

SPACE
TAKING
ELECTRIC
SIGHT



DX NEWS



WIRELESS
CAREERS

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A
 "Enclosed please find a check for another year in the NRC. I don't want to miss a single issue of DX NEWS, not so much for the DX info but because girls go crazy for guys who are NRC members!
 (Harry Helms, S. C.)
 Tell THAT to Don Erickson!... BGK

IN THIS ISSUE OF DX NEWS...

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- Information, Please! - Father Jack Pejza
- DXing Rare Africans... Systematically - Page Taylor & Russ Edmunds
- Addenda & Comments on "DXing Rare Africans..." - Gordon Nelson



WELCOME TO THE NRC!

- *David Potter, Key West, Fla.
- *Frank Douma, Avon Park, Fla.
- *Sam Lee, Boise, Idaho

Welcome to the NRC, people; we hope to be reading of your DXploits often here in DX NEWS...

RECENT MEMBERSHIP RENEWALS...

- McCormack... Moore... Grant... Veio... DeLeurere... Romstadt...
 Hayes... Howington... Brown... Helms... Nelson... Crabill... Hoffman...
 Brown... Kelley (R)... Callarman... Myers... Schmelzer... Hansch...
 DiRicco... Fischer... Onyschuk...

Most sections are light this week in keeping with the seasonal decline in MW conditions - not enough international loggings to make up a section this week says Foxy... Hopefully we'll all hear enough exotic Africans to fill up one next issue... Special thanks to Lynn and Cary Pall for handling last week's issue single (double?) handed since the rest of the BPC happened to all be out of town at the same time...

*GPN & CDP

ST. LOUIS CARDINALS'
MISSOURI NETWORK

680 K F E Q St. Joseph
960 K F V S Cape Girardeau
1050d K S I S Sedalia
1120 K M O X St. Louis
1230 K O D E Joplin
K L W T Lebanon
1240 K F M O Flat River
K W O S Jefferson City
K W O C Poplar Bluff
1260 K G B X Springfield
1270d K F B D Waynesville
1340 K X E O Mexico
1400 K F R U Columbia
K S I M Sikeston
1450 K I R X Kirksville
1590d K C L U Rolla
(submitted by MIKE COLLINS)

BALTIMORE ORIOLES
(JIM RENNIFREW & KEN ONYSCHUK)
MARYLAND

930 W F M D Frederick
960 W B O C Salisbury
970 W A M D Aberdeen
1090 W B A L Baltimore
1230 W C U M Cumberland
1240 W C E M Cambridge
1330d W A S A Havre de Grace
1450 W T H U Thurmont
1470 W T T R Westminster
1520d W V O B Bel Air
1560d W S M D La Plata
1590 W E T T Ocean City

VIRGINIA

990d W N R V Narrows
790d W S I G Mount Jackson
1050d W G A T Gate City
1220d W L S D Big Stone Gap
1340 W J M A Orange
1360d W B O B Galax
1390 W W O D Lynchburg
1400 W W O C Portsmouth
1420d W D Y D Gloucester
1450 W E N Z Highland Springs
1460 W P R W Manassas
1450 W F T R Front Royal
1580d W P U V Pylaski

PENNSYLVANIA

1050d W S K E Everett
1150d W H U N Buntingdon
1280 W H V R Hanover
1350 W O R K York
1590 W C B G Chambersburg

DELAWARE

930d W T H D Milford

NEW YORK METS
(K. ONYSCHUK & E. COOPER)
CONNECTICUT

610 W T O R Torrington
940d W I N E Brookfield
1230 W I N F Manchester/Hartford
1380 W O W W Naugatuck
1510 W N L C New London

FLORIDA

1590d W I L Z St. Petersburg Beach

NEW YORK

930d W I Z R Johnstown
950 W I B X Utica
1050 W H N New York
1110d W S F W Seneca Falls
1230 W H U C Hudson
1260d W B N R Beacon
1370d W E L V Ellenville
1400 W A B Y Albany
1490 W K N Y Kingston
W D L C Port Jervis

PENNSYLVANIA

840d W V P O Stroudsburg
930d W C H X Bloomsburg
1340 W E R X Wilkes-Barre

NEW ENGLAND

1230 W E R I Westerly, R.I.
1480d W C F R Springfield, Vt.

Note: This is their "projected network".
There may be additions or changes.

MORE BALTIMORE ORIOLES STATIONS:

FLORIDA

710 W G B S Miami
1600d W O B M Riviera Beach

NORTH CAROLINA

1490 W L O E Eden

TENNESSEE

1490 W O P I Bristol

CHICAGO WHITE SOX NETWORK

1340 W J O L Joliet, Ill. (or FM)
1220d W L P O La Salle, Ill.
1270 W W C A Gary, Ind.
1300 W T A Q La Grange, Ill.
1390 K C L N Clinton, Iowa
1420 W I M S Michigan City, Ind.
1450 W S P B Sarasota, Fla.
1480 W G S B Geneva, Ill.

(from an unidentified clipping, sent in
by an unidentified member)

(Also sent in in Longhand by K. Onyschuk)

WE THANK THE MEMBERS, ESPECIALLY KEN ONYSCHUK,

FOR SENDING IN SO MANY OF THESE BASEBALL NETWORK LISTINGS! GOOD DX!

MUSINGS OF THE MEMBERS

ERNEST R. COOPER
438 EAST 21st STREET
CATHY FOUER 56
BROOKLYN, NY 11226

MIKE COLLINS - 2021 Main Street - Stratford, Connecticut - 06497

I think ERC has really hit the nail on the head regarding why many stations have gone NSP. Some do it because they feel they should always be on a service to the listener, but probably the majority which are NSP or even AN-6 are on because their competitors are. WICH-1310 Norwich, Conn. is not AN, but operates 5:30 (7:40) - 10:30pm (9:30). When I asked if they plan 24 hour operation, they said "That all depends on whether WNLC-1510 New London (their competitor) does. If they do, we will. If they don't go AN, we probably would not either." WNLC is operating 5:30 (7:30) - midnight these days. Recent DX included WFRM-600 Coudersport, Pa. o/WICC local (XR two miles away) on SSS on 3/7 from 6:20 to past 6:45pm w/rr & MBS NX on the half hour. Signal was surprisingly strong, w/WICC of course nullled. By the way, I have always rated WICC's as one of the cleanest and least sloppy signals I've ever heard. WROM-590 is no problem at all here, for example. So I went down to DX right at the XR site between the towers with my Grun-dig at Pleasure Beach in Bridgeport, on Long Island Sound. They did not disap-point me. WMCA-570 was solid with no trace of WICC at all (even on the car radio which is very poor in rejecting splash, etc.). WTAG-580 Worcester quite weak here was there also, with some WICC splash, & WVNJ-620 Newark & WPRO-630 Providence were in not half-bad with some splash, but not unbearable noise. No other spurs or splash from WICC were noted anywhere else on the dial! (How about their second harmonic on 1200?? -ERC) Of course, 590 & 610 were just too close. Also of interest, WJAB-1450 Bridgeport could be nullled w/WFPG Atlantic City heard eas-ily, and even with the RX facing WJAB, WFPG was still noticeable under. Wolfman Jack has sold his interest in XEPRS-1090 Tijuana & is now on KDAY-1580 Santa Mon-ica, Cal. live, 7pm-12 PLT nightly. He is also heard on 28 other stations accord-ing to Billboard, including KTAC-850 KSTW-1420 & KJAY-1430. The only EC station I'm aware of that has him is WING-1410 Dayton, O. 11pm-1am, except 8pm-1am Sat. Thanks to Ralph Szepiery of Southport, Conn. for an enjoyable evening and giving me the opportunity to listen to a Hamarlund for the first time. 73.

BILL COLEMAN Jr. - 105 Salem Circle - Apt. B-2 - Raleigh, North Carolina - 27609

Greetings to you all. I've been DXing a lot in the past few weeks, so here's a few catches: PoP from WARO-540 on 4/12. WFMC-740 w/test on 4/10. 4/17 was an interesting morning. WCON-1450 w/test, WNCG-910 w/f/c, WNVY-1230 (Pensacola, Fla.) w/test, WCHV-1260 test, local WYNA-1550, w/f/c. On 960, I heard ZEM Bermuda powering in, also on 960, WPRT Ky. w/test, & WATS Pa. w/test. XEG-1050, XERH-1500, KSTP-1500, KQA-850 s/off 7:05. Also on 850 WRAP (w/WKIX off) R. Belize-834 has been coming in good lately. ZWS1-1540 unusually strong for sev-eral nights, strange! Could anybody help on this one? UnID-730 w/Fr. (FF? ERC) lots of jingles, & some En (EE? -ERC) mx. I couldn't make anything of it. I heard it about 8am. Would you believe what I heard on 4/10? KLIF-1190, has been running some promos about the KLIF jocks posing in the nude, and all you have to do is send them an 8¢ stamp for a copy. If anybody wants to swap WDX QSLs, send several, and I'll do the same. WDX4100 is my Mon. Reg.#. Phone number here is 1-919-782-7725. I'm a night owl, so you won't be waking anyone. Sorry, no collect calls. I always appreciate any tips, etc. Best of 73s & PEACE. (We'd love some times on some of those rare ones you heard on 4/17! -ERC) How about 4/10 on 1190 k.-hi

TIM KERFOOT - 34 Cross Street - Weston, Ontario

CFTR-680 has undergone a significant format change, & is now largely rr, advertising "Canada's First Tremendous Rip-Off", which is certainly a change for them. So for the first time, Toronto now has three rrs. Little serious DXing has been done, although on 4/12 I did hear an unID on 1230 with an Open-line pro-gramme "Voice of the People" @ 6:15pm. Who would this be? 73.

