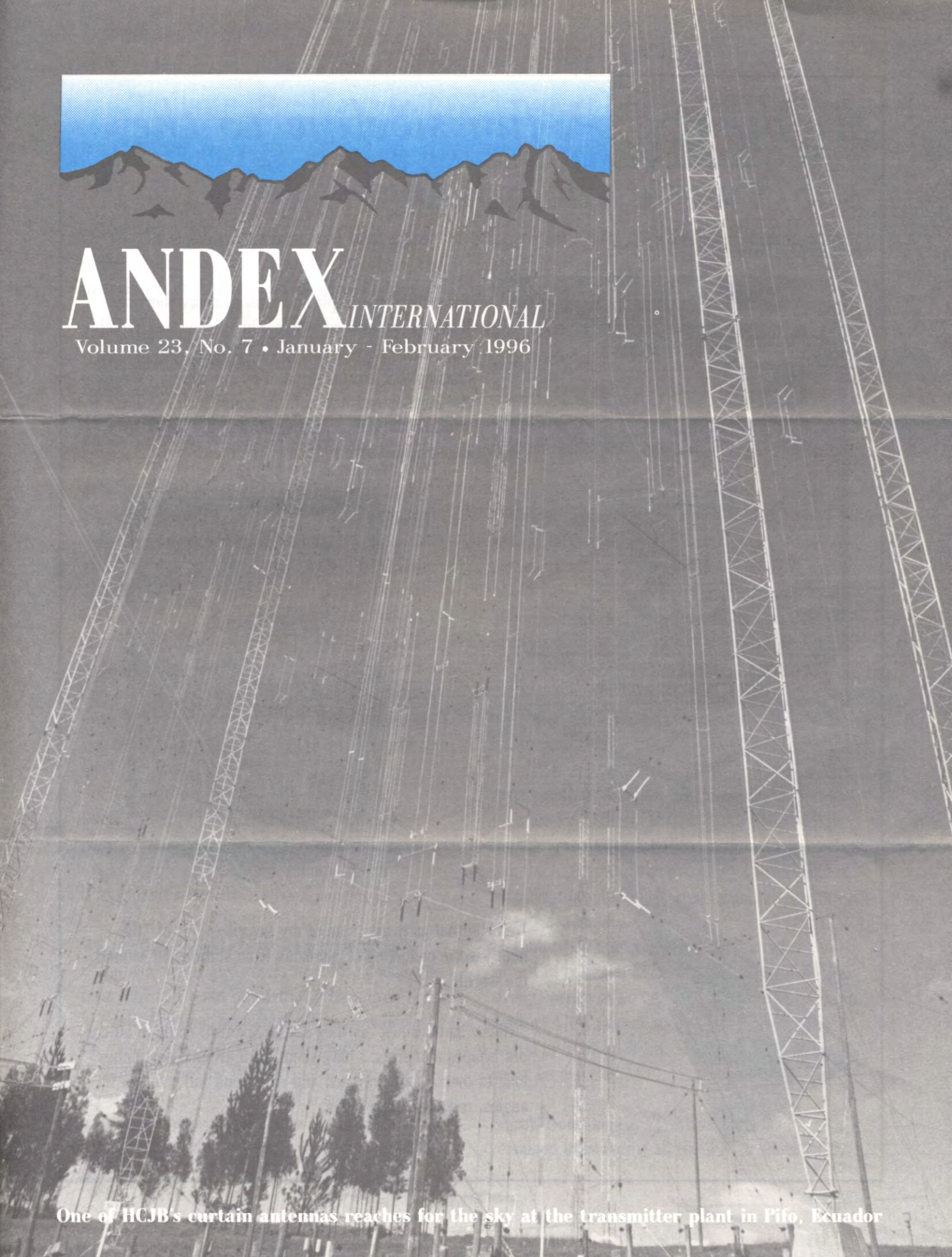

ANDEX INTERNATIONAL

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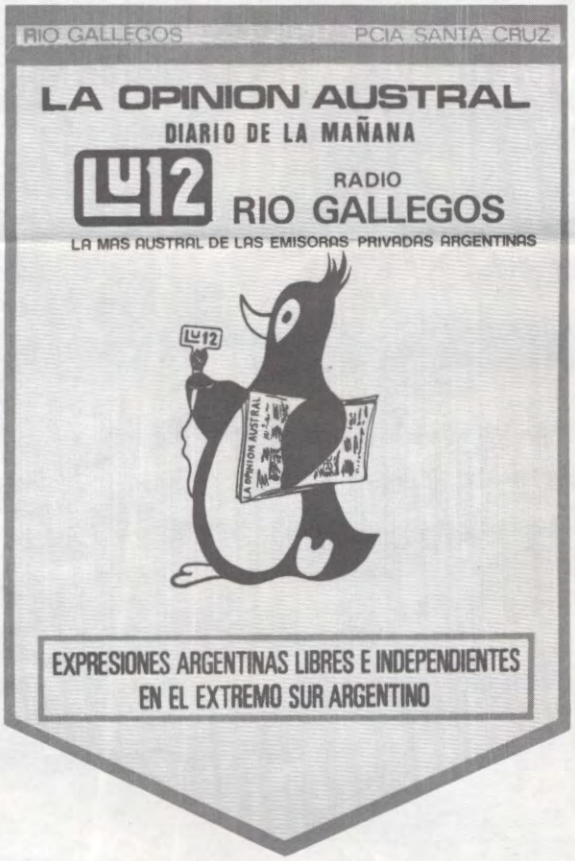
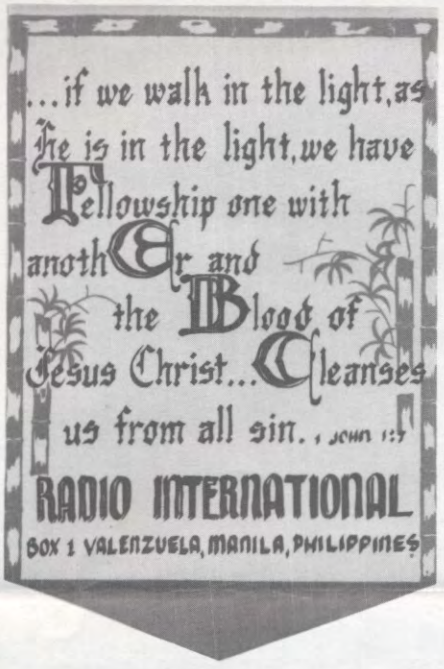
One of HCJB's curtain antennas reaches for the sky at the transmitter plant in Pifo, Ecuador

Pennants: A fun sideline to the shortwave radio hobby

by Ken MacHarg



For some yet unexplained reason, many shortwave listeners are also collectors. One person has hypothesized that, since the majority of DXers are male, in chasing that elusive signal they are merely exercising the hunting instinct, and the collection of QSL cards, stickers and pennants may be just the desire to carry home some reward of the hunt.



Well, be that as it may, one of my favorite parts of "the hunt" is the collecting of pennants from stations all around the world.

These "banderines" as they say in Spanish, come in all colors, shapes and sizes. I have them from around two inches long to over a foot, in black and white and full color, in triangles, rectangles and ovals.

Some are works of art, while others are obviously not much more than words written on a piece of cloth.

But it really doesn't matter to me, because each of them, just like a QSL card, signifies a completed contact with a station and a new friendship forged with someone far away.

Many stations will enclose a pennant with your QSL card if you ask for it. Others are more particular, and will only send this kind of a gift after you have been in touch with them several times, or maybe not until you have visited their studio.

Some stations don't provide pennants (they are expensive, you know), while others, including HCJB, have them only from time to time. (We don't have one right now except for first-time writers who return a questionnaire. But, we may have one in a year or so, so stay tuned.)

Since pennants are popular with Soccer teams here in Latin America it is natural that many radio stations have also picked up the idea. However, many Latin American stations are those which can least afford them, so it is sometimes difficult to obtain one without some special effort.

