ANDEX International

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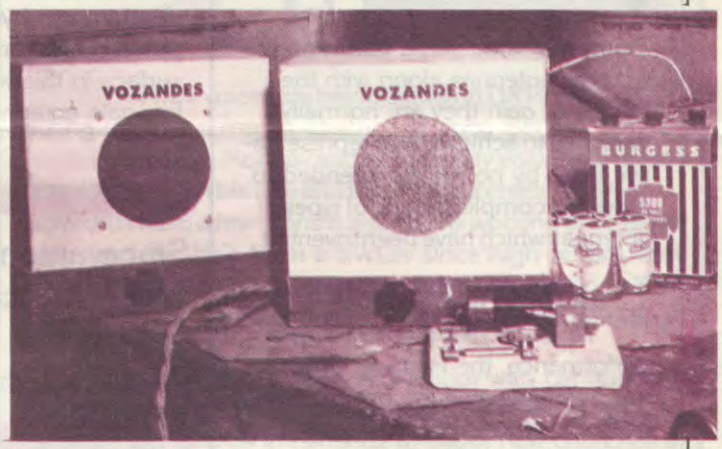
The Radio Circle

By Clayton Howard

Can you imagine a radio station without a listening audience? When HCJB began broadcasting on Christmas day in 1931, that was almost the situation that existed. As far as anyone knew there were only six to eight radio receivers in Quito. With a low-power transmitter, the radio signals could only cover the city of Quito. There were no radios for sale in the city since HCJB was the first radio station to operate in Ecuador. There was no demand so the stores had not been importing radios. Until that time the only radio activity in Ecuador had been by radio amateurs. What would you do in a situation like that? Obviously, the answer was to do something to get more radios in the hands of the potential listeners. The Radio Circle, in its first stage, was formed to bring a limited number of commercial receivers into Ecuador and place them with a selected group of influential people.

It wasn't too long before other stations came on the air. Local business men began to import radios in ever increasing numbers. A large listening audience was established very quickly. The need for the Radio Circle, as originally formed, no longer existed and it died a natural death.

Several years later the Radio Circle was revived, but in a new form and to meet a different need. HCJB had built up a large listening audience in Quito and in other parts of Ecuador, to say nothing of shortwave listeners around the world. But right in our backyard were thousands of Indians and other poor people who could not afford the high price of imported radios. Many others lived in rural areas where there was no electricity to operate commercially built receivers. One of the HCJB engineers, Marion Krekler, known to all as "Kreky," was challenged to meet this need. He started by building a number of simple crystal sets. These were cheap to build and required no electrical power. A few used the old fashioned open crystal and cat whisker that was popular in radio's early days. Requiring frequent adjustment, these were not practical, and later models used a solid-state diode. The sets were tuned to HCJB and fixed on that frequency. A long piece of wire was included with each receiver to make a good antenna. In most cases Kreky himself, or another representative from the Radio Circle, went along with each set to supervise the installation and



to make sure the reception was good. Of course, the listener had to use earphones so only one or two could listen at the same time.

As the years went by many thousands of simple receivers were built by the Radio Circle. A number of Ecuadorian workers were hired to help in the construction, installation and maintenance of the many sets. Various models were designed and produced. All were pretuned to HCJB. They were simple to operate with only an on-off switch and a volume control. Some were battery powered and others operated off the 110-volt power lines. Most of the early sets used tubes. Parts were purchased as cheaply as possible and in large quantities from surplus and closeout stores. They were sold at a subsidized price to make them available to even the poorest people. The purpose was to get as many sets as possible into the hands of the poorer people, increasing the number of listeners tuning to HCJB and hearing the Gospel message.

The invention of the transistor made it possible for the Radio Circle to produce better receivers but it also spelled its doom. Many of the last sets built used solid-state circuitry. However, the day soon came when the Japanese, and others, developed small portable transistorized receivers and exported them by the millions. These cheap sets began to appear on the market in Ecuador. They were sold by stores everywhere, even in the remotest parts of the country. The prices were so low that even the poorest could afford them. It became common to see Indians walking along the highways with their transistor sets providing entertainment. These sets were being sold at prices even

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ANTENNA CORNER:
Antennas and Gains

By Don Hastings

In our last issue we discussed antenna gain and directivity. Below are listed some common types of antennas along with the ranges of gain they are normally designed to achieve. This representative list is by no means intended to cover the complete range of types of antennas which have been invented.