BOB SHAW - 234 Columbus Street - Elyria, Ohio - 44035

I haven't been doing much dialing lately. The biggest news here is my acquisition of an SM-1, DeLuxe model. All the claims everyone else has made for it seem to be justified, so I won't be redundant, except to note that it has more gain than the longwire I had a few years ago. This alone would be a great improvement to my setup, not to mention the nulling possibilities. Now - if only I had time to use it! (And a better RX would help.) Pre-magnet DX: MM 3/20- WTAD-930 good with instrumentals, 11-PM, 12:56am. WFIX-1450 1:22 w/local spots, sound-ed rr or c/w. CFAM-950 3:25 w/Classics Till Dawn u/KIMM/WPEN. I'd always thought this was KPRC but I heard them s/off @ 2. KKLS-920 3:55 ET/TT atop. 4/3- I finally got KUPK Special. I'd begun to think someone was kidding (like 100 other members, hi). After getting the SM, I DXed MM 4/17: WDBQ-1490 w/NX @ midnight. WCOM-1450 1:21am ET/TT well atop. CHIT-630 in FF @ 2:25 by looping Cuba/CRRC. I was really looking for CFCY. There's a lot of things to try with the SM but this was not the MM to try them. SSS: CFML-1170 w/FF @ 6:39 u/looped WVA. A couple of unID 1130 s/off @ 6:15 & 6:45, I think WEBO & WCBK. I'll try again - WCAR/WNEB are colinear here. I've also done some daytime stuff. By looping local WBOI-930, I've finally been able to log two of my closest unheards on 940, WGRF and u/them, WCIT. Also, by looping CFTR-680, I got not only the usual WCAW, but newie WISR - in fact, WISR is dominant. Also interesting is daytime on 990. With internal antenna, I would get only a weak WJEH. With the SM, I get WTIG, a rare catch here, o/WJEH. WJEH is three times as distant, with comparable power, and the two are approximately colinear so the nulling is irrelevant. It makes more sense this way, I must say. I'm now trying to ID the daytimer u/WTMJ-620 (there was never one there before) - I'm hoping it's WHJB. I may get a free MM soon (these days my social life is restricted to MMs!) so perhaps I'll be back soon. 73.

MORRIS SORESEN - God's Narrows, Mainitoba - ROB

Today, 4/15, I was surprised to log KSID-930 Aberdeen, S.D. on top briefly @ 11pm w/NX. Other new loggings since my last Muse include CHUM-1050 & WKNR-1310 @ SSS along with HJCB-890 "La Voz de Bogota" on a MM w/WLS off. Verifications have come from WSUI-910 WACA-1270 WCAZ-990 and CKX-1150. My totals are now 213/35. I was home in Ontario for a week around Easter and added WETE-620 and CJRN-710 to my log there. Ontario totals are now 620/402. Well, I guess that's it for now. 73.

KATH BIRLINGMAIR- Route 1 - Box 44P - Rockton, Illinois - 61072

A few bits of randomness have come up, & I thought I'd mention them. First, Chris Hamby in Victoria, Australia writes that he cannot obtain the FET transistors and plans to install them for the NRC Loop. If anyone knows where I can get them for him, please write. He also writes that his best logging on MM is WVUV-1120 Pago Pago, heard 4/16. Any of you heard it yet? Not too much DX lately, for the simple reason that for the last two weeks I never got over six hours of sleep in one night. All that is past now, though, so maybe I can get some DX. What I did hear over Easter was sent to DDKD. Recent veries include WKNR-1310 Mich., WIFE-1310 Ind., good ole WQXR-1560 N.Y., KTLK-1230 Col., & KLUC-1140, Nev. KLUC is state #36. Well, I guess that's it for now. 73s.

PEPE TAYLOR - 1039 Erica Road - Mill Valley, California - 94941

During part of a Boston-New York-Detroit-Chicago (NAB) 11-day trip between 4/1-11, I noted some spurs on 980-970 and 1090-1100 attributable to WEZ. Anyone else catch these? WCAZ will not be changing call letters to WJIB (AM). Send your reports to Stuart G. Zuckerma, SM. Stu used to run the Dartmouth College AM station. WEDH-850 is now running non-personality album sounds AN.

HEARD SINCE LAST ISSUE

"AN" SITUATION

1000 K K I M Albuquerque, New Mexico 1240 C F L S Is AN SMs, in FF.
1590 W H P A Honesdale, Pennsylvania

DON'T FORGET THE SPECIAL DX-TEST BY WOCB-1240, WEST YARMOUTH, MASSACHUSETTS, ON MM 5/15, from 12:15 a.m. to 1:45 a.m., E.D.T. They'll take paid-for calls at this number: 617-775-0500. Sheldon Swartz will be listening for your ring!

CHICAGO CUBS BASEBALL NETWORK, from KEN ONYSCHUK

ILLINOIS		INDIANA	
720	W G N Chicago	1230	W S A L Logansport
930	W T A D Quincy	1250	W G L Fort Wayne
980	W I T Y Danville	1350	W I O U Kokomo
1240	W T A X Springfield	1400	W R O Z Evansville
1050d	W D Z Decatur		W B A T Marion
1400	W G I L Galesburg	1450	W X V W Jeffersonville
1580d	W C C R Urbana	1460	W K A M Goshen
		1590d	W G E E Indianapolis

KENTUCKY

1300 W B L G Lexington
1490 W F K Y Frankfort
W O M I Owensboro

WISCONSIN

1230 W H B Y Appleton

Ken tells us he sent out 23 requests for these lists, and got back 18. Missing are San Diego; Los Angeles; Atlanta; Texas; Boaton; Oakland; Cleveland. He adds he thinks he did all right. DX NEWS thinks so too, and our real T-H-A-N-K-S, Ken! (Which team DIDN'T you write to, Ken, and why? -ERC)

Writes Mike Collins, of Stratford, Conn.: On May 1 MBS is scheduled to begin operation of its new Mutual Black Network for stations with black-oriented formats. More than 100 five-minute newscasts and sportscasts will be offered to affiliates each week. Here are the statipns which will be among the original affiliates of this network:

950d	W G R T Chicago	1430	W N J R Newark, N. J.
1120d	W U S T Bethesda, Md.		d K C O H Houston, Tex.
1340	W I G O Atlanta	1440d	K O K Y Little Rock, Ark.
1380a	K J E T Beaumont, Tex.	1450	W E N Z Highland Springs, Va.
	K W K St. Louis	1540d	W A B Q Cleveland
1400	W E R D Jacksonville, Fla.	1580d	W V K O Columbus, Ohio
	W W I N Baltimore, Md.	1590d	K P R S Kansas City, Mo.

He continues: On the same date, MBS will also begin operation of its Mutual SS Network for SS stations in the U.S.A.

A second black-oriented network, the National Black Network, has announced plans to being on 5/1 also. This group says some 40 stations have expressed interest in affiliating with NBN.

RONALD F. SCHATZ - Box 2814, AMF - Miami, Florida - 33159

My pet peeve is bureaucratic bungling - now I'm working from 10:30pm to 7am & sleeping under the sun. Hopefully this will be very temporary. Tentative site of the NRC Convention is the University Inn in Coral Gables, located on U.S. 1 just across from the U. of Miami campus, but this is still highly unofficial. For the ladies: Dress very lightly. Hot pants and sleeveless blouses are recommended. Anyone planning to attend Miami Beach hotel/night club shows must dress formally (the only occasion); the performers at these shows hardly dress at all! Well, along with the USA, the Bahamas & Cuba are on DST. In fact, Cuba has been on its "hora del verano" all of April. DX is "blah" - not only are the atmospherics worsening, but there seems to be nothing happening on the band, such as new stations, changes, etc. The following were measured the eve of 4/29: ZP7-645104, TGRT-663956, SRS-724975, Belize-834042, HOJ2-1046703, CMKG-1059301, CMKD-1210081, CMJG--1269406 & PJD2-1295034. Of these, only Belize & PJD2 are rock-steady on their respective frequencies; the rest may drift several cycles over as many days. Most U.S. stations vary only 5 cycles from center (the legal limit is 20), so we observe, one exception being local WIII-1430010. Caracol is announcing a new list now, superceding the one of two issues ago. I'll copy it when I get the chance. Remember, a free airport pick-up service, with two-way radio equipped vehicles, will be at your service this Labour Day weekend. Take advantage of this by attending our annual Convention in Coral Gables - minus 15 short weeks - in '72.

SORRY BOYS, BUT THIS IS ALL WE HAVE RECEIVED FOR MUSINGS THIS TIME - VERY SCIMPY.

NEXT ISSUE IS IN THREE WEEKS - DEADLINE HERE WILL BE WEDNESDAY OR THURSDAY, MAY 24 or 25. REMEMBER TO HOLD TO 30 LINES AND TO DOUBLE SPACE. NO V/S IN MUSINGS!

Father Jack Pejza

The propagation of radio waves depends on many things. One of the most important factors controlling the way they travel outward from a transmitter is the presence of layers of electrically charged particles in the atmosphere. Without these layers, radio signals would not travel more than about a hundred miles from the transmitter. In this article I intend to show these layers, collectively called the ionosphere, are produced and how they differ. In Part II I will show how radio waves are affected by the ionosphere, permitting long distance reception. Since I am not by profession a radio engineer, I do not claim to be an expert on the ionosphere, and consequently have drawn on the knowledge of others. A bibliography of works consulted is appended to this article.

Composition of the Atmosphere

The atmosphere of the earth is a mixture of gases held to the earth by gravitational attraction. It is densest at sea level and thins out rapidly as one goes upward. Almost all (97%) of the air lies within 25 kilometers (18 miles) of the surface of the earth; 50% is within 5 km (3 miles). The lowest region, within 15 km (10 miles) of the surface, called the troposphere, is of little direct interest to the DXer, since it has little effect on MW radio waves. It is of interest to the weatherman, since almost all of the water vapor responsible for weather is here. Weather seems to affect radio waves mostly in the static produced by thunderstorms, but some scientists feel that temperature changes about 30 km up produce the "midwinter anomaly".

Ordinary pure air is colorless and odorless. It consists mostly of nitrogen (78%) and oxygen (21%) molecules. Small amounts of other gases make up the other one-percent. Although the gas molecules are attracted to the earth by gravity, the fact that they are warm keeps them moving above the surface. (According to the kinetic theory of gases, the kinetic energy or energy of motion they possess is directly related to their temperatures; they move faster when they are hot.) Because of their motion, they spread outward and upward from the surface. The atmosphere never really ends; it just gets thinner and thinner until its density matches that of interplanetary space, about 10,000 km (6000 miles) above the surface. At a height of 100 km (60 miles), it is only one-millionth as dense as it is at sea level; at 300 km (the height of the F region), it is only one-billionth as dense.

At lower levels the different gases remain fairly well mixed, but at greater heights they start to separate. The light molecules rise higher than the heavier ones because gravity exerts less force on them; also at any temperature they have greater average speed. Starting about 90 km up, four distinct layers of gas are encountered: molecular nitrogen (N_2) from 90 to 200 km; atomic oxygen (O) from 200 to 1000 km; helium (He) from 1000 to 3500 km; and atomic hydrogen (H) above 3500 km. These layers do not have sharp boundaries on top and bottom, but gradually blend into one another. The division into layers is caused by their differences in weight. Molecular nitrogen, the heaviest, is closest to earth. The portion of the atmosphere we are interested in occurs between 60 and 400 km, in the molecular nitrogen and atomic oxygen layers.

