

ANDEX



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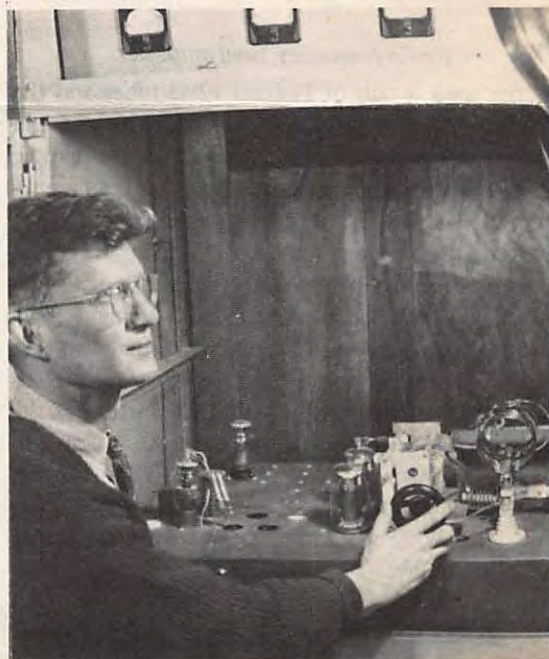
HCJB HISTORY



P. K. Myhre makes a voltage adjustment

It was Easter Sunday, March 24, 1940. A few people had gathered that afternoon in a small building on the northern edge of the city of Quito. One of the group was Dr. Andrés F. Córdova, President of Ecuador. Outside the brand-new building the flags of Ecuador and the United States were fluttering gaily at their mastheads. Right at 3:00 P.M. Dr. Córdova stepped forward and closed a very important switch. At that moment, HCJB entered the age of high-powered shortwave broadcasting! The new 10,000-watt transmitter was officially on the air. In this day of super-power 500-kW transmitters, 10,000 watts seems like very little, but forty years ago it was high power indeed.

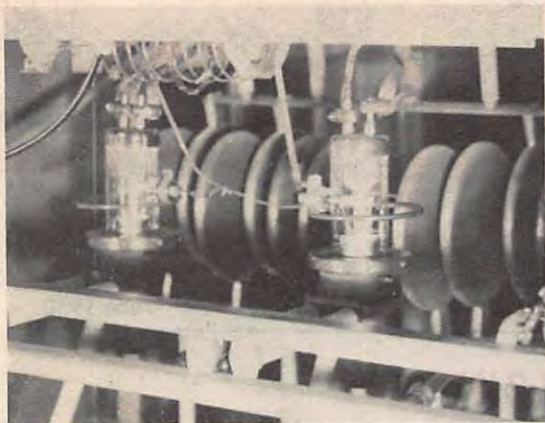
As HCJB approaches its 50th anniversary in 1981, it is interesting to look back at this important step



Clayton Howard tuning the 10-kW transmitter

forward exactly forty years ago. For about nine years HCJB had been broadcasting with less than 1,000 watts. The station had been heard by many in a large number of countries, but now reception would be greatly improved. This was the most powerful shortwave transmitter in Ecuador and one of the strongest in South America. Great things were expected from it.

Along with the new transmitter, a move had been made to a new location on the edge of the city. A transmitter building and a residence for the director had just been completed. The new technical equipment had been built by Clarence C. Moore in the United States and boasted of many innovations. The final amplifier and modulator tubes were water cooled. The radio-frequency am-



Radio-frequency final amplifier

plifier used a pair of Federal 129B tubes and the modulators were 892s. At that time the water in Quito was so pure it could be used for the cooling system instead of distilled water. The final amplifier used a linear-tank circuit which also formed part of the water system and was constructed of large copper tubing. Behind the building stood a wooden tower supporting a four-element Yagi beam antenna. The tower was constructed so that the entire array could be rotated as needed to beam the programs to any desired portion of the world. The frequency which had been assigned to HCJB for this new transmitter was 12,455 kHz, an out-of-band spot where there was little or no interference. What wouldn't we give for a frequency like that today!

