

ANDEX



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LA VOZ DEL SANTUARIO

If you were to travel to Ecuador's jungle regions you would most likely start from the city of Ambato. Soon after leaving Ambato's 9000-foot altitude the road begins to drop rapidly. The paved road is excellent for about 25 miles until you would arrive at the little town of Baños. This is a resort town which gets its name from the natural hot springs which feed several swimming pools. The climate is warm and semi-tropical. The altitude is only 5000 feet, and there are a number of good hotels. Continuing on to the east, the road is no longer paved. In a couple of hours you would arrive in Shell, where HCJB operates a hospital, on the edge of the jungle. However, we are going to stop in Baños and visit its only radio station, HCJX6.

For many years this station used the name, La Voz del Agoyán, in honor of an impressive waterfall just a few miles from Baños on the Pastaza River. Studies are currently underway to build a large hydro-electric project on this river which may someday supply several hundred-thousand kilowatts of energy to the power system of Ecuador. Recently the name of the radio station has been changed. The station is operated by the Dominican Community and the studios and medium-wave transmitter are located in some small rooms on the second floor of the church. The station now goes by the name, La Voz del Santuario, The Voice of the Sanctuary.

HCJX6 is on the air only from 1000 to 1730 and from 0000 to 0130 GMT. Mondays are taken off with no programming at all. We have tried on several occasions to visit this station so we could report on it to our ANDEX members. We have always arrived on Mondays or during the afternoon hours when everything has been closed down. Recently we learned that one of the an-



Luis Cevilla on the air

nouncers, Luis Alberto Cevilla Acosta, operates a small tourist shop nearby. We located him and he very willingly gave us a tour of the facilities, even though the station was not on the air.

La Voz del Santuario operates two transmitters; one on 955 kHz with 500 watts of power, and the other on 3300 kHz with 1000 watts of power. The medium-wave antenna is a half-wave Marconi type stretched between the towers of the church. Since Baños is located in a very narrow and deep valley, the shortwave transmitter and antenna have been placed on top of a hill several-hundred feet higher than the city and at a distance of about a kilometer. Both transmitters were constructed by an Ecuadorian engineer, Eduardo Cruz.

Both of the frequencies are operated simultaneously and carry the same programs. The daily schedule consists of a variety of programs which are entirely in the Spanish language. In the small control room they use a simple console with two turntables and one tape recorder. Also available is a Hallicrafters SX-122 communications receiver. Each evening at 0030 GMT they pick up the news

from the transmitters of HCJB in Quito which is then relayed to the listeners in the Baños area.

We asked Luis if they received any reception reports from distant listeners. He showed us a few letters and assured us they would like to get more. This station is certainly not an easy one for DXers. The power is low, it is located in a very undesirable spot for good propagation, the operating hours are few, and the frequency is also used by some other stronger transmitters. If you can pick up La Voz del Santuario, HCJX6, you can consider yourself an excellent DXer!

HISTORY OF RADIO

By Kenneth Vito Zichi

Part 1

Did you know that the first voice-modulated broadcast was from Brant Rock, Massachusetts? That the first use of the word "television" was in a scientific magazine in 1907? That cable broadcasting began in Michigan in 1923? That there was once a Channel One on American television sets?

The history of the development of radio broadcasting is fascinating, but unfortunately, few people know the entire story and there is much misinformation on the subject. The concept of radio began with Alexander Graham Bell's demonstration of the telephone in 1867. Though this immediately raised speculation about wireless voice transmission, it took until the end of the century for the young Italian, Guglielmo Marconi, to apply the Hertzian waves, discovered years before by Heinrich Hertz, to the purpose of transmitting intelligence.

With the development of the spark-gap transmitter, and some ideas for ground and antenna systems worked up by Marconi, radio became more than a neat concept. It became a vital means of communications for such "un-wireable" things as ships at sea. As for radio broadcasting itself, the objective in the 1890s and early 1900s was distance. Concepts such as ionospheric propagation were not even dreamed of at that time. It was originally thought that radio waves would be limited to line-of-sight transmissions.

