

# ANDEX



## INTERNATIONAL

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### PACS MOVES INTO THE FINAL STAGES

by Barney Cook

We are used to the term "PACS" here at HCJB. Do you know what it means? Program Automatic Control System is a project which has claimed interest, skill and work hours from a number of our engineers for about three years.

If an automatic system is to be installed, does that mean we will need fewer radio missionaries? Not at all. But it will enlarge our program capabilities and help us handle a complicated program schedule more efficiently. It means we will be able to satisfy different audiences wanting different programs at the same time. It means we will be able to send out six programs simultaneously instead of four. Each program line represents one independent program source, and each line can be connected to any number of transmitters. Thus the same program can be beamed to various places on different frequencies at the same time that other programs are going out.

The system as designed will include two parts: (1) the computer control, the most versatile mode of the system and (2) the semiautomatic control, which is the backup system. The mini-computer, which will be the center of system number one, sits in Dave Cooper's office, patiently waiting to be installed and start producing these benefits to our daily programing. But we will not be entirely dependent on the computer. We will be able to fall back on the semiautomatic control without losing too many features of the other system. With it the operator will be able to control the entire PAC System with a minimum of button pushing and no occasion for panic. Since batteries will provide the power for either system, they will be immune to temporary power failure.

Most of the electronic components for all this equipment have been built by our own men.

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### FREAK RECEPTION REPORTS

by Roger Stubbe

Often our listeners write us telling us that they have heard HCJB or other shortwave stations while their receiver was tuned to medium wave, or at times on a receiver which has no shortwave bands. They write asking how this is possible.

There is a reason for this, and I will attempt to explain how this, at times, happens. Such reception is usually reported on the smaller, less expensive receivers, and nearly always on transistor sets. This is because the circuitry of these receivers lends itself well to this type of reception.

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### THE SUBSTITUTE

"War!" Said Swift, "that mad game the world so loves to play."

There has probably never been anything filled with sadism and horror as the Nazi concentration camp at Auschwitz.

Mr. Maximillian Kolbe was captured in February 1941 and brought to Auschwitz. The German SS forces had the rule that ten innocent prisoners must die whenever someone escaped. At the end of July an escape was noted during the roll call of the camp. Ten of Kolbe's group were chosen to die by starvation.

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The room where it is being installed, converted from what first was a TV studio and later two offices of the division which coordinates our international representation, is ready. It has eleven bays or racks for the equipment, a control console and thirty audio lines coming in from control rooms and from the microwave system, which connects us to Pifo. Assembly and installation is going forward on the semiautomatic system, which will be put into operation first.

Although the project is now being carried forward by Dave Cooper and Herb Kinard, Bill Dufendach, Steve Hunter, Herb Jacobson and Duke Shelley have all worked on it.

The first stage of program automation is in operation. It was 4:20 P.M. on January 13, and the engineers were about to chalk up some history at HCJB. Bill Dufendach and Herb Kinard were in the microwave room. Dave Cooper and Duke Shelley were over in the new PACS master control room. Real progress had been made on the PACS project, and they were ready to put the first phase into operation. They had made no announcement to anyone, wanting to be sure of a smooth changeover first.

Bill and Herb switched the connections of the program lines so that the new automated system took over the FM programming. Over in Control 5 the national operators monitoring the FM programs, which until this moment had been going out from there, knew immediately that the switch over had been made and went racing to the PACS master control to see for themselves. There were no major problems with the changeover, and PACS has continued to maintain the FM programming with no program failures.

HCJB broadcasts to a Quito audience sixteen hours a day on FM. The programming follows a basically musical format with short gospel messages interspersed more or less every forty minutes.

Dave Cooper is in charge of the PACS project. His comment was, "It is great to have the new equipment functioning in this first phase. I feel that new equipment has a psychological effect on those who work with programs. It inspires them to do the best possible job. We also feel that we have learned a lot in this first part of the project. There are enough similarities between the FM automation equipment and the PACS automation equipment for short and medium wave lines so that we have gained valuable experience

which can be applied to the final, total PACS installation." The engineers are working hard on the final construction and installation, which will put PACS in control of all HCJB programming.

At the moment Dave is writing a detailed instruction manual for the operation and maintenance of the FM automation system. He says, "I've done twenty typewritten pages and am still going strong."

Pray for our engineers as they work to maintain, improve and increase our gospel broadcasting.

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One of those chosen cried out, "Have mercy! I have a wife and children."

Upon hearing these words Kolbe offered to replace the man. The Commandant was surprised to hear such courage and agreed with the exchange. Maximilian Kolbe endured the horrible suffering from hunger for two weeks before he was given the deadly injection on August 14, 1941.

I wonder what must have gone through the mind of the man for whom Kolbe sacrificed himself. No doubt ever since that day in August he and his family have remembered the man who died as his substitute. Seldom do we see such sacrifices.

However, such a sacrifice is the very heart of the Good News in Jesus Christ. Jesus was born to die in order that we might be born to live. He died for us that He may live in us.

John wrote, "In this is love, not that we loved God, but that He loved us and sent His Son to be the propitiation for our sins" (1 John 4:10).

Jesus was not a martyr. He was the Divine substitute taking our place on the cross.

Jesus died in order that you might have eternal life.

