



ANDEX

INTERNATIONAL

Inside:

- What is GMT/UTC? 2
- Improve your MW DX 3
- Radio Nacional del Ecuador . . . 4
- Ecuador's Giant Tortoises 7

June-July 1988

Vol. 15, No 2



Pen Friends Meet

Bonnie Wieboldt Taylor and her pen pal, Jörg "Eumel" Knaack, discovered how short 3 1/2 weeks can be when Bonnie and husband, Gary, hosted the East German in their Florida home. Gary and Bonnie had a challenging time scaling a language barrier to get to know Eumel (pronounced Aymel) and his companion, Marian Pfeiffer.

Bonnie "met" Eumel through ANDEX when he was introduced as DXer of the Month for September 1982. At the time he was living in communist East Germany, but he has since been released from that country and now lives in West Berlin.

Jörg Knaack joined ANDEX in October 1980 and is ANDEX 3817. His first QSL card was from Swiss Radio International. Shortly after that he tuned in HCJB and continues to listen, especially to DX PARTYLINE and to our German programs. Back in 1982, Eumel said that besides ANDEX he was also a member of Radio Praha Monitor Club and Radio Polonia DX Club. At that time he listened to the radio about four hours a day, usually between 1700 and 2300 hours GMT. His other hobbies included listening to all kinds of music (particularly electronic), riding his motorcycle and drinking black tea--as much as six litres daily.

Eumel also said he enjoys corresponding with people all over the world. Bonnie Taylor, ANDEX 4449, is one of those

enthusiastic people. Bonnie read in the ANDEX bulletin that Eumel's radio receiver was his only link to the world, outside of East Germany. Because the article said Eumel was hospitalized, Bonnie sent him a card. He wrote back and since then they have been corresponding for more than five years. During those years Bonnie has learned much about life in the isolated city of West Berlin, surrounded by the communist-controlled country of East Germany. At the same time, she has done her best to give her pen pal a taste of lifestyles and freedoms she enjoys in Sanford, a fast-growing central Florida community.

Her husband Gary said, "Occasionally, she would read me a few passages or show me a photo or postcard from him, but I knew little about him. On entering our home, though, Eumel shared his life story with us, which left me admiring him and wondering if I could have coped with the adversity he faced."

Peace movement activities in East Germany landed many of Eumel's friends in prison, but it became the key to his freedom. He was allowed to leave there some four years ago. The communist government seemed pleased to get rid of him and a few of his peace movement friends.

Eumel left East Germany with few of his belongings and without Marian. Then after six anxious months, Marian also was

continued on page 7

Person to Person

Brent Allred
ANDEX Director



It's always exciting when we hear about friendships being established through the ANDEX bulletin. Such was the case when we heard about Bonnie and Eumel's friendship. We regularly hear from members who have found new friends through our pen pal column or through our sponsorship program.

What's the basis of friendship? I'm thinking here more of the friendship that exists between a husband and wife, or two very close friends. The book of Proverbs in the Bible says it in this way: "A friend loves at all times" (17:17). Love is the basis, isn't it? It's love that binds and holds people together. Not always a mushy, intimate type of love, but love that is unselfish, seeking the good of the other person.

Jesus Christ gave the supreme test of friendship when he said, "Greater love has no man than this, that one lay down his life for his friends" (John 15:13).

During World War I a soldier in the trenches saw his friend wounded in no-man's-land--that strip of ground between enemy trenches. The man asked his officer, "Sir, may I go and bring him in?" The officer refused, saying, "No one can live out there, and if you do I will only lose you as well." But disobeying the officer, the man went for his friend. Somehow, he managed to get him on his shoulder and stagger back to his trench, only to fall mortally wounded himself. The officer was angry, "I told you not to go. Now I've lost two good men. It wasn't worth it." With his dying breath, the man said, "But it was worth it, sir, because when I got to him he said, 'Jim, I knew you'd come.'"

Our best Friend is the One who laid down His life for us. Christ's sacrifice on the cross is the greatest act of love ever demonstrated on our behalf. He went to no-man's land and Himself was mortally wounded as He rescued us from the destruction of sin. By His death and subsequent resurrection, He enhances and enriches our own life and opens the way for us to experience eternal life with Him.

Jesus Christ wants to be our Friend--your Friend. He's seeking that friendship today, and it's my hope and prayer that you will find it. Jesus Christ is indeed the best Friend you could ever have. A Friend who will never let you down, who will always be there to support you, encourage you and help you.



GMT or UTC

To designate time years ago, officials selected the longitude line going through Greenwich, England, to be the middle of the world--halfway as far as east-west directions are concerned. This is Greenwich Mean Time (GMT), and is used to keep clocks in step with the heavens. The opposite side of the globe is the longitude line called the date line. On one side of the date line is one day, on the other side is the next day.

