

Pack Rat Moonbounce Expedition to South America

FIRST EVER 432 MHz EME Station from South America!!!

HK1TL

Tierra-Luna

Barranquilla, Colombia

July/August 1976



Left to right: Sam WB3AFY/HK1CWB (N3SM), Daniel HK1?, Betty HK1BAR 2nd op, Danny WA3NFV, Sheila HK1CWD, Elliot K3JJZ, Juan HK1JJ, Chepe HK1VM, Bomar WB3AOP/HK1AMW (K4AMW), Raul HK1JJ 2nd op, Walt K3BPP, Edgardo HK1BAR, Tony W3HMU, Jorge HK1ATE, Rosalba HK1CWB 2nd op, Ate HK1BYM

Photo by W3HQT(K1DY)

HK1TL

(TIERRA-LUNA)

SOUTH AMERICAN MOONBOUNCE EXPEDITION BARRANQUILLA, COLOMBIA

PACK RATS

MT. AIRY VHF RADIO CLUB

To: _____ Confirming 2-Way QSO Via _____

Date / /76 UT _____ Report _____

	EQUIPMENT		
	EME (All HB)	OSCAR 7B	HF
XMTR	4X250 Driver 8938 Amp	Echo 70—4X250	Collins KWM-2 30LI
RCVR	W1JAA Preamp Drake 2-B	Vanguard Converter Allied 180	KWM-2
ANT	16-13 EL Yagis AZ, EL, Polarity Mount	Amsat 4EL 2M Special 7EL 432	20M-3EL Cushcraft

EXPEDITION ORGANIZED BY: MT. AIRY VHF RADIO CLUB, PHILADELPHIA, PA. USA AREA 2 RADIO CLUB, BARRANQUILLA, COLOMBIA.

EXPEDITION COORDINATORS: ELLIOTT WEISMAN, K3JZ; DR. ATE BLANCO, HK1BYM; BOLMAR AGUILAR, WB3AOP/HK1AMW; SAM MARTINEZ, WB3AFY/HK1CWB.

OPERATORS: TONY SOUZA, W3HMU; BILL OLSON, W3HQT; WALT BOHLMAN, K3BPP; DAN MITTEN, WA3NFV.

SUPPORTERS: PACK RAT DONOR, MT. AIRY VHF RADIO CLUB, AMSAT, COLLINS RADIO CO.

NORTHERN CALIFORNIA DX FOUNDATION, INC.
P.O. Box 717 • Oakland, CA 94604



4 'Hams' to Bounce Signal From Moon

By MARCI SHATZMAN
Of The Bulletin Staff

Four local men are making the final arrangements to load 18 crates and themselves onto a southbound airliner this summer to make ham radio history.

The men, members of the Mt. Airy VHF Radio Club, known as the "Pack Rats," have been invited to Barranquilla, Colombia, to set up South America's first "moon bouncing" station.

As a Northeast Philadelphia pharmacist, Elliott T. Weisman explains it, moon bouncing is a sophisticated broadcasting technique using the moon as a reflector for short wave signals.

While South America is apparently replete with "hams", it has just never tuned in to the worldwide moon bouncing network.

"We have contacts all over the world and we found that no one has contacted South America by this method," said Weisman, a laboratory manager for Merck, Sharp & Dohme, West Point, Montgomery county.

Stumbled Onto Chance

The 78-member Pack Rats stumbled onto the chance to hook South America up with the rest of the world when Bolmar Aquilar, a Colombian national, moved into Weisman's neighborhood.

Weisman said the natural camaraderie among "hams" brought the two together.

"He noticed my antennas," said Weisman, who lives on the 8500 block of Algon ave. in Oxford Circle.

Aquilar and his Baltimore brother-in-law, also contacted some of their relatives on farms back home, Weisman contacted the Colombian author-

ities, and the club's antenna designer set to work.

Walt Bohiman, a ham who also builds antennas for a living, had fashioned the club's futuristic-looking 20-foot "dish" as it is called, on his farm in Revere, just above Doylestown.

Transit Problem

But as Weisman pointed out, it's tough to get a 20-foot antenna into an airplane.

Bohiman's job was to design a portable moon bounce antenna, with parts no longer than six feet. Weisman said the unit fills 18 crates and weighs 1,000 pounds.

He and the Pack Rats' moon bouncers, Tony Sousa, an environmental engineer from Ottsville, and Bill Olson, a motorcycle mechanic from Danboro, both Bucks county, will complete the quartet that will leave July 25 for two weeks in Barranquilla, a town on the Colombian coast. Weisman said the trip will cost between \$7,000 and \$8,000. The club, which has members all over this area and New Jersey, will pick up part of the tab with the participants contributing the rest.

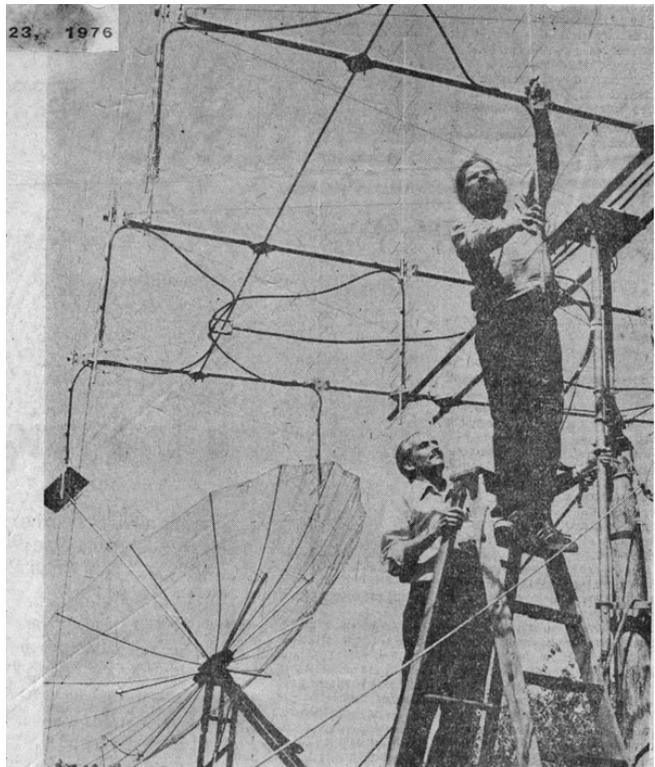
Once there, the Pack Rats—so named because they pride themselves on scrounging parts and building their own equipment—will set up the antenna and await the historic moment.

Fellow Moon Bouncers

Waiting with them will be 26 fellow moon bouncers in Canada, France, Australia, Sweden, England, Italy, Japan and other points on the globe.

The transmission will be in code. And Weisman said it will simply consist of what is called a "signal report"—an acknowledgement that the signal was heard, and its quality of transmission.

23, 1976



The Sunday Bulletin

Elliot Weisman (left) and Bill Olson work on an antenna that will be moved to South America to set up South America's first "moon bouncing" station.

