settled in a section of the country known now as the Cumberland Mountains of Kentucky. This land with its beautiful rivers and entrancing hills offered a refuge to these "squatters" from the strife and oppression which the westward bound homesteaders were subjected to. True enough, they were constantly struggling against the Indians, but being a hardy race it was not too difficult for them to survive their hardships and maintain the lands and mountains which they had come to love and call their own.



On the steep and treacherous slopes of the great mountains these early pioneers planted their corn, they raised their pigs and cows and minded their own business. They still do. The passing of the years has not changed the make-up of these famous mountaineers, neither has the progress of the outside world found its way into the minds and homes of these colorful people. They have built up a method of living which is comparable to none, and it was this method, with its ideals and codes, which helped promote the recent broadcast when modern civilization, in the form of radio, was brought to Lott's Creek.

A program was originated to bring to the outside world a picture of the way in which the "Kentucky Mountaineer" conducted his life, the way in which he obtained his livelihood and the manner in which he received his education, if any.

Bob Trago and I left New York, with its ultra modern atmosphere, to trek south into the mysterious mountains of old Kentucky. Our entourage consisted of a ton and a half of broadcasting

equipment including two short wave transmitters, three receivers and all the necessary audio equipment. A high speed train carried us through civilization to Cincinnati, Ohio, where we took another train for the quaint little town of Winchester, Kentucky. At Winchester it was necessary to board an old fashioned rattler. This last train was to carry us over one hundred and twenty miles into the wilderness of the Cumberland Mountains. After the foothills had been entered the train continued to puff its way up the steep grades, climbing higher and higher into the heart of the secluded region. Sheer walls of rock and shale



towered high above the rails on one side where it had been necessary to cut through the mountains in laying the railroad. Off to the other side of the tracks were the great hills, reaching as far as the eye could see, rising into the clear sky with a myriad of colors representing the luxurious growth of the fertile country. Each hill was overlapped by another, and still another, some rising twenty-five hundred feet into the air. At times

the rails ran parallel to the river, following its twisted course far into a valley and then back out again to circle around the mountain.

Dotting the slopes, in a picturesque setting, the cabin or shanty of a mountaineer stood out against the colorful background while his family huddled around the door watching the iron monster. Each of these families, no matter how poor, have their corn field, tobacco patch and little garden, the planting being done on the steep slopes of the hills, rising far above us.

Arriving at Hazard, Kentucky, we found ourselves in the heart of the coal mining region. Hazard was our last stop and from this point it was necessary to transport ourselves and our equipment by any available means into the settlement known as Lott's Creek. While waiting for the truck (for which we had arranged) to arrive, we had an opportunity to compare this little town with the modern towns known to all of us.

Coming down from the coal mines which were buried deep in the hills the miners would walk in groups down the narrow streets, the little carbide lamps on their caps glowing like tiny headlights. We learned that over eight hundred cars of coal were shipped out of this section every day and that some of the mines extended over five miles into the heart of the mountains.

An occasional mountaineer was seen, leading his pack mule, heading back into the hills with his necessary supplies. The Grand Hotel was chosen as our receiving headquarters for the coming program and a portion of the heavy equipment was left at this point. Not all that the name implied, the establishment afforded no elevators which meant carrying the heavy cases up two flights of stairs.

Shortly after this the truck arrived and when the equipment and batteries had been loaded our journey into the wilderness began. It was approximately fifteen miles from Hazard to Lott's Creek and our driver informed us that the makeshift road leading into the mountains was in bad shape. Our destination was known as the "Teacherage," located in the settlement of Lott's Creek, and as it was impossible to get the equipment in on mule back we took our chances against the road and started the hazardous trip with the truck. It proved to be even worse than we had anticipated. After leaving the main highway we headed directly into the mountains and found ourselves riding over ground cleared by the residents. The heavy rains had turned the improvised road into a treacherous bog and as the width of the cleared section was hardly greater than that of the truck

there was no turning back. Every few hundred feet the grinding wheels would bury themselves hub deep in the sticky mud, causing the vehicle to fall over on one side at a precarious angle. On our left was the mountain and on the right a ten foot drop into the winding river, leaving no alternative but to get out and push. Standing knee deep in the sucking muck it was impossible to move as the spinning wheels showered our heaving bodies with mud, then suddenly, after a tremendous heave, the truck would roll free and continue on while we jumped on the rear board to gain a moment's rest.

Several hours later the crest of the hill was reached and we began our descent into the valley where Lott's Creek lay hidden. Rounding a sharp turn we found to our consternation that even the dug out road had disappeared. The truck dipped down until, standing as we were on the tailboard, we could look down upon the engine rather than out at it. Completing the steep grade we ran directly into the river, turned left and resumed our travel riding directly in the middle of the slowly moving current. After a short ride we left our unusual highway, bounced and twisted over boulders and stumps and slowly climbed to higher ground. Coming to a clearing we could see the cabin, which was our destination, silhouetted against the mountain as the moonlight beat down upon it.

We were met by the two school teachers who had built this abode with the aid of neighborly mountaineers. Their hospitality was customary of those grand people of the mountains and we of the city might do well to follow their example. These young women receive a meagre fee for their efforts and very few thanks, their main support being in the form of clothing and merchandise, donated to them, which they sell to obtain money for carrying on their work. Their lives are spent in the vastness of the Kentucky Hills devoting all their time in helping the mountain people to obtain knowledge, which in itself is a tremendous job.

They must overcome great obstacles, for very few of the people in these remote settlements have ever seen an electric light, some know nothing of the actual value of money and others fly into a rage when the teachers tell their children the earth is round.

It's hard to believe that bitter feuds still exist between the clans, but these people are widely separated, some living up-creek and others living down-creek. They never get to know each other

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NORTHWARD HO!

L. Farkas

BURSTING into Dunham Gilbert's office Elliot Stuckel, Columbia's exploitation director, exclaimed: "Gilbert, you're just the man I want."

The playhouse supervisor turned to him in surprise. "Why hello there, what can I do for you?"

Stuckel walked over to the desk and handed him an envelope. "Here's a letter that has just been received by Nila Mack, the producer of the 'Sunday Morning at Aunt Susan's' program. Read it."



The receiver that did the trick . . .

Gilbert slowly read the message, then turned to Stuckel: "Well, what about it?"

Stuckel sat down on the desk and pointed to the letter. "This," he said, "is a chance for an interesting broadcast. Just think of it, radio's most isolated listener, way up on tiny Herschel Island in the Arctic Circle. We can build a program around that and dedicate the show to him. It's something novel but first we must contact him."

Gilbert looked up puzzled: "I'm afraid I don't quite understand. . . ."

"You have an amateur station, haven't you?" asked Stuckel.

". . . yes, but . . ."

"Well, what we have to do is to contact Bennett by amateur radio. Get him to answer a list of questions about himself and the type of program he would like to hear. When we get that informa-

tion, we will do a broadcast in his honor."

Gilbert considered this for a moment and answered: "You know it's not going to be easy. Amateur stations are not numerous in that part of the globe. Perhaps there will be none near him and if there are, I don't know how transmitting conditions will be."

The director nodded his head: "I realize that I'm giving you quite a job. Still I don't want to wait five or six months for information by mail. That letter of his took two and a half months to reach us. It came by dog sled, horseback, steamer, train, and airplane. That's too slow. It's got to be radio."



. . . and the transmitter

"All right," agreed Gilbert, "I'm not going to promise you anything but I'll have a try at it tonight."

At home that evening of March 6, Gilbert turned on his rig and carefully scanned the ether for an Alaskan call on 20 meters. For an hour he kept searching but nothing that sounded like a northerner came through. He was just about ready to give it up as a bad job when way in the background he heard a faint call. "CQ CQ CQ de K7FYI K7FYI K7FYI." At last an Alaskan!

With his ears glued to the phones he impatiently waited until the Alaskan had completed his call, then he cut loose with his 1 KW of power. "K7FYI K7FYI K7FYI de W2FVT W2FVT W2FVT." He stretched out the call, slowly spelling out the letters and ended with an invitation to go ahead. Pressing his phones to his head he waited for an answer. He was wondering if he

had been heard, if his signals were going that far north when that faint note came back. "W2FVT W2FVT W2FVT de K7FYI . . . your signals coming through fine here at Fairbanks, Alaska . . . Glad to contact you . . . What's on your mind?"

Gilbert explained the task that confronted him. Communication had to be established with Frederick C. Bennett, on Herschel Island in the Beauford Sea. Could K7FYI help him out?

"You've got something there, old man," came back the answer, "but I think I can help you."

K7FYI had a scheduled transmission with a Canadian amateur, VE5QB located at Old Crow, Yukon. He contacted him and found out that he in turn could talk to another amateur VE5PQ, operating on the 80-meter-band. The latter was located at Aklavik in the Northwestern Territory, and was only 175 miles southeast of Herschel Island. This was as near as could be gotten to the loneliest listener, but it was worth the try.

It took Gilbert nearly two hours to transmit the questionnaire to K7FYI. Interference from both atmospheric conditions and other amateur stations was very heavy. Gilbert had to shift his transmitting frequency several times so that his message could get through but finally the whole thing was sent out.

From then on it was a matter of waiting. K7FYI took the questionnaire and sent it to VE5QB at Old Crow, Yukon. VE5QB in turn contacted VE5PQ at Aklavik.

Here Lady Luck entered for her say. The amateur at Aklavik, a member of the Royal Canadian Mounted, was just making ready for his routine inspection tour when he was contacted. Had the message been a day late any communication would probably have been held up for a month. As it was VE5PQ promised to stretch his tour to contact Bennett and to return with the information.