Everyone now uses Coordinated Universal Time (UTC). This is defined in terms of an atomic frequency standard, which is in no way locked to astronomical events--so there is a gradual drift between the two.

To keep UTC within nine-tenths of a second of GMT, occasional extra "leap" seconds are inserted at UTC midnight at the end of a year or at the end of June (July 1 at 1 a.m. BST), accompanied by a seven-pip GTS. This last occurred on New Year's Eve when there were 61 seconds in the last minute of the year-- 23:59:58, 23:59:59, 23:59:60, 00:00:00.

While the International Telecommunications Union (ITU) recommends all program announcements in international broadcasting be in terms of UTC, the BBC World Service and some other stations still refer to GMT when giving the time after the GTS, even though there can be almost one second difference between the GTS and GMT.

Engineers are encouraged to use the SI system of measurement in which the unit of time is the second and the preferred multiples are powers of 1000.

(Adapted from an article from DX Kuuntelijat, magazine of Suomen DX Kuuntelijat of Finland.)

ANDEX has learned of a new club named the World-Wide DXers Pen Pal Club. Members will receive a newsletter every three months. On December 25, 1988, there will be a giveaway for members only--a DX 360 SW receiver and a one-year free membership.

Cost of joining this club is:

	U.S.A.	Foreign
6 months	U.S. \$7.50	U.S. \$10.00
1 year	U.S. 15.00	U.S. \$20.00
2 years	U.S. 25.00	U.S. \$30.00
	U.S. funds only	

Mail to:

The World-Wide DXers Pen Pal Club
Att: B.A. Beach
P.O. Box 5409
Laurel, MD 20707, U.S.A.

An Unusual MW Antenna Booster

While the following, courtesy of MONITORING TIMES magazine, is not applicable to shortwave radios, it will be of interest to ANDEXERS who are medium wave DXers.

Portable AM broadcast band radios are often limited by their tiny internal loop antennas. Efficiently wound around a ferrite rod core, the antenna coils still occupy a very small volume and intercept only small signal voltage.

It is possible, of course, to open up the radio and adapt it to accept a long wire antenna, improving its signal pickup; but wouldn't it be more convenient to utilize some external means to capture more signal voltage?

A trick used for decades by medium wave DX enthusiasts is to employ a passive external loop which concentrates the radio field, coupling it inductively to the internal loop antenna rather than requiring a direct connection. Tuned to resonance at the desired frequency, the contrivance becomes a giant RF transformer, improving signal voltages dramatically.

A novel approach to this method was sent in by reader Malcolm Nichols of Franklin, Tennessee (see figure 1). His design is based on an unusual method developed by the U.S. Army Signal Corps many years ago. The original version was housed in a metal trough which acted as a Faraday shield, assuring that the antenna would be sharply directional in its response.

Malcolm wound his coils on a ferrite rod he obtained from Mouser

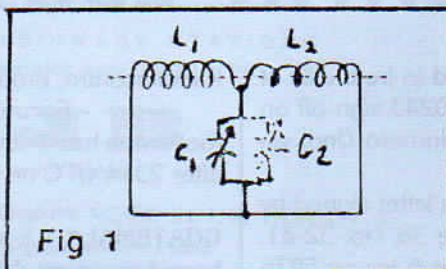


Fig 1

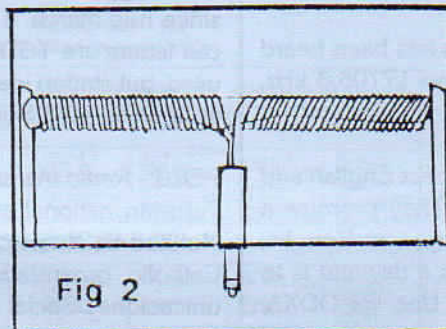


Fig 2

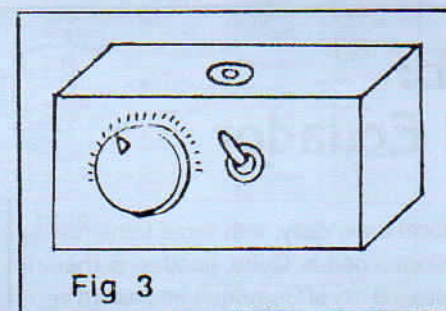


Fig 3

Electronics (2401 Highway 287 North, Mansfield, TX 76063; part number 542-FR-500-7.50, \$15.56) using 20 gauge, double-silk-covered wire acquired from Fari Radio Sales (P.O. Box 1105, Lima, OH 45802). Any similar-gauge insulated wire should work.