Practical experience soon showed that very-low frequency waves tended to bend a bit around the earth's surface. The actual limit on transmission distance was far beyond the visual horizon. Marconi took advantage of this in his historic trans-Atlantic broadcast of the Morse code letter "S" in 1901.

Since there was no way for the early experimenters to voice modulate their transmitters, the first broadcasts were entirely in code. This consisted of breaking the signal into long and short transmissions that formed the dots and dashes of the Morse code. These early transmitters were fascinating things! They consisted of a gap between two conductors through which an electric charge was forced to flow. This produced a very small lightning bolt which generated electromagnetic waves in much the same way as the natural phenomena. In other words, the spark gaps produced controlled static. Needless to say, these transmitters were not exactly efficient users of the electromagnetic spectrum!

The next major advance in broadcast technology was the application of the Edison effect. Dr. Lee de Forest invented the triode vacuum tube in 1907. Edison had noted that the filament of his electric light bulb emitted a stream of electrons. De Forest took note of this effect and added a plate to collect the emitted electrons as well as a grid to control the flow of electrons from the filament to the plate. With this tube he was able to outperform the crystal detector, the standard up to that time. He was also able to broadcast more efficiently.

The first voice transmissions, however, were prior to this development. In 1906, from Brant Rock, Reginald Fessenden broadcast the first widely-heard voice transmission on Christmas Eve. He was working for the National Electric Signaling Company, which he had founded. Though he had

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HCJB



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had limited success with his process as early as 1901, the latter date is generally recognized as the first voice broadcast since it was so well publicized.

Although it seems a bit strange to us today, the major emphasis in the early days of radio was not toward broadcasting, but rather toward commercial two-way communication. In the early 1900s it seemed foolish to develop voice modulation because code was so much more efficient for business communication. However, this development of voice transmission pleased the growing number of radio amateurs who built their own receivers and transmitters. Commercial broadcasting for entertainment had not even been thought about at that time.

From American Shortwave Listeners Club
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To be continued

SCIENCE SPEAKS

At no period in the history of the world has science provided so much for so many in so short a time. The spectacular scientific advances in almost every field have given man luxuries and conveniences that were only dreams a generation ago.

Notwithstanding the amazing and significant contributions of science, the future of civilization is darker and more uncertain than ever before. Science, philosophy, and higher education have not been able to bring about the needed change in the heart of man.

Many men of science have found the key that unlocks the secret of life abundant and eternal. Here is what an outstanding chemist, Dr. George K. Schweitzer, Ph.D., has to say. "Scientific advance in the past century has been phenomenal. Man has harnessed the atom, tamed the electron, conquered diseases, shrunk time, shriveled distance, investigated things from the tiny neutrino to the gigantic galaxy, and provided his fellow human beings with a multitude of gadgets to make life comfortable. But there is one thing that man has been unable to control; and that is himself. In spite of all our progress in knowledge and technology, men are still disconcerted, morally unstable, beset with difficulties, and unable to secure a lasting peace.

"Man has changed his world in a remarkable way, but has not been able to alter himself. Since this

problem is basically a spiritual one, and since man is naturally bent toward evil (as history attests), the sole way that man can be changed is by God. Only if a man commits himself to Christ Jesus and submits himself to the Holy Spirit for guidance can he be changed. Only in this miraculous transformation rests hope for the atom-awed, radio-activity-ruffled world of our day and its inhabitants."

The Bible says, "Therefore if any man be in Christ, he is a new creature" (II Corinthians 5:17).

DXer OF THE MONTH



An ideal spot for DXing!

This month we would like to introduce you to a young man who is a member of the U.S. Navy Hospital Corps and is currently serving with the U.S. Marines at Camp Lejeune, North Carolina, in the eastern part of the United States. Obviously, he is also an active DXer. Thomas Ray Mooningham has been interested in the shortwave hobby since the early 1960s. After joining the military his interest was interrupted for a few years, due to his many activities. When he was transferred to the 3rd Marine Division in Okinawa, he again started DXing. At that time he used a fifteen-year old Aiwa 3-band portable receiver.