The next morning he started out with his dogs pulling a heavily loaded sled. Deep snow piled into drifts that reached a depth of ten feet. The 175 miles that separated him from Herschel Island extended on the windward side of a mountain range, swept by icy gales from the Arctic Ocean. It was tough mushing.

Day after day he pushed northward until at last, on the end of the fifth day, after traveling across a broad stretch of frozen water, he reached Herschel Island.

Bennett warmly welcomed him to his island outpost. It wasn't often that visitors came to the island, so that it was an unexpected pleasure for the keeper. He kept the visitor at his place for a few days making him feel at home. It was pleasant to sit there talking in a warm place—but the

best of friends must part. After having received the answers to the questionnaire and several other messages for the outside world, VE5PQ left his friendly host and started the dash back to his post in Old Crow.

In the meantime Gilbert had kept in touch with K7FYI in Fairbanks and VE5BQ in Old Crow. All were anxiously waiting for the return of the messenger. Night after night and still no answer came to their calls. It was becoming discouraging when on the evening of March 20, K7FYI broke through with the glad news. VE5PQ had returned with the desired information.

With his 20 watts of power, K7FYI started to send the message. Atmospheric conditions were becoming worse. Interference from other stations sometimes drowned out his signals entirely. Gilbert had to interrupt frequently to ask for repeats. After three hours K7FYI's signals faded out entirely. Only half the message had been transmitted and no matter how hard he tried, he could not contact K7FYI again. In desperation he sent a message blind, asking for a schedule the following night. There was nothing more he could do now but wait for the morrow.

The next evening conditions were much better and after two hours of transmission, Gilbert succeeded in getting the rest of the message.

Bennett's answer told a graphic story of his life.

"I am in the employ of the Royal Mounted Police," he wrote. "I am caretaker of the customs building here as this is a Port of Entry—although there is only one ship a year from San Francisco which remains here about three weeks or so waiting for auxiliary schooners from the East. It usually arrives here the first week of August and leaves at the end of the month, as the ice is floating around the ocean, that is, heavy pack ice.

"Actually I am a trapper, born in England, and have been in Canada for nearly forty years. Have pioneered in the West before the second Transcontinental reached Edmonton, Alberta, and when it came through, well, I went further north, so I have not reached the limit.

"This summer I plan to visit my folks in England. I am looking forward to the visit. I have not seen my folks since I left in 1919, when I was in the army.

"Aunt Susan, I sure enjoy your little chat and the 'Midnight to Dawn' review on Station KSL every Saturday night. You see it does not make much difference here during the short days, lamps have to burn all day. The sun just appeared a

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BEHIND THE LINES

By Margaret Larkin

ENGINEERS, technicians, and scientists, perhaps more than any other group, are responsible for the present-day, mechanized civilization. If laurels were to be awarded for conspicuous service to humanity these men could justifiably claim a large share of the honors, for they are the builders of the world.

Yet, paradoxically, they are sometimes the unwitting destroyers of the world.

The painful truth of this unfortunate paradox lies perhaps in the fact that men who devote their lives to scientific pursuits become so thoroughly and deeply immersed in their work that they find neither the time nor the inclination to follow the general world social movements outside their own fields. Consequently, they often become the unwitting tools of pernicious, self-seeking Napoleons who will destroy the world to gratify their cravings for personal power.

One of the most disturbing examples of this condition is the present struggle of the Spanish people against the mechanized, and highly scientific forces of German and Italian fascism.

The roots of the present struggle in Spain reach the depths of ancient history. First nation in Europe to plant colonies in the Western Hemisphere, Spain became a self-satisfied sponsor of a royal family and a host of feudal overlords. With gold and other wealth pouring in from Cuba, the Philippine Islands and other western colonies to bolster the support of its merchants and nobility, Spain escaped the industrial revolution that swept over the rest of Europe and brought in its train various degrees of democracy. Even the World War that shook the tottering thrones of other European monarchies, seemed to leave the Spanish scene unchanged.

To most of the world, Spain seemed to be an unimportant, poverty-stricken peninsula. The war with the United States had taken from the grandees and from the royal family the easy wealth that came from the exploitation of colonies, but the nobility found enough for itself by shifting the burden onto the backs of its already oppressed peasantry. The effect of the World War on Spain was not as slight as it seemed, however. During the four years of war, industry had expanded, many peasants became factory workers, a number of war industrialists became rich. The end of the war brought hunger and misery to the workers. To most of us it was only Spain—and

passed unnoticed, but to political thinkers and students of the day, Spain was important—a broken link in the chain of development.

Out of the misery and discontent of the workers, peasants and small business men, there developed organized activity to solve this condition; organized in factions, it is true—anarchists, syndicalists, trade unionists, etc.—but still organized. Thrones in other parts of Europe had crashed during and after the war; the demand for democracy was insistent and in 1931, King Alfonso, well supplied with money already shipped to other lands for safekeeping, fled his throne. Republican Spain was born.

To us in America who think of republican government as the simple will of all the people, everything looked easy. But the poor Spanish peasants, artisans, and miners soon discovered that while the king was gone, the rule of Spain was still in the hands of the grandees, the army, the hierarchy of the church, who owned everything except the poorest land, and levied a heavy tax on that. The peasants had been promised land; when they claimed it, they were shot.

In 1934 the rising tide of discontent reached its peak when the heroic Asturian miners decided it was better to die for the solution of their plight than to continue to suffer the misery that was theirs. The world knows what happened. Workers and peasants of the Spanish army refused to obey the Gil Robles decree to fight their heroic Asturian brothers, but after the Gil Robles government disarmed the miners by promising arbitration of their grievances, Moors and Foreign Legionnaires were imported to crush the revolt in fiendish bloodshed. Thousands were killed, and over 38,000 were sent to hellish prisons.

The power of Gil Robles—voice of the rich—was supreme. His law and order prevailed. The doom of Spanish democracy seemed final. Mussolini in Italy and Hitler in Germany had set a pattern for the Spanish Fascists to follow. So secure did these rulers feel that they permitted a popular election in February, 1936.

The machinery for this election was in the hands of the government that also controlled the radio and the press. Their power should have been secure, and would have been, except for a new concept in politics—the concept of the Popular Front. Joint conferences of all existing fac-

tions, trade unions (there were rival trade unions in Spain), anarchists, socialists, communists, etc., agreed upon certain basic plans against the reaction; agreed upon candidates for office, and agreed upon a joint program. The result was a sweeping victory for the forces of democracy, in spite of the corrupt fascist electoral machinery. It was not a Socialist nor a Communist government, but a republican government, little, if any more progressive than the New Deal government of Roosevelt. But the fascists of Spain, supported by Mussolini and Hitler, would have nothing of it. They were determined to cancel the election. They resorted to the old trick of fomenting disturbances and then shouting that the government was failing to keep peace. They set fire to churches and cried out against leftist attacks upon religion.

Finding that these tactics failed in the eyes of the Spanish people, the fascists consulted further with their advisors, Messrs. Mussolini and Hitler, and perfected their plans for forcibly seizing the government by means of disloyal army officers. That these plans, carefully supported by the Italian and German advisors, failed, is due to the heroism of the Spanish people, who bare-handed, wrested guns from the soldiery, took possession of the garrisons in Madrid, Barcelona and other important centers. The power of Franco and his band would have been crushed except for Italian aid in rushing first Moorish and then Italian troops into Spain, and in addition, the aid from Hitler in the form of supplies and later, trained troops. The heroic defense of Madrid by the best of the democratic people's army of Spain, valiantly supported by an International Brigade of non-Spanish anti-fascists, has given the Spanish government time to train and equip an army that will make Spain the battle ground on which Fascism will be given its death blow.

That the Spaniards are fighting for the utilization of the great wealth of that country is not commonly known. The fact that the natural resources of the country make Spain potentially one of the richest in the world, has remained in the monotonous statistics of the World Almanac and the Encyclopedia Britannica. It is nevertheless true that Spain leads the world as a source of pyrites, is second in the world as a source of mercury, and fourth in lead. One can also enumerate an accessible coal reserve of over eight billion metric tons, as well as vast quantities of copper, zinc, manganese, mercury, silver, platinum and other minerals. With a natural wealth far exceeding any of the countries of continental Europe, Spain, fettered by the feudal system and outmoded nobility for more than 300 years after the

industrial revolution in France, has remained one of the most backward in industrial production. The people of Spain know the potentialities of their country—one of the first actions of the 1931 republican government, was to establish a system of 30,000 schools, more than 1,000 of which were devoted to teaching technical and engineering principles. One of the first acts of the Gil Robles government was to close these schools. And one of the main planks of the Popular Front Government now fighting the fascists, is to reopen these schools, and to build modern industry in Spain.

It is interesting to note that together with the arrival of German troops to attack the lines south of Madrid, where there are vast stores of mercury; thousands of German miners were sent into these mines to bring out its products for shipment to Germany. Similarly, the fascist planes which at Guernica killed over 800 women and children, avoided most carefully the rich iron mines of the Basque Provinces. The mineral wealth of Spain would aid immeasurably both German and Italian fascism in search for sources for their war-making industries.

The question resolves itself simply. Shall peace loving, democratic-principled Americans support the Fascist powers who are represented in Spain by Franco's armies of Italians, Germans and Moors, to overthrow a legally elected democratic government in order to further their contemplated war offensive throughout the rest of the world? Or shall the American people, with the traditions of liberty and freedom come to the aid of a people, long oppressed, fighting the battle of all the democratic peoples of the world against International Fascism. I leave the answer to any American, any artist, any engineer, any lover of freedom.

IS IT not true that today all the various and sundry branches of science should work together so that work may not be too oft repeated and that all of us may contribute our part toward a better understanding of our surroundings, our neighbors, and other life on this planet?