The variable capacitor is rated for at least 365 pF maximum. Malcolm used a dual 410 pF unit with an external switch to engage the second section if required to tune the

lower frequencies. Mouser has a usable tuning capacitor, part number 524-A1-227, for \$10.95. Similar capacitors may be salvaged from old tube-type radios—check a local repair shop; you might get lucky and find a ferrite rod antenna as well!

The coils consist of 53 turns on one and 51 turns on the other to prevent their inductances from cancelling and to provide a balanced loop with constant capacitive reactance along the windings, according to Malcolm.

It is important that the two windings are opposite in phase, so start winding from the middle on each coil as shown in figure 2, going over and then behind the rod on the first turn in each case.

The two far ends of the windings are brought back and connected together as one lead into the phone plug; the common center of the two windings is the other lead. The windings may be taped in place on the ferrite rod or glued if the ferrite has no paraffin coating.

The mounting bracket is made of wood or plastic, as metal would distort the pattern and change the inductance. The rod assembly is mounted on a phone plug which, in turn, is inserted into a matching jack mounted on the top of a convenient utility box and connected to the variable capacitor mounted in the same box as shown in figure 3.

To use the tuner, simply bring the portable radio close to the loop and tune the variable capacitor for maximum signal. The loop may be rotated to favor a particular direction or null out interference.

HCJB Notes & Happenings

Diploma Via Radio

Thousands of Ecuadorian students can now earn a high school diploma without having to step foot into a classroom thanks to one of HCJB's newest services. Under a recently signed agreement with Ecuador's education minister, HCJB broadcasts high school subjects one hour daily, increasing to three hours a day by 1990. "The Ministry of Education is elated," says

Tom Fulghum, HCJB's field director for Ecuador. "This is the first time the country has been able to offer a diploma program over the air." Already an estimated 6,000 students are enrolled—mostly disadvantaged young people in rural areas. All subject material aired by HCJB is in agreement with HCJB's norms and theological stance.

Letter Count Up

Radio Station HCJB received 90,261 letters and reports from listeners in 123 countries last year, up 6 percent from 1986, says HCJB Audience Researcher Phill Sandahl. Eight of HCJB's 10 language services registered increased letter counts. The largest jumps in response came from Nordic, Quechua and Japanese listeners.



LATIN LOG



COLOMBIA - Radio Nueva Vida is believed to be the ID of a station heard on 5567.2 kHz at 0145 to 0243 sign-off on March 20th. Also heard since. (Jensen, Numero Uno, via ODXA)

- Radio Macarena verified with letter signed by Enrique Zambrano Nieto. Address is Calle 38, No. 32-41, Apt. A 2484, Villavivencio. The station uses 5 kw on 5975 kHz. (Cushen, DXPL)

- Radio Nacional de Colombia has been heard with excellent signals around 2100 UTC on 17708.8 kHz. (PLAY-DX, Italy via SCDX)

ECUADOR - Radio Baha'i 4990 kHz will accept English and German reports and also taped reports. They promise a souvenir. Listen around 0000-0200. Address is Box 14, Otavalo. The station is on the air 24 hours a day and is to increase power to 8 kw. (Valko, Numero Uno via ODXA,

Radioincontro, Probi via SCDX)

- Escuelas Radiofonicas Populares Ecuador in Riobamba has a new transmitter that has been widely heard after 2314 UTC on 5015 kHz. (PLAY-DX, via SCDX)

GUATEMALA - A new station is Radio Kek'chi which has been logged on 4845 kHz between 1055 and 1250 UTC since mid-March. It seems to be daily, except Sunday. The call letters are TGDC. The Kek'chi (pronounced "kek-E") is used, but station identifications are given every quarter hour in Spanish. (DX South Florida, Fine Tuning via ODXA)

PERU - Radio Marañon 4835 kHz signs on at 1100 with the Peruvian national anthem. The station's slogan is "La Voz Multitud de Nuestro Pueblo" and it is operated by a Roman Catholic organization, Centro de los Medios de Comunicaciones Social (CEMCOS). (Numero Uno via ODXA)

STATION PROFILE: Radio Nacional Del Ecuador



Radio Nacional del Ecuador started broadcasting in the Ecuadorian capital of Quito on May 24, 1961. It is the voice of the government of Ecuador. Whenever a new government comes into power, the director of Radio Nacional changes. While a new director undoubtedly will be chosen by the new president due to take office August 10, 1988, the present director is Gonzalo Portugal, who used to work as an announcer with HCJB.

Radio Nacional is financed totally by the state. In Ecuador every commercial radio and television station must pay the government a monthly quota: 100 sucres for radio stations and 300 sucres for television stations. However, only a few stations actually pay this fee.