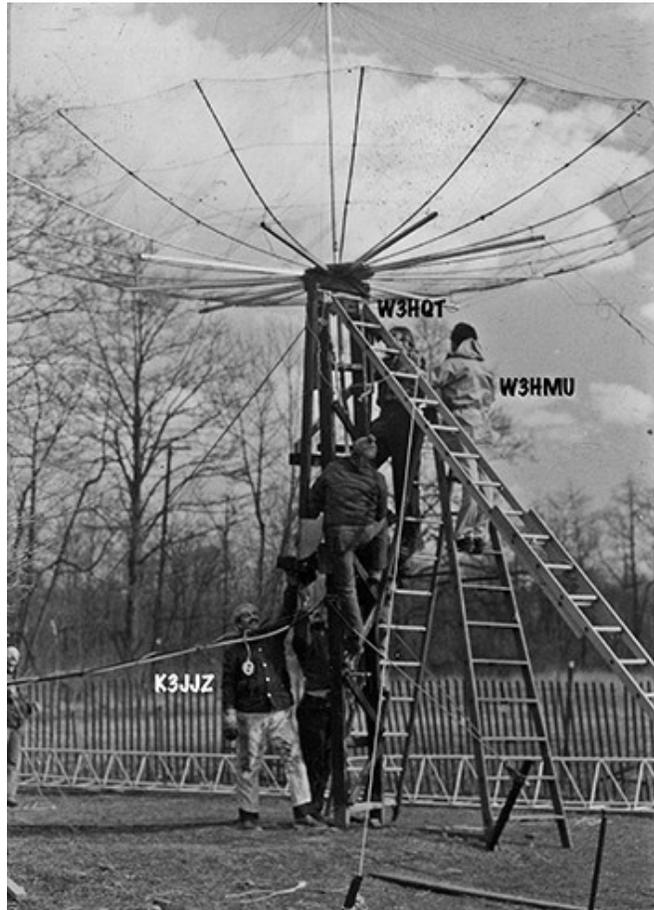
HK1TL Preparation

W3CCX - March 1976

The Pack Rats preparing for a trip to Colombia, South America to put the **FIRST EVER** 432 MHz Moonbounce station on the air from that continent. This made possible the FIRST WAC on 432 MHz (K2UYH). Many other stations were also worked.

(Note: HK1TL is also likely to have been the first EME Station from South America, period.)

These pictures are the installation of a 20 foot stressed dish (donated by K2UYH) in a sheep pasture in Revere, PA on the farm of Bill Olson, W3HQT (K1DY). Operated as W3CCX by WA3JUF, the Pack Rat club station worked the Pack Rat Columbian expedition station, HK1TL, via 432 MHz Moonbounce with this antenna.



Photos by W3RJW

Recollections of the HK1TL Pack Rat Expedition To Colombia South America

Walt Bohlman, K3BPP

The W3CCX Moonbounce station had been in operation for some time using a stressed 20 foot dish and a dual polarized feed along with an 8938 KW amplifier. This operation was set up in the corner of a barn in Revere, Pa with the antenna located in the corner of a sheep pasture. The crew to operate the station was Tony - W3HMU, Bill - W3HQT, and Walt - K3BPP. Occasionally other visitors and club members would show up. The contact total and continent total were getting to be impressive. About Dec 1975 at the regular club meeting the monthly moonbounce report stated that we had all continents except South America. A fortunate occurrence was that Elliot, K3JJZ, brought his neighbors to that particular club meeting. His neighbors happened to be hams from Colombia, South America. After the meeting these fellows invited the club to their beach house on the Atlantic coast of Colombia. Of course we accepted. The club having participated in the June Contest since the late 1950's knew that we could do it. El became the project manager and masterfully took care of all of the long list of coordination and regulation stuff.

Bill, Tony and Walt started planning the station and construction details. Keep in mind that we had to leave our station at W3CCX intact so we could work it. Airline size restrictions suggested that the antenna packing crates be 6 foot or less in length. Of course lots and lots of antenna ideas rattled around before finally a design was settled on that would provide

approximately 30 dBi Gain. This turned out to be 16 K2RIW 13 element yagis (See Below). These antennas are 8 feet long so a method was developed to have them separate in the middle and we would reassemble on site. Various computer studies at the time showed that a 5 foot spacing would work well. The computer at the time was an HP 9820 desk top calculator and an XY plotter. The mounting structure was made up of various telescoping tubing which transported well in the 6 foot boxes. The design had all of the mounted in front of the positioner so as to be able to rotate polarization. A very important consideration that was learned at the W3CCX site. We could instantly switch polarization on the dish and often the received signal was different polarization than the transmitted signal.

Various volunteered amplifiers were evaluated all of which were found to be inadequate. A spare 8938 (this is sort of a coaxial based 8877) was found so a new amplifier was constructed using the half wavelength stripline type tank circuit of W6AJF and K2RIW variety (See below). This is a triode and needs about 100 watts of drive to really start talking.

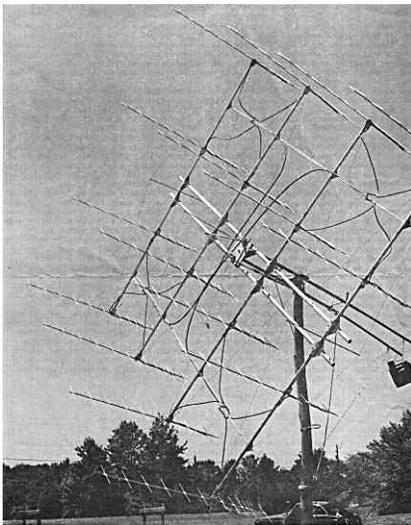
Thus an exciter had to be built to provide 100 watts. Also, Oscar 7 was very active at the time and operated in mode B which was 432 Mhz up and 145 MHz down. An out of service 432 MHz 4X150 cylindrical cavity amplifier was resurrected and a few driver circuits were added. This was then used as the EME exciter and also the Oscar 7 up link. I think we made 100 contacts on Oscar 7.

The receiver was a Drake 2B with a crystal converter and a low noise preamp located at the antenna. A low noise preamp in those days was about a 2 dB noise figure. I believe that we toasted 2 or 3 preamps before the operation got settled down.

A very important aspect of the operation was a 20 meter link which was handled with a KWM2 and a 30L1 and a Honda generator when needed. The stateside liaison was handled by Bert, W3TNP (SK), XYL of W3KKN. and Ernie, W3KKN.

Pre-Expedition Dry Run at the Hilltown Civic Association Field Hilltown, PA

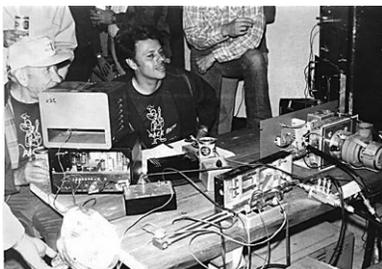
Tested during the Pack Rats 1976 June Contest Effort



16 K2RIW 13 Element Yagis
Estimated Gain: 30 dBi



'Armstrong' Azimuth, Elevation and Polar Rotation (KISS)



W3CL good-naturedly 'supervises' Tony, W3HMU



"Listening for the weak ones" N3CX (SK)

HK1TL Short Stories

HK1TL - 'To Do List' Before the Trip

K3JJZ, Elliot Weisman

Planning this operation was a huge task. Keep in mind that this was before e-mail and cell phones. All correspondence had to be by the mail system. Turn around time was measured in weeks not hours. K3JJZ was in charge of this phase of the operation. Needless to say the results were extremely good.

1. Write letter to the Colombian equivalent of the FCC, The Ministerio De Communications, to get permission to operate in Colombia.
2. We later find that the letter must be rewritten on official stationery that must be purchased from the Colombian Consulate at \$2 per page.
3. Determine if 432 MHz is an operating band in that country.
4. Provide a detailed list of the radio equipment that would be shipped to Colombia. We guessed at some of this because it hadn't been built yet and we needed to keep the W3CCX moonbounce station on the air.
5. Design an antenna capable of being transported to Colombia. You can't put a 20 ft dish on an airplane.
6. Plan a publicity campaign to make the most out of the project.
7. Coordinate operating schedules with other moonbounce stations around the world.
8. Determine the mechanism for travel to and from Colombia.
9. Estimate the total cost of the project.
10. Design and print a souvenir that will be left with the local hams.
11. Schedule the routine low band communication link.
12. Design and issue a press release indicating to other radio clubs what we are attempting to do.