Solar Radiation

The ionosphere would not be present in the earth's atmosphere if it were not for the action of the sun's radiation. Solar radiation causes molecules of oxygen and nitrogen, consisting of two atoms bound together, to separate into single atoms, or atomic oxygen and nitrogen. These, as well as some of the molecules of nitrogen and oxygen, are then ionized, i.e., one or more of the electrons of the atom gain sufficient energy to escape from the atom or molecule. Since the

Radio Mundial

700 KILOCYCLOS
F.M. 88.2 MEG.TELEFONOS:
29992-82233
26153-81959
80372
Guatemala

Guatemala, 27 de Diciembre de 1971

Señor Profesor
Richard E. Wood
Dept. of European Languages
University of Hawaii
Honolulu, Hawaii

Apreciable Señor Wood:

Por medio de la presente estamos confirmando como exacto el Reporte que nos envió con fecha 2 de Marzo de 1970 desde Honolulu, donde nos indica haber escuchado la transmisión de RADIO MUNDIAL.

De acuerdo con dicho reporte, todo lo especificado en él es verídico de acuerdo con la programación extraordinaria que presentamos en esa fecha con motivo de las Elecciones Nacionales. RADIO MUNDIAL, trabajó en esa fecha fuera de su horario acostumbrado para mantener informados a los oyentes sobre el resultado de las Elecciones, siempre en su frecuencia de 700 Kilociclos en onda larga.

Agradeciéndole la fineza por su Reporte, me suscribo de Usted como su Atto. y S. S.

JULIO ROBERTO AGUILAR
Director General

More from the collection of Prof. Richard Wood...

electron is electrically negative, the remaining atom or molecule then has a positive charge, and is known as an ion. The ionized particles in the ionosphere are ordinarily produced from atomic oxygen (O^+), molecular oxygen (O_2^+), and molecular nitrogen (N_2^+).

Solar radiation reaching the outer edges of the earth's atmosphere consists of a wide range of electromagnetic radiation. Infrared rays (heat) and visible light make up 90% of the radiation. It is the other 9%, consisting of X-rays, gamma rays and ultraviolet light, which is responsible for the ionization of the atmosphere. These rays possess much more energy than visible light or infrared rays, and thus are able to give electrons sufficient energy to escape. The energy of any type of radiation is related inversely to its wavelength. X-rays which have short wavelengths are more energetic than the longer ultraviolet rays which in turn are more energetic than visible light or infrared radiation. Wavelengths of all types of radiation up through visible light is usually expressed in units called Angstroms (one Angstrom = 10^{-10} meters). X-rays have wavelengths less than 1000 Angstroms; ultraviolet light waves are between 1000 and 4500 Angstroms.

At any point on earth or in the atmosphere, the amount of solar radiation received in one day depends on the angle at which the sun's rays hit (the highest angle is called the solar zenith angle) as well as the length of time that spot is exposed to the sun. (See Figure 1). These factors are determined by the latitude of the place and the path of the sun at different seasons. The rays are most intense where the rays hit vertically as they do in the tropics. Where the rays arrive at some other angle, the same amount of radiation must spread out over a larger area, thus decreasing its intensity. Thus one square mile in the polar regions will receive less energy than one square mile in the tropics. Since the axis of the earth is tilted $23\frac{1}{2}^\circ$ from the plane of its rotation around the sun, the amount of energy received at any spot changes with the seasons. A spot in the northern hemisphere will receive more intense radiation in the summer than in the winter.

Effect on the Atmosphere

Let us see in a general way what happens when radiation from the sun passes through the upper atmosphere. At the top of the atmosphere, since there are so few gas molecules or atoms, the number of electrons produced by ionization is extremely small. Closer to the ground, the sun's rays encounter more molecules with a subsequent increase in the number of electrons produced. Since each collision of a photon of energy with a gas molecule removes that photon from the beam of radiation, the beam gets weaker as it progresses downward. (Figure 2). At certain heights, the rate at which the number of gas particles is increasing downward is matched by the weakening of the

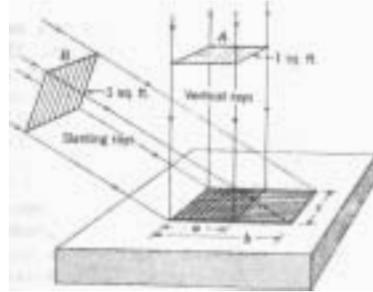


Figure 1. The angle of the sun's rays determines the intensity of energy received.

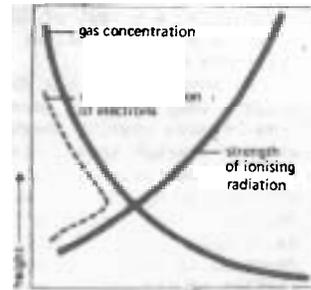


Figure 2. The production of a layer of electrons when ionizing radiation falls from above on a gas with an exponential height distribution. Electrons are produced most rapidly at a level where the downward increase of gas concentration is matched by the downward decrease in the strength of the radiation.

radiation downward. At these points the rate of production is greater than at places higher or lower. These areas of greatest production are called electron peaks. Above a peak, the radiation is stronger, but there aren't enough gas molecules to produce a high concentration of electrons by ionization. Below the peak, there are more gas molecules, but the radiation has weakened to the point that fewer electrons are released than at the peak.

The graph in Figure 3 shows the concentrations of electrons at various heights. The peaks marked D, E, and F1 are called Chapman layers, after Sydney Chapman who studied them in detail in the 1920's. From his studies, he concluded that the height of these layers depended on the concentration and types of gases present and on the type of radiation affecting each gas. The D and E layers are produced by radiation which is not absorbed higher in the atmosphere. The rate at which electrons are produced at the peaks also depends on the strength of the radiation. Since the radiation reaching the D and E layers is not as intense as that reaching the F1 layer, the concentrations of electrons in these two layers are lower. The rate of production also depends on the angle at which the radiation arrives. Electrons will be produced in greatest quantities each day at noon when the sun's rays arrive closest to the vertical. In the yearly cycle they will be produced in greatest number in summer when the sun is highest in the sky.

Chapman also found that the layers of electrons have similar shapes. They differ only in their heights and rates of electron production. Strictly speaking, it is erroneous to call them "electron layers" since atoms are ionized both above and below these points. "Electron peaks" would be a more accurate way of describing the electron concentrations, but "layer" continues to be the common term used.

Layers of the Ionosphere

In 1901 Marconi succeeded in transmitting radio signals from England to America, over the bulge of the earth. Since it was known that electromagnetic waves travel in straight lines and are bent or diffracted only slightly, Heaviside and Kennelly proposed in 1902 that the radio waves had been reflected from an atmospheric layer consisting of free electric charges. Heaviside called it the "electrified layer"; others called it the Heaviside layer. Later, Appleton discovered another higher layer. To distinguish between the two layers, and to make room for other possible layers, he called the Heaviside layer the E layer and the new layer the F layer. Subsequently a lower region of ionization, the D region, was discovered. It was also found that the F layer consisted of two layers which separated during the day and merged at night, and that the concentration of electrons decreased in all layers.

Ignoring the highest layer, the F2, for the moment, we find that the next highest layer, the F1 or Appleton layer, is produced at height of 150 to 170 km when X-rays strike molecular nitrogen and atomic oxygen. These X-rays have wavelengths between 200 and 800 Angstroms. The predominant electron producer is X-rays produced by helium in the sun, with a wavelength of 304 Angstroms.

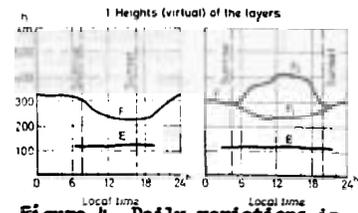
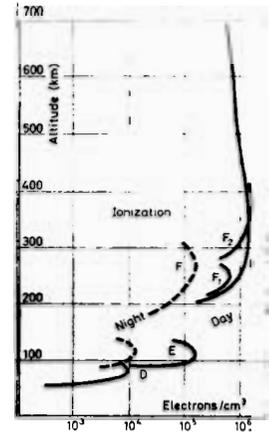


Figure 4. Daily variations in the heights of the layers.

The E layer is produced about 100-110 km up by two processes. Very energetic X-rays, with wavelengths less than 100 Angstroms, ionize oxygen and nitrogen. In addition, ultraviolet light with wavelengths near 1000 Angstroms ionize oxygen. At noon there are 10^3 electrons per cubic centimeter produced; at night the concentration drops to $10^3-10^4/cm^3$.

Below 90 km, in the D region, the X-rays which have not already been absorbed are extremely energetic, with wavelengths less than 20 Angstroms. They are able to ionize any gas they encounter. They produce the little squiggle at the extreme left end of the graph in Figure 5. The amount of such X-rays is quite small and not many electrons are produced by this kind of radiation. Most of the electron in the upper part of the D region are produced in a different fashion. Between 60 and 90 km, atomic nitrogen, produced by photochemical reactions in the E region, diffuses downward and reacts with oxygen to produce nitric oxide, NO. This gas is ionized by ultraviolet light up to 1340 Angstroms. It so happens that hydrogen in the sun produces ultraviolet light in this range, 1216 Angstroms to be exact (the Lyman-alpha line). Nitric oxide is thus ionized to produce a large supply of electrons about 85 km above the surface.

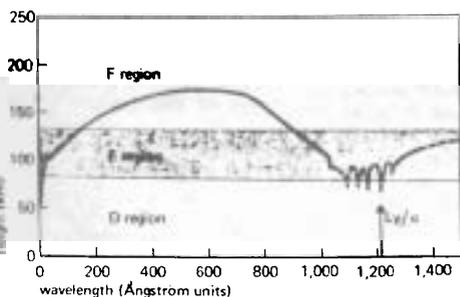
In the lower part of the D region, ionization takes place because of cosmic radiation rather than solar radiation. Cosmic rays are high-energy particles produced by the stars. They hit the earth day and night from all directions. Their great energy allows some to penetrate even to ground level and below. Most collide with atmospheric gases about 60-70 km above the ground, producing a concentration of electrons. Because cosmic rays are deflected by the earth's magnetic field, more of them enter the atmosphere near the poles, increasing the concentration of electrons there.

Since the electron concentration between 60 and 90 km is not as great as it is in the D and F layers, and since it is more diffuse, this is called the D region, rather than the D layer.