It may be interesting to note that an electron strikes the plate of a vacuum tube at a speed of 600 km. per second with only a potential of one volt on the plate. At a plate potential of 100 volts the speed of the electron is 6,000 km. per second and at a potential of 10,000 volts the speed is 60,000 km. per second. Is it any wonder that the plates of large water cooled tubes would melt if the water was removed from them momentarily during such a bombardment?

At 60,000 km. per second the electron has begun to increase in mass so that regardless of how high the voltage may be raised the electrons would never exceed the speed of light (300,000 km. per second).

E. H.—WJSV.

TUBE NOTES

By J. Cosman

Federal Telegraph Co.

UNTIL rather recently technical data on vacuum tubes, especially the larger types, has been rather difficult to obtain. Fortunately, this is no longer true.

Tubes were regarded as a laboratory mystery and manufacturing processes and tube labs were closely guarded lest the secrets should leak out. This also is no longer true. Tube shops are more liberal and cooperative in exchange of visits and information; as a result the shroud of mystery has almost entirely disappeared. In other words, the business is just about debunked, which is as it should be.

Although there has been a great deal of technical publicity on vacuum tubes, little has been said about the manufacturing steps, problems, and headaches which make tubes a little more than just copper, glass, tantalum, moly, tungsten or carbon, which when put together produce a flock of curves.

The purpose of this series of articles is to give you the "inside dope," as it were, on the manufacture of tubes, especially water cooled tubes. Inasmuch as the first step in manufacture of tubes is collecting the raw materials, it might be well to start with a discussion of them and progress through the tube shop with the materials as we go along.

COPPER:

The copper used in anodes is not ordinary copper, but "oxygen-free high conductivity copper." Why oxygen-free copper? Well, most metal parts used in tubes are heated to high temperatures in the presence of hydrogen to remove surface oxides, also, practically all brazing operations are done in hydrogen-filled bell jars to keep the areas to be brazed clean and provide a flux action. If oxygen is present in the copper during treatment in the hydrogen furnace, the oxygen and hydrogen will combine to form water which would turn to steam at high temperature, expand and cause minute ruptures. The anode would leak like a sieve.

There are numerous ways of removing oxygen from copper, but a few most commonly used are by introduction of phosphorus in the molten copper which combines with the oxygen to form phosphorous pentoxide. Another method is to melt or heat the copper to high temperature in a vacuum furnace and exhaust the gases. A third method is to introduce zinc into the molten copper

which more readily combines with the oxygen. The zinc is then vaporized or boiled out of the anodes in a vacuum furnace or on the exhaust pump. In most cases the latter system is not very satisfactory because the zinc will condense on the cool portion of the tube and the chase is on, just like the whippet after the elusive electric hare.

Copper freed of oxygen is cast in billets, rolled to proper thickness and drawn in from eight to twelve steps, starting from a shallow dish, each operation making it deeper and smaller in diameter until finally the desired diameter anode is obtained.

Each batch of anodes is given a number and they go to the inspection department for routine check of diameter, length, wall thickness, slag inclusions, drawing cracks, etc., and random-selected samples are sent to the chem lab for analysis. If found O. K. they are degreased in a carbon tetrachloride shower and the anode clamping rings are brazed on. The machine shop then cuts the rings to size and machines to four one-thousandths of an inch, the feather edge to which the glass is later to be sealed. This operation requires precision machine shop tools and the best of craftsmanship.

TUNGSTEN:

Tungsten is used chiefly for filament structures because of its high melting point and reasonably good emission qualities, also it seals well with hard glasses, is obtained in rod or wire form ground or drawn to desirable sizes. Unlike most metals, tungsten cannot be melted in open air, poured into billets and worked. Heated in air it oxidizes very quickly first to deep blue then with ample oxygen to a canary yellow powder. Tungsten in its pure state is obtained by heating the oxide to high temperature in the presence of a stream of hydrogen. Its manufacture is difficult and expensive. Small particles of tungsten are first pressed, then heated, rolled and drawn together until the crystals interlock and quite frequently in drawing fissures are left in the rod which, if placed in a filament press, will cause loss of vacuum. For this reason every inch of it must undergo rigorous inspection under a microscope. Grinding and etching help to show up the fissures. Occasionally some of the tungsten becomes contaminated with thorium or other radioactive elements in such small quantities as to defy chem analysis. If such tungsten is permitted to be used,

all kinds of peculiar and undesirable secondary and primary emission effects can occur in water cooled tubes where filament temperatures are high. To detect the presence of these radioactive substances samples of each batch of tungsten are exposed to a sensitized film for several days. Incidentally the same care must be taken with moly and tantalum.

Because of its brittle nature tungsten is seldom if ever obtainable in sheets. Although it is also brittle in wire or rod form, by heating to a dull red heat it can readily be stamped or bent.

It is highly important that the wire used in filaments have the proper crystalline structure. Long thin crystals are most desirable so as to obtain a large number of interlocking crystals per given cross-section. Short squat crystals do not interlock as well and consequently wire having this type of crystal structure will break more easily with mechanical or thermal shock. Crystal structure can be changed and controlled by proper heat treatment schedule. In order to keep constant check on crystal structures samples of filament wire are regularly mounted and polished for microscopic observation; photomicrographs are frequently taken for comparison with desirable standards. Crystal sizes are determined by comparison with size of field for any given magnification.

MOLYBDENUM:

Molybdenum possesses many of the characteristics of tungsten but is considerably more malleable, therefore it can be obtained in either sheet, wire or rod. In spite of its improved characteristics, it still is a temperamental baby to handle. Moly sheet is built up of flakes pretty much like the pastry napoleon and if improperly handled will flake or crack. In rolling, the sheet acquires a grain in the direction of the roll and if rolled in one direction it can be bent without breaking in only one direction. Where a piece is to be bent in more than one direction the sheet is ordered rolled and cross-rolled.

Dies for forming moly must be skilfully designed to take into consideration the characteristics peculiar to moly. Allowance must be made for the springy nature of the metal and quite often to obtain best results it must be heated. When moly was first used for tubes there was very little known about it and as a result much of the present knowledge has been built up through costly and often discouraging experience. Once moly is heat treated at high temperatures it becomes very brittle and has no reclamation value to speak of.

As a grid wire for some tubes it possesses desirable characteristics. The character of the sur-

face and nature of the material provide a means of obtaining wanted secondary emission effects. In heating, a tough oxide is formed which can be removed by immersion in a hot sodium nitrite bath or treatment in the hydrogen furnace. Extreme care must be used in handling the cleaned moly parts because perspiration permanently etches the surface and finger prints are almost impossible to remove.

TANTALUM:

In comparing moly and tantalum, tantalum possesses the more desirable characteristics. It is considerably softer and much easier to shape and handle. The chief thing against it is its almost prohibitive cost.

This metal as an anode is highly desirable because it can be operated at higher dissipations per unit area, also it has a much better getter action than moly. Unlike moly it does not become extremely brittle with heat treatment. Tantalum becomes extremely brittle when heated in hydrogen, consequently other means of cleaning, such as high vacuum treatment must be used. Tantalum is frequently used for anodes in large tubes where a high enough price can be obtained to justify its use. Where it is used in small tubes the size of the anode is reduced and operated at higher temperature in order to make an economic compromise. While this practise might be justified for amateur tubes it is not to be recommended (because of the effects of high temperature on other parts of the tube) where reliability of operation for long periods must be obtained.

IRON:

This serves as a general classification for any number of ferrous alloys used especially in mercury vapor tubes where the anodes and shields are not required to handle very high dissipations and consequently a cheaper metal with a lower vaporizing temperature can be tolerated. Most of these alloys will not amalgamate with mercury which is also a requisite. Those chiefly used are Svea metal (trade name), Swedish steel, stainless steel and common grey iron. The technique in forming these metals is well known and presents little difficulty. Cleaning is accomplished by sandblasting and treatment in hydrogen furnace. Special care must be used to prevent oxidizing of these parts.

NICKEL:

Because of its lower melting point, nickel is seldom used for anodes, in the past it has been used with its surface oxidized to obtain dark body radiation and thus increased dissipation per unit area. The oxide is tough and stable and therefore not objectionable where temperatures are kept

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Construction Started on New CBS West Coast Headquarters

ON THE afternoon of April 27th, Donald W. Thornburgh, Vice-President of CBS on the West Coast, turned the first shovelful of earth in the ground-breaking ceremonies attending the construction of Columbia's new West Coast Studios.

The new headquarters will have eight studios, including an auditorium with a seating capacity of 1,050 people, two smaller studios capable of seating 200 to 250 people, and the remaining five studios will be of varying sizes. Studios one and two, on the first floor, will be almost identical in size and technical arrangement, with the stage in the auditorium nearby so arranged that any program can be rehearsed almost to the last minute, and with little change, be moved into the auditorium proper. Smaller studios, three and four, will also be on the first floor. Studios five, six and seven will occupy the second floor.

The engineering department will be on the first floor of the studio building adjacent to the master control room, which will be glass-enclosed so that visitors to the studios or auditorium can see the actual "heart" of the broadcasting system at work, with all its electrical, mechanical and personal precision. Some of the engineers, long accustomed to isolation, may object to being thus treated as goldfish, but the passing show may have some compensations to offer.

Perhaps one of the most important aspects of the plans now under way is the setting aside of space for a television building adjacent to and equal in size to the main broadcast auditorium.