HK1TL - Funny Story 1, K3JJZ

In one of my letters to HK1BYM, Ate. I detailed the supplies that we wanted the Colombians to supply for us. One of the things was a wooden pole to mount the antenna. 10 days after I sent the letter with these items listed W3HMU (Tony Souza) called me and said you have a mistake in the list. He pointed out that instead of specifying a 20 ft wooden pole I had specified a 20 meter wooden pole. We had to make radio communications with the Colombians that night so we could correct the error. The conversation went something like this :

HK1TL - Those Whose Help was Critical

K3JJZ, Elliot Weisman

1. **HK1BYM – Dr. Atenogenes Blanco** - Ate was designated as our Colombian coordinator and made many trips to Bogotá (the capital) to grind through the red tape.
2. **Marci Shatzman**- The Bulletin reporter who did the story of what we wanted to do while we were still in the planning stages. Her article appears on the web site.
3. **VE7BBG- Cor.** Cor issued a complete schedule for the then 25 moonbounce stations throughout the world to work us.
4. **RoseAlba Martinez**- Sam Martinez xyl. Flew to Colombia to purchase the airline tickets and then acted as cook for the group once we were there.
5. **HK1CWD- Sheila.** Sheila loaned RoseAlba the additional money since the air fare had increased and we didn't provide her with enough money to buy the airline tickets.
6. **WA3JUF (now W3KM)- Dave Mascaro**- In addition to operating the W3CCX moonbounce station Dave was one of the truckers that took us to the airport.
7. **W3IIT- Harry Brown**- Helped assemble the W3CCX moonbounce station
8. **K3YLL- (SK)- Harvey Bartashnik** – Also one of the truckers taking us to the airport.
9. **W3CXU- (SK)- Johnny Allen**- Johnny was the anonymous donor of \$1000 for the project. It took awhile until we discovered who the anonymous donor was.
10. **W4ZXI**- (he has a different call now)- Russ Wicker-Russ in addition to being a moonbouncer, worked at the Miami airport. He was instrumental in seeing that the equipment got transferred from Eastern Airlines to AeroCondor Airlines to arrive on the same flight that we would take. He also rescheduled us when it became apparent that we would miss our connection at Miami airport on the way home.
11. **Area 2 Radio Club.** They were our official sponsors and they tried to assure that we had everything that we needed.
12. **Civil Defense Group** (forgot the appropriate title)- These guys were armed and dangerous and assured that we stayed out of harms way. In addition to providing trucks for transporting us and the equipment to the actual site.
13. **W3KKN & W3TNP (SK)- Ernie & Bertha Kenas**- Their station was our lifeline back home on 20 meters. One or the other was always monitoring for us. Extremely valuable when we had to reschedule a contact.
14. **K2UYH- Dr. Alan Katz**- In addition to being a well known moonbouncer, the donor of the dish used by the W3CCX moonbounce station, and the first WAC EME on 432 mhz, Al had arranged for us to be able to operate Oscar

“HK1BYM this is WB3AOP, Good evening Ate”. “It is very important that I discuss with you the pole.” “I sent you the wrong information”. “Over”.

Ate replied “don’t worry about the pole we have already got it”. “over”

This was really difficult because I tried to inform him about what I said in the letter.

I replied “Ate, I gave you the wrong dimension for the pole’. The pole should only be 20 ft, not 20 meters”. “over” .

He proceeded to come back and reassure me. “Don’t worry, we can cut it “.

I’ll never live that letter down.

7B on a day when it would not normally be operating in that mode.

15. HK1DOY – I lost his name. One of the Area 2 members who went down to the power company and sat there until they agreed to send a truck out to take care of our power problem.

16. Cartegena Radio Club- Traveled to the site with a 3.6kw gasoline generator. Unfortunately we couldn’t use it because it lacked voltage regulation. But a nice effort anyhow.

17. Lorraine Weisman & Jan Souza- My xyl and W3HMU xyl who not only allowed us to make the trip but came with us.

18. California DX foundation- Made a substantial donation to the project and printed the HK1TL QSL cards

HK1TL - Funny Story 2, K3JJZ

As we prepared for our trip we had to build packing crates for the equipment to be shipped to Barranquilla. W3HMU, Tony, has a complete wood shop and so the task fell to him. I was with him one day helping as he constructed crate after crate based on the size of the equipment we were taking. He checked off the list as he completed each item until he came to the last item which was a power supply. He said to me, "I can't build this yet". I asked "Why not"? He replied, "I don't know what the size will be because Bill, W3HQT, is building the supply". "Can we call him"? I asked. "Sure", and he proceeded to call Bill. "How big is that power supply going to be" Tony asked. Bill replied "I don't know yet", Tony said "Hold on a minute". By this time we had used a lot of lumber so Tony went around his shop measuring what we had left. He took the phone back and said to Bill, "Make it fit in 12" x 14" x 8" because that's the box I'm building". "Bye". And amazing as it may seem - Bill did it!

HK1TL - Funny Story 3, K3JJZ

In addition to the civil defense guys supplying protection for us they also provided transportation to all the places we had to go. These places included the seminar we gave on amateur radio, our newspaper interviews, and also the dinner in our honor. One of these truck drivers was noticeably a very poor driver. On one of these excursions this notorious driver managed to put the front wheel of his truck in a ditch while trying to turn around after leaving us off at our operating site. W3HMU, Tony, came into the cabana asking for help to push the truck. I asked him what the problem was. He said, "Oh 'S... for brains' has done it again". And I said, "Well we don't want to call him that out loud, lets just name him SFB". Whereupon we decided that we would bestow upon him the call letters HK1SFB. We are sure he doesn't know where those call letters came from.

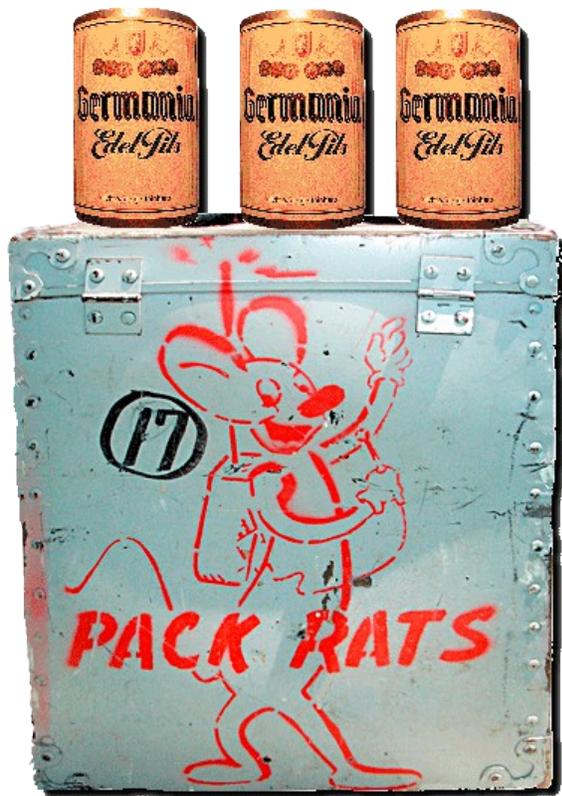
HK1TL - Funny Story 4, K3JJZ

This concerns the packing boxes and their uses. You can see by the photos that there was one box that was hung on the antenna and was filled with rocks. It acted as a counter weight. If you look at the photo from the Hilltown trial antenna experiment you can see that we didn't have the packing boxes yet so we used a milk crate filled with rocks as the counter weight.

However there is yet another box story. This relates to box "6". This was one of the wooden boxes constructed by W3HMU Tony. It was 22 x 18 x 12. Yes, I have the box in the back of my garage. What I don't have is the lid for it. Box "6" was the one that was left open until last. All last minute items that we thought we would need got thrown in here. As we drove to the airport it was nailed shut. Now the lid for this box is very important.

It was common practice if one had taken a dip in the ocean to come back into the cabana for a drink. We had a refrigerator, The only problem was that if you touched the door while being wet with salt water you got shocked

It was then that one of our stellar scientists took the top of box "6" and put it on the floor in front of the fridge. This eliminated the shock problem. What a group of innovators!!!