Perhaps it might have seemed from the previous discussion that all of the gas molecules in the ionosphere have been ionized. Not so. Only a small fraction is

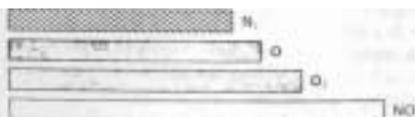
Figure 5.

The formation of the ionospheric layers. The gases available to be ionized are distributed in height as shown on the right-hand side, while the wavelengths of radiations that can ionize them are marked below the horizontal scale. When radiations of different wavelengths are absorbed in the atmosphere they have their strengths reduced by a factor $1/e$ at the heights shown by the curve. Those that can ionize the major atmospheric gases (the continuous part of the curve) produce electrons most rapidly at these levels. Those that cannot ionize the main gases are indicated by the broken line. The strong Lyman- α radiation at 1216 Å penetrates far enough to ionize the nitric oxide (NO) in the D region



ionized. For instance, at 100 km, in the E layer, it has been found that there are 10,000 free electrons per cubic centimeter, but that the neutral particles number $10^{12}/cm^3$. In other words, one one out of every hundred million gas molecules is ionized at this level.

Below the D region the amount of high energy solar rays drops to such a low level that practically no free electrons are produced. Since it is the electron layers which are responsible for the refraction and absorption of radio waves, we will not concern ourselves with the lower atmosphere. Just as a point of interest, only about 50% of the sun's energy mostly in the form of visible light, actually reaches the surface of the earth.



After electrons have been produced by the disassociation of atmospheric molecules, they remain free for some time. Since they are constantly moving about, eventually they will collide with positive ions and recombine to form neutral atoms and molecules. Some strike neutral atoms and combine to form negative ions. The rate at which electrons are lost by recombination with positive ions depends on the number of encounters and on the concentrations of electrons and ions. The more electrons there are, the greater the chance of recombination, all other factors being ignored. Remember that at the same time electrons are usually being produced by the action of sunlight on neutral molecules. The net effect is a relatively stable number of electrons in a region over a period of time.

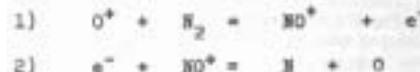
In the D region formed by cosmic radiation, there are enough gas molecules for frequent collisions with electrons. Many electrons attach themselves to neutral atoms to produce negative ions. During the day, however, other solar radiation break these negative ions down almost immediately. Thus the free electron concentration is greater during the day than at night. This, as we shall see, is partially responsible for daytime absorption of radio skywaves. At dusk, when the radiation from the sun becomes weaker and eventually disappears, fewer negative ions are disassociated and thus the concentration of free electrons drops, almost completely disappearing at night.

At higher levels, the distance between particles is greater on the average than in the lower D region. Hence the probability of a collision between an electron and an ion or molecule becomes smaller. For instance, at 80 km in the D region, a particle travels an average of about 4 millimeters (1/5 inch) before collision. At 100 km in the E region, it must travel about 9 cm (3 1/2 inches), while in the F region, it must travel many hundreds of meters (thousands of feet). Just for comparison, at sea level, a gas particle travels about 8.6×10^{-6} cm (0.000003 inches) before colliding with another gas particle. Since there are fewer collisions at the heights of the E and F1 layers than in the D region, it takes longer for the electrons to disappear by recombination. At night there is a lowering of the concentration. However, it has been noted that the E and F1 layers do not entirely disappear at night, even during the long polar night. In fact they continue to exhibit their usual daily increase and decrease even during the long absence of sunlight. The reason for this is not clear. Ionization due to meteors has been suggested. Upward movement along the geomagnetic field lines into regions where the density is too low to allow for recombination might be responsible for the durable F1 layer. Other possibilities which have been suggested include solar wind particles penetrating into the magnetospheric "tail" of the earth and then coming back upstream, as it were, into the polar regions. It is also possible that aurora-like low energy particles continuously bombard the polar caps.

Occasionally there are "clouds" of ionization called "sporadic E" at low E layer altitudes. This may be due to heavy ions deposited at these altitudes by meteors. If the proper wind conditions exist at these altitudes, the heavy ions may form a layer that would be very highly conductive.

The F2 Layer

Above the F1 layer, starting at an altitude of about 250 km, another layer of electrons has been discovered. At one time it was thought that this was just another Chapman layer, similar to the D, E, and F1 layers. However, serious discrepancies appeared between the observed daily variations in the electron density and the theoretical values and rates of recombination. Since the theory just did not fit, the scientists went back to their drawing boards and came up with a more acceptable explanation. Now two reactions are believed to take place:



The first reaction is an ion-atom interchange. The atomic ion O^+ changes place with a nitrogen atom in the N_2 molecule to produce a molecular ion, NO^+ . In the second reaction, an electron recombines with the molecular ion NO^+ to form atomic nitrogen and oxygen. It is believed that just above the F1 peak the concentration of molecular nitrogen (N_2) drops. This would occur above the peak of the molecular nitrogen layer mentioned earlier in this article. As the concentration of gas drops, so too does the amount of NO^+ produced by reaction 1, simply because of a lack of nitrogen. As a result, in this region, reaction 2 does not take place to any great extent, since it depends on NO^+ ions. Without reaction 2, electrons remain free and their concentration increases. Another factor governing electrons is their weight. Since they are much lighter than the molecular ions, they diffuse upward more rapidly, thus further increasing their concentration upward. At present, it is thought that at the peak of the F2 layer, the effects of diffusion and recombination are equal. Below the peak, the governing factor is the combined processes of electron production and loss, whereas above the peak, it is the diffusion of electrons and ions. The F2 layer does not disappear by recombination at night since its presence is governed more by the presence of molecular nitrogen than on solar radiation.

Changes in the Electron Layers

As mentioned above, the D, E, and F1 layers are governed by the energy that they receive from the sun. As a region of the ionosphere goes into the earth's shadow, electrons are no longer being produced, and the process of recombination proceeds unhindered. The electron density keeps on dropping until sunlight again strikes the region. During summer, when the daytime electron concentration is very high, the level to which the electron concentration drops just before sunrise is still high compared with the winter levels.

As the earth progresses around the sun in its yearly path, the angle at which the sun's rays hit any spot changes. During December, for instance, the rays come in at a much lower angle in the northern hemisphere than they do in June, and the rays spread out more. Thus it should be that the electron concentration in the various layers should be lower. There is one other factor which slightly changes this. Since the earth is actually closer to the sun in December than in June, the intensity of solar radiation is slightly stronger. This has the effect of producing a greater electron concentration in the F layer.

As most DXers know, the number of sunspots changes in an eleven year cycle. Changes in the solar activity somehow affect the number of electrons present in the ionosphere, but the exact reason is not clear. Perhaps the increased solar activity increases the geomagnetic field of the earth, thus allowing more electrons to be trapped. The absorption of radio waves does increase in years of high solar activity.

On occasion the sun sends out flares, or streams of charged particles. When they reach the earth, they cause disruptions in the Van Allen belts of charged particles high above the ionosphere. Electrons and protons fall from the Van Allen belts into the ionosphere, changing the electron concentration drastically. Gordon P. Nelson, in his lengthy article on Medium Wave Signal Paths in 1969-70 has described fully what happens on such occasions when "auroral conditions" are produced.

Next: Part II: Radio Waves and the Ionosphere.

DX NEWS

the magazine of the
National Radio Club

99, Cambridge, Ma. 02138

DX NEWS is published 32 times a year - weekly during the winter DX season. It is the ONLY magazine in the world that deals exclusively with the hobby of MW DXing - and has been for almost 40 years!

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DOMESTIC
X
IGEST



EDITOR:

r.j. edmunds
box 946

WYBRO. N.J. 07470

Greetings once again, friends and neighbors. Summer cx have indeed set in by taking just one look at this section, hi. = Tecch.

Call applications

610 WSLB-VA req. WSLC
1250 WLYB-GA req. WQDE
1290 WMIL-WI req. WZUU
1400 KBMI-NV req. KSPY
1530 KCGO-WY req. KCHY

changes

- * 850 ???-IA A check of the lists shows an application here for a CP for Waterloo w/ 500 D3, but no notice of a grant yet, tho' a call has been applied for (KLEU).
- + 1270 WCMR-IN CP: 5000 U4
- + 1390 KCBC-IA NET: A1
- + 1400 WSJM-MI NET: M
- + WERD-FL ex-WRHC
- + 1490 WZBS-PR new call: Ponce CP
- * 1560 WRSJ-PR Remember that old CP for a power increase and a move from Bayamon to San Juan?? Well, it never really happened. FCC denied application for all this, so... is still as in log.

F/2's

APRIL: 3rd MM: WKSK-1600, WPGF-1470, WDXY-1240, WYMB-1410, KWKY-1150, KXEO-1340, WGAU-1340, WJPF-1340, WDIC-1430, KWLA-1530, KLUC-1140; 3rd TU: WPED-810, WGAP-1400, WAHT-1510, WANT-990, WVOP-970, WMVB-1440, WLOV-1370, WFIG-1290; 4th MM: KSYL-970 (chg. time to 0100-0115), WXCL-1350 (chg. time to 0245-0300), KLEO-1480.