An artist hopes the place will look like this

The acoustical design of the new studios was under the supervision of the well known expert, Dr. Vern O. Knudsen, Professor of Acoustical Engineering at the University of California at Los Angeles. Dr. Knudsen is now acoustical consultant to CBS. The building, which will cost around \$1,000,000, will be entirely air conditioned in both office and studio sections, and will be ready for occupancy on or about December 1, 1937.

Bruce Piersall, KNX.

DEDICATION OF W2XE

DAILY program service, especially designed for listeners of Europe and the British Isles, was inaugurated by the Columbia Broadcasting System on Coronation Day, Wednesday, May 12, when officials of the company dedicated Columbia's new high-power transmitter.

The new transmitter has a peak power of 40 kilowatts and was officially opened at 5:00 A. M. EDT with a short dedicatory address by E. K. Cohan, CBS director of engineering, and William Lewis, vice president in charge of programs. The first program of the regular series was transmitted toward Europe and England by means of directional antennas and went on the air at 5:15 A. M.

Programs of interest, primarily to foreign audiences, will be selected for W2XE's trans-Atlantic transmissions by a new program department

headed by Elizabeth Tucker, who, as a former member of the CBS General Engineering Department, has, for the past several years, been closely associated with shortwave activities.

The operating schedule of the new transmitter will enable European audiences to hear the programs during their afternoon and evening hours of listening. Licensed to employ five frequencies, W2XE will be heard on the following schedule:

7:30 A. M. - 10:00 A. M.—21,520 kilocycles.

1:00 P. M. - 2:00 P. M.—17,760 kilocycles.

3:00 P. M. - 6:00 P. M.—15,270 kilocycles.

The frequency of 11,830 kilocycles will be held in reserve until further tests indicate its period of maximum usefulness; and 6,120 kilocycles will be used for transmission to South and Central America.

THE FALL OF THE CITY

A NUMBER of interesting shows are pumped out on the net every day without a great deal of ballyhoo; but occasionally a show pops up that attracts a great deal of attention and merits a little explanation. I think the Columbia Workshop series of programs is usually a little different in technique because it is an experimental program with a great deal of thought devoted to working out new techniques and different types of material. Sunday evening, April 11, (opposite Jack Benny; worse luck, wonder if anyone heard it) the Columbia Workshop presented a show of special interest, "The Fall of the City," by Archibald MacLeish, eminent modern poet.

"The Fall of the City" was written by Mr. MacLeish, especially for radio presentation and for that reason, if for no other, the program was at least different. Very seldom in the history of radio, if ever, has a recognized writer of this day made any attempt to write material expressly for radio use. This script was in blank verse, but don't let that frighten any of you who may not have heard the program, for the verse was in the modern vernacular, and not only was it in the speech of today, but it adopted the methods of radio medium in unfolding its story. The setting of the play was in "the city," which might have been any city—perhaps in ancient Greece. The whole plot unfolded in the square of this city where a crowd of eight or ten thousand people had gathered. As the show opened we were supposedly in the studio of a modern broadcasting station. The announcer made an introductory announcement and then transferred control to the square of "the city." Then the announcer from that point in a style very much like that of a special events announcer described the weather, told of the gathering of the people, and generally described the setting as though it were a presidential inauguration or a public meeting of today. Evidently the author intended the play to be anti-fascist propaganda. The story was the description and the actions of the crowd of people as their conqueror was on the way to the city. The people were finally overcome by their fears of freedom and lack of leadership and were taken without resistance by this conqueror, who proved to be in the end only an empty shell of armor, merely a symbol without human form.

Undoubtedly that is not a very thorough explanation of the story itself, but it should suffice to give an idea of what it was all about in case you were listening to Benny. As was mentioned the setting of the play was in a large square of "the city" with a great crowd of people gathered there. The Workshop attempted to give an ear-picture of this setting by producing the script from the drill floor of the Seventh Regiment Armory. The name in itself should give you a fairly good picture of the immense size of our studio. The Armory is approximately one block long and about two-thirds of its length in width. This immense size gave us the acoustics of out-of-doors with the reverberation that might result from a city square walled in by buildings. It is foolish to think that the production could not have been put on in a fairly satisfactory manner in a dead studio with the use of an echo chamber to give

the necessary long interval of reverberation, but there was further reason for the use of the armory for our studio. We had a cast of approximately one hundred and seventy-five people to give us our mob effects. The mob was made up principally of students from the dramatic schools of New York University and Barnard College with a few radio actors who knew the ropes. The principals included regular radio actors with Burgess Meredith of the stage playing the leading part and Orson Wells of the stage and radio playing the part of the announcer who described the events as they took place. In addition a large orchestra was used for color in some of the scenes and for fill at the end. I believe from the size of the group with which the show was produced you can see the need for a little elbow room.

The technical set up of the show was quite complicated—as might be suspected, what with portable equipment being used. The director of the Columbia Workshop series, Irving Reis, who was formerly in the New York engineering department, naturally enough, wanted to have all the conveniences of home, or should we say the regular Madison Avenue studios. This necessitated a portable control booth which could be used in the middle of the floor in the armory. Four microphones were needed on the show so that called for the use of two OP4 portable amplifiers to be cascaded with a sixty db pad between them to bring the hop down so that the output of one could be fed into one of the positions of the other amplifier. This gave us three positions on the first amplifier and two additional positions on the second with the other position on the second amplifier being the control of the output of the first.

In the control booth a monitor amplifier and a loud speaker had to be provided, and with the limited space of the portable booth we nearly had the speaker in our laps. It was necessary to provide talk-back facilities to give directions to the large cast, so another OP4 amplifier was used. This one with a mike in the booth feeding an additional power amplifier and speaker directly on the floor of the armory. Then it was decided that the power amplifiers and speakers of the sound effects department were not sufficiently large for this particular job, so a set-up of turn tables, amplifier, and two speakers was used for the sound boys. To make things a bit difficult the armory is located in a direct current district of New York; two converters had to be used to give us the alternating current for the power equipment.

What really had the boys in the remote department a little bit perturbed though, was the fact that the drill floor of the armory was being used all afternoon of the day of the broadcast for indoor tennis matches, so that the afternoon rehearsal had to be done in a gymnasium on the seventh floor of the building. This made the boys have to completely tear down and set up again all this equipment in the middle of the rehearsal with everybody hounding the fellows to make it as quickly as possible. The field engineering department men, Jack Norton, Syd Bergere and Dick Fay, deserve thanks for the very fine job

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. . . - DOTS AND DASHES - . . .

By Charles (Sparks) Kleinman

AS YOU can see from the "by-line," the anonymity of this column's conductor has now become a thing of the past, so I may be able to quit radio yet, when my fame as a columnist has reached the far corners of the earth.

THE REASON for this new departure, however, surprises even the author. Word reached the editorial staff through channels undisclosed that violent objection had been taken to some thoughts expressed in previous columns. Now it seems to me that I had made quite clear in the first few editions that the way was open for anybody to express an opinion at variance with mine—as a matter of fact, I even begged for contributions. I repeat—the column is open to anybody no matter what his views, even though they may differ radically with my own. Your author can only express his own opinion and he hardly expects everybody to agree with him or to accept as gospel the items he chooses to write in these pages. So, now please, if you differ with us, write in and tell the whole story, or if there is any particular subject you wish to air, write me about that and we will undertake to publish it at the earliest opportunity. I sincerely hope that this will clear up any misunderstanding about the purposes of this column and will make anybody who has anything at all to say, feel free to tell us about it.

MAY I QUOTE an editorial from the "New York Evening Post": "Britain has a strike wave on its hands. It comes on the eve of the coronation and threatens its success. If British conservatives were like ours they would be predicting Communism, envisioning a labor dictatorship, bewailing the influence of foreign agitators. Instead we find this comment in an outstanding British financial journal, the "Economist," and pass it along to cool the fevered brows of some of our own Wall Streeters. The 'Economist' says 'The public must prepare itself for a period of increasing pressure from the unions for concessions. There is nothing in such a prospect to excite alarm. On the contrary, pressure by the unions in periods when their bargaining power is strong, is one of the most valuable means for keeping the managers of industry up to the mark and for stimulating the efficiency of all enterprises'."

THIS EDITORIAL SPEAKS for itself. American industrialists can well take a page from the

British book and accept the rise of unionism as a challenge to its efficiency. It has been often said by progressive employers, and we referred to it in detail in a previous issue, that the employer is better off with a union shop. He is assured of competent workers, earning a fair salary and devoting all their energies during working hours to earning a profit for the employer. The industrialist who continues to exploit labor, to pay starvation wages and to engage in the "speed-up" can hardly expect to reap any benefits from such a program in the long run. He will find the efficiency of his workers lagging. Production will drop in spite of the "speed-up." He will eventually have to deal with the unions anyhow, and it has been the experience of many such, that their profits have increased rather than decreased with a "union shop."

THIS GIVES FOOD for thought to all—the worker and the employer. It is important in many respects. If an employer can earn more with "union" help by virtue of the fact that well-paid, well-fed workers, toiling under good conditions can produce more, it stands to reason that eventually all, except possibly the marginal entrepreneur, will be not only desirous of, but actually anxious to deal with "union labor." This means that the unorganized employee should face the future and realize that unionization in all industries for all classes of work must be only a question of time.

NOW PERMIT ME to repeat that this dissertation is only an expression of the writer's personal opinions on the subject—comment and discussion will be welcomed with open arms. No one would be happier to see some real hot controversies fought out in these columns than your humble columnist. So please, let's hear from you. So long and 73's until next month.

IN THE last week of April more than 8,000 Philco workers voted to strike because of failure of employers to adjust grievances such as: Non-observance of seniority rights; ten cents per hour wage increase, and an additional increase of five cents per hour for night work; and a guaranteed yearly bonus.