HK1TL - Beginning the Trip, W3HQT(K1DY)

So here's another story.. we leave Philadelphia in the van with Dave (WA3JUF/W3KM) driving and another car I guess with all the stuff.. get everything loaded at PHL, then wait for the flight in Philly,... then arrive in Miami and then wait for the "always late" (apparently - it's the "mañana thing") Aerocondor flight and then FINALLY the next day some time arrive in Colombia having had NO SLEEP and all that partying with the legionaires the night before at the Ben Franklin Hotel. You get the picture. Then we hang out at the airport while they unload the plane. We watch them unload pretty much right in front of us.. it's Colombia after all. The stuff all gets dumped into sort of an "ox cart" and we are counting the boxes 1, 2, 3,17, 18, NINETEEN.. Yahoo! Over to the side, Ate (HK1BYM) is talking to some uniformed customs officers using his hands a lot and ultimately some MONEY changes hands. We later found out they told him it would be THREE weeks before the stuff would clear customs.. holy crap. But Ate handled it with a little "green".. "How much did you have to pay him, Ate".. "oh 25,000 pesos".. "holy crap, how much is that??" "oh about 10 bucks".. Anyway I digress.. After we get the gear and all of us loaded into trucks and cars, they whisk us away to some house in town for our first "press conference". I'm glad Elliot was awake at this point because I sure wasn't!! While he was "telling the story", some one puts an ice cold bottle of "Germania" beer in my hand. Right on the label it says "400 years old" or "founded in 1576" or something like that.. The word as I understood it at the time was that the Germans were some of the first settlers in Colombia, and they had a 400 year old "German Beer" brewery in Colombia. This may have been an exaggeration and possibly the beer was an import, BUT it sure was GOOD and I started thinking (in my haze), well maybe this is gonna be a REALLY FUN trip!!!

Editors Note: The same time the team was preparing to depart for Colombia (July 25, 1976) was also the time of 1976 ARRL Atlantic Division Convention hosted by the Pack Rats in center city Philadelphia. The ARRL convention was held at the Ben Franklin Hotel in Philadelphia which was also the same week as the infamous 1976 American Legion Convention that was held at the Bellevue-Stratford Hotel around the corner. Some of the Legionaire overflow from the Bellevue were also staying at the Ben Franklin. Little did we all know of the events that were to unfold.

HK1TL - Leaving Colombia 1, K3JJZ

After we finished our operation we broke down the station and crated it up for shipment back to the states. We delivered the equipment to the customs broker in Baranquilla airport and found out how much we had to bribe him in order to be sure that the equipment got shipped out of the country. We were scheduled for some R & R in Cartagena since the Cartagena radio club also played a part in supporting us while we were in Colombia. They treated us royally. But we had to go back to Baranquilla because the Area 2 radio club had planned a big dinner and presentation for us. The dinner was exceptional and we were presented with a beautiful plaque commemorating our operation. The day we were to leave for the airport we had Ate, HK1BYM, schedule a contact with Ernie, W3KKN, to go over any last minute changes. We had planned to go to the airport to pay off the customs broker. However, Ernie informed us that he had been in contact with Russ, W4ZXI, (recall that Russ works out of Miami airport) and Russ informed him that the equipment had already arrived in Miami. I would have loved to have seen the brokers face when Ate told him we knew that the stuff was already in Miami.

HK1TL - Leaving Colombia 2, K3JJZ

At the airport we celebrated by opening the bottle of champagne that we had brought with us for the occasion. Our AeroCondor flight was scheduled to leave at 5:20 PM. It didn't leave till 7:10 PM. So here we were on the AeroCondor flight and it was obvious that we would not be able to make our connection with our Eastern flight in Miami which was supposed to get us in at 1AM the following morning. We were seated in the plane when the cabin steward came back and asked if we were radio amateurs. I told him yes and he pointed to me and said that the captain would like to speak with me. I moved forward up through the cabin following the steward and proceeded to knock on the cockpit door. The door opened and I entered. The pilot introduced himself as HK1ABJ and introduced his copilot HK1FMP. (sorry I didn't get their names). They asked how the project had gone and I told them extremely well. I gave them souvenir QSL sheets that we had made on the Pack Rat printing press before leaving for Colombia. The pilot informed me that he operates aeronautical mobile while flying. He does this on 20 meters. He dialed up 20 meters and we listened around a bit and then he asked me if I would like to operate. I thought Oh boy, HK1TL will operate aeronautical mobile from 35,000 feet. I made several contacts and then decided to call CQ Philadelphia because I thought that this would be an ideal time to get a message through to W3KKN, Ernie, that we were going to be late and not make our original flight to Philadelphia. I contacted W3LTD (again I don't have a record of his name) who said that he would get the message to Ernie. I thanked the captain and the co-pilot and returned to my seat and told the rest of the group that HK1TL had operated aeronautical mobile from 35000 ft.

HK1TL - Leaving Colombia 3, K3JJZ

And so it was that we arrived in Miami airport quite late and proceeded to go through customs. Of course by the time got through customs we had missed our Eastern flight. Danny WA3NFV stopped immediately to call his wife to tell her that we would be late. Lucy commented that she knew all about it and that we would be arriving in Philadelphia at 8 AM. Danny couldn't quite figure it out until we ran into Russ. Russ being one of those super hams who when he sees a need fills it. He found out that we were going to be late and immediately booked us on a Delta flight leaving at 3:40AM changing in Atlanta for another Delta flight which got us into Philadelphia at 8 AM. So as it turned out the people back home knew what flight we would be on before we did. After collecting our luggage we were able to crash for a few hours before going to the Pack Rat picnic.



HK1TL - Some Memories, W3HQT & W3HMU

This sign (magic marker on plywood) was drawn by our "bodyguard", Alvaro, and hung over the door to the "shack". He was one of the "guards" supplied by the local "Civil Defense". Many of them were ex-military or paramilitary who had fought the civil wars out in the jungles. Alvaro wore an orange beret. We speculated that he had been a "special forces, or green beret" type guy but probably not, now that I think about it. He was very friendly, very helpful and VERY intrigued by what we were doing..

Then there was the big party in town at the flamenco bar where we met the mayor of Baranquilla who was there with his "niece".. yeah right.. heh heh.. I remember the "trip back from town" that night with the 45 automatic on the front seat (in case of attack from "banditos"..)!

After the party at the flamenco bar the Colombians thought we should go wake up Hymie. Hymie's house was in a really nice part of town. So there we stood (Packrats and wives, Colombian hosts and wives) outside Hymie's second floor

bedroom window singing a spanish love song, i.e. sung by those Colombians that knew the song. The bedroom window opened , a female hand extended and we were showered with roses, then invited in. Something to drink was offered, a guitar was produced, Tony played, Bill played. We chatted, said good night and got deposited at the hotel.

You know, with all these digital modes and everything these days, they just don't make EME DX-peditions the way they used to!!



Baranquilla, Colombia

HK1TL - Pack Rat Picnic and Summary, K3JJZ

The Pack Rat picnic was a welcome home for the HK1TL group. It is my opinion that were it not for our scheduled arrival the picnic would have been cancelled due to rain. It was pouring. There were people there from ARRL, including the Atlantic Division director. Our life line contacts Ernie, W3KKN. and Bertha, W3TNP. were also there. The presentation was made to K2UYH, Dr. Alan Katz, for achieving the first WAC via 432 EME. All of this was accomplished inside the pavilion while it poured outside.

And so a brief summary-

- We made more than 75 OSCAR 7B contacts offering Colombia for the first time to OSCAR enthusiasts.
- We worked sixteen Moonbounce contacts in eight different countries.
- ***For the first time in recorded history a South American 432 Mhz EME station was put on the air.***

HK1TL Operating



K3BPP, WA3NFV and W3HQT aiming the HK1TL antenna array using the famous and reliable "Armstrong" system.



HK1TL operating crew The power is out .. again !!



Ate, Tony, Bomar and observer in front of the HK1TL Moon Bounce station waiting for the power to come back on.



K3JJZ operates the 20m liaison station using the trusty Honda generator.

Radioaficionados Gringos y Colombianos Haran Aquí Transmisión a la Luna...!