SUNSET

- 860 KIPN-AZ Good w/EE lesson (shades of NHK, hi) s/off 2102 in EE,SS, then only last part of SSB. Slogan is "La Voz Mexicana" (Blake Lawrence, Canon Cy., Co.) ** When?? -RJE
- ++ 1000 KKIM-NM CP is on. First hrd 2030 s/off 4/16. Better sig. than KOB w/ "Easy-Listening" format (BL)
- 1480 KHAT-AZ Fair-poor w/KLEO w/ "X-Hat" ex 2055 4/18 (BL)

NEXT DEADLINE FOR DDXD WILL BE WEDNESDAY, MAY 24, 1972. DEADLINES FOR SUBSEQUENT ISSUES WILL APPEAR AT THAT TIME AFTER I DECIDE IF I CAN AFFORD ANY VACATIONS OTHER THAN THE CONVENTION. SPEAKING OF WHICH, ANYONE INTERESTED IN HITTING NASSAU FOR WEDNESDAY-THURSDAY BEFORE CONVENTION WEEK-END, PLEASE CONTACT ME -RJE

MIDNITE TO SUNRISE

- 630 KIDO-ID Good o/u KHOW ending nx, into MoR 0206 4/16 (BL)
- 630 GKRC-MB Fair w/KHOW w/ wx, rr 0516 4/3 (BL)
- 690 WVOK-AL Good w/XETRA w/rr on the "Wake-Up Show" 0618 4/10 (BL)
- 710 WGBS-FL Penetrated KBTR pest w/ fair sig & ID in ET/OC 0430 4/3(BL)

- 810 WSJC-MS Vy gd o/ECMD w/ words of ads 0635 4/10 (BL)
- 850 WYDE-AL Quite good w/ o/w, "Myda" slogans 0621 4/10 (BL)
- 910 CJDV-AB Popped in w/ID, nothing else 0600 4/17 (BL)
- KRIO-TX Came in just after CJDV ID w/ s/on no SSB, then rr 0600 4/17(BL)
- WCOC-MS Hrd on tape replay of above w/ID 0601 u/KRIO 4/17 (BL)
- 950 WLOF-FL W/RS-sounding Top-40 u/KIMN, o/WBBF MOST of AM 4/24, if on MM, there goes EC shot at KJR (Boyd) ** As if it was ever there in the first place or as if YAD was really EC, hi. Anyhow, I think WLOF is SP irreg. - RJE
- 1070 WTSO-WI Even w/ KNX w/ SID, rr 0616 4/17 (BL)
- 1140 WIXC-TN Fair o/CKXL w/ SID, many ads for Huntsville, Al. 0620 4/17 (BL)
- 1190 WOWO-IN Finally w/ nx, Group W sx, vy gd o/KAYQ 0603 4/17, don't laugh, hi (BL) ** Wouldn't think of it, hi -RJE
- 1260 WANE-FL ET-TT w/ID 0229 4/17 (RJE)
- 1280 WMO-IL Vy gd o/KTLK w/ s/on, SSB 0602 4/10 (BL)
- 1340 KSIL-NM Good w/ TC, ID, w/off of ET 0216 4/15 w/TT (BL)
- + 1350 GJLM-CA In/out w/ WSLR, WOME in FF again 0120 4/17, so is AN MM's (RJE)
- 1400 WPAM-PA One of my closest unheards finally logged w/ ET-TT w/ 1kHz TT & frequent ID's 4/17 0112, etc. o/u unID 400 Hz TT (RJE)
- + 1450 WMAJ-PA W/Top 40, nx at :55 & "Silhouettes" pgm 0150-0205+, s/off 0229 gives MM SP 0230-0555 (Wes Boyd, Youngstown, Ohio)
- +++ CHEF-QU Error in listed power in previous issues: IS 10000/2500 BL (RJE)
- 1480 WSAR-MA ID 0359, so assume is the rr hrd 4/24 u/WLEE and other MM's too (Wes) ** 'Tis indeed - RJE
- 1500 WDEN-GA With another in the continuing series of every-3-weeks ETs hrd 4/17 w/ ID 0108 (RJE)
- 1550 KKJO-MO ET-TT-ID 0215 4/17 (RJE)
unID ET-TT-OC 4/18 0038 t/in - 0100 +/- ID hrd 0047 as " W-(static)-1550 kilohertz while monitoring TRF, help?? (RJE)
- WCVL-IN Hrd into Al nx 0100 4/18 (RJE)
- 1560 KDDA-AR Poor w/ s/on ssb 0630 4/17 (BL)
- 1600 WMCR-NY ET-TT-OC here 0040-0200+ 4/17. Tho' no ID, almost had to be this by bearing & strength. (RJE, PT)

NOTES: Re building of loops: Newark Electronics is apparently going out of business. Parts will have to be obtained elsewhere. As to the tuning Capacitor, Hammarlund no longer makes any of their own air-core caps. All are done by Cardwell Condenser, Lindbergh, L.I., N.Y. And the cost for an MC-325-M needed for loops has increased from about \$4.00 to \$13.25 or so. I am trying to buy up a surplus supplier on these at the old prices before he gets wise to it all. Please bear with this mess.

Thassit for regular stuff. Below, I'll try to run the new Mutual Black Network list such as it is at present. Many more stations are expected to add on. I hereby officially designate this net with the log symbol "B".

73, RJE RJE

STATIONS CURRENTLY LISTED AS AFFILIATES FOR MUTUAL BLACK NETWORK

630	KXOK-MD	11:00	WERD-FL	11:00	WWIN-MD	1590	KPRS-MO
950	WGRT-IL	11:20	WBFD-FL	11:30	KCOH-TX		
1120	WUST-DC	11:40	KOKY-AR	13:40	WIGO-GA		
1280	KVOV-NV	11:50	WENZ-VA	15:40	WABQ-OH		
1380	KJET-TX	11:30	WNJR-NJ	15:80	WVKO-OH		

(MORE STATIONS FOR THIS LIST AS THEY BECOME AVAILABLE.)

* * * * *

AND THESE LAST-MINUTE CBC CHANGES:

+ 630	CP -BC	Kelsey Bay, 40/40 U1 E	+ 1350	CP -BC	Keremeos, 40/40 U1
+ 740	CP -BC	Jaffray, 40/40 U1 E	+ 1450	CP -BC	Cache Creek, 40/40
+ 900	CP -BC	Radium Springs, 40/40 U1 E			U1 E



Editor: Blake Lawrence · Box 803 · Cañon City, CO 81212

Hello all. Not much on hand for this time - the only printable reports were those on dominant stations. I say these were the only printable reports because a couple of ECers reported local formats, and they do not appear. I will only print dominant stations reported by Easterners, as there is already an Eastern edition of this column including formats, unID's, and questions. ECers, I repeat: please report only dominants to me - other stuff goes to Eric.

DOMINANTS ON 680 kHz:

"Days: WRKO Mass. Nights: WRKO, w/Puerto Rico (WAPA -ed) and Cuba underneath and WPTF (N.C.) way under." (Bill Bailey, Holden, Mass.)
 "Days: WGBM Baltimore, something very weak under, suspect WRKO since they're on top of 680 in Northeast Philadelphia during the days. Nights: The old CHFI heard a couple of times, WRKO a couple of times, WPTF til pattern change, WGAN a few times, but mostly WAPA-P.R. nights. When I lived in PA., a few years back, I managed to get all but SIX of the US stations on 680 within a week-hi!" (Dave Schmidt, Wilmington, Del.)
 "DAY - CFTR well atop WGAN/WISR. NIGHT - CFTR/WGBM/WPTF all about even. MM's = KNBR and whosoever of the above 3 decide to stay on. Nothing else can be described as regular on this channel." (Bob Shaw, Elyria, Ohio)
 "WRKO Day, nite, occ. WPTF mm before WRKO s/on." (Sheldon Swartz, Sharon, Mass.)
 "KNBR; MM's CJOB through." (Richard Wood, Baton Rouge, La.; DXing from Hawaii)
 "Clear days here, KFEQ, KJKA, KBAT fight at SSS, KNBR with KJKA under at night, KNBR MM's. Before KNBR went NSP, CJOB/KBAT/XELG hrd on MM's. ed.

DOMINANTS ON 1380 kHz:

"Days: WNRI, R.I. w/WBNX, N.Y. plus 2 unID underneath. Nights: WSYB, Vt., WBNX N.Y. and others including WAMS, Del. SSS: WSYB Vt." (Bailey)
 "Days: WAMS-Wilmington, strong but they mull nicely. Nights: WAMS, but they're completely nullable. Also WTRR once, WFOB once, WJCY on RS once, WBNX a few times WAOK once, mostly JKPC at SRS and nights, sometimes rather rough on WAMS. WAMS is about 10 miles away from here." (Schmidt)
 "DAY - Local WLRO. Night - JKPC/WAOK/KWK/JRUX/JTNR - in approximately that order, totally a mess. AN - WAOK/JTNR -and if WBNX is AN again, they're there too. MMs- KUDL till 0300, then XE30. SRS(MMs, pre-WLRO s/on) - WPLB/WFOB." (Shaw)
 "Day: WNRI-RI, SSS - WSYB Vt., Nite - WBNX/WSYB" (Swartz)
 "KRLH slop here days, KPLW at SSS (summer only), KS10/KOTA/KTSM/others at SSS in winter, nearly same situation at night, though KOTA is generally weaker; AN: KUDL mixed up w/KTSM for a while, KWK sometimes there too. MM: KUDL til s/off, then KRKO; WMEE becoming regular at 0500 s/on. -ed.

And that about does it. Richard Wood sent a long list of Hawaiian dominants which will appear in pieces from time to time, space permitting. Next dominant freqs will be 570, 910, and 1250 (3 next time, as response has been excellent). Deadline not definite: mid June is fine. Please report through the summer months.

So much for this edition; 73 de BNL.



WHO WILL STOP THIS??!

--SMC II



Report on a DX Vacation in Hilo, Hawaii

I was mostly on the mainland-dominated Northeast side of the Big Island (Hawai'i), so few Pacific Island stations were noted. All frequencies were dominated from dusk to near dawn by U.S. and Canadian stations. Equipment was HQ-180A, SP-600 and a SM-1 antenna.

- 570 2YA, Wellington, N.Z. with old-fashioned mx, on top 1515 3/30.
 635 Pyongyang, No. Korea good in Japanese svce 1340 4/1.
 660 2YC, Wellington with cultural talk 0805 4/2; into classical mx.
 700 2NR, Grafton, N.S.W. with local weather for NSW 1355 4/1; good; most consistent Aussie from Hilo. The formerly dominant 4QD-1550 was not noted.
 740 Cuba. CMJL, Camaguey, La Voz de Cuba with IS 4/3 0928. One of several loud Cubans noted.
 750 KFQD, Anchorage with local spot 3/25 0815 and nightly thereafter. This was consistently the only Alaskan noted from Hilo.
 770 3LO Melbourne, Vic. with God Save the Queen and s/off 1402 4/1. This was the 2nd best Aussie noted, after 2NR-700.
 820 North Korea with drama in Korean 4/1 1350 and was // 877.5 kHz.
 967 North Korea. Pyongyang noted with talk in Korean at 1200 4/3.
 990 Mexico. XECL, Mexicali, B.C. with ID as "XECL Radio Mexico" 2/21 0600 in the null of dominant KKIS.
 1010 Asiatic RSFSR unID here relaying Moscow Russian pgm 3/22 0830.
 1040 China, P.R. Peking Japanese service s/on at 1030 3/19, very good. ID was "Kochirawa Pekin hōsō desu" and was the loudest Asian noted.
 1050 Mexico. XED, Mexicali noted with spot "aqui en Mexicali" ; 1045 3/29.
 1140 VoA, Poro, Philippines with talk in Vietnamese at 1215 4/3.
 1220 Mexico. XEB, La B Grande de Mexico ran AN 4/2; now NSP?
 1240 JOLF, Tokyo, Japan alternating talks and light music 3/29 0800.
 1250 Khabarovsk, Aisatic RSFSR noted with Moscow Chinese service news, 1500 3/30
 1310 Japan. JOUF, Tokyo with Japanese talk, U.S. music at 1140 4/3.
 1440 Marshall Islands. WSZO, Majuro heard with island rhythms at 0900 3/20, ID given by male; fair, first Pacific Island station noted from Hilo.
 1450 Japan. JOQM, Sapporo with Japanese talk 4/2 at 0845.