It was about a year-and-a-half later that the attack on Pearl Harbor took place and the United States was at war. Radio parts became extremely scarce. At times it was difficult to keep HCJB's new voice on the air. One of the audio transformers in the modulator section burned out. No replacement was available locally but there was plenty of small magnet wire on hand. The engineers worked around the clock and in less than twenty-four hours the transformer had been rewound by hand. HCJB was back on the air. Another time one of the large resistors in the grid circuit of the final amplifier went up in smoke. Again no replacement could be found. This time a series of 100-watt light bulbs took the place of the resistor. From then on anyone looking in the building could tell that the transmitter was on the air as these bulbs glowed brightly. They flickered rapidly in keeping with the program modulation. The transmitter was kept in operation in ways like this during the entire war, and for years afterwards.



Clarence C. Moore wiring the exciter panel

Numerous programs were rebroadcast from the United States as part of our contribution to the war efforts.

Many changes have taken place at HCJB since 1940. New and larger transmitters have taken over from this 10,000-watt pioneer. It served well for years before being finally retired from service. Problems with the Yagi antenna led to the development of the quad antenna which replaced it some three years later. But that is another story in itself. The equipment was large and inefficient by modern standards. Still, we have many moments of nostalgia as we think back on those exciting early days. The transmitter was heard around the world and for the first time HCJB became well-known to DXers on the international shortwave bands.

APARTMENT-HOUSE DXING

By Richard Varron

Part 1

Some of the most common questions we are asked concern antennas. In particular, what can be done to improve reception in a crowded location or apartment-house situation? If you face this problem, we hope this series of articles will be helpful.

The effective apartment-house receiving system may differ substantially from one intended for use in a single-unit dwelling. This is due to the restricted space available for an antenna and the changes that must be made to the normal system to render it effective with the limited antenna. Changing the environment in which a system is located forces the adoption of new standards of performance and certain equipment changes in order to participate in the hobby of DXing.

The management of a multiple-unit dwelling either allows a DXer to install an outdoor antenna or it does not. If it does, the DXer can make a choice from one of the many antenna types that might be used. The available space on the roof of the building will be a determining factor in the final decision. If the DXer is not allowed an outside antenna, then he must bring the antenna inside. The indoor type and effectiveness will depend on the building construction. The building either has a nonmetallic or a metallic structural frame. If metallic, the structural frame is made of iron, steel, or aluminum and all are good conductors of electricity. If nonmetallic, then the frame of the structure is made of a nonconductor such as wood, concrete, or conder block. This means there are three cases to be considered: 1 - Outdoor antenna is allowed, 2 - Indoor antenna in a nonmetallic building, 3 - Indoor antenna in a metallic building. Note that an outdoor antenna means a semipermanent, roof-top installation and that indoor antennas include wires that may be tossed out of a window in desperation.

A restricted-space antenna is one that is smaller in size and that is erected at a lower height than a resonant wire. This means that it will be smaller and lower than a dipole or random wire cut to a half wavelength and installed a half wave or so above the ground. As a result it will deliver a weaker signal to the receiver input. A signal that was S-5 with a good outdoor aerial will be reduced to S-4, or even S-3. Another signal that was only S-2, or perhaps even S-3, will be lost completely. An S-3 signal is not a bad level to copy. It is an average level and suitable for loudspeaker listening if there isn't too much interference or noise. For serious DXing, however, the loss of signals that would

otherwise be audible must be corrected by somehow making up for the reduced output of the small antenna. Signal enhancement is the process by which this is accomplished.

Signal enhancement improves the sensitivity of a receiving system and makes a weaker station drive the equipment to a given level of audibility. One method of enhancement is the use of an amplifying preselector having a power gain of at least five to ten times (six to ten db). Another method is to match the aerial to the receiver or preselector through an antenna coupler of either the pi or L type. Both items are available from shortwave equipment suppliers or they can be constructed at home by the DXer.

To be continued

From American Shortwave Listeners Club
16182 Ballad Lane, Huntington Beach, CA
92649, Used by permission

WHO IS TO BLAME?

Perhaps you have read about a bridge that fell into the Rhone River. It is obvious that if a big bridge collapses, someone made a bad mistake. Almost immediately, the architect announced that it was not his fault. The contractor told a news reporter, "I'm not responsible." When interviewed, the engineer and his crew let it be known that they were not to blame.