VER INFORMACION PAGINA CUARTA



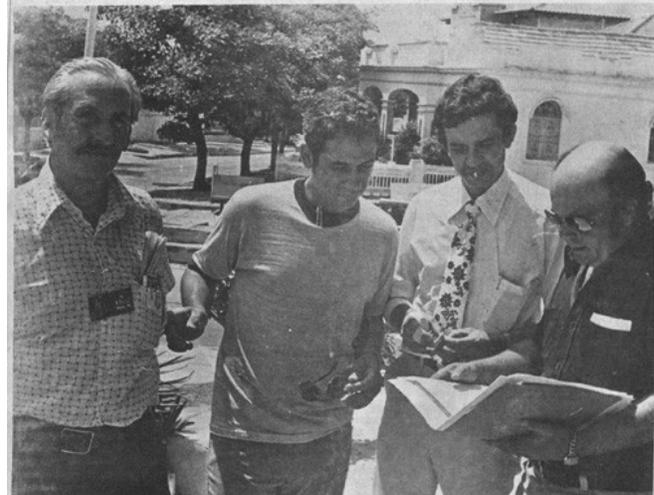
Expedición radial

Ayer arribaron a esta ciudad los ocho miembros de la expedición de radioaficionados norteamericanos que harán, conjuntamente con radioaficionados barranquilleros, un rebote lunar o moonbounce, o sea enviar señales de radio a la luna para que de allí rebote hacia la tierra y sean recibidos por diferentes estaciones de radio en todos los

continentes. Esta es el primer experimento de esta clase que se hace en América del Sur, lo que pone a Barranquilla entre las ciudades más importantes en el campo de los radioaficionados. La gráfica muestra a los expedicionarios norteamericanos encabezados por Elliott Weisman, Bolmar Aguilar, Sócrates Martínez, William Olson, Walter Bohlman, Anthony Souza y Daniel Mitten acompañados por miembros del Radio Club 2 del Atlántico. (Foto de Alfredo Robles para Diario del Caribe).

A PARTIR DEL VIERNES:

Operación: Tierra-Luna



Elliott Weisman, director de la expedición de radioaficionados norteamericanos (izquierda) aparece acompañado por Sócrates Martínez, Bolmar Aguilar, radioaficionados colombianos residentes en Estados Unidos

y Atenógenes Blanco, del Radioclub Area Dos, quienes realizarán el experimento "Rebote Lunar" a partir del viernes por primera vez en América del Sur. (Foto de Robles).

Por PABLO PATINO
 HKI TL es la sigla que el Ministerio de Comunicaciones adjudicó al grupo radioaficionados, norteamericanos y colombianos que a finales de este mes realizarán lo que en su jerga radial se ha denominado "Baobote Lunar" o "moonbounce" que consiste en lanzar señales desde la tierra a la luna y ser rebotadas a los diferentes continentes. Continentes que estén viendo la luna al mismo tiempo que nosotros la estamos viendo.

Este experimento, el primero en su género en América del Sur, se logró gracias a la estrecha amistad que rige entre los radioaficionados del mundo y también en que en Estados Unidos, concretamente en Filadelfia y Middle Riber viven dos colombianos aficionados a este pasatiempo, quienes lograron que Barranquilla fue la ciudad de este continente realizará tal experimento.

Esta técnica, que se ha desarrollado en los dos últimos años es explicada de la siguiente manera por Bolmar Aguilar, un santandereano ingeniero electrónico nacionalizado norteamericano, "es, dice para comenzar Aguilar, el equivalente de cuando uno tiene un foco de mano y lo alumbras. Si ese rayo de luz se le pone un espejo la señal es reflejada.

Esto mismo sucede con una señal de radiofrecuencia y frecuencias ultraleveadas. La señal sale de la tierra, pega en la luna y se refleja, porque en las comunicaciones de ondas medias las ondas no pueden salir de la tierra sino que son reflejadas por la atmósfera. En eso consiste a grandes rasgos el sistema técnico de nuestra comunicación", concluye el ingeniero colombiano.

La señal, explica Aguilar, esperamos que la capten todas las estaciones de este tipo que hay en la tierra o sea una 70 aproximadamente.

La expedición compuesta por cinco norteamericanos y dos colombianos, está formada así: Dr. Elliott Weisman, químico; Walter Bohlman, ingeniero de

electrónica y radioastrónomo; Willam Olson, ingeniero; Daniel Mitten, técnico electrónico; Tony Souza, ingeniero; Sócrates Martínez y Bolmar Aguilar ambos ingenieros industriales.

Bolmar Aguilar, quien se convirtió en el vocero de la expedición, dijo también, que él quería resaltar la gran colaboración que habían encontrado con el Radio Club Area Dos del Atlántico, y de la cálida recepción que la ciudadanía barranquillera les ha brindado.

Elliott Weisman, director de la expedición, expresó de la siguiente forma la participación de nuestra ciudad en el experimento:

"Primero estoy muy feliz de estar entre ustedes, porque le da la oportunidad de hacer algo que nunca se había hecho en el Continente Suramericano, porque los aficionados de aquí han ayudado tremendamente, porque hubiese sido un imposible hacer el experimento sin la ayuda de los radioaficionados barranquilleros, y que lo único que deseo es que en un futuro, ojalá cercano retornar esos favores que estoy recibiendo".

A una pregunta sobre el tiempo que se demora la señal en ir a la luna rebotar a la tierra Bolmar Aguilar contestó así:

"Una onda electromagnética viaja a la velocidad de la luz, aproximadamente 300 mil kilómetros por segundo, cuando se aprieta el micrófono o llave telegráfica, esa señal sale a la luna y regresa dos y medio segundos después".

Actualmente los expedicionarios radiales están haciendo transmisiones a través de dos satélites que la Nasa construyó para las comunicaciones entre radioaficionados, con los que logran comunicarse con cualquier parte del mundo. Para tal efecto trajeron una antena especial con lo que se logra tal hazaña. La Antena que ya está ubicada en Santa Verónica fue construida por ellos mismos y reemplaza a una gigantesca que hubiera sido imposible trasladar a nuestro país.

Colombian Farewell Party

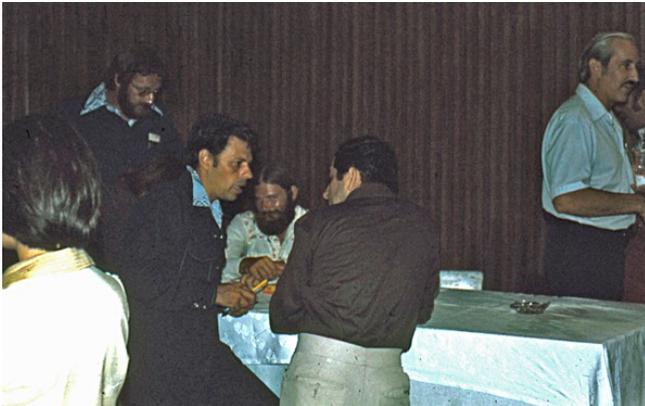
Bill Olson, W3HQT (Added Dec 2016)

After we made the final EME contact and took everything apart and packed it all up we were sort of celebrities, REALLY TIRED celebrities. Nonetheless, a celebration was in order and we had learned that our Colombian hosts LOVE a good party. I remember very little about that day, .. I was probably asleep, but I do remember we were excited because we were to be guests of honor at a big banquet at "the Country Club". The country club was in a different part of town than we had been to before and seemed to be in a secluded more upscale area.. I remember a drive down a very long winding lane lined with large white painted rocks. The main building where the banquet was to be held was familiar architecture, one story, cement or stone, white, lots of windows, very open. As we walked in we were first stuck by this long buffet table set out with hors d'oeuvres. The center piece was melons carved like swans.. The AREA2 people were waiting for us and soon we were munching, sharing stories, and there were cocktails of course.

Dinner ensued and the buffet table was set with large trays and bowls of every type of delicious food imaginable, all served by male servers in orange dinner jackets.. I remember being quite hungry and started down the line filling my plate until no

more could fit on it, only to look down the table to see food I hadn't even LOOKED AT yet extending for another 10 or 12 feet .. What a spread!! We ate, we talked more, I probably went back for seconds and thirds and we were back to visiting, telling more stories and, of course, more cocktails. There was pretty much every type of libation available to us, except one. I think it was at the lunch meeting at the Cartagena marina with the Cartagena Radio Club that we were first introduced to Tres Esquinas and Castalia.. This was a mixed drink that was equal parts "three cornered rum" (Tres esquinas means 3 corners and comes in a triangular shaped bottle) and a grapefruit soda sort of like Squirt. We grew fond of it, but unknown to us this was not the type of cocktail normally served at a high class establishment, more like a drink for the masses. Anyway, we got Ate on it and soon enough some bottles were found down in the cellar! Ate probably told them we didn't know any better being Gringos and all and we WERE the guests of honor.. They did have the stuff there though.