One needs to remember that no station "owes" a listener a pennant any more than they "owe" a QSL card or any other response. Actually, the best way to obtain one is with a polite letter, perhaps a photo or postcard and an IRC or two thrown in to cover the cost of postage.

Pennants: they may be plain, they may be colorful, but which ever, they are another facet of this fascinating hobby that can take us around the world with the twist of a dial.

Computer Programs for Design Engineers (or those who fantasize they were!)

By John Beck

One of the supposed advantages of computer technology is that it will perform the drudgery work for you while you can concentrate on the creative aspects. (Just don't try to convince me that computers save time when I am trying to figure out how a new program installation wrecked my perfectly tuned autoexec. bat file!)

One area computers do shine in are conducting "what if" scenarios, especially in the area of electronic circuit design. One program we recently downloaded from an INTERNET FTP site is a prime example of this. It is called "RF Toolbox" designed and distributed by Teledyne Microelectronics out of Los Angeles, California in the United States.

The program will compute a number of parameters that RF design engineers will run into. These include resistive pi and T-attenuator values, VSWR conversions, noise figure calculations, power and voltage decibel conversions, the effects of inductance, capacitance in a tuned circuit, and many others.

For instance, you could enter the frequency of operation and inductance of a certain circuit in order to obtain the reactance. Mix and match prefixes (choose kilohertz and microhenries) and the program automatically converts them to the appropriate decimal point. You may optionally enter either the series or parallel resistance value and the program also comes up with the Q-factor of the circuit. Or enter the Q-factor and get the resistance! It's easy.

So you don't quite understand the relationship between inductance, reactance and "Q"? Pressing F-1 on this DOS based program will bring up one of several help screens that guide you through.

Now, what happens when you increase the frequency? Change that one parameter and see what happens to the others. This is a great and easy way to learn more about the interaction of the various circuit values.

The program offers a registration form (but doesn't ask for money!). I suspect Teledyne may be distributing free samples of the program in order to introduce their expertise in microelectronics packaging and production to real world design engineers. Their custom packaging capabilities as described by another help screen are impressive. One of our HCJB engineers who has used the company's products is surprised more companies have not utilized this slick marketing approach.

You can download the file from any Simtel mirror site, including:

FTP to: oak.oakland.edu

WWW at http://www.acs.oakland.edu/oak/

There are a number of programs like this. Some are shareware, while others are free. Perhaps some of our readers have some favorite design programs they would like to share with us? Be sure you tell us how to obtain them.

Solar Eclipse DXing-the Sequel: Report of the October 24 Eclipse

By Rich McVicar

On Tuesday October 24, there was a total eclipse of the sun in Asia. The eclipse began in Iran, and passed through Afghanistan, Pakistan, Northern India, Burma, Thailand, Cambodia, Vietnam, Sabah, Malaysia and touched parts of northern Indonesia before heading out to the western Pacific Ocean.

As we described in our last article (see the Nov-Dec ANDEX Int.), an eclipse of the sun can affect propagation on shortwave. The difference is perhaps best noticed on the tropical bands. During the daytime, the sun's ultraviolet rays create a lowest layer of the ionosphere called the D-layer. The D-layer is a negative one as far as lower frequency shortwave propagation is concerned, as it absorbs lower frequency signals, keeping them from travelling to the higher E and F layers where they could be bent back to Earth. The same happens with the mediumwave band—which is why you hear distant stations at nighttime but, for the most part, not during the day.

During a solar eclipse, the sun's rays are temporarily blocked. The result is that the D-layer weakens, allowing lower frequency signals to pass through and reach the higher E and F layers.

With regard to the October 24 eclipse in Asia, I was wondering if any effects would be noticeable from a distant point on earth, perhaps even here in South America. Specifically, I was wondering if the signal from a tropical band station in Asia usually absorbed by the daytime D-layer, might make it through the weakened D-layer during the eclipse and be propagated to a distant point on earth by the higher F layer.

In preparation for the experiment, I mapped out the eclipse path using geographic coordinates provided by Matthew Merril's eclipse prediction computer program named "Solar". Then, I circled Asian cities near or on the totality path which were the homes of tropical band broadcasters. Next, I noted the times of eclipse totality beside each location—perhaps the best time to try for that particular station.