Radio Nacional's transmitters are located on a 200-meter (660-foot) hill in Quito. The shortwave transmitter of 10 kw, which used to be regularly heard in the 1970s on the 60 meter tropical band, is currently inactive. In the last couple of years Radio Nacional has been heard from 2200 UTC on the shortwave frequencies of 15270 and 17790, courtesy of HCJB's transmitters. The station is on the air on medium wave from 0500-2330 hours

local time, daily, with three transmissions - one in Quito, another in the coastal city of Guayaquil, and a third in the south of the country in Loja. The respective frequencies being used are 640, 600 and 620 kHz. Each of these transmissions uses a 50 kw transmitter, and it is more or less possible to hear the voice of the Ecuadorian government in every part of the country. The transmitters are Harris units imported from the U.S.A. Eighty employees work in the station's three services, 40 of them based in Quito. Four times a day the three stations link for a network broadcast.

According to Gonzalo Portugal, Radio Nacional is more of a cultural station than a political one. Programs promote the merits of the people of Ecuador and include music, poetry, literature and children's programs. Ethnic programs are broadcast more than programs of a political nature. Radio Nacional supports the policies of the government in its newscasts.

Radio Nacional broadcasts a varied music program: folkloric, Latin America, romantic, semiclassical and classical. Apart from Spanish, the station broadcasts a daily one-hour pro-

gram in Quechua, produced by a Quechua Indian. The station also broadcasts transcription programs (in Spanish) from Deutsche Welle, the BBC and Radio Yugoslavia. In the past the station has also carried programs from the Voice of America and Radio Canada International.

For its news coverage the station relies on the service of Associated Press, EFE, ANSA, France Presses and DPA (West Germany).

In the future the station plans to set up operations in the Ecuadorian cities of Cuenca and Esmeraldas and station personnel hope to return to the shortwave bands, probably on 4940 kHz.

Radio Nacional del Ecuador does not issue QSL cards. However, if you hear the station and want verification, send your reception reports to DX PARTYLINE at HCJB and we will try to get verification to you. Broadcasters identify the station as follows: "Desde la capital de la República transmite Radiodifusora Nacional del Ecuador...en los 640 kilohertzios estación matriz Quito." The address is Casilla 82, Quito, Ecuador.

INTERNATIONAL PROGRAM SCHEDULE
(including English, Russian, Swedish, German, Portuguese, Ukrainian, French)
INTERNATIONAL MISSIONARY STATIONS
THE WORLD RADIO MISSIONARY FELLOWSHIP, INC.

HCJB

"Heralding Christ Jesus' Blessings"

THE FIRST 50,000 WATT MISSIONARY VOICE IN THE WORLD!

25 years of broadcasting the gospel around the world.
Currently using 9 different major languages of the world.
24 hours a day

Missionary Staff - 87 - National Staff - 124
More than twenty-four hundred programs every month.