Everything gets pretty hazy after that. I do remember how outgoing and gracious our Colombian hosts were.. They didn't know much about EME, but they helped support us in every way they could AND they knew what a big deal the expedition was and really wanted to show us a great time that last night. They succeeded.



On the Other End ...

432 EME NEWS ** AUG. 1976

HKITL GREAT SUCCESS: The Mount Airy VHF Radio Club have done it again! QSO's were made from Columbia S.A. with 16 different stations: F9FT, W3CCX, K2UYH, I5MSH, PAØSSB, K3PGP, VE7BBG, LX1DB, W1JAA, W4ZXI, JA1VDV, W1SL, WØYZS, WAØTLM, K8UQA, and SM5LE. Partial QSO's were also made with K4VOW, WB5LUA, ON4DY, WA7TZY and possible others as we do not have the complete story at the time of this writing.

The DXpedition was certainly not all one big fish fry. The group arrived in Baranquilla, Colombia early Monday morning June 26. By Tuesday evening most of the equipment has been set up at the station site about an hours drive from the city. Plans called for initial sun noise and echo tests on the 28th. We listened for them throughout the day, but heard nothing. 20 meter liaison that evening confirmed that they were not on due to insufficient line voltage. During the night a new power

line was run to the transmitter site and everything appeared ready to go on Thursday morning.

At 1600 we first heard their signals weakly. However at 1700 HKITL came on with a strong (O) signal for an early sked with F9FT. The sked continued for an hour and although good signals were heard at times from both sides a QSO was not achieved. The problem appears to have been high winds which kept blowing the HKITL array off the moon. At 1800 it was our turn again. This time with four crew members working to keep the array on the moon, a first QSO was achieved working O/O, S3.

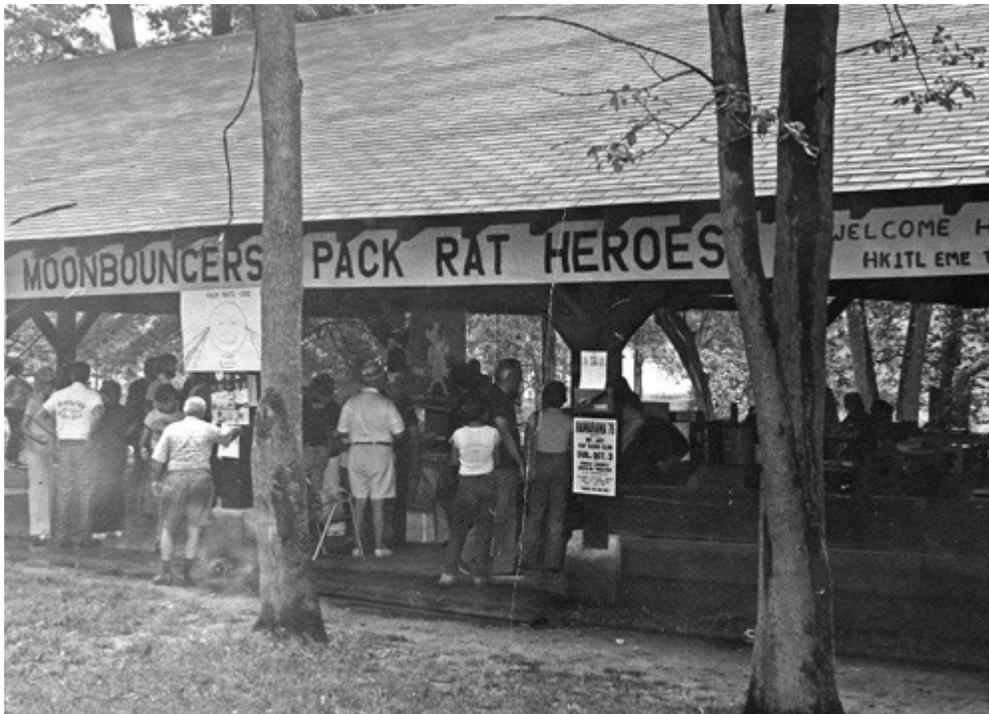
432 MHz WAC: This QSO was cause for celebration at both ends as it gave us our 6th continent and the first WAC on a band above 6 meters.

Later in the evening HK1TL made their 2nd contact with their home station W3CCX/3. A number of additional skeds had been setup for Friday (July 31) starting at 1600, to give Europeans who would be leaving on their summer vacations an extra chance to work HKITL. All went well the first two hours, but then the power failed again. This problem would continue to plague the DXpedition throughout the remainder of their operation with failures occurring during critical windows and the skeds of VK2AMW and W5LO. Fortunately many of the skeds missed were rescheduled through the efforts of Ernie, W3KKN and his XYL W3TNP who handled 20 meter liaison. By the time HKITL ceased EME operation more than 70% of the stations originally scheduled had been worked. (~ 0400 Aug3.)

Not many hams outside of the Pack Rat organization (W3CCX) realize the tremendous effort which went in to bringing the DXpedition off... over 1300 lbs. of equipment, reams of correspondence for licensing, etc. The Mount Airy VHF Radio Club and especially the HKITL crew of Bill W3HQT, Walt K3PBB, Elliott K3JJZ, Tony W3HMU, Danny WA3NUF, Bolmer WB3AOP and Sam WB3AFY deserve the praises of all VHFers for their super achievement.

Al Katz, K2UYH

HK1TL Ops Return Home



August 1976

HK1TL homecoming reception held at the annual Pack Rat Family Day and Picnic at [Fort Washington State Park](#), Fort Washington, PA. A large crowd turned out in the pouring rain to welcome home the team from the expedition to South America.

Job Well Done !!

Some of the many tributes to a "job well done" hung on the wall of the main pavilion!



The Team

The HK1TL team and the stateside liaison operators gather during a break in the 1976 Pack Rat Picnic festivities.

Left to Right: WA3NFV, W3HMU, K3BPP, W3TNP, W3HQT, W3KKN, K3JJZ



National Coverage



Elliott Weisman K3JJZ
8533 Algon Avenue
Philadelphia PA 19152

DXpedition: Memories for a Lifetime

- - reflections of HK1TL

To those of you who have never been a part of a "FIRST," I must tell you that the feeling is one beyond description.

Maybe you could compare it with the thrill of your first amateur contact. Do you remember it? Do you remember the adrenalin flow? If you made the first contact on CW as a Novice, did your mind go blank when it was your turn to transmit?

Well, that is an inadequate description, but it is the best that I can do. HK1TL was the callsign of the Pack Rat Colombian Moonbounce Expedition, an expedition designed to accomplish the first 432 MHz EME contact from the continent of South America. It was, as you no doubt have already read in the press releases, a complete success.

Who are we? How did we get there? Why did we do it? Would we do it again? What did we learn? What were the people like? How long did it take to plan?

It is now two months since the history-making event. I have been asked to put together reflections of the expedition.

Well, let us start with basic definitions that may help you understand what the Pack Rats are and what motivates them.

The Pack Rats are offi-

cially the Mount Airy VHF Radio Club. We are now 20 years old. Our main purpose is to promote interest and activity on the VHF bands, and improvement in operation and equipment. All club members are expected to participate in the club-sponsored activities: club nets, meetings, January VHF sweepstakes, June VHF QSO party, and our annual flea market "Hamarama."

We are not what one would call a "DXpedition Club." As a matter of fact, prior to HK1TL, there were only two other expeditions that I know of. An attempt to break the 1296 MHz record over water from Rodantha, N.C., in the summer of 1970 failed. A 1296 MHz expedition to the state of Delaware was a success.