1. ISOTROPIC ANTENNA

To aid in rating antenna gain performance, the isotropic antenna has been invented in concept. This antenna, which cannot be physically produced, consists of a point source (point in space) radiating electromagnetic power which spreads uniformly over a spherical surface. The point source at the center of the sphere forms the radiation center of the expanding spherical surface. This antenna has the lowest possible gain which is 1 or 0 dB. All real antennas are rated relative to it and normally have a higher gain figure.

2. HALF-WAVE DIPOLE ANTENNA

This antenna has a radiation center at the center of the dipole and radiates power over a spherical surface as does the isotropic antenna, except that the power density is zero in the directions of the dipole ends and is maximum in the plane of the dipole center. The half-wave dipole power gain is 1.64 or 2.15 dB.

The half-wave dipole achieves gain by directing its power over only a portion of the surface of the sphere rather than by flattening the wave front to provide a less rapidly expanding surface as described in the last ANDEX issue. Actually all dipoles smaller than a half wave and some arrays formed of two dipoles develop gain by concentrating their power over a portion of the spherical surface in this way. These are all low-gain antenna types, however.

Since antennas are reciprocal devices the same gain action occurs in reception as in transmission.

3. END-FIRE ARRAY ANTENNA

This class of antennas includes Yagi arrays, log periodic arrays and many others. They basically use elements which are phased to reflect power from one end of the antenna and to slow the wave front and achieve focusing action from the other. This focusing is achieved by slowing that portion of the wave front traveling along the antenna boom, so that the wave front traveling faster in the side directions catches up and forms a flattened wave front to achieve gain.

Since antennas are reciprocal devices the same gain action occurs in reception as in transmission. The incoming wave front is slowed by the directors on the boom causing the wave front further out to pass it and curve inward to intercept the active antenna element.

Antennas of this type usually have gains of anywhere from 4 (6dB) to 15 (12 dB). The focusing action causes the radiation center, or point from which the flattened wave appears to come, to be located behind the antenna a substantial distance. All higher gain antennas have their apparent radiation centers shifted in this way.

4. REFLECTOR ANTENNA

Reflector antennas come in all sizes from a flat plate behind a dipole, to corner reflectors and large-shaped reflectors. Most of these intercept the wave front that goes in the wrong direction and reflect it back so that it reinforces the direct wave and flattens the wave front. Again, the radiation center is behind the antenna a long distance. These antennas can be much more effective in achieving high gains than focusing types, but they are also usually larger.

HCJB's steerable beam antenna is a shaped reflector nearly two football fields long. It achieves a gain of about 300 or 24 to 25 dB.

5. ARRAY ANTENNA

This class of antennas consists of a rather large number of dipoles all radiating in phase so that the wave front produced is flat over the extent of the array, at least in the desired direction. The larger the array the flatter the wave front and the greater will be the gain. As with the large arrays the radiation center appears to be located a remote distance behind the array.

HCJB's curtain antennas are of this array type. The gains we achieve vary from about 60 (18 dB) to 200 (23 dB).

6. SWL ANTENNA

Most antennas used by SWLers are not high gain types: they usually are dipole, long wire, random wire, loop or inverted-L types. Of course any wire will radiate or receive shortwave signals. The problem is to receive effeciently the signals from the desired direction. Suggestions for getting the most from your shortwave antenna were included in the survey results given in the ANDEX issue for April-May, 1986.

less than the subsidized cost of the radios made by the Radio Circle. They were also more compact and attractive than the HCJB product. Even more important, they tuned the entire broadcast band rather than only the single HCJB frequency. Some even included one shortwave band, or more. It is not difficult to see why the demand for Radio Circle receivers disappeared quickly.

The Radio Circle continued to exist for several years after the construction of receivers was discontinued. There was a great deal of work to maintain and repair the many sets which had been sold. Every day people could be seen at the Radio Circle building with their sets that needed repairs or to buy new batteries. However, with the passing of the years this service became less necessary and finally the Radio Circle was closed down for good. Once again it had met a real need that no longer existed. The buildings which were used for this purpose were taken over by other activities and needs of the mission. Kreky has also retired and now lives in Southern California.

The Radio Circle met a definite need for quite a few years. There are still many of the sets operating in homes throughout Ecuador. Even today an Indian may appear occasionally at the HCJB compound to ask for help in repairing his dead radio. Who can tell how many thousands of people were able to listen to the programs of HCJB on Radio Circle receivers who would not have been able to listen otherwise? Only God knows how many of these heard the Gospel message and responded to it. Kreky, with his staff of national workers, can only be commended for an important job well done.