19 Meters - 15.115 Megacycles		25 Meters - 11.915 Megacycles		31 Meters - 9.745 Megacycles		49 Meters - 6.050 Megacycles		
Station Standard Time same as Quito Time	Greenwich Mean Time	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Midnight	0600	(German *) Sonntagsgesam	(German *) Jugendprogramm		(German *) Hofen Der Hoffnung	(German *) Licht Des Wortschrems	(German *) Wortschrems	(German *) Briefkasten
12:30 a.m.	0630	(Russian *) The Gospel Call	(Russian *) The Gospel Call		(Russian *) Favorita Hymns	(Russian *) Missionary Call	(Russian *) Air Mail	(Russian *) The Gospel Call
1:00 a.m.	0600	(Spanish *) Academia del Aire	(Spanish *) Academia del Aire		(Spanish *) Academia del Aire	(Spanish *) Academia del Aire	(Spanish *) Academia del Aire	(Spanish *) Academia del Aire
SOUTHERN CROSS SALUTE (Beamed to the South Pacific)								
1:30 a.m.	0630	Back to The Bible	Back to The Bible	WMP, Inc. also sponsors	Back to The Bible	Back to The Bible	Back to The Bible	Back to The Bible
2:00 a.m.	0700	Radio Kila's Bible Club	Children's Bible Hour		Uncle Wym's Bible Hour	Hour of Decision	Medical Mail Bag *	Uncle Wym's Bible Hour
2:15 a.m.	0715				Adventure of Raintrop			Program Notes *
2:30 a.m.	0730	Back to God Hour	Old Family Bible	Wimmar	Radio Bible Class	Joyful Sound	Old Fashioned Melodies *	Brean Gospel Voice
2:45 a.m.	0745	College Chapel Hour	Chapel Hour	Memorial	Call of the Andes *	Call of the Andes *	Household of Faith *	Old Fashioned Guitar
3:00 a.m.	0800	Call of the Andes *	Back Home Hour *	Hospital	Record Requests *	Southward-Hoi *	Call of the Andes *	Call of the Andes *
3:30 a.m.	0830		Tiny Treasures *	Memorial		The Place of Power *	Silhouettes *	Mountain Top Music *
3:45 a.m.	0845	The Calvary Baptist Hour	Bible Reading *	Hospital	Scotland Worship Hour	Between Us *	Rivers of Living Water *	Glad Tidings
4:00 a.m.	0900		Old Fashioned Melodies *	Bible	Organ Melodies *	Organ Melodies *	Organ Melodies *	Organ Melodies *
4:15 a.m.	0915		Tread of The Times *	Institute	Midnight Meditations *	Heart Throbs	Miracles	Midnight Meditations *
4:30 a.m.	0930	Organ Melodies *	HCJB * MUSIC	of the Air	(Russian *) The Gospel Call	(Russian *) The Gospel Call	(Russian *) The Gospel Call	(Russian-L.A.) Bible Study
4:45 a.m.	0945	Sunday School Lesson *		Radio				
5:00 a.m.	1000	(Russian *) The Gospel Call	(Russian *) The Mail Box	Circle				
ECUADOREAN ECHOES (beamed to the Americas)								
19 Meters - 15.115 Megacycles		25 Meters - 11.915 Megacycles		31 Meters - 9.745 Megacycles		49 Meters - 6.050 Megacycles		
		(used from 1:00 p.m. until Midnight)						
QUITO-E.S.T.	G.M.T.	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9:00 p.m.	0200	Back To The Bible	50,000 watt t	Back To The Bible	Back To The Bible	Back To The Bible	Back To The Bible	Back To The Bible
9:30 p.m.	0230	The Old Fashioned Revival Hour		Call Of The Andes *	Call Of The Andes *	Call Of The Andes *	Call Of The Andes *	Call Of The Andes *
10:00 p.m.	0300			Shower Of Blessing	Haven of Rest	The Way to Life	Joyful Tidings	Gospel Light Hour
10:15 p.m.	0315			Tread of the Times *			Eventide	
10:30 p.m.	0330	The Back Home Hour *	m	The Calvary Hour	Mountain Top Music *	Gospel Disc Jockey	Brean Gospel Voice	Tiny Treasures *
10:45 p.m.	0345		t		Record Requests *		Old Fashioned Melodies *	Go-pi Givings
11:00 p.m.	0400	Temple Time	t	Strength for the Way	Little White Church	Songs in The Night	Bible Broadcasters	Hour of Decision
11:30 p.m.	0430		e	Organ Melodies *	Organ Melodies *	Organ Melodies *	Organ Melodies *	Organ Melodies *
11:45 p.m.	0445	Lutheran Vespers	on 31 Meters	Midnight Meditations *	Truth Magnified	Bob Jones Says	Midnight Meditations *	Sunday School Lesson *

The current English Program Schedule for HCJB will be sent in a separate mailing. Here is a copy of part of an old HCJB schedule--July to December 1957. Do you think our schedules have changed much?

ANDEX News

Due to circumstances beyond our control, we had to cancel the April-May issue of the bulletin. We apologize for this. Your memberships have been adjusted, so you will still receive the number of issues you are entitled to.

A number of members have asked why they have not received renewal notices when their memberships are about to expire. As we have reported in previous bulletins, we no longer send renewal notices. Your address label will indicate when your membership is about to ex-

pire. All you have to do is send this label and the appropriate fee to your local HCJB office listed on the back page of the bulletin.

Due to an insufficient number of responses, we had to cancel our proposed DXers' Tour to Ecuador. The interest shown in this tour was great, but it appears we did not give people enough time to plan it into their schedule. We will be organizing another tour, probably in 1990. Information on this will be sent to you well in advance.

BOOKSHELF



If you are interested in DXing Latin American stations, LA-DXING is a publication worth having on your bookshelf.

Some of the writing is in Spanish, which can be frustrating if you do not read Spanish. In the latest edition about one fourth of the book is in Spanish.

Depending on information available to the editors, station profiles include history of the stations, information about QSLs, what the stations give away, and technical information such as frequencies used, transmitter power and type and location of antennas. Station logos, pennants and a few maps are pictured. Station announcements are given in the language you hear on the air--a great help to DXers seeking to identify stations.

The information in LA-DXING is an accumulation of information compiled from a Latin American DX information service called Radio Nuevo Mundo. Publication is every two to three years, the latest one of 293 pages came out in July 1987.

To find out the price and how you can get a copy, write to: Radio Nuevo Mundo, 5-6-6 Nukui-Kita, Koganei-shi, Tokyo, No. 184 Japan.



Stephen Graham

ANDEX is pleased to introduce Stephen Graham, ANDEX 6117, of St. Vincent, West Indies, as one of our Special DXers for this issue.