--Richard E. Wood
 Dept. of Foreign Languages
 Louisiana State U.
 Baton Rouge, LA 70803

All times above are in GMT

The following report is from Cesar Objio, Santo Domingo, Dom. Rep. :

- 540 Venezuela. Radio Perija, YVOV, Villa del Rosario, which is usually listed on 800 kHz (a useless freq. here due to PJB) was heard here on 4/8 at 0030 on a transistor set during a blackout in Santo Domingo, with local stations silent.
 675 Nicaragua. Union Radio, YND Managua was heard IDing as "Nueva Union Radio" and announcing a telephone number for listeners requests: 2-3440. They were quite strong on 4/1 at 0540.
 1440 Colombia. Radio Popular is a new station hrd for the first time on 3/31 IDing at 0102.
 1586 Germany. Langenberg, heard very well with operetta waltzes at 0345 on 3/31. This info is for those interested in TAs as they are not so easy here.

Spanish Sahara's station at El Aaiun is now reported on 650 kHz and is operating with 50 kw. Info from Lisbon EBU via Arctic. EBU also reports Beromunster has recently been alternating between 527, 528 and 529 kHz on a day-to-day basis as of last February with the Algerian around 534. Will have more next issue, watch GPN's section.

MERENGUE

by César Objio.

Haiti as the Dominican Republic use the same name for this kind of popular music, on the island; that is *Merengue*. But this dance music differs so much from one country to the other, as heard and danced by the people of both countries.

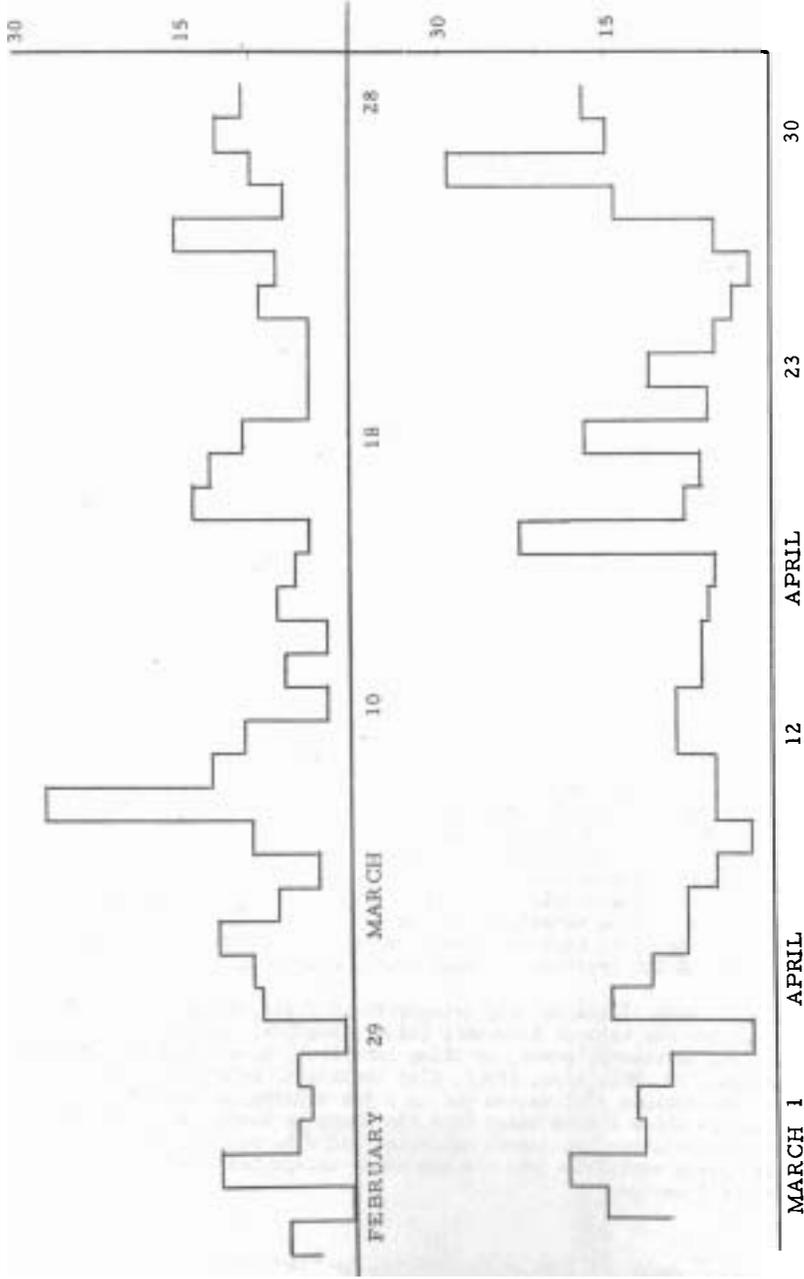
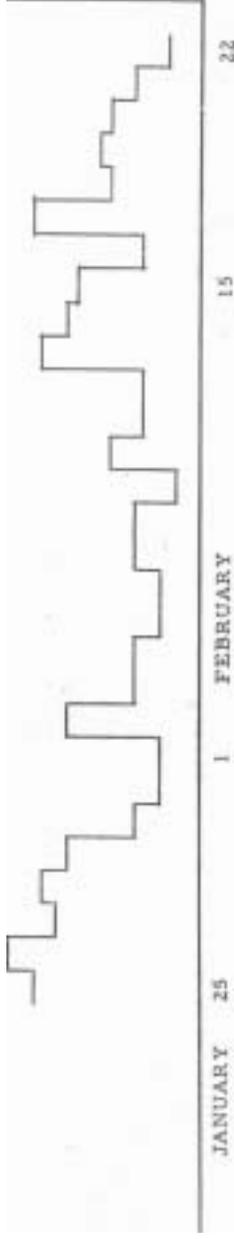
Dominican *merengue*, and the one most heard abroad, begins with a slow introduction not usually danced by the couples; this introduction seems to be as a call to the dancers to come to the dance hall. It is a short one and is repeated, after that the melody starts with a slightly faster beat than the introduction in which the words describe the theme of the song. Some time later a much faster beat comes with shorter phrases, this part is like a culmination of the *merengue* in which the dancers have to accelerate their steps in order to keep pace with the beat, this last part is named *Taleo*. After not long a while the song ends with 4 notes fast and in an ascending order, a sudden stop, two more and strong notes marks the end with a sudden stop. The four notes is a notice of the coming end.



Merengue is usually played by 3 musicians: one with a local instrument named *güira*, this is a kind of metal cylinder closed on pointed ends, main body is made with a rough surface to be scratched with a 3-pronged instrument producing a shrill sound to keep the beat of the music. Into the country this instrument is made off a long, empty and dried out pumpkin, the rough surface in the middle is carved out with a knife in the way of many parallel grooves. There is also a hole on the opposite side into which the left hand thumb is inserted as a holding place; a second player is one with a portable drum hanging on his chest with a rope around his neck, hitting on both sides and with both hands, or with sticks. The main player is the one who plays the melody on an accordion; the 3 players sing in chorus the words. This is the most typical ensemble for playing the Dominican *merengue*, sometimes named *Perico ripiao*. Translation of this name means like "shredded parrot" but I don't know either the origin or the sense of it.) A complete orchestra can also play it with more instruments but using always these three basic instruments. Sometimes a saxophone is used instead of an accordion.

Haitian *merengue* is quite different. The melody is played always with the same unchangeable beat, it is slower and very monotonous, but dancing is gay, as in little jumps. Dancing of the Dominican *merengue* looks like a lame walking. Haitian music has become moder and is usually played in night clubs with electric guitars, musical amplifiers, drums, electric organs, etc. Nothing like this happens with the Dominican *merengue*, if any of the basic instruments is not used the "essence" or typical air of it is destroyed

This graph shows the daily values of A_f , the Fredericksburg index of geomagnetic/auroral disturbance in the Earth's magnetic field. High values of A_f occur during a heavy influx of electrically charged particles into the upper atmosphere as the result of certain types of solar disturbances. The medium-wave signal absorption produced by one of these events is strongest in high latitudes and persists for some days following the initial particle influx. Values of A_f above about 20 are inevitably associated with high levels of absorption along high-latitude TA and TP signal paths. Very high values (above about 40) are usually accompanied by E layer blanketing over North America and Europe; on such a night stations from the South will appear to dominate most channels. Long periods of low geomagnetic/auroral activity are necessary but not sufficient to guarantee excellent high latitude TA and TP reception - other ionospheric effects such as the "Midwinter Anomaly" may effectively mask what would otherwise be periods of excellent reception on high latitude paths during periods of continued low geomagnetic/auroral activity.



INFORMATION, PLEASE

Father Jack Pejza

After you have DXed for a number of years, you acquire a great deal of information about the stations you have heard. At times I have become very frustrated trying to find some bit of information--format, s/off time, or whatever--which I recorded somewhere in my log. It would be nice to have a system of filing information which makes access to the information very easy. Those who have access to a computer can keep their log quite easily, and are able to produce a list, for instance, of daytimers heard on frequency checks, in a matter of seconds. Most of us, however, don't have computers available and thus must depend on memory and lists to keep our information straight.

A number of years ago I came across a system of filing information which makes it easy to recover whatever information one wishes. The system consists of punchcards, cards which have a series of holes punched around the edges. Information is recorded on the card, and then some of the holes are notched. For example, one hole might stand for daytimers. If the station recorded on the card is a daytimer, that hole is notched. After the whole pack of cards, one for each station, is assembled, to collect the cards for the daytimers you push a rod through that hole in all the cards. Since you have notched that hole for all daytimers, only they will fall off the rod.

Something similar can be done for numerical data. For instance, one hole can stand for all the 600's, another for the 700's, etc. A second set of holes can be designated for the 10's, 20's, etc. One big advantage about this filing system is that the cards do not have to be kept in any special kind of order.