Thomas is now back in the United States and finds he has time to spend two or three hours a day with his hobby. He still has the Aiwa portable receiver but this is now a standby. He has added two other receivers to his equipment. His main receivers now are a Realistic DX-160 and a National NC-46. During the past three years, and using a random-wire antenna, he has heard stations in more than thirty-nine countries and received QSL cards from

all of them. In all he has about two-hundred cards and twelve pennants in his collection. Many of these trophies can be seen on the wall above his listening post.

In addition to being a member of ANDEX, Thomas is on the membership rolls of the North American Short Wave Association, the BBC World Radio Club, and several other station-operated clubs. He is ANDEX member No. 2527. He joined our club in the early part of 1977. Other interests include stamp and coin collecting. He also has a valuable collection of old books with some dating back to 1833. These books range from old Bibles to story-book sets. He is a Registered Emergency Medical Technician. It would seem that all of these activities would keep Thomas busy, but another activity is attendance at the local junior college where he expects to obtain a degree in history.

Thomas is married and his wife's name is Tara. They have two small children, Teddy and Tracy. The family attends the local Southern Baptist Chapel. Thomas says, "I first heard HCJB back in 1967 when I was living in San Diego, California. As a very young man I paid no heed to what I was hearing. Now, as I have matured and experienced more of life, I feel more at ease and understand the mission of God's radio station, HCJB. I listen regularly now and enjoy it more each time." We wish Thomas Mooningham many more years of happy life with his family and his shortwave hobby!

HOW'S YOUR ANTENNA?

By Jack Montgomery

Is your antenna installation complete? Yes, that nice long wire outside your house stretching to the tree at the back of the lot. Is it properly protected for static discharges during electrical storms?

What! You don't have a lightning arrestor and ground rod? Then you have left out a vital part of the installation which is necessary for the safety of your receiver. A good static discharge could easily burn out the antenna coil. More important, in the situation of a close or direct lightning strike, the big "zap" could enter your house and start a fire, cook your receiver, or do further damage. A lightning arrestor will not guarantee full safety from a direct hit, but will certainly help in many cases.

How do you install the missing parts? Mount the lightning arrestor, or static discharge unit, outside the building at the point of entry of your antenna. The ground connection should be routed through a heavy wire to a ground rod driven into moist earth. I like a rod about eight feet long. The antenna lead-in wire is connected to the antenna terminal on the arrestor and then continues into the building and to the receiver.

What kind of arrestors can you use? Back in the 1930s lightning arrestors were available at the local radio shop or hardware store. They were a part of the antenna kit which also included the wire, insulators, and lead-in strip. I note with dismay that a contemporary nationwide electronics distributor has that kind of antenna kit currently available, but without the lightning arrestor.

Would you like to build your own lightning arrestor? Sure, you can. Get a used automotive spark plug. Wire brush the electrodes clean and then thread it into an appropriately-sized hole in a metal plate. Then, fasten a ground clamp to the plate. Your local hardware store or electrical supply house should have ground clamps for sale. Mount the ground clamp on your ground rod. Finally, connect the antenna lead-in wire to the insulated spark plug terminal on top of the ceramic tower. The antenna lead-in wire also goes into your home and connects to your receiver. You now have a good, inexpensive lightning arrestor.

If you use your antenna for receiving only, adjust the spark-plug gap so that the points are quite close together. When a storm approaches you can see sparks jump across the gap periodically as static potentials build up and then discharge. When the storm intensifies, stop watching the gap and ground the antenna. Things are getting a bit unsafe for continued fooling around. Don't take any unnecessary chances!

If you can locate a regular commercial lightning arrestor in a local store, you may prefer to use it. However, the spark plug will make an effective and cheap substitute. In either case, make good, firm electrical and mechanical connections during the installation. When completed you will reap the rewards of safety to your DXing equipment and, even more important, to your dwelling.

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