Stephen is an 18-year old student studying English, literature, geography, woodwork, social studies, principles of business, and history. He was able to join ANDEX last year through our sponsorship program.

Stephen's hobbies include drawing, reading (especially horror stories), meeting people and corresponding with them. He writes, "I love to discover things and places (and) also learn about other people and their way of life."

Lowmans Village, where Stephen lives on St. Vincent, is a small town with about 700 people. Most of the people are involved in farming.

About a year ago Stephen was tuning his radio early one morning ("When everyone else was sleeping," he writes) and picked up HCJB. The next day he could not find the broadcast, and it took him a month before he heard the station again. This interested him in DXing -- not only finding faraway stations, but listening to different types of programming.

"To be truthful," says Stephen, "I don't know much about SWLing. But being an ANDEX member makes me think a lot about people (around the world) in comparison to people in the West Indies."

Congratulations, Stephen, on being chosen as a Special DXer. We hope that you will learn more about the SWLing hobby through the ANDEX bulletin, and through your contact with other shortwave stations and hobbyists. Stephen's address is Lowmans Village, Lowmans WD P.O., St. Vincent, West Indies.

Special DXers

A retired engineer is our Special DXer from the United States: Mr. Donald Hower, ANDEX 6030, of Victor, Texas.

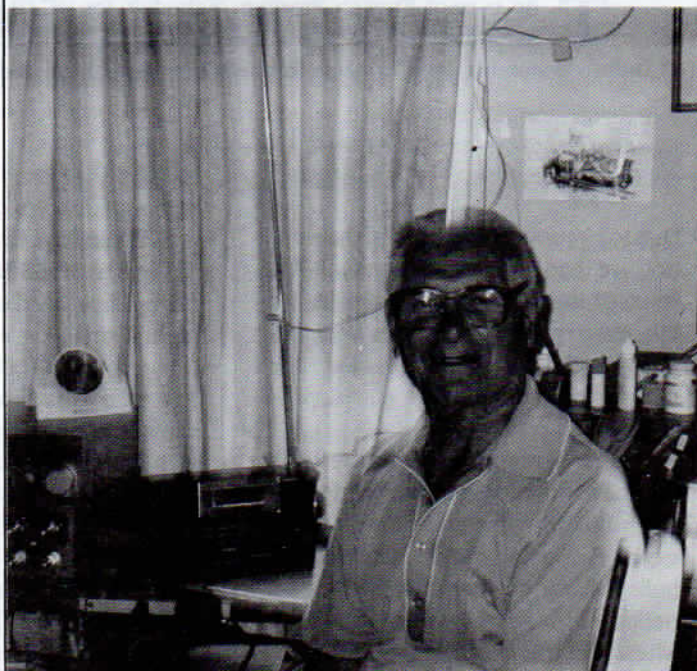
Donald retired from Dupont Engineering in 1975, after working 35 years with the company. During that time he was involved in various projects, the largest of which was the atomic bomb project.

Following their retirement, Donald and his wife, Helen, moved to Victoria, Texas. Victoria, with a population of 85,000, is 120 miles south of Houston on the Gulf of Mexico. Here Donald is able to pursue two of his hobbies, fishing and golfing. Other interests include painting, repairing appliances and helping the poor and disabled. Donald visits three hospitals almost daily, helping where he can. His wife, a retired registered nurse, is also active in caring for senior citizens in their homes.

Donald's interest in shortwave listening goes back to 1970 when he was introduced to the hobby by his wife's nephew. Donald currently is using an Ambassador 2020 receiver with a 12-foot antenna. He has verified 35 countries on shortwave. Donald listens to shortwave for music programs and to learn more about the cultures of other nations. He writes, "Due to the heat here in Texas I generally spend an average of six to eight hours daily (listening to shortwave)."

ANDEX congratulates Donald on being chosen one of our Special DXers. If readers would like to send their own note of congratulation and greetings to Donald, his address is Villa Chateau Apt. 109, 2904 Miori Lane, Victoria, TX 77901, U.S.A.

Donald Hower



Giant Tortoises - Distinctly Ecuadorian

The Galápagos Islands of Ecuador have been famed for their giant tortoises ever since the islands were discovered, and these enormous creatures continue to be the best-known animals of the Galápagos. Actually, the very name Galápagos originates from the Spanish word "galápagos" meaning tortoise. A Galápagos giant tortoise may weigh up to 250 kg (550 lbs) and measure 150 cm (59 inches) over the curve of its shell. Together with the Aldabra tortoises of the Seychelles, they are the largest living tortoises.