Can you say with the Apostle Paul, "The Son of God, loved me, and gave Himself for me"? Have you thanked the Lord God for sending Jesus to die in your place on the cross? Yes, "He loved me, and gave Himself for me." He is your perfect substitute.

(Adapted from an article in Moody Monthly).



# AROUND THE WORLD AND ACROSS THE STREET

by Ruth Ann DeFlon, R.N.



At the switch of a button a patient in our fifty-bed HCJB hospital, across the street from Radio Station HCJB, can listen to our Spanish, English or FM music station – a close companion and comfort during those long lonely hours.

And who are some of our hospital patients at HCJB's Rimmer Memorial Hospital?

**Humberto, a 28-year-old Shuar Indian,** sent from our sister hospital in the jungle. Several weeks ago Humberto was out constructing a runway near his home when a tree fell on top of him – and that was the end of a normal life. Now's he's paralyzed from his waist down.

"Worry? Worry about what?" he answered me the other day when I was trying to be realistic with him.

"Well . . . knowing you'll be walking with braces the rest of your life," I hesitated.

"No, bad thoughts like those only make me worse," he answered. "I don't worry. I know God personally . . . and with God you don't have to worry."

**Dear little Jessica** who's been in leg traction for almost six weeks – a traffic accident victim. Ten days ago the doctor just shook his head, said nothing could be done: he would give her leg a couple more days and then he'd have to amputate. Now her leg is healing – after bone and skin grafts and long months of rehabilitation she'll be up walking again.

**A British visitor to Ecuador** who has lived to tell the tragic story of two friends killed on Mt. Sangay, the world's most active volcano located near Ecuador's eastern jungle.

**Mr. Romero in our Intensive Care Unit,** recovering from severe post-surgical heart complications. Several days ago he told me he was going to die: in fact, he saw himself walking toward a black curtain when suddenly a brilliant shaft of light cut the darkness. Since, he claims to be a different man and now believes there is a God and life after death.

**Eight-year-old Soraya.** Just two months ago I looked at her frail body lying lifeless, unconscious in the bed. Another accident victim! Never did I dream she's "come to life" – talk, smile, laugh, sing, walk all over again.

Soraya's mother remembers those first weeks of despair when no one gave her encouragement, not even the doctor. "Only one in 500 of these cases live to be normal," he said. But she clung in faith, trusting her child to God, asking Him to make Soraya the "one" in 500.

And He did! (Now Soraya is back in school again.)

Not only do our patients frequently find a companion in radio station HCJB but many also encounter The Eternal Companion, Jesus Christ, the One who says, "I will never leave you nor forsake you."



## DXER OF THE MONTH



Our DXer of the month is Arnel Ticsay of North Hollywood, California.

Arnel is a relatively new shortwave listener. He has been active since December 1975. One of the first stations which he received was HCJB.

Arnel uses a Hallicrafters SX-99 as his primary receiver. This is a tube type receiver with a crystal filter, noise limiter, antenna trimmer, etc. It covers from .535 to 34 mHz.

His listening post includes three antennas. One external antenna is a fifty-five foot long ended longwire, eighteen feet high running east-west. Another is a thirty-six foot dipole, fourteen feet high running north-south. The third antenna is a multiband antenna cut to four dipoles at fifty feet, thirty-two feet and twenty-eight feet. It is twenty feet high and runs north-south. This antenna is capable of receiving 25-49 meters. He notes that the thirty-six foot dipole works very well on 16, 19, and 25 meter bands.

Arnel also uses two loop antennas. These are capable of covering the AM band with full directional receiving capability.

In addition to the Hallicrafters SX-99, he uses a Realtone model 2424, a cassette recorder, Wollensack #4150, a homemade GMT clock using LED readouts, a crystal calibrator and Q-Multiplier.

Arnel enjoys electronics and collecting American coins. He also builds a lot of his auxiliary equipment.

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On these smaller sets there is usually no radio frequency amplifier before the mixer stage, making it easy for strong shortwave signals to get through to the mixer. Therefore, all that is needed is a way to convert the shortwave signal down to the intermediate frequency of the receiver, and the signal will be heard.

The mixer used in these small sets is a combination of oscillator and mixer in the same stage. The oscillator in these cases generates not only the desired signal 455 kHz separated from the received signal, but also integral multiples of this frequency. These harmonics are the cause of the freak reception.

Taking a hypothetical case of your receiver being tuned to where your dial reads 820 kHz. In most receivers the actual oscillator frequency will be 455 kHz higher than this, or 1275 kHz. In addition to the 1270 kHz signal, it is generating a number of multiples of 1270 kHz, such as 2550 kHz, 3825 kHz and so on up to the eighth multiple or 10200 kHz approximately. Because of the lack of selectivity in the input stages, our 9745 kHz signal enters the receiver at quite a high level, mixing with this 10200 kHz oscillator, giving us the 455 kHz signal that will pass right on into the IF stages as well as any broadcast signal. If you have no broadcast station near that point on the dial, you will hear the 9745 kHz short wave signal.

Note that several requirements are called for: a receiver with the right kind of oscillator-mixer circuit, no local broadcast stations near the area of the dial in question and a strong shortwave signal. When these are all met simultaneously, we have just made a simple shortwave receiver from your medium wave set.

Self-control means controlling the tongue! A quick retort can ruin everything. (Prov. 13:3 -Living Bible)

### ANDEX International -

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