The strike also affects the Philadelphia Storage Battery Company, which manufactures equipment sold by Philco.

50,000 Bees Stage "Sit Down" In WEEI Studio

IT ALL "bee-gan" after the conclusion of an interview by Program Director Arthur Edes with State Apiarist John Van de Poele, who brought two hives of bees to the studio one evening to broadcast the drone of the immense swarm to the radio audience, hoping they would "bee-hive" themselves.



Mr. Edes wore a net around his head, a pair of heavy kid gloves, and bicycle guards on his trousers for protection. He said: "My motto is 'never trust a bee.' May-bee in the morning I'll awaken with bee lumps all over me, discovering that the net had leaked." Thus concluding the program, Arthur left the studio with Van de Poele close behind him carrying the two hives. Stumbling on the inclined floor between the two studio doors, Van de Poele dropped the hives. Arthur made the door, bees after him, out into the reception room crowded with visitors. Instantly there was panic, but Van de Poele slammed the door and was alone with his bees, and although nearly immune was severely stung over 350 times on his already swollen arms.

It was certainly something new in sit-down strikes to have a swarm of angry bees take charge of a radio studio. Maybe it was night work or the fact of no extra honey for overtime pay—anyway the WEEI staff was successfully routed by the irritated insects.

The sitters weren't there by popular choice, although they were clustered on chandeliers, had affixed themselves to costly draping, and had taken over the microphones and grand piano en route.

The bee expert worked practically all the night with a smoke gun, forcing the bees back into the hives, and vacuum cleaner, pulling them from under piano strings and off the walls and ceilings. Van de Poele estimated that he had lost about 10,000 of the swarm.

A hastily scribbled but none the less effective sign on the door of studio "B" read: "Warning—bees loose—do not enter." Studio sayings the next morning were: "What is this W-BEE-EI? Well, I'll be buzzing along. Is broadcasting a beezness? How do you bee this morning? To bee or not to bee . . ."

W. H. R.

PHOTO CHATS

AT SOME time or other most camera enthusiasts who like to do their own developing and printing run into trouble with the negaives. Usually they are not hard enough to stand the unavoidable handling, and consequently in the process of enlarging or color printing the surfaces become badly scratched. The problem is to get the surface of the negative hard enough to withstand this handling.

THERE ARE three common methods of accomplishing this:

The first is to include the hardener in the short-stop solution, that is, the wash solution used between the developer and the hypo.

The second, and the most common method, is to add the hardener to the hypo bath.

The third method is to use the hardener solution after all other chemical action has ceased, that is, after the negative has been taken out of the hypo bath and has been in water for a few minutes. This method seems to be the best of the three.

I HAVE FOUND a solution known as the "F-H-S Hardener," manufactured by the R. J. Fitzsimons Corp., of 75 Fifth Avenue, New York City, to be very good. The hardener is in a concentrated liquid form, and all that is required before use is its dilution in water according to directions on the bottle.

AFTER THE negative has been removed from the hypo bath and has been in the water wash for five minutes it is removed and placed in the hardening solution for ten minutes, and then replaced in water wash for fifteen more minutes before drying. This solution can be saved and used many times before a new solution has to be made.

L. N. Hatfield.

OVERTONES AND HARMONICS

NEW YORK

Ed Greco, WHN engineer, is the camera expert of the place. His accomplishments consist of being able to use a graflex camera, a Weston exposure meter and building ship models.

At WHN Windham and Fueling are busy in the station workshop building new racks for master control.

Lanny Ross, NBC singer, has purchased a farm in Connecticut and has it worked by a share cropper. It makes a nice retreat from the city and fishing is supposed to be unusually good in the vicinity. Mel White, CBS Production, has it on good authority that Lanny will become a papa by the time this publication is off the press.

A new CBS vocal group has been organized and is composed of Helen Jackson, Beverly Freeland, Judy Freeland, and Beatrice Wain. Three of the girls were former members of the "Blue Flames" mixed quartet and they all sing on the Chesterfield program. The name of the new quartet is the "Four Stars" and they work with Curly Mahr, accompanist.

Announcement was recently made of the coming marriage of Miss Winifred Scott of Mount Vernon, to Mr. Harold Dorschug, CBS master control engineer. Miss Scott was graduated from Barnard College and the School of Library Service, Columbia University. She is at present employed as library assistant in the Children's Department of the Mount Vernon Public Library.

No definite date has been set for the ceremony but it is rumored that the last of July will see Harold a married man.

Bill Gage is spending his spare time working on a new high-powered amplifier trying to get more volume and better frequency-fidelity.

Phil Goetz is experimenting with five meters and walks around with a transmitter strapped to his back. His chief worry is trying to dodge under awnings.

What becomes of those headliners of the past? Well, here's Martha Boswell, former radio celebrity. She and her husband, Major Lloyd, recently purchased a 260 acre farm near Peekskill and are going in for rural life in a big way. When they are not fishing in the inviting trout stream that runs through the place they are tending six cows, all ribbon stock, and taking care of the many orchards; not to mention cooking and working in a completely electrified kitchen.

Ed Sorensen finds that the CBS Building elevators make a convenient place to check the altimeter from his plane. He measured the distance between floors after which it was an easy matter to calibrate the meter. (???? Farkas!)

On a recent radio Amateur Hour, a violin player's wife was being interviewed and was asked how it felt to be a musician's wife. She said that it was fine and with an afterthought, added, "And I'm ever so proud of his instrument."

The Nash Program, featuring Grace Moore with Vincent Lopez and his orchestra moved to the West Coast May 1st so that Miss Moore might go to work on her new picture.

Someone suggested that the law should require a license for everyone carrying or buying a hammer. All these hammer murders.

A baby girl weighing six pounds was born May 5th to Phil Engles, piano player in Dick Balleau's Orchestra. Incidentally, that date happened to also be the birthday of Balleau himself.

B. A. Rolph, of the Heinz Show, starts a new series in July on NBC with Ripley, under the sponsorship of General Foods.

Sympathy is extended to Miss Cora Shepherd, 21st floor receptionist, whose mother died suddenly at Houston, Texas, May 1st. Miss Shepherd left immediately by plane for Houston.

Andrew Mercier, studio engineer, was married Saturday, May 1st, to Miss Elfrieda Madsen of Cedarhurst, Long Island. The ceremony was performed at the St. Joachim Catholic Church in Cedarhurst, after which a reception was held at the home of the bride.

Albert Moore, formerly of WEEI Boston, joined Columbia's Field Engineering Department on May 3rd. Welcome, Al.

Guy Lombardo and his orchestra have been signed for the Roosevelt Hotel to play during the fall and winter season of 1937 and 1938. The boys are at present touring the country.

Kate Smith will conclude her present series for the A. and P. Company June 24th, but will be back on CBS next Sept. 30th for the General Foods Company. The time will be Thursday evenings between eight and nine o'clock.

Art Millet not only got married but bought a sixteen foot motorboat which he expects to use this summer on a lake in Connecticut. He says there are many fish in the lake and anticipates many a fried trout, but coming from the state of Texas he knows little about the art of angling and will welcome all advice on the subject.

While making a short wave test in Central Park, Sydney Bergere was stationed at one point while other engineers with short-wave pack transmitters strapped to their backs roamed about the park reporting the signal strength at various points. Bergere kept telling them that he was on top of a mountain in Central Park, and all were wondering what sort of mountain could be found there. When the rest of the engineers returned to the receiving post they found Syd on top of a large pile of rocks and earth which they immediately christened "Mount Sydney."

Ruth "Ducie" Weir, Syracuse radio vocalist, recently announced her engagement to Kingsley Horton, member of the CBS Radio Sales Department.

Charles Arlington, new CBS announcer, has replaced Bill Perry as announcer for the Gumps since Bill is sailing this month for Peru to cover the solar eclipse of June 8th. Arlington is also doing the Sweetheart Toilet Soap program Moudays at 1:30 P. M.

Ray Bloch's Orchestra, Del Casino, and a Hollywood news commentator will open a summer series for the Noxzema Chemical Co. The show starts May 14 and will be aired over WABC and WCAU. Jimmy Appel arranged the talent on the program.

Twelve hundred radio engineers attended the convention of the Institute of Radio Engineers May 10-12 and were guests of Columbia for one day, being shown various phases of network broadcast operation.

CBS released a promotion booklet entitled "Not Soon To Be Forgotten," which covers the Archibald MacLeish play "Fall of the City," produced by Irving Reis with Van Vorhes, engineer, as a presentation of the Columbia Workshop.

Letters "CBS" have a personal significance in the initials of Charles Stark, newest member of the New York Announcing staff. Charley joined Columbia April 12th, having previously worked at WMCA, New York, WCAU, Philadelphia, and WIP, Philadelphia.

Work of installing four new racks in Master Control was temporarily halted while the building engineers took time out to figure the exact weight of all the equipment. The addition of the four new racks will bring the total weight to 24,000 lbs. The racks average about 800 lbs. each but the total load comes well within the limit of the floor's sustaining power.

Fish stories from "Isaac Walton Hingle" have been scarce this year, the reason being that it will probably take two or three years to replace the big ones he caught last season.

Two new names answering the transmitter telephone are Messrs. Wyman and Clement. Welcome, fellas.

The stork hinted that he is planning to make a visit to the Charles Stark family about the end of July.

Workmen are installing a new suction fan on the roof of the WABC transmitter building to take care of the hot air in the summer. There is a discussion as to whether the air-conditioning engineers took into consideration the output of the staff as well as the equipment!!

A rumor was heard last week about a new arrival in the Read family at Montclair, New Jersey. The transmitter boys were puzzled for a while but finally the rumor was confirmed. The new arrival was—another dog. That makes four canine residents in the Read domicile.