Research has shown that there were probably 14 races or subspecies of giant tortoises. Now only 11 subspecies remain. They number some 15,000 compared to an estimated 250,000 originally. Much of the population became extinct or limited to certain islands due to hunting by whalers, sealers and settlers. On the island of Pinta only a single male, Lonesome George, is known to be alive, and he resides at the Charles Darwin Research Station while the world is searched for a captive female of his race. A reward of \$10,000 has been offered for a true Pinta female, but there is now little hope of finding one. Many of the subspecies are not large and still subject to the ravages of introduced animals. They are in danger of extinction unless man helps to redress the balance. Fortunately much has been done to improve the status of these groups during the last 15 years.

Though most tortoises from one island group may look very similar to those from another, the typical fully grown tortoises are different from island to island. When Charles Darwin visited the islands in 1845, the vice-governor claimed he could tell with certainty which island any tortoise came from. The main difference is in the shape of the animal's shells. These range from the smaller "saddle-backed" types from the islands of Española and Pinta to the large "dome-shaped" types from Santa Cruz and Alcedo Volcano on Isabela, with many intermediates. The different shell shapes and sizes are thought to be the results of adaptations to the different environments of the various islands.

Tortoises are famed for their longevity, but reliable records are scarce as these animals may easily outlive a person. Many of the older Galápagos tortoises have extensive lichen and fungal growths on their shells, indicating their great age.

These animals are vegetarian, eating a wide variety of plants--as much as 50 different plant species. The giant tor-



toises are well known for their water storage ability and drought resistance. In whaling times tortoises were popular as a source of fresh meat as they could remain alive on board ship for as much as a year without food or water.

In spite of their extensive body armor, their areas of exposed skin are vulnerable to attacks by skin parasites. These can be a great nuisance to the tortoises since they are not able to remove such parasites themselves. Fortunately tortoises have developed mutually beneficial cleaning relationships with mockingbirds and finches. When a tortoise wishes to be cleaned, after being approached by one of these birds, it stands up on all fours and stretches its neck fully. This exposes all its skin to the birds which hop about looking for succulent morsels. Other birds such as hawks and flycatchers use tortoises as observation posts from which to sight their prey.

Tortoises have a relaxed activity schedule -- with their long lifespan they can afford it. They are usually active from about 8 a.m. (two hours after dawn) until about 4 or 5 p.m. when they will find a place to sleep. This may be in a mud wallow or pool, but it is usually under shrubs or in dense vegetation.

Eggs are laid between June and December in sandy dry ground. The young emerge from the nest 120 to 140 days later.

Pen Friends continued from page 1

allowed to leave. She brought some of Eumel's belongings when she joined him in West Berlin. Their new life was not without sacrifices. They left behind family and friends, many of whom they may never see again.

"Eumel and Marian were wonderful guests for the 3 1/2 weeks they stayed with us," said Bonnie, "and we are thankful the Lord made it possible."

The Taylors had a "great time" introducing their guests to foods they had never tasted before.

"We watched them try fried chicken, grits, hush puppies, Cracker Jacks, baked sweet potatoes and pumpkin," said Gary.

"We also made sure that Eumel and Marian visited all the places tourists are supposed to when in Florida--Walt Disney World, Sea World and Daytona Beach. Bonnie and I shared a lot of laughs with Eumel and Marian, but we listened in disbelief as they explained just how bad life can be in a communist country."

LR1 Buenos Aires ARGENTINA
Radio EL MUNDO



DOUGLAS PIFER - 4786 Macadamia Ct., Oceanside, CA 92056 U.S.A. - ANDEX 2868 - 29 years old - Interests include most outdoor activities, photography, DXing and corresponding - Would like Christian pen pals from India, Africa and Asia (especially China).

KANWARJIT SANDHU - 408 Krisha Nagar, Ludhiana 141001, India - ANDEX 6183 - 34 years old - Interests are DXing, music, sports, traveling and correspondence.

STEPHEN GRAHAM - Lowmans Village, Lowmans WD P.O., St. Vincent, West Indies - ANDEX 6117 - 18 years old - Hobbies are art, DXing, corresponding with people around the world.

THOMAS BRANTS - De Beer Str. 1, 2974 Krummhoern 1, Federal Republic of Germany - ANDEX 6755 - 19 years old - Would like pen pals in Australia and Canada - Hobbies are DXing, philately and music.

GINTARAS ZIAUNYS - P.O. Box 422, 232004 Vilnius, Lithuanian S.S.R., U.S.S.R. - ANDEX 6195 - 22 year-old student - Interests are DXing, rock music, stamp collecting - Correspond by registered mail only.

TERRY RYAN - P.O. Box 215, Bellerose, NY 11426-0215, U.S.A. - ANDEX 5957 - Interests are DXing, music (especially country music) and stamps - Would like to correspond with pen pals all around the world, especially Scandinavia, Iceland, the South Pacific and South America.