The eclipse began to cross India at just about 0300 UTC. I began tuning the 60 meter band around 0230. When I got to 4840 kHz, I was amazed. Bombay, India was louder than I'd ever heard them. This was about an hour and a half after their sunrise, which was also later than one would usually hear a distant tropical band signal.

Next door on 4850, Uzbek Radio's domestic service from Tashkent was coming through very nicely. On 4860, Delhi, India was fair to good.

After about 20 minutes, all three stations were even louder (italics). At 0248 UTC, Delhi was airing the news in English. This included what for me was the highlight of the evening—a live report of a description of totality crossing India!

Just after 0300, another surprise was what I presumed to be Rawalpindi, Pakistan on 4790.6 kHz, strong enough to be heard over Radio Atlantida in Peru on 4790. Decent audio from Rawalpindi stayed in to about 0330. After that, only a carrier could be detected.

Signals from Bombay, Tashkent and Delhi remained outstanding all the way to about 0320,

0850 AM in India, two and a half hours after their sunrise.

Then, signals from all three stations began to plummet in strength over the next ten minutes. Only Delhi and Tashkent were barely audible by 0335. Between 0245 and 0320, I tried for a number of other Indian regional stations, but only heard carriers with weak, inconclusive audio at best.

By 0340 UTC, the eclipse was crossing Thailand, where it was already 1040 in the morning. I tried for the domestic service of Radio Thailand on several frequencies. There was an signal underneath Sweden on 7115 which faded soon after 0400, but this remains to be identified. A VOA relay signing on this frequency at 0358 made the situation more confusing. I had a number of other targets to try for after 0400, but none of these were heard.

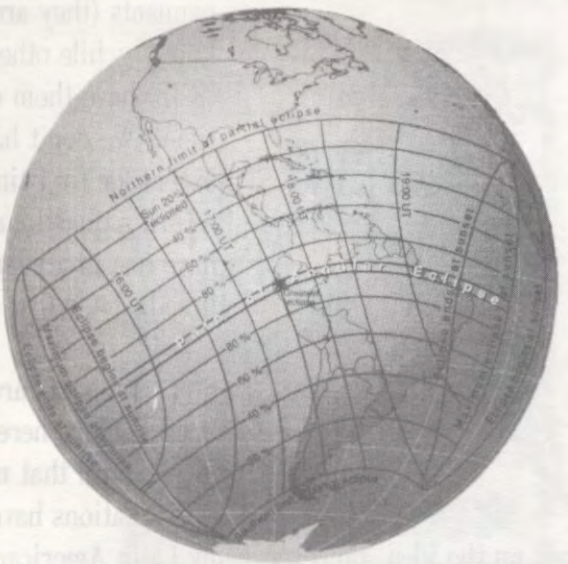
There are two main reasons why, I believe the two Indian stations, Rawalpindi and Tashkent came in so well.

The first is that, during the first part of this eclipse, the totality path crossing Iran, Afghanistan, Pakistan and most of northern India was roughly the same as the short Great Circle Path between Ecuador and that particular part of Asia. Signals travelling along the totality path could continue to travel straight along the ionosphere to Ecuador. After the eclipse path reached eastern India, it's path and the great circle path from Ecuador separated.

The other reason I believe those particular stations came in so well was due to the early time of day. Perhaps at 8:00 AM in India, when the eclipse began to cross the country, the D-layer had not yet had the chance to build up to full daytime strength. Then the eclipse weakened the D-layer to a greater extent than it would have at say, at 2:00 in the afternoon. The result, possibly, was equivalent to an extended sunrise enhancement, lasting several hours.

All in all, it was one of the most thrilling DX experiences I've ever had.

The next eclipse of the sun take place across Northern Asia between 0043 and 0331 UTC March 9, 1997. At a point a few km from Gonam in Asian Russia, the eclipse will at at its longest duration, 2 minutes and 50 seconds. The totality path will be fairly wide, reaching over 370 km in diameter.



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