Announcement was made by Columbia that Edward Klauber, executive vice-president; Paul Kesten and Mefford R. Runyon, vice-presidents, have been elected to the board of directors. In the recent revision of the corporation's by-laws, provision was made to increase the directorate from 10 to 14 members.

The following appeared in the Radio Daily: "Irrespective of sponsors, WBIG lines up behind 3,000 store employees seeking a shorter working-week and helped them to victory. The Village Parson, a 15 minute program conducted by WBIG's 'own parson,' campaigned for the uniform week. R. G. Trosper, executive vice-president of Greensboro Merchants Ass'n, in a letter to Major Edney Ridge, director of WBIG, lauded the station for its services and influences."!!!!?

If you want to be a success in radio, step in line with Reis and Swift and get one of those "box type" haircuts.

Warm weather of the past few weeks has done wonders to cure the athlete's foot squadron at Wayne and the boys are rolling the tennis courts back into shape.

John McCartney is often seen traveling up and down Forest Hills on a bicycle. Some say that it is a bicycle built for two.

Since Freddie Hendrickson has joined the Major Bowes troupe, little is seen of him.

Dick Stewart has been experimenting with a movie camera—trying to devise some way to prove his fish stories.

Now that Gus Gilbert has taken lessons in golf he's particular about whom he plays with. He's looking for some real competition.

The masquerade ball was a success. Gene English was dancing with one of those beautiful girls often seen around Broadway. She coyly smiled into his eyes and tenderly rested her head on his shoulder.

About midnight, after a most enjoyable evening together, Gene stood before his partner for the unmasking. She hesitated for a moment, then drew aside her disguise, and Gene's dreams evaporated. She was a he!

BOSTON

Although Phil Baldwin, George Webster and Earl Janes have been planning a hazardous golf course around the spare acres at the new transmitter, Medford kids are way ahead of them. Already they have an eight hole course beautifully decorated with waving red flags. However, plans are still underway for floating greens, a prize fourth hole tee from the tower with a 150 foot drop and full height of the tower as lookout for lost balls. The main bone of contention is the fact that seafaring, starving seagulls, floating in the blue over the proposed course have a peculiar faculty for snatching the balls on the fly. Earl claims that a little pepper sprinkled on each ball will not only prevent digestion but lend to greater driving distance.

Claire Lavinia, according to Papa Young, is gaining by leaps and bounds: (Taking right after Daddy). Norm said that daughter Claire is having a grand time looking at the pictures on her silver cup given by the Boston Chapter of A.C.B.T., but doesn't know its use as yet.

Bill Rule is back to the job again, happily twirling the knobs after having thrown the gripe for a ten yard loss.

Boston newspapers quoted Lew Whitcomb, assistant manager, literally in his narrative about the escape of bees in "B" studio. Whit said, "Why that studio is lined with celotex and there are a million holes in it and there's a couple of damned bees in each hole."

The boys are playing the rubber very soon with members of the magazine "Microphone" bowling team. Here's hoping that the WEEI gang uphold the honored traditions of CBS.

Curley-headed baton waver Bob Freeman, of the Production Department is back from a southern cruise and feeling like a million bucks. His orchestra reports that he slayed the women on and off the boat—even the little tots with the singed hair cast sighing glances his way.

Ken Ovenden, (basso-profundo word spieler) became real tough at the climax of a heart rending play recently, much to the consternation of the producer. When the touching moment of tender parting arrived, he ad-libbed something to the effect that any man would be glad to leave her. Must have been something about the fair heroine that Ken just didn't like. By the way, Ken's vacillating between getting married or buying a new car.

Sportsman Jay Westey, tickled with the progress of his new and carefully nurtured upper-lip-will-o-the-wisp, conceded the title of a mustache after four months.

WEEI Engineering Staff now boasts a 100% enrollment with the Capitol Radio Engineering Institute in Washington and the Institute of Radio Engineers.

After Ralph Cowie caught 19 seagulls for the sound effects department, Del Castillo opened the office window and let them get away. He said that he couldn't concentrate, and anyway they wouldn't let the two goats alone for a minute.

Lou Sargent, announcer, still dappling in modelling wax, says, "It's easy, all you do is cut away the wax you don't need and—there you are."

Welcome is extended to Art King, a "Kingly fellow," formerly of WHN.

Ed Lord, yachtsman and Cape Cod playboy, looking over the yachting magazines and dreaming of the day he took that Nantasket steamhoat ride, raised his head and conjectured that with things looking up as they are he ought to have a little yacht tied up at T Wharf any day now.

Ed Philbrick has to be quite choice in his language now. He was driving along the road with his five-year-old "Ed" when he was suddenly cut off by another driver. A wee small voice from the back seat quickly piped, "The son of a gun." Now he knows that modern youngsters pick things up quickly. Was daddy's face red?

Boston dinner committees know that radio folks are quite versatile. At a recent banquet of a fraternal order, the chaplain did not appear. The chairman went to a radio announcer: "Say," he said, "you studio people can do anything on the spur of the moment. Will you say a prayer for us?"

"Sure," replied the announcer, and his friends were surprised to read next day in the paper that he had actually said the prayer.

Arthur Edes, (E.F.A.), boss word man and program decipherer, is still sleuthing to find out who is stealing the receptionist's flowers. He leaves notes pinned to the broken stems saying—Shame on you—we buy these flowers.

Neil Wallace, WEEI newsman, again able to sit up and sip a draught or two is recovering nicely from his recent tonsilectomy. (Meaning had his tonsils out). Ray Girardin, studio announcer, not to be outdone, boasts of his apicoectomy. (Meaning what?)

MINNEAPOLIS

Someone caught Bob Woodbury practicing golf shots up and down the studio halls the other day. Incidentally, since he turned pro he has lined up Swendsen, Tobe-Prin and Ter Hediger as pupils. Palmquist has shown some little interest but so far has managed to stay sane.

Ken Titus, Traffic, has been laboring far into the night over his big books. Program and time changes must be a headache to the traffic department to keep them burning the old midnight oil.

Mary Gulden has turned plutocrat and is playing the stock market.

Did any of you fellows meet our Wally Husted when he was in Chicago and New York. Great guy, this Wally.

Ted Hediger is planning on spending his vacation in California.

Anderson often wonders how he ever got around Boston. He probably wouldn't have had it not been for his wife who was able to interpret that foreign language used by the Boston police.

We have an addition to the engineering staff. We welcome Mr. Lawrence Mills, who has been added to the studio staff. We hope he likes us.

Ten meter antennas are springing up all over Anoka. Smith, Anderson and Collier are all putting up three-quarter wave duralumin poles with har transformers and concentric lines to feed them. Bet the west coast and the DX takes a licking. Sather uses W9LQT at the transmitter for his hamming and that also has a vertical.

See that Person has resumed his communing with the angels. He landed his airplane in the transmitter field the other day and came over to pay the boys a visit. He lives out close to the airport so he may take to flying to work. We haven't heard much about his fishing lately. It may be that aviation has kinda backed the fishing off the map. He has bowled all winter and seems to be able to roll 200 quite often.

Herrmann makes frequent pilgrimages to studio A to watch rehearsals of the tap dance teams that use the place. Believe he is having his morals corrupted.

What has happened to Peterson? His wife calls up about an hour after he went off watch and wants to know when Henry will be through. Begins to look like its either garden stock, fish poles or women.

Anderson has been planning all winter on spending his vacation in California. Hope he doesn't like it so well that he forgets to come back.

WHO'S WHO

SYD BERGERE, coming to Columbia with a background of travel and radio experience, is now working in the Field Department, picking up programs from the fashionable Hotel Plaza in New York to the Mountains of Kentucky.

Syd first saw daylight in 1907 and thrived mightily on orange and grapefruit juice in San Francisco until he reached the age of seventeen. He then moved with his family to Boston. However, the baked beans didn't appeal to him and he believed that the vitamins he had absorbed from the California fruits would carry him through the rigors of service in the navy. So by giving a false age he was able to join the service and was sent to Hampton Roads School in Virginia, where he was put through the mill, learning about radio circuits, code, and navy procedure.

Upon graduation, his first assignment sent him to Corinto, Nicaragua, with the Special Service Squadron as radio operator. Many hair raising tales can be related by Syd about the South American revolutions and rebellions in which he took part, not as a rebel but in the service of the U. S. Government. The major portion of his work at that time consisted of pounding brass on an old spark transmitter and keeping mosquitoes out of the spark gap. At one time Bergere was operator on the cruiser Denver and was engaged in sending out fleet instructions during battle practice. A message was sent to the Tulsa instructing them that the line would turn sharply to the left, and although Syd sent the compelte message on his half-kilowatt spark, he could get no reply or confirmation from the Tulsa. All running lights were turned out and it was pitch dark, so to avoid a possible collision the captain decided to stop and wait for the Tulsa. With terrifying suddenness the Tulsa appeared almost on top of them and it was only by churning the sea with "Hard over to the right" that the two iron monsters avoided crashing into each other. It was later learned that the operator on the Tulsa had received the message and had given it to the captain but was unable to reply because he couldn't strike an arc in the half-kilowatt arc transmitter.

Both operators were brought up for questioning but when the real cause of the misunderstanding was discovered they were pardoned and put back into service.

Syd finally tired of life on the high seas and at the expiration of his enrollment period he left the Navy and went to work for A. T. & T. at their Transoceanic radio telephone station at Rocky Point. Later he was made a supervisor and was transferred to the Netcong receiving station where he worked until 1933.