ANDEXer Visits HCJB

A recent visitor to HCJB was ANDEX 5244 Stephen Craig. Steve is an elementary school teacher and musician (he plays clarinet and electric bass) back in his home town at 1013 West Cordell, Peoria, Illinois 61614 U.S.A.

Steve had two dreams - to visit HCJB and to go to space. Now that half of his dream has been realized, we look forward to identifying him as a space-traveling astronaut! He's been an enthusiastic fan of HCJB for many years and the thrill of seeing first hand so many things he's heard about and prayed for has made this visit to HCJB a highlight of his life.

Steve grew up knowing HCJB power engineer Bill Wright. During his month-long visit at HCJB he worked alongside Bill on power projects.

Besides DXing, another hobby he enjoys is amateur radio. He's reached the highest level of extra class and is WD9CIR. He's enjoyed meeting a number of missionaries in Ecuador for whom he regularly works phone patches.

We do not often go to ANDEX members' birthday parties, but we attended Steve's when he celebrated his 32nd birthday in Pifo. We're glad you visited, Steve, so we and all of ANDEX could get to know you better.

HCJB Sells A Transmitter

Steve Keating, HCJB summer missionary, and Roy Shantz (partly visible) dismantling T-6

There was great activity at HCJB's transmitter and antenna site in Pifo during the month of June while "T-6," an RCA 100 kw transmitter was prepared for shipment to California, U.S.A.

High Adventure Ministries in Los Angeles needed to purchase a transmitter, and HCJB's new Harris transmitter was due to go on-line replacing T-6, so the sale was made. T-6 was taken apart, packed in two containers and trucked to Guayaquil where it was put on a ship going to Los Angeles.

The people at High Adventure will assemble it in their transmitter building atop a hill in Simi Valley, just outside Los Angeles, and hope to have it on the air with 50 kw by September 15. Their station KVOH, the Voice of Hope, will begin each day on the frequency 17775 at 1700 UTC for four to six hours of English and Spanish religious programming beamed primarily to Mexico and the Caribbean. They will use a fixed log periodic antenna.

High Adventure also operates a 10 kw shortwave station in Southern Lebanon which has an audience throughout Russia and the Scanadanavian countries and as far west as England. Called "King of Hope," it can be found on 6230 and 6280 kHz.

Roy Shantz, new ANDEX member 5710, in Pifo to direct the dismantling of T-6, assures us that High Adventure wants to hear from listeners and will give QSLs for verification. If you catch either King of Hope from Lebanon or Voice of Hope from California, write to them at Box 7466, Van Nuys, CA 91409 U.S.A.

Special DXers

"My name is Robert Pastrick and I'm happy that ANDEX has chosen me as their Special DXer. HCJB has been a favorite of mine for many years. I enjoy so many of the programs such as DX PARTYLINE, PASSPORT, HAPPINESS IS and MUSICAL MAILBAG. I feel that the greatest strength is remaining true to the Word of God and presenting programs like HOUR OF DECISION and THRU THE BIBLE.

As for myself, I'm single and 33 years of age. I have been listening to shortwave since 1964 but did not become a serious radio hobbiest until 1982. I use a Yaesu FRG-7 and a Uniden CR 2021 for shortwave listening. I'm more of a program listener than station DXer. My favorite stations are HCJB, Radio Earth, AFRTS, Radio Canada International and Radio South Africa. My favorite programs are mailbags, DX shows and magazine-type shows.

I save my serious DXing time for going after utilities, amateur radio stations and pirate broadcasters. Going after arctic DX and hurricane emergency communications top my list.

Outside of radio my major interests are in the study of Biblical doctrine, U.S. military history and UFO research. When time permits I enjoy sports, movies, talking on 11 meters, fishing, camping, cryptology, reading, and corresponding with friends around the world via cassette tape. Radio sales and repair keep me busy, but I still find time for all my interests and 40 tapepals. If anyone would like to correspond with me by cassette tape you can reach me at this address: Robert Pastrick, P.O. Box 183, Conway, PA 15027 U.S.A."

Congratulations to Special DXer Robert Pastrick, ANDEX 4506.