About three years ago, I tried this punchcard technique to help me as editor of *DX WorldWide*, in *DX Monitor*. I kept cards on all foreign stations reported in *DXWW* and *IDXD*. I kept it up for about a year. My major problem at that time was that I had to hand-punch all the holes--about 50 on the cards I was using. This got to be too time-consuming, so I eventually abandoned the system. Now I have discovered a commercial source for such punchcards: Indecks, Arlington, Vermont 05250. They make about six different styles of cards. The ones I am using for my personal log are called the Research Deck. They consist of 5 1/2 x 8 cards with 2 rows of 110 holes around the edges. The advantage of the two-row system is that numbers can be indicated by many fewer holes than in a one-row system. For instance, in my old system, I needed 22 holes just to indicate only the even channels between 540 and 1600; on the double-row cards, I need only 16 outer-row holes to indicate all numbers between 0000 and 9999.

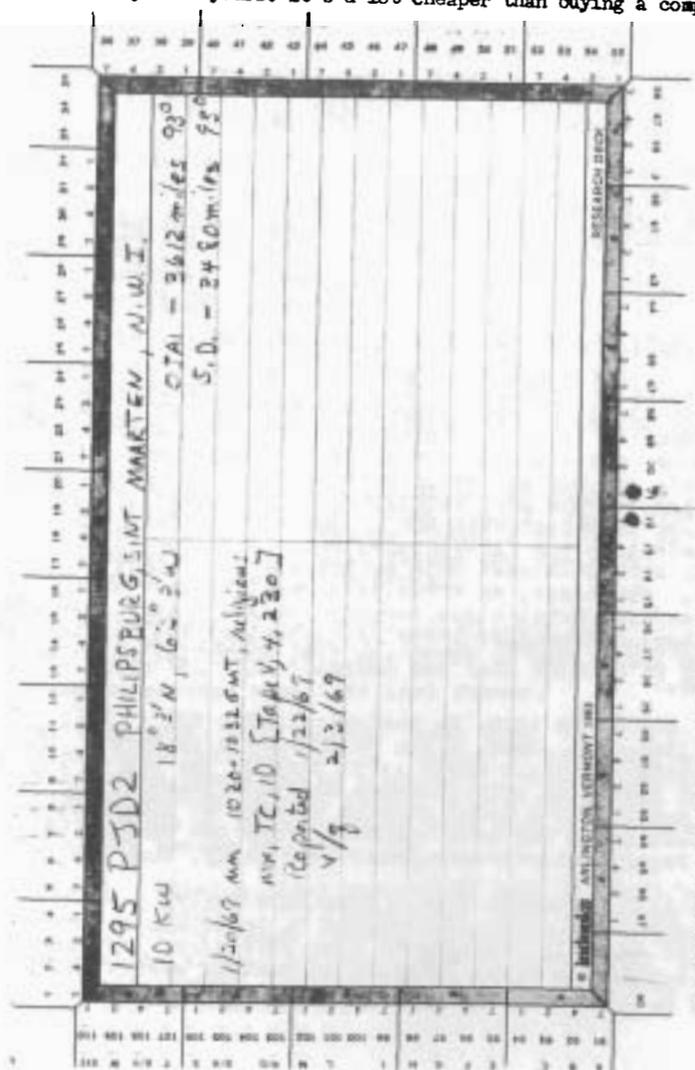
I have listed all states, provinces, and countries by number. For example, California is 205, Alberta is 260, and Cuba is 110. In this system I need only 12 outer-row holes to list all countries/states/provinces in the world. I could also have listed 100 locations in each state, etc. by using an additional 8 outer-row holes.

I have listed as many categories as I wanted for each station. I have categories for type of frequency (clear, regional, local); type of station (unlimited, daytimer); power, my DXing locations; time heard (day, evening, after midnight, SM, MM); s/on, s/off, f/c; tentative, reported, verified, taped. Thus I could assemble if I wanted to, in a few minutes, a list of all verified Kansas daytimers which I have heard from San Diego on Monday mornings on frequency checks. The possibilities are almost unlimited for data recorded. I still have a great many spaces available, and can add other categories, such as distance, at a later date if I desire.

Who'd-a-think-it? FIP writing articles for "THE OTHER CLUB'S BULLETIN"... BPC (6-6)
(quote from RFS)

At present, I am going back over my log, making out cards for all stations which I have heard. Next season I plan to start another deck for all foreign stations reported, to help with *DXWW*. The biggest problem in this method, or in any method, of filing information is taking the time to record the information and keep it up to date. If you could start such a system right at the time you begin to DX, you'd have it made, because it only takes a few minutes to fill out a card for a new station or to add a bit of new information on a card. When you try to go back over four or five years' worth of information, it takes a lot of time. Right now, I'm only up to 1969 in making out cards, but when I'm done, I can give you all the information you want about the stations I've heard.

Naturally such a system has other disadvantages besides the time needed to keep it up. The cost is a big factor. 600 cards cost about \$25.00. Indecks has an introductory deck of 200 cards, including instructions, file box, hole repair sheet, etc. for about \$10.00. If you happen to be a nut on statistics, as I do, and you want to be able to retrieve your information quickly, this is a relatively small expense over a couple of years. It's a lot cheaper than buying a computer!



A SAMPLE REFERENCE CARD. NOTE THAT THE SMALL HOLES THAT FIP REFERS TO ARE IN BETWEEN THE SMALL NUMBERS AND LETTERS AROUND THE PERIMETER. NOT PRINTABLE.
110.

DXING RARE AFRICANS ... SYSTEMATICALLY

by
page taylor and russ edmonds

Foreign DXing beyond the 75-country mark often becomes a more formidable task than need be. When the DXer has exhausted most of the possible Western Hemisphere loggings, the easier TAs and a few TPs, only the challenging and seemingly "impossible" areas of "esoteric Africa" remain. Hopefully, this article will demonstrate that many of these countries previously written off as impossible receptions are, to be sure, distinct possibilities for DXers on the east coast.

"Who, ME? Hear Gabon? Mozambique?" These two countries have already been heard, not once, but quite occasionally by DXers on the east coast. You can too. And it doesn't require that you dash off to your nearest radio store and pick up an R-390 to accomplish this, either. Perseverance is the major ingredient in attaining success at logging Africans.

When considering your 75-plus targets, a good deal of plotting and scheming is prerequisite to actual dial-spinning. Hew often has a search for an elusive station turned out to be non-productive because a) a look at the schedule in WRTVH would have shown that the station wasn't even on the air at the time; b) checking the Sunrise-Sunset maps would have shown that a sunlit path from the transmitter precluded reception.

The information which follows country-by-country is the result of a compilation undertaken by the authors and has already proven its value by turning "no-shows" into solid loggings. Only stations which have favorable schedules, sufficient power and frequencies relatively clear of interference are included here. Other emissions have been based on stations which just plain don't get out and would have a better chance of being logged from the Sea of Tranquillity or the Ocean of Storms. Times shown in parentheses are in Eastern Standard, and are interpolated for the fifteenth of each month, based on the Worldwide sunrise-sunset maps as prepared by Father Jack Pejza for IRCA. Therefore, an error of several minutes must be allowed for, as several trial times computed by NRC's sunrise-sunset charts show. Asterisked items indicate that the station has been logged at least once in North America, according to information available.

ANGOLA: 944 ORORB 10kw. R. Ecclesia; listed NSP (1)
1367 --- 10kw. A Voz de Angola; s/en 0000
Both stations possible early April through the end of August, with last traces of ORTF-Toulouse and RNI disappearing, respectively. June, with a local sunrise of 0015 at Luanda appears to be the best month for both stations. The 944 channel will be free of French interference until 0020 daily, when the OG appears.

BURUNDI: 1115 Bujumbura 1 kw.; s/en 2230 daily.
Channel should be clear of European TA interference year-round except for possibly Kaliningrad after 2300 s/en; LAs will be more of a nuisance here. Sunrise in January occurs at 2315, allowing a full 45 minutes of search. June 21 sunrise at 2300.

CAMEROON: Younde 998 10kw. listed s/en 0000
" 1286 1kw. "
Doula 1106 10kw. listed s/en 0000

It appears that receptions of these stations will occur only in January (0030), February (0030) and March (0020). April, August, September and December are marginal months, with only 10-15 minutes of time between s/en and sunrise. During the optimum 3 winter months already mentioned, 1286 and 1106 are more than likely going to be besieged with QRM from European TAs. Hope for a fairly high Apr to destroy receptions of Prague, Frankfurt and Vilnius. However, 998 looks like the best possibility.

CHAD: Ft. Lamy 1538 1kw. listed s/en 2330 in FF
LA news at 2340

Sara (vernacular) at 2350
May (2345), June (marginal, 2335), July (2345) and August (2350) will be best for logging this station, due to a severe problem taking the form of super-powered Deutschlandfunk.

CONGO (KINSHASHA): Kinshasha 835v 10kw. listed 2300-2200 daily
692 10kw.

Mbuji-mayi 1043 20kw. listed 2300 s/en
The 835v. should be a good bet year 'round, as sunrise occurs within 15 minutes of 0000 the year 'round. The 692 frequency should be clear of European RM in May (2355), June (0000), July (0000) and August (0000). Mbuji-Mayi should be free of Dresden interference from late April through September. We wonder if the 692 station has been logged in North America? (2)

CONGO (BRAZZAVILLE): Brazzaville 1475 4kw. listed s/en 2330
Sunrise same as Kinshasha above; Best months April-September in the absence of Vienna, but interference from the LAs to be expected.

DAHOMEY: Cotonou 1475 1kw. listed s/en 0015
Optimum months are May (0035), June (0035), July (0040), August (0040), perhaps September (0045). However, latest sunrise occurs in January with Vienna and Spain still very much alive and well ... them's the breaks. (3)

GABON: *Libreville 1554 20kw. s/en 2330
Best audible May (0020) through August (0020) with ORTF-Nice weak but still audible. Carrier and tone appears at 2325, and was heard on several occasions last summer.

GUINEE: *Conakry 1403 100kw. s/en 0100
One of the most reliable of the "esoteric" Africans, and is now heard often enough to be considered quasi-esoteric. Audible April (0140) through August (0145) with steam-roller signals, with last traces of French Common Wave gone. Occasionally heard during winter months as well. (4)

IVORY COAST Abidjan 1493 Program II 1kw. listed s/en 0100
*Baeuke 1578 Program I 5kw. monitored s/en 0100
Possible May (0100), June (0100), *July (0110) and August (0105) but never noted without at least some Portugal QRM. Baeuke on 1578 has a delightful habit of fading down just at ID time and returning like a bomb for a few minutes with music at local SR!