It was while working at the Rocky Point station that Bergere was taking measurements in the down-leads of one of the large antennas and nearly lost his life. He had just finished measuring the current in one of the leads and he called the transmitter building to shut off the power on the 200 kilowatt transmitter so he could place the ammeter in the other lead. The operator on duty evidently misunderstood him because when Syd took the grounding pole to place on the lead as a final precaution, he was knocked out by the resulting spark and his hands were so badly burned that it was several weeks before he could resume his duties.

In 1933 he joined Columbia, and as part of his work in

the Field Department has done some noteworthy short-wave work. He covered the Army maneuvers at Fort Knox, Kentucky; the Mississippi Flood; the Fleet Concentration in New York, and many other events.

Syd had taken up writing as a sideline, writing not only of his past experiences but fiction and drama as well. His other interests are photography and target shooting.

FRED A. LANGE, WEEI National Councilor.

Started radio as an amateur way back in 1916 with his own initials as call letters, 1FL. After receiving his commercial ticket in 1917, Fred decided that a little war experience would put the finishing touch to his radio training. Completing the regulation radio course at Harvard University, Fred then sampled real Navy life for the next four years.

The salt air seemed to agree with him, for we next find him plying the deep as merchant marine radio operator; varying in continuous service the next eight years from passenger ships, freight ships and trawlers, to coastal station WST. He spent two years at Western Electric in Boston before joining WEEI as transmitter engineer in 1929. Fred has certainly seen plenty of radio service in the last 21 years.

During his spare moments, Fred's 6 foot, 200 lbs. of good nature can be found down by the sea-shore working industriously on his 30 foot motor boat.



JESSICA DRAGONETTE
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Columbia Network
Wed. Eve's 9.30, EDST.

BOOK REVIEWS

"YOUR EVERYDAY SPEECH," by Prof. William Norwood Brigrance. Published by McGraw-Hill (Whittlesey House), Price \$2.50.

In this thoroughly readable volume, the author, a professor of Speech at the University of Honolulu, points an accusing finger at our everyday speech. From his first paragraph to his last, we stand accused of creating a self-imposed handicap in our speech. Having offered the statement, the author proceeds to back it up with unalterable proof. Fortunately, each injection of this proof is accompanied by a parallel antidote.

Rest assured that the Professor's statements and charges are not savored with the stuff called "soft-soap."

What is the subject? That can best be answered by a direct quotation from the first paragraph of this volume.

"How good is your speech? Why does it matter? What can be done about it? These are the pertinent questions to be answered in the pages following."

Simple? Absolutely! And fortunately, Professor Brigrance attacks the problems from a standpoint of sustaining interest, rather than through involved, "text-book" statements and examples.

Drawing freely from the experiences gained by numerous authorities both in radio and motion pictures, he points at sectional dialects or manners of speech from coast to coast. On these sectional dialects the author places a great deal of the blame for the lack of standardization in English.

Interesting facts abound throughout. To cite merely one: "Do you know that there is a hope among Phonetic Experts that the day may come when there will be fifteen vowels instead of five?"

Then there is a chapter headed "Defective Speech in Children," which is worthy of much consideration by parents, especially when we learn that one per cent of our entire population suffers from stuttering, a condition which dates from improper care during childhood.

Of course, there are exercises in abundance, which is as it should be if the reader is seriously interested in improving his or her speech. Naturally, they are all as simple as possible, though sound and, of course, scientifically correct.

In summary, if you're interested in speech, it's practicable, it's readable, it's instructive and, above all, it's a good course of action. But whether you're interested or not, it's something easy to read.

H. M.

"YOUR INVENTION," by Elmore B. Lyford. Radio Technical Publishing Co., 45 Astor Place, New York City. 205 pages, 5½ x 8. Price \$1.50.

The first thought that passes through the mind of a person upon hitting an idea is how to protect that idea and realize a fair amount of profit from it.

Here is a book written specifically to provide this information. A book that rips away the veil of uncertainty that always exists in the mind of the layman about patent matters—a book that tells you just what steps to take to safeguard and merchandise your invention—that tells you those all-important things you want to know, not in difficult legal terminology but in plain everyday language—and at the same time a book that is complete and interesting.

No matter how trifling the invention, if it is to be commercially exploited there is a vast amount of intricate procedure that must be gone through before the inventor can be sure of his rights and be in a position to capitalize on his creation. "Your Invention" goes through all the bewildering maze of legal detail and presents the essentials in a clear, straightforward manner that simplifies the whole process.

The author exposes the pitfalls and obstacles that lie in the path of the inexperienced inventor and debunks the tricks of the trade employed by unscrupulous persons to take advantage of him. The importance of knowing these facts cannot be overemphasized.

Mr. Lyford's story is brief and to the point, yet it covers a large field. Important subjects such as making searches, drawing claims, filing claims, interferences, licenses, royalties, etc., are covered in adequate detail to give the reader important understanding of them. There is a whole section devoted to suggested legal forms for record of conception, assignments, licenses under patents, etc.—forms that the inventor can make use of himself.

The book makes excellent reading material for the technical-minded, and should be on the book shelf of every man who "tinkers."—Bentruss.

CBS billings for April, 1937, amounted to \$2,596,238, an increase of 33.1 percent over the same month last year!

NEW EQUIPMENT

OSCILLOGRAPH

A new oscillograph having all essential features including a 3" cathode ray tube has just appeared in the field. It is a full-sized instrument and its price should make it available to most engineers that have hesitated to purchase a 3" model because of price. It is the Du Mont 164 and is sold ready to operate for a net price of \$54.50.

The type 34-XH cathode ray tube is supplied with the unit. It has a full 3" viewing screen. The sensitivity is .38 mm/volt and it is interchangeable with the 906 type. The image can be made as bright as is ever necessary and there is a light shade to facilitate viewing.

All controls are accessible on the front panel. The horizontal and vertical amplifiers, the rough and fine frequency and the positive synchronizing controls have red knobs to distinguish the knobs frequently adjusted from those which are more permanently set. All the knobs, however are of similar mechanical construction and appearance.

An 885 tube is used as the saw-tooth wave generator and is so biased that it uses the linear portion of the condenser charging curve. The signal thus obtained is amplified to usable amplitude by a 6C6.

There are separate vertical and horizontal amplifiers, flat from 30 - 30,000 c.p.s. The gain of the horizontal amplifier is 40 and the vertical 70 between 15 and 30,000 c.p.s.

Provision for applying signals direct to the deflection plates is made at the rear of the instrument.

A removable celluloid scale is supplied so that accurate determinations may be made.

To prevent interaction of controls and to produce a brilliant trace two power supplies are used. Respectively they produce 1125 and 415 volts D.C. The unit consumes 50 watts, operates from 110 v. 60 cycles.

The tube complement is one 34-XH cathode ray tube, one type 885, two type 80, two type 6C6.

The unit weighs 20 lbs. Its height is 11 $\frac{1}{2}$ ", width 7 $\frac{1}{2}$ ", length 13".

RESONOSCOPE

An instrument that at first glance appears to be an oscillograph but isn't, has just been announced by the Du Mont laboratories. It is called "Resonoscope." It is a device that uses the essential features of the cathode ray tube in conjunction with musical notes. The following is quoted from the "Oscillographer":

The Resonoscope employs a special cathode ray oscillograph in conjunction with a standard set of musical frequencies which consist of the twelve notes of the chromatic musical scale. These frequencies, which are produced by twelve electrically driven tuning forks, are used to synchronize an oscillator in step with them; this oscillator being used to provide a horizontal sweep circuit for the cathode ray tube. A voltage amplifier is used to pick up the music or any single musical tone, by use of a crystal microphone and the output of this amplifier is placed on the vertical plates of the cathode ray tube. This gives a visual picture of the wave form of the musical note under observation. If the musical note under observation is of the same pitch (or frequency) as the predetermined stand-

ard being used, or any harmonic of it, the wave form will appear to stand still on the screen of the cathode ray tube. If the note is flat, or lower in pitch, than the horizontal sweep standard, the wave form will appear to be moving to the left; while if the note is higher in pitch than the standard, or is sharp so to speak, the wave form will move in the opposite direction, going toward the right. This indicates to the musician whether he is playing in tune or is sharp or flat. The speed with which the wave form moves across the screen is a direct indication as to what extent the instrument is out of tune.

Any of the twelve standard frequencies in the instrument may be selected one at a time by the turn of a control on the front panel of the instrument. These twelve frequencies represent the twelve notes of the scale and each setting of the control will accommodate all octaves of the particular note.

One of the special features of the circuit of this instrument is that the horizontal sweep circuit is automatically changed in frequency to compensate for the change in frequency in going from one note to another. This allows the sweep circuit to be easily synchronized at all times by the standard frequency of the tuning forks and assures the observer that the number of wave forms on the screen of the cathode ray tube is a direct indication of the octave he is playing or tuning.

The frequencies of the standard chromatic scale are calculated for a true tempered scale, which has the most practical use for all types of tuning.

The pitch of the scale is 440 cycles per second for A, this being the international pitch for tuning. This pitch is the one being used in the present models but any pitch can be had by substituting a new set of standards.

The musical instrument manufacturer will depend on its accuracy as an aid in the research laboratory and on its dependability in the commercial tuning of pianos, accordion reeds, harmonica reeds, organs, and numerous other musical instruments.

It is quite possible that other uses for this device will present themselves in industry or the laboratory where comparisons must be made against standards of frequency.

L. B. H.

A catalogue compiled exclusively for the radio amateurs and short-wave broadcast fans has just been released for free distribution by Wholesale Radio Service Co., Inc., 100 Sixth Ave., New York City.