HK1TL, our third expedition-type operation, entered the planning stages in January, 1976. We discovered a potential new member who was originally from Colombia. He made contacts with his friends in Barranquilla, Colombia, and we started through the red tape necessary to get all the approvals. My correspondence file is more than 2 inches thick but that is the nature of dealing with governments.

Why did we do it?

Because it needed doing, because we had the opportu-

nity, because we had the expertise to do it, and because we were assured of complete cooperation from the Colombians.

Would we do it again?

Well, obviously if something was a success, you have no reservations about doing it again. However, knowing what we know now, we would have been better prepared for power outages. We would have insisted on a 4 kW generator with adequate regulation.

We learned that you can always count on amateur radio cooperation: from the equipment handling of Russ Wicker W4ZXI through the Miami Airport, the Area 2 Radio Club in Barranquilla, the 20 meter liaison work of W3KKN and W3TNP Ernie and Bertha Kenas, as well as the operation of the Pack Rat Moonbounce station W3CCX/3 by Dave Mascara WA3JUF. Everybody wanted it to work.

We also learned quite a bit about the effect of Faraday shift. That is to be the subject of a separate article.

We learned that the pressure of six months of intense preparation ran us to the breaking point, that at times we would have petty arguments among ourselves. Fortunately, there was always someone wise enough to sit back and analyze the situa-

tion. Tempers were getting short; pressure was building. "Hey, you guys, let's not let the situation get out of control."

Finally, what were the people like?

"Super" is the best description I can offer. They couldn't do enough to help us. Not only the Colombian hams, but the farm people and the civil defense organization. I would not have thought it possible in two short weeks to establish such deep personal relationships, but we did.

What kind of problems did we have?

In addition to sporadic, if any, line voltage, we discovered on unpacking that a filter capacitor in the power supply had broken loose from its mounting. That is not so bad, but it rubbed against a chassis corner and tore a hole in it. We requested another from the states and in the meantime set about to effect repairs.

Some solder closed up the hole and we were lucky it worked. We were also unfortunate enough to blow our 2 meter transistorized converter during the second OSCAR run. More field repairs required.

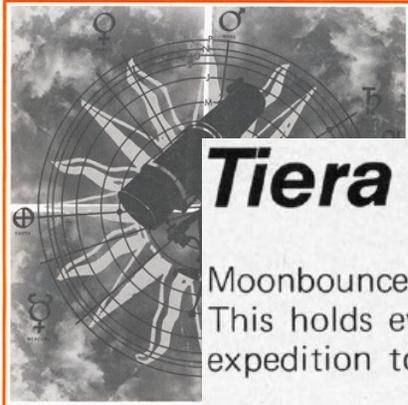
Any idea how you solder with the electricity off? Use a mini-torch (we brought one with us).

Since this was only to be an article on reflections, I'll not go into the technical decisions that were made as we prepared for the project. That will be the subject of a separate article.

Suffice it to say that if you ever have the chance to become part of a "DXpedition," do it.

Don't worry about the fact that (a) you can't afford it, (b) your XYL might go to divorce court, (c) the expedition might not be successful, or (d) that there will be a lot of work that must be done before you leave.

Do it; do it because it is a once in a lifetime experience that you will never forget. ■



Tiera Luna para Colombia

Moonbounce work demands that all gear operate perfectly. This holds even more so when the operation is a portable expedition to another continent. The Pack Rats did it!

By James M. Morris,* KH6HQG

Pelicans swoop the shoreline as twilight approaches. An environmental engineer, a pharmacist, a motorcycle mechanic, and others occupy a beach house. They could be enjoying a cool drink after another warm summer day at the resort. Instead, they are celebrating, with their own special brew, the success of an effort that brought them together in that isolated spot — the first moonbounce expedition to South America — HK1TL.

Last month we reported that Allen Katz, K2UYH, completed the first Worked All Continents on 432 MHz and moonbounce by working that last continent, so obviously another station had to be on the other end of the two-way circuit. It was the Mt. Airy VHF Club, of which Al is a member, that mounted the expedition to provide South America's first 432-MHz operation. From the club's home in Philadelphia, Pennsylvania, five of the club's 82 members journeyed to Barranquilla, Colombia, for successful contact with 16 different EME (earth-moon-earth) stations and approximately 75 OSCAR Mode B stations, as well as to make new ties and stimulate amateur radio interest with the people there. Individuals and organizations in both the United States and Colombia contributed vast quantities of time and funds to make the operation a success.

In 1956, a group of Philadelphia amateurs organized to actively promote serious vhf/uhf work. To characterize their aversion to commercially built equipment they adopted the nickname of "Pack Rats." Instead, they always

favor experimentation with home-built gear. An inspection of any member's garage or shack will reveal a wealth of parts and surplus gear acquired by trading. Over the ensuing years they have designed and built converters, receivers, transmitters, amplifiers and antennas for virtually all amateur vhf bands.

Their activity takes different forms. During the ARRL January VHF Sweepstakes plus the June and September QSO Parties, they put their latest creations to the real test. Consistently, they have topped the competition. Any active club, of course, operates a net. The Pack Rats have not one, but five nets every Monday evening on all bands from 50 MHz through 1296 MHz, and the ATVers (amateur television) conduct yet another net on Friday nights.

Their real pride and joy, however, is the W3CCX/3 moonbounce system lo-

cated in Revere, about 25 miles north of Philadelphia. On the farm owned by Pack Rat member Walt Bohlman, K3BPP, the club station is one of the most successful on the air, particularly after the addition of a 20-foot stressed parabolic dish in the 1972-73 winter. After they made their first complete contact with the Stanford Research Institute group, WA6LET, they celebrated with a cup of Red Zinger tea, a Pack Rat success trademark ever since. At the monthly meetings a report would be given about the latest activity. More and more new stations were noted from various states, countries and continents — except South America.

Opportunity!

Early this year, a Colombian amateur, Bolhmar Aguilar, HK1AMW, moved into the same neighborhood as Elliott Weisman, K3JJZ, a director for the Mt. Airy VHF Club. Naturally, Bolhmar noticed the vhf antennas. Although his primary interest was high frequency, a classic ham chat followed, sparking the idea of operating moonbounce on his relative's property back in Colombia. The idea was discussed with Bolhmar's brother in Baltimore, Maryland, Socrates Martinez, HK1CWB/WB3AFY, and "they thought it would be a great thing for the country."

Immediately, Elliott presented the Colombians' operating site offer to the club's board of directors. They liked it and appointed him as coordinator. The red tape began. To make an official request from the Colombian government, all correspondence must be on official paper carrying a tax stamp. Price from the consulate: \$2 per sheet. Besides designing the request letter to detail all the operating and technical



*Editorial Assistant, QST

requirements, an additional task was to translate it into Spanish.

Several letter exchanges followed and to avoid paying duties upon entry, a list of the equipment had to be provided. Back to the consulate for more paper. A problem arose because they were still in the process of assembling the station. Obviously, a whole new station had to be put together since they wanted W3CCX to work the expedition. That was resolved.

Soon after the work started, the planning committee became aware that another coordinator would be needed in Colombia, so Socrates suggested Dr. Atenogenes Blanco, HK1BYM. He enlisted the aid of the Barranquilla Area 2 Radio Club who later provided invaluable service to the expedition.

Logistics and Red Tape

"We gave the guys building the stuff the outside dimensions and told them, 'that's how big you can make the thing.'"

Once more the Pack Rat philosophy prevailed. Tony Souza, W3HMU, built a complete 432-MHz kilowatt amplifier from scrounged parts, save for a \$1.25 part. Even the 8938 final tube came from the endless junk box. Other primary pieces of equipment that were produced specially for the expedition included a power supply by Bill Olson, W3HQT, and the exciter by Walt Bohlman. That used a 4X150 to a 4CX250 driver.

The most outstanding engineering feat had to be the antenna. Their 20-foot dish could not very well be taken down or even duplicated for air freight shipment. Instead, Walt, who designs antennas by profession, devised a system using 16, K2RIW-style 13-element Yagis so that everything could fit into six-foot crates. Besides the necessary azimuth and elevation rotation, the antenna had a third axis for polarization compensation.