Crack the Code

"Number" stations can be found throughout the shortwave spectrum. Their purpose remains a mystery, but many believe them to be the coded transmissions of spies. Now it's your chance to have a part in the numbers game! Crack the code below, and you will have a list of 12 radio stations in Latin America. For those who want a bit of help, a clue is given at the bottom of page 7.

This puzzle is adapted from one designed and sent to us by ANDEX member Franz Suss.

1.	10	25	14	17	24	4	10
2.	4	18	17	24	25	11	4
3.	21	7	24	25	2	18	5
4.	25	18	13	4	11	21	5
5.	16	4	16	1	7	21	25
6.	4	21	4	10	4	22	4
7.	18	17	10	5	1	25	4
8.	17	10	18	7	16	1	5
9.	24	25	14	4	18	4	24
10.	25	10	10	7	11	4	16
11.	11	4	13	25	21	4	10
12.	4	21	25	21	10	4	16

FEES FOR ANDEX MEMBERSHIP MAY BE PAID IN THE CURRENCY OF THE COUNTRIES BELOW BY SENDING TO THE ADDRESS GIVEN:

AUSTRALIA	A \$6.50	HCJB—ANDEX, GPO Box 691, Melbourne, Vic 3001, Australia
CANADA	C \$6.50	HCJB—ANDEX, 2110 Argentia Rd., Mississauga, Ontario, Canada L5N 2K7
FINLAND	FIM 25 to the bank	Send fee to: Radio HCJB, Helsingin Sp/Helsingfors Sb, 405506-09630716. Send application form to: Radio HCJB, PL-101, 15111 Lahti, Finland
ITALY	L 7.000	HCJB—ANDEX, Via Cavallotti, 16, 41043 Formigine (Modena), Italy
JAMAICA	J \$25	HCJB—ANDEX, Jamaica Office, P.O. Box 31, Kingston 6, Jamaica
NEW ZEALAND	NZ \$10	HCJB—ANDEX, P.O. Box 82-296, Highland Park, Auckland, New Zealand
SWEDEN	Equivalent of \$5.00 USA dollars	Fees to: Postgiro 68 06 80-6 OR to bank giro 332-4407. Send application form to: Radio HCJB, Box 110, 54201 Mariestad. Check the current exchange at your bank to determine the fee.
SWITZERLAND	SFr. 10	Send Fees through the postal system to: Radio HCJB-Schweizer Arbeitszweig, Mannedorf, P.C. Glarus 87-3468. Send application form to: Radio HCJB-Schweizer Arbeitszweig, Postf. 119, 8708 Mannedorf
UNITED KINGDOM	3 pounds 75 pence	HCJB—ANDEX, 131 Grattan Rd., Bradford, West Yorkshire, England, BD 1 2HS OR send to Post Office giro account 625 2311 by using a transfer form from a members Girobank account or using the "Transcash" service available at all post offices in the U.K.
U.S.A.	US \$5.00	HCJB—ANDEX, P.O. Box 553000, Opa Locka (Miami), Florida 33055-0401
WEST GERMANY	DM 12	Margot Stegmüller, Hebelstr. 32, D-6908 Wiesloch, Federal Republic of Germany Account Nr. 2074 15-675 Postgiro Ludwigshafen

EUROPEAN COUNTRIES WHERE THERE IS NOT A LOCAL OFFICE:

Applicants may use the United Kingdom post office giro account by sending the equivalent of three pounds and 75 pence.

IF YOU LIVE ANYWHERE ELSE, REMIT \$5.00 (U.S.A. dollars) to: HCJB-ANDEX, P.O. Box 553000, Opa Locka (Miami), Florida 33055-0401.

APPLICANTS WHO HAVE DIFFICULTY PAYING THE MEMBERSHIP FEE MAY APPLY FOR OUR SPONSORSHIP PROGRAM. THE AMOUNTS LISTED ARE THE FEES FOR A FULL YEAR OF AIRMAIL SERVICE. MAKE CHECKS/MONEY ORDERS PAYABLE TO HCJB-ANDEX. INTERNATIONAL REPLY COUPONS MAY BE USED TO PAY THE FEE. WE REQUIRE TEN (10) IRCs PER MEMBERSHIP. UNUSED POSTAGE STAMPS ARE NOT ACCEPTED AS PAYMENT.



ANDEX International



is the official bi-monthly publication of Andes DXers International, a DX Club operated in conjunction with DX Partyline broadcast over Radio Station HCJB and sponsored by the World Radio Missionary Fellowship, Inc.

ANDEX Director/Editor - Brent Allred
ADDRESS MAIL (NO funds) to: ANDEX International
Casilla 691, Quito, Ecuador