Finally, all fingers began to point to the manufacturer of the metal used in the spans of the bridge. However, the manufacturer said that he could not in any way be held responsible. Apparently there was an "inherent defect" in the material when it was brought to his factory. A friend, who read the same article, said, "This is a situation which could go all the way back to Adam!"

Sounds familiar, doesn't it? More often than we care to admit, we are busily running around either excusing ourselves or accusing others, and sometimes doing both at the same time. According to God's Word, the Bible, we all have an "inherent defect" like the metal in that Swiss bridge. The Bible calls it sin and tells us that we are sinners by nature. Because of sin we are alienated from God, confused in our thinking, and unable to please God or ourselves. People don't like to talk about sin, but it is everywhere. It affects each of us. We are all out of step with God's plan and his laws. No one is perfect!

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HCJB



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God knew all this and He still loved us! In fact he loved us so much that he sent his only Son to die for us. On the Cross of Calvary Jesus took all our sin and imperfection upon himself. He paid the penalty for our sin.

Because of Jesus Christ the problem of our imperfection is remedied! Through faith in Christ we are counted righteous before God. Today, you can begin a new life, free from guilt and alive to the power of God.

DXer OF THE MONTH

The photograph of this month's DXer is of exceptional quality. There is a good reason for this. Torsti Kylämaa earns his living as a professional photographer! Torsti lives in a beautiful suburb of Helsinki, the capital of Finland. Helsinki is a large city of about 520,000 population in the southern part of the country. Being right on the Baltic Sea has made the city an important port with a great deal of shipping activity. However, the area where Torsti lives is a lovely residential area with ample room to experiment with a variety of shortwave antennas.

Torsti became interested in DXing back in 1967, when he was just 15 years of age. He was active in the hobby for about three years. During that time he built up a collection of QSL cards from about forty countries. Then his family moved to Helsinki and he lost interest in shortwave radio. Even his fine collection of QSL cards was lost in the move. It was not until ten years later, in August of 1979, that he purchased a new receiver and once again became involved with DXing. He is now very enthusiastic about his old hobby. The radio he purchased is a Sony ICF-6700-W. During these past few months he has nearly reached his old record with QSL cards from forty-one stations in thirty-eight countries. The first time he heard HCJB was on October 6, 1979. He says he will always remember the HCJB station announcement that morning because it was his first reception from South America. It was a great experience for him.

Torsti uses two receivers for his shortwave listening. The Sony ICF-6700-W is his main receiver. With it he has heard about fifteen stations in the 60-meter band from South America. He feels that he should be able to pick up at least thirty. The set is very easy to use with its digital readout. The other radio is a Selena 212. This he feels is a fairly good set for medium-wave DXing. Other equip-



Torsti with his DXing equipment

ment includes a Pioneer CT-F4040 cassette recorder and a good set of earphones. For most of his DXing he uses a 25-meter random-wire antenna. He also has a loop antenna for DXing the medium waves. Once in a while he visits his parents who live in the country. When there, he puts up an antenna 100-meters long. This makes fabulous reception on the tropical bands.

In addition to being a member of ANDEX, No. 3455, Torsti has also joined the Finnish DX Listeners. He spends an average of three hours a day with his shortwave hobby. Usual hours for listening are between 0400 and 0600 or from 1700 to 2000 GMT. As a professional photographer, he works in a studio in Helsinki with two other experts. He considers photography an ideal occupation. This has been his work during the past ten years. He also enjoys travelling by car and taking more pictures. Photography is not only his profession but one of his several hobbies. Coming from Finland, it is not surprising that he enjoys sports such as slalom and even frisbees! He wishes that many other DXers could experience the joy of a soft, still, Finnish summer evening spent in a small boat.

Another hobby is music, especially from other countries. He says he likes South-American music, but it is hard to get records of such music in Finland. As a result he enjoys listening to the stations from South America when they have musical programs. One of his greatest desires is to visit Ecuador and to hear the Ecuadorian music actually performed. We hope this desire will become a reality and that one day we will have the pleasure of meeting Torsti Kylämaa and showing him the HCJB studios and transmitters. Good success, Torsti, in all of your many varied activities and interests.