NOTE TO MANUFACTURERS

Manufacturers who may have new equipment of particular interest to the technical man in the broadcast industry, and also the amateur radio operator, are requested if they so desire, to send all descriptive literature and cuts to the editor of this column. Address all material to Ben Russ, "Under Control," Box 419, Grand Central Annex, New York City.

Ben Russ.

Under Control at the Key (Continued)

GEORGE ARUNDEL GEARE—Bark Manga Reva. Nov. 1916. Atlantic Ocean.
 JAMES J. CURRAN—S. S. Moreno. June 12, 1917. Off Azores.
 RUSSELL A. WILLIAMS—S. S. Montano. July 31, 1917. English Channel.
 FRANCIS JOSEPH DOHERTY—S. S. City of Athens. May 1, 1918. Atlantic Coast.
 BORIS MICHAEL DUTKO—S. S. Brindilla. Dec. 1, 1919. At Sea.
 LAURENCE B. ROBINSON—S. S. Macona. Jan. 17, 1920. Swedish Coast.
 EMILE H. HULSEMAN—S. S. Cubabist. March 7, 1920. Off Hatteras.
 ERNEST E. DORSEY—S. S. Swift Arrow. July 15, 1923. Caribbean Sea.
 FRED SALIM—S. S. Conejos. Dec. 27, 1923. Black Sea.
 PETER L. BACUINKA—S. S. Haleakala. Sept. 8, 1926. Atlantic Ocean.
 LAWRENCE M. WARING, JR.—S. S. Cotopaxi. Dec. 2, 1926. Florida Coast.
 CHARLES E. RUBLE—S. S. Elkton. Feb. 1927. Pacific Ocean.
 J. MAURICE BLACK—S. S. David C. Reid. Oct. 14, 1928. South Atlantic.
 MICHAEL JOSEPH O'LOUGHLIN—S. S. Vestris. Nov. 12, 1928. Virginia Coast.
 ERNEST E. DAILEY—U. S. S. Macon. Feb. 12, 1935. California Coast.
 RUSSELL L. MacDONALD—S. S. Mohawk. Jan. 24, 1935. Jersey Coast.

TUBE NOTES (Continued)

low. Its use in tubes is chiefly as a core for mercury vapor cathodes—emission from the oxide coatings being obtainable at temperatures well below the vaporizing point of nickel. Nickel is also frequently used for collars, grid supports and other parts in a tube which are not required to operate at high temperatures. This metal is rapidly losing ground in the large tube field chiefly because of its low melting point.

In general all metal parts are kept scrupulously clean and handled with white gloves when finally cleaned. All parts are used as promptly as possible and those unused are kept in vacuum chambers to keep them free of moisture to prevent oxidization. An unclean part can add hours to an exhaust schedule, therefore no effort is spared to promote cleanliness.

The cover photo is one of Bert Lawson's candid shots, taken through the porthole window of studio 4 at the Madison Avenue building.

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Seven Days a Hill-Billy (Continued)

as visiting is rarely, if ever, done, and as a consequence their ancient customs are still upheld.

If a feuding member of a group should find himself on his enemy's property and be in need of assistance he would be accorded every consideration. Once he entered their house he would be welcome to food and shelter, and if necessary, a bed. He need have no fear for his safety while under their roof, but upon leaving their abode, those short moments of fellowship are forgotten and the condition of intense hate and relentless fighting continue, and will continue, until one or the other avenges his grievance. These feuds date back to the early days of settlement in the Kentucky Hills and as a rule exist between the peoples of different sections of the country.

The broadcast originated at the "Teacherage" and was transmitted to the world via Columbia's 100 watt short wave transmitter (WIEK). Bob Trago was located at this point and between caring for the gas engine and learning how to run the teacher's spinning wheel he was kept pretty busy.

My location was at the Grand Hotel in Hazard, the receiving point. The Collins 50 watt transmitter was used for communication between the two points and two National NC 100 receivers were used for picking up the signals from Lott's Creek.

The following day I returned to Hazard to complete my installation. It was necessary to hang antennas in all directions as the territory within a radius of 50 miles was covered with electrically operated coal mines and the noise level in some directions was greater than others. We were quite successful, however, in completing our tests and the reports on the signals were very satisfactory.

On Saturday evening, which was our second day in the mountain region, Columbia's ace photographer, McElliott, arrived on the scene to take some publicity pictures. Contacting Trago, I informed him that we would need a guide to show us the path over the mountain. Miss Alice Sloan, who was in charge of the Teacherage, very kindly consented to come to Hazard and escort us back to Lott's Creek. When we reached the foot of the mountain, carrying McElliott's heavy cases, we decided to have some of the young men who were loafing in the vicinity carry the bags to the 2,000 foot level. Miss Sloan seemed quite surprised but proceeded to hail an onlooker and ask for his services. He consented and replied he would get two more "men" to help him. When he returned a short time later we were surprised to find he had brought no one with him except some children who seemed to be following in his footsteps. Turning to the young man, McElliott asked where his helpers were and we were dumbfounded when the chap turned and pointed to two youngsters who were not over six years of age. Quite upset by this embarrassing situation we gave the boys some change and proceeded to pick up the equipment. A mountain woman, seeing the scene from her cabin window, leaned out and in a raucous voice yelled, "Wal, I reckon ye know we raise men in these yere parts." (Note: Famous last words.)

Needless to say, we struggled over the mountain, resting every few hundred feet, but the sight we witnessed after reaching the top made the effort more than worthwhile. It was possible to see in every direction. On one side was the largest "Tipple" in the world, belonging to a coal mine located at Hardburly. The "Tipple" is used to bring the coal from mines situated part-way up the side of a mountain. The miners' squat, dingy looking shacks were lined up on both sides of this structure forming the town of Hardburly, which, by the way, boasted of a post office and a commissary. Everywhere could be seen the great hills,

rising and falling, stretching far into the horizon. Spotted with little streams and rivers breaking their way through the great masses of dogwood and brush, it made a beautiful sight, and completing the picture were the usual shacks and cabins of the mountaineers.

The program took place on May third and was one of the most unique ever presented. The tremendous interest of the local people was shown by the manner in which they responded to the broadcast, some coming for many miles across the mountains to witness the event. During the broadcast, which took place on the lawn in front of the teacherage, the curiosity of the spectators far exceeded that of city people, very few understanding what was actually taking place. Some of the natives were under the impression that the microphones were a new kind of "camery" and their pictures were being "took." As the announcer asked his questions they believed, in their simple way, that these "furiners" had come to take pictures of them rather than to bring to the world the event of the coming of radio to the Kentucky Mountaineers.

The Fall of the City (Continued)

they did on this show. As for myself, just a lowly studio engineer, all that I had to do was to mix and gain the mess that came into the control booth from the microphones on the floor. I understand from the yelps from the net that I must have been mixing without gaining. (Mr. Cohan please discount the above.)

The opinions on the program have been varied. In one New York newspaper I saw the entire radio column devoted to absolute raves on the show, even going so far as to intimate that it was the best script show ever put on the air and then in the same paper the dramatic critic devoted his entire space to telling how disappointed he was in the results. Lots of people have commented to me that the show was above the average and I guess the others should have been listening to Jack Benny at that time anyhow.

D. M. Vorhes.

NORTHWARD HO! (Continued)

few minutes yesterday but it will not be long before the days will be real long. Storms are the general order of the day, one day is fine, and three or four with strong winds, reaching hurricane proportions.

"I have a couple of white neighbors this winter who make the island their main camp. Then there is H. B. Coy, storekeeper, who arrived here from Aklavik in November and returns in April. Last year I had an Esquimaux family for neighbors and the nearest white was 60 miles East. However, I am accustomed to not seeing anyone for months at a time.

"Would you please drop me a short note, as before you get this it may be broad daylight and I

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might not hear you on the Sunday program. You see, there is no regular mail between Aklavik and here, which is 175 miles. The R. C. M. police bring it in April and in August when they attend the Customs. I have to depend on someone going through, some only part way and others taking it on when they happen to be going, so you see, letters might remain in one place en route indefinitely. However I must say in all my experience I have never had a letter lost.

"P. S.: This island is about 50 miles east of the Alaskan-Yukon boundary, just a pin point on the map, so get your niece and nephew to look it up, along the north shore of the continent."

It had taken two weeks for the message to be delivered and for the answer to return. Thousands of miles had to be spanned by radio, and unknown hardships had to be endured by the messenger, but it was an accomplishment. A broad smile lighted Gilbert's face when he handed the answer to Stuckel. It was not only a job well done but it meant more than that. Whatever hardship had been endured, and whatever time had been spent in getting the message through was well worth it. The dedication of the program to this loneliest listener symbolized the light that radio brings daily to lonely listeners in the desolate spots of the world.

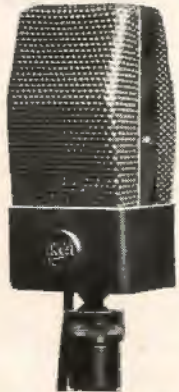
SOUND EFFECT MAN'S PRAYER

Our antennas which are in the heavens,
Radio be thy name;
Let sound cues come and turntables run
On earth as they do in heaven.
Give us this day our daily recording,
And forgive us our missed cues
As we forgive those who miss cues and throw us;
And lead us not into "Workshop,"
But deliver us from all directors,
For thine is the door-bells, the cow-moos and buzzers,
Forever and ever,
YEAH MAN.

JIMMY ROGAN.

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**JUNIOR VELOCITY
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The standard of the Networks. Produces High Fidelity, velocity type performance, smooth, without peaks. Higher output level and improved bass response. Minimizes room reverberations.

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Uni-directional pickup at all frequencies without shielding. Eliminates reverberation pickup in large rooms. Ideal for near wall use in smaller studios.

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