Indeed, the moon itself had a large influence on the actual scheduling. Between perigee and apogee each month the path loss for the EME path varies by 2 dB — enough to mask a signal or bring it out of the noise. Other factors to consider were proximity to the sun and optimum window time for the other stations around the world. Cor Maas, VE7BBG, coordinated those schedules. Only after those considerations could they think about their convenience. They selected the last weekend in July.

More logistics problems crept in during the meantime. Shortly before the scheduled departure for the main group, Socrates' XYL, Rose Alva Martinez, went home to Colombia early to purchase the airline tickets. Although Aerocondor had given a discount, inflation crept in. Sheila Nassar, HK1CWD, however, made up the dif-



The Pack Rats moonbounce team gather with their Area 2 Radio Club hosts underneath the 208-element antenna for 432 MHz. It actually measured one dB of gain better than their 20-foot dish at the home station in Revere, PA.

ference. The customs paperwork had not been entirely settled, so Dr. Blanco made a trip to Bogota, capital of the country, for further negotiations.

To Colombia

At last, all was loaded for the trip down. At Miami International another friend stepped into the picture. Russ Wicker, W4ZXI and a fellow moonbouncer, works there and made arrangements for the equipment to get on the same flight as the crew.

All did travel on the same flight. A couple of boxes had some damage, but that was the least of their worries. After two-and-one-half hours with customs officials, the gear was cleared only after Dr. Blanco posted a \$3000 bond assuring that all the equipment would be removed from the country after the specified stay.

Many of the crew had been working with the Atlantic Division convention to give a seminar on July 25, the same day of their departure. When they did arrive in Barranquilla the following day, they had a long press conference with the local media. The actual site was located in the town of Santa Veronica, about an hour-and-a-half ride from Barranquilla, with the local civil defense providing a truck and driver for the 1368 pounds of equipment plus crew.

On the Air

On Tuesday, July 27, they set up the 20-meter link and the first message from W3KKN, their liaison back home, was that they had received permission from AMSAT to operate Mode B on Wednesday. Originally, they had not planned to take any OSCAR gear, but the organization had been alerted and provided the gear.

The first OSCAR and Mode B contacts were made that Wednesday while setting up the moonbounce station.

At last the big day, July 29, came. "When we patched everything together and plugged it in the first time — it

worked!" Bill Olson said of that first day. At near-vertical elevations the antenna had wind-loading problems and so the first schedule with K2UYH was missed as was the one with F9FT. Finally, during the 1800 UTC schedule a two-way was completed with K2UYH followed by W3CCX.

Another conference was held that evening with the Area 2 Radio Club, potential amateurs and c.d. officials. The Pack Rats showed *Ham's Wide World*, slides of their outings and gave more talks until midnight. Then, the hosts celebrated past 2 A.M. Nevertheless, the crew made the hour-and-a-half trip back to Santa Veronica for a couple of hours sleep before a 6 A.M. OSCAR pass.

Most of the following days were like that — 12 hours or more of moon schedules and OSCAR passes. A constant problem, however, was power failure. The first major occurrence was Friday afternoon from 2:30 P.M. until 6 P.M. because trees were being trimmed. After it was restored, the voltage measured only 95 volts forcing cancellation of almost all schedules that day. During the remaining days that weekend, power fluctuation continued to be a problem. But always, the Area 2 Radio Club would set out to find the source of the problem and more than once brought in emergency generators. Enough power was usually available to operate the 20-meter liaison. That was one of the prime factors that allowed successful rescheduling over the weekend. Ernie Kenas, W3KKN and his XYL, Bertha, W3TMP, provided that link every day of the operation.

Reflections

All the way through, cooperation and coordination allowed everything to work out. Among those who helped defray the approximately \$9000 in expenses were Collins Radio, Mt. Airy VHF Club, Northern California DX Foundation and an anonymous Pack Rat member. Another less apparent, but very important person was Rose Alva Martinez who did all the cooking for the crew during their nine-day stay. Before departing, both the Mt. Airy VHF Club and the Barranquilla Area 2 Radio Club reached a mutual understanding that they would not lose contact with each other after the project was over.

Of course, it would have been unrealistic to expect all to have gone perfectly. But, as Weisman said, "It was probably better that we had the problems because I don't think that we would have had as close a relationship with the people down there as if we didn't have any problems." Thus, radio amateurs have once again demonstrated that their unique form of international goodwill can cross all boundaries to create a common success. QST

K2UYH Reminisces

Regarding my thoughts on the HK1TL dxpedition:

In my more than 50 year as a radio amateur, my QSO with HK1TL on 29 July 1976 is the high point. The QSO was the result of my friendship with the Pack Rats. This relationship extends back to my early years in ham radio. I can remember the excitement of checking into my first Pack Rat two meters net from northern New Jersey. I was using an ARC-5 (832 final) and a 15 element Telerex yagi. This was real DX back then!

When I moved to the Trenton area in 1971, I built up a homebrew 20' diameter dish and was able to make my first moonbounce QSO with WA6HXW. This was an exciting moment too. It was not long after that I had the opportunity to obtain a commercial 28' dish, TNX to Dick, W2IMU - rest his sole. I was able to enlist the aid of Doug, WA2LTM and Paul, WB2HHH (then one of my students) with this mammoth project. It is here where the Mt. Airy VHF Radio Club entered in a big way. Back then I was operating on a very limited budget and the problem was how do you mount a 28' dish without a crane? A crew of 28 Pack Rats showed up to help get the job done – see pictures. The Pack Rats left with my old 20' dish, which they put on 70 cm EME as a club effort and caught the moonbounce bug in a big way. This was in June of 1973.

In 1975, I built up an array of 8 wood boom yagis. I set them up at a home of one of the Pack Rats (I forget who) ed. It was WA3AXV), in his front driveway and was able to work my home station off the Moon. That summer I had to go to Wyoming for a conference and took the yagis with me for what was probably the first EME dxpedition. Unfortunately I had scheduled only one day for operation and it was extremely windy. I never completed a QSO. I learned a lot from this trip that was useful in future dxpeditions. In discussing the dxpedition with Pack Rat friends, the idea of a moonbounce dxpedition to Columbia, South America was born. At the time I had worked five of the six continents required for the ARRL's WAC award, and there was no indication of any EME activity from South America. This was my missing continent.

It was truly amazing how rapidly the plans took shape and were executed. I ended up giving the dxpedition their first QSO, making it the first successful EME dxpedition, completing the first WAC above 50 MHz and becoming eternally in debt to the Mt. Airy VHF Radio Club for making the trip.

TNX and 73, Al – K2UYH

Al adds:

"Regarding HK1TL, there is no question that it was the first EME activity from South America of any type. I am sure it was the first successful 432 EME dxpedition. It was certainly the first international EME dxpedition on any band. "





Last Word

I want to thank everyone that contributed to this project. There were a few I wish I had heard more from, and I know there is still some good material out there, but this is certainly a good start. I want to especially thank K3JJZ who showed the same enthusiasm, cooperation and attention to detail that I am sure helped make the 1976 expedition such a success.

I think it is also important to point out that I think this expedition exemplifies the true spirit of the Pack Rats. Just think about it: Need a kilowatt amplifier for 432 - Build It! Need a portable antenna system with 30 dB+ of gain - Build It! Need shipping crates - Build Them! Need pre-amps - Build Them! And the list goes on. It is such a stark contrast to the way we do things today where the words 'Build It!' are replaced by 'BUY IT'!

Also keep in mind at all times that this was 1976 and we didn't have .2 dB noise figures and computers with programs that

can extract the signals from the noise. This was with a Drake 2B receiver with no filters to speak of. Often the only indication of the CW signal was a subtle change in the background noise decoded by the sharp ear of an experienced operator. This was hands on radio. These were *real contacts*. This was the type of stuff that drew many of us to the hobby back in the day.

Ron Whitsel, Editor
W3RJW