KENYA *Nairobi 746 100kw. General Service (EE) Listed s/en 2200

Aside from interference from a wandering HRW-745v, this elusive catch should be audible April (2230) through August (2235). (5)

LESOTHO Maseru 899 10kw. Listed s/en 2300

This deep African should be free of Milan interference in May (2345), June (0000) and July (0000). On most receivers used by DXers, this will be a super-roughie, as a signal must be near-local level to produce any audio on this frequency. Working this close to OHML, OUIS and XEW can be an experience, hi.

LIBERIA Monrovia KIMA 710 10kw. Listed 0115 s/en.

An understatement would be to say that an unannounced SP from WOR, CJRN and Castro's jamming machine would be a great help here. Months April (0130), May (0125), July (0130) and August (0135) would probably be most fruitful. We eliminated 629 as a possibility, due again to the proximity to a domestic channel cluttered with junk. We understand, however, that this 629 channel has been lagged by one Gordon Nelson (AEA!). (6)

MALAWI *Blantyre 755 10kw. Listed s/en 2157

This will remain a clear channel and an excellent possibility for those of us fortunate enough to have no ITV problems. Times in parentheses indicate time of Blantyre sunrise: April (2250), May (2255) June (2305) July (2350) August (2305). (7)

MALI *Bamako 1434 60kw. Listed s/cm 0100, monitored same 1268 4kw. Listed s/en 0100.

Of course, the 1434 frequency is the best bet. Keep in mind that the Netherlands Antilles station on 1435 maintains OC all night long. April (0120), May (0110), July (0110), and August (0120). (8)

MAURITANIA *Nouakchott 1349 20kw. Monitored s/en 0200

Audible only in winter months: November (0210), December (0235), January (0235), February (0235), and March (0210). March will be the best month to log this one without the help of an aurora. Otherwise the French Ocean Wave will rule the frequency.

MOZAMBIQUE *Lourenço Marques 737 50kw. Pgn.A s/en 2300
" " 917 50kw. Pgn.B Listed NSP
" " 1358 10kw. Pgn.B

June is the best month for 737, with local sunrise at 2335. Note that Barcelona sunrise is at 2320, leaving a full 15 minutes of Mozambique clear. Same applies for 917. The 1358 frequency might be worthy of attention from April (2305) through July (2325), as Germany will be either at the threshold of audibility or completely gone during these months. (9)

NIGERIA *Lagos 1088 10kw. Monitored s/en 2330; IS from 2325.

*Ibadan 1358 10kw. Monitored s/en 2330

The months April (0035) through August (0030) will find both frequencies clear of any other interference. Note that both stations will remain "In" for a full hour. These two stations are becoming such reliable receptions through the summer months that they are fast losing the status of "esoteric".

RHODESIA: Gwelo 611 100kw. General Service (EE) Listed 2255. We are hard-put to find a Rhodesian frequency that will find its way to EONA. This one at least has the power to accomplish this. June should be the best month, with sunrise at 2330; other possible months include April (2310), May (2315), July (2320) and August (2320).

SENEGAL: *Dakar 764 200kw. Monitored s/en 0100
*Dakar 1538 10kw. " " "
*Kaolack 1286 5kw. " " "
*Fatick 1502 1kw. Monitored s/en 0100
*St.-Louis 1484 1kw. " " "

Senegal undoubtedly holds the distinction of being the easiest of the quasi-esoterics to be audible in North America. Dakar on 764 is heard frequently on the west coast. As can be seen, all the above frequencies have been heard in North America, most of them being fairly easy. August, with a sunrise time of 0150 will be the best month to log the regionals on 1538, 1286, 1502 and 1484. Every season for the past several years has shown excellent signals from these elusive regionals, and Fatick on 1502 is a most noteworthy example.

SIERRA LEONE: *Freetown 1205 10kw. Monitored s/en 0100

This signal can be heard with relative ease from March (0200) through September (0130), and has also been heard on the west coast. Carrier appears at approximately 0053, and interval signal begins for a solid five minute interval from 0055 to sign-on. The IS, incidentally, consists of NINE (9) musical tones played on a GRESSE, a chime-like instrument.

REPUBLIC OF SOUTH AFRICA: Capetown 728 10kw. Commercial NSP
Pietersburg 863 5kw. Afrikaans; Listed s/en 2258
Pietermaritzburg 845 5kw. Commercial; Listed NSP
Port Elizabeth 1043 2kw. Afrikaans; Listed 2258

We have not noticed any reported receptions of South Africa in quite a few seasons; suggestions and/or comments from the membership are solicited. Capetown-728 should be looked after in June (0050) and July (0045). Port Elizabeth will be clear on 1043 until 0000 sunrise from May through August, give or take a few minutes each month. Look for Pietermaritzburg in June with a 2345 sunrise and a frequency clear of Rome. Pietersburg follows roughly the same time delineations as Pietermaritzburg. (10)

SUDAN: Omdurman 764 100kw. Listed s/en 2300

This signal will be audible only in December (2310), January (2320) and February (2310). As a word of consolation, the most likely interference from a TA this time of year and at the time of day would be Odessa! (11)

SWAZILAND Mbabane 881 10kw. Listed s/en 2330

This should be audible, if at all, in June only with a sunrise time of 2335, most critical. Should be a bit easier if WOBIS were to be on AIR or be accidentally off due to malfunction, say, on June 21!

TANZANIA: Dar-Es-Salaam 656 100kw. Commercial Svc.; Listed 2200
Here's another near-impossible east African to conjecture with; It'll be possible from April (2220) through August (2235), but will be a lot of fun with YSS a kHz. away. (12)

TOGO: *Lome 1394 20kw. S/on 0030; news in FF 0035. March (0045), July (0045) and August (0045) appear best for logging this station, without benefit of Tirana and Spain fighting for priority.

UGANDA: Kampala 575 100kw. Red Netw. Listed 2200
638 20kw. Blue Netw. " "
728 100kw. Red Netw. " "
998 100kw. Red Netw. " "

Obviously, none of these rank "easy." Red Network on 575 is going to have Costa Rica problems, 638 is working pretty close to Cuba, 728 close to Montreal and 998 close to WOFL. Latest time of sunrise occurs in August at 2255. Start looking in May (2235) continue through June (2240) and July (2235). Then, go swimming and fishing until next summer's African season.

ZAMBIA: Kitwe 548 20kw. General Service; listed 2155
At least, there is a very generous amount of time in which to search 548; in April, until 2315; May (2330), June (2330), July (2320), and August (2330).

Remember, gentlemen, persevere! Oh, and "Happy Safari!"

APPEND A & COMMENTS ON ABOVE ARTICLE

*Gordon P. Nelson

- (1) Angola. When we made the first North American reception of this one some years ago they were operating on 872 with 10 kw; reception in October was quite good all things considered. . . The 10 kw outlet then moved up to 1088 where we got readable traces mixed in with Nigeria right after s/on at 0500 during May and June summer before last. This year they are running a full 100 kw on 1088 and I suspect this is by far the best bet; listen for the characteristic Portuguese National anthem at sign-on 0500.
- (2) No definite logging of this one has been reported yet though several EC DX'ers have gotten tentative signals on 692. This is a two tower job, beamed to the north which probably accounts for its mediocre performance despite the very high power.
- (3) Dahomey. This one has been QSL'ed by Ben Dangerfield (Pa.) and John Tweedie (N. J.) but it was at least a half-dozen years ago before the QRM got to be quite so bad. . .
- (4) Guinea. This one consistently operates just far enough off the nominal channel of 1403 to be a dead giveaway; latest measured frequency (April) was 1402.750. If you've some signal from both Conakry and the ORTF stations on the channel there'll be a nasty 250 cycle heterodyne to get by.
- (5) Kenya. There's been no positive logging, taping, or QSL on this one yet; all we've had here in New England is weak carrier with a correct direction finding bearing.

- (6) This one was still drifting a bit following its move from 650 when we taped them summer before last on 629.12 kHz. No one's gotten a freq measurement since then as far as I know. . . Modulation is rather shallow and the announcer has a thick accent. Multiple mechanical filters probably a must.
 - (7) Malawi. No definite loggings in North America yet as far as I know; we've been getting weak carrier with proper direction finding bearing around 2200 every summer since 1965 but no audio yet. . .
 - (8) Mali. Latest measured EBU frequency (made about a month ago) was 1433.9 kHz.
 - (9) Mozambique. Only 737 has been heard here; traces of RNE are detectable in midsummer past 2330 so great care must be taken in identification; the African has regularly run a tone test sequence before actual signon during past summers and this may materially aid in identification.
 - (10) South Africa. This is a very rough country to snag; our best receptions have always been on 1286 shortly after s/on 2200 - frequently jumbled in with Prague who's usually going through s/on routine about this time. Ben D. 's had more luck with these stations than any of the rest of us; I think he'll back me up on my contention that 1286 is your best chance for this country, slim though that chance might be. . .
 - (11) EBU signal strength readings show that this station is operating with a much lower effective radiated power than suggested by the listed power; only very weak carriers noted running nonstop during Ramadan during the past few years.
 - (12) Tanzania. The only NA reception of this was in 1965 while they were on 638 khz; they produced fair-ish signals around s/on 2200 but the modulation of this Chinese-built transmitter is (or rather, was) so shallow that pulling audio is a real problem. While the cats in Jersey probably can't hack the splash from 660, this one should not be ruled out for those away from Fun City. . .
- Good direction finding is probably the single most useful special tool for snagging these stations; without good loop bearings on these very weak signals you'll end up spending most of your time trying to get African identifications from what're actually weak European carriers in the process of fading out or running equipment tests at unexpected hours. And don't let the static get you down at first - while most summer nights are laden with static, every summer features at least a few unusually quiet nights - and that's when the goodies are likely to come limping through!



Greetings from the DX Capital of the world! I am a little later than expected with this column, as reports were not as plentiful as I had hoped. I only got eight this time; two due to a visit paid me by George Greene and Tim Davisson of Akron. The latter works at WCUE. At any rate, this marks the first appearance of the acronyms section of DX'tras. I hope it is a good one, and one which will encourage contributors.

--I would appreciate comments from the membership, and HQ, in regards to listing station formats in the next edition of the Domestic Log. Personally, I think it might be of assistance, although they are subject to much change. Also, I doubt that I would have the time to compile such a list, if it is requested. Thus, if someone likes the idea, and HQ says go ahead, we'll need a volunteer. If, if, if...

--My thanks to Pierre Tremblay for another fine report. Pierre hasn't missed a column yet, I don't think, and his contributions are always in the correct form; besides being accurate. Come on guys, if Pierre can find the time, so can you. ////So much for the BS, here's DX'tras:

I. FORMATS

April

540	KWMT-Ia.	cw(GG)	590	KFXM-Cal.