Robert Pastrick

Peter Bowles

Congratulations to Peter Bowles, ANDEX 5605, on being chosen Special DXer. He lives at Flat 36 Cavendish House, Collingwood Close, Peacehaven, Sussex, England BN9 8BE.

"I am 24 years old, single, and live in a three-story flat on the south coast of England half way between Newhaven and Brighton. I work in a furniture store warehouse in Peacehaven. I started listening to shortwave radio about seven years ago but I have been DXing only in the last year. I started shortwave listening with a Realistic DX 200 five-band communication receiver, then I decided to build a home brew receiver so I built a direct conversion receiver called a 80m DCRX. It is great for listening to amateurs on 80m-3.5 mHz to 3.9mHz. My other two receivers are a Trio R600 and a very old B40 valve radio. My antennas are a 20-meter long wire which is strung around the loft of my flat and a 5/8 wave vertical for 10m amateur band reception.

I have received QSL cards from all over the world, and I belong to three shortwave clubs - ANDEX, the British DX Club, and the Radio Budapest Shortwave Club. My hobbies are wildlife photography, shooting, fishing, and, of course, shortwave radio. I would like to correspond with anyone interested in shortwave radio."

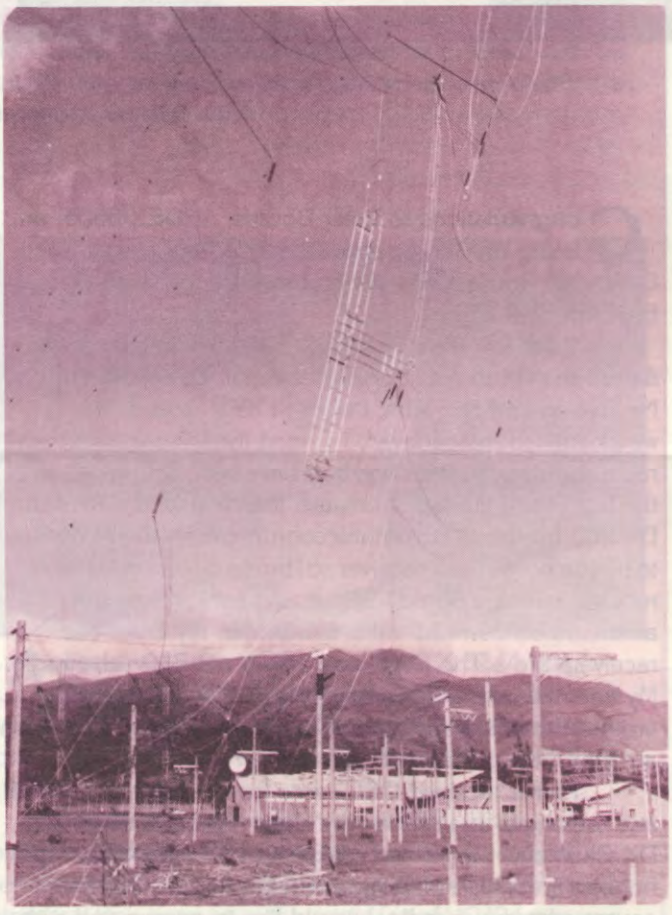
Thank you, Peter, for sharing about yourself with fellow ANDEXers. May you gain many shortwave listener friends as a result.

andexing

THE INTERNATIONAL RADIO LISTENER'S CLUB in Bangladesh will be celebrating the 55th anniversary of HCJB by sponsoring an essay competition on the topic "How HCJB Contributes to World Peace." Your essay should be about 500 words and received by the club by December 10, 1986.

Three major prizes of Bangladesh souvenirs and 10 consolation prizes will be given. All entries should be sent to The International Radio Listener's Club, Konabari, P.O. Neil Nagor, Dhaka, Bangladesh.

A QSL SWAP CLUB: Buti Rudiono Kasmito, ANDEX 5636, writes that he is running a QSL club called the Trans Pacific QSL Swap Club. The club has a SWL/BCL section called "International Radio Monitor" which has issued a QSL card for reporting reception of shortwave stations. For information and an application form to join this club, write to Trans Pacific QSL Swap Club, P.O. Box 1053-Jak, Jakarta 11001, Indonesia, enclosing three IRCs.



HIGH WINDS INTERRUPT PROGRAMS: On July 23 high winds damaged eight of HCJB's antennas. Within a week repairs had been made on all but one Europe antenna, which will require more extensive rebuilding.

Brent Allred

Lois Mateer

Two new voices are being heard on DX PARTYLINE during the seven month absence of John Beck.

Host of the Monday and Wednesday editions is Brent Allred. Along with his wife and three young children, Brent arrived at HCJB a few months ago, and is working in English programming. He's been a SWLer since high school, and has verification from 65 countries heard on his Sony ICF 2002 receiver. Brent is trained in banking and exporting and is an artist.

Lois Mateer has been in Ecuador with her husband and four children for five years. They are working with the Presbyterian Church In America to begin new churches in Quito. With experience and training in drama, broadcasting, and amateur radio, Lois is well prepared to host the Saturday release which features an amateur radio segment.

HCJB's NEW HARRIS 100 KW TRANSMITTER went on line in June, replacing the RCA transmitter sold to High Adventure.

WORLD RADIO TV HANDBOOK: Details about broadcasting everywhere, schedules, frequencies, addresses, antenna bearings, much more - write to Gilfer Shortwave, P.O. Box 239, 52 Park Avenue, Park Ridge, NJ 07656 U.S.A. OR Miller Publishing, Box 691, Thorndale, PA 19372 U.S.A. Tell them ANDEX recommended them.

INTERNATIONAL RADIO, a magazine on shortwave: for information on how to subscribe write to: Miller Publishing, Box 691, Thorndale, PA 19372 U.S.A. Tell them ANDEX recommended them.

POPULAR COMMUNICATIONS, a magazine on communications in general: for information on how to subscribe write to Popular Communications, 76 North Broadway, Hicksville, NY 11801 U.S.A. Tell them ANDEX recommended them.

God's Care

What Is Man?

'You cannot put one little star in motion,
You cannot shape one single forest leaf,
Nor fling a mountain up, nor sink an ocean.
Presumptuous pigmy, large with unbelief!
You cannot bring one dawn of regal splendor,
Nor bid the day to shadowy twilight fall,
Nor send the pale moon forth with radiance tender;
And dare you doubt the One who has done all?

—S. A. Nage

Program Breaks

Don Rhodes, ANDEX 3314, from Yarra Glen, Victoria, Australia sent in the following summary of a talk over KTWR Guam Distant Listeners' Log:

Many listeners have wondered why sometimes while listening to a SW station the carrier will suddenly disappear and then return 10 to 20 seconds later. Often this is caused by an arc inside the high power transmitter.

Inside the cabinets of these transmitters very high voltages are employed. High humidity and dust around the components can cause an "arc out" which is the high voltages taking a short cut to ground via the transmitter cabinet or another component. If this occurs, damage would result if it were not for the "fault overload protection circuit." This device detects abnormal currents in the high-voltage circuits and shuts off the transmitter to prevent damage.

When this occurs the duty operator hears a loud siren warning him that a transmitter has shut off. His duty is then to get the transmitter back on line as soon as possible, usually 10 to 20 seconds. Listeners are advised not to retune their receivers if the carrier suddenly drops out but to wait until the operator does his job and restores the transmission.

At other times you may hear the audio drop out when a strong carrier is still present as shown by the S meter on your receiver. After some seconds music may be heard. What has happened is that the computer controlling the tape players has detected no audio for a given number of seconds, and it switches to emergency music until the normal program can be restored by the duty operator. This problem can be caused by a fault in the program tape or the player itself. Once again the listener can only wait until the operator has restored the program.

Pen Pals

THEODORE JAMES - Challenger's Village, St. Kitts, West Indies - ANDEX 5298 - 20 years old - would like pen pals from the Caribbean, the United States and Europe between ages 18 and 23, both male and female. The first to write will receive a photo of him.

JOHN M. LENTZ - S100 W13421 Loomis Drive, Muskego, WI 53150 U.S.A. - ANDEX 2280 - 27 years old and single - hobbies are camping, electronics and computers (he owns a TRS-80 Color computer).

HORST VEIT - DDR 60 18 Suhl, Leninring 56, DDR - ANDEX 5461 - 36 years old - hobbies are tropical band DX, reading, listening to records and aquarium fish - wants pen pals from South and Central America, Asia, Africa and Australia - can write in German, English and Spanish.

Tower raising in July for HCJB's new North-South America antenna

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ANDEX INTERNATIONAL

DX Party Line Host — John Beck

ADDRESS MAIL (with funds) to: HCJB-ANDEX, P.O. Box 553000, Opa Locka (Miami), Florida, 33055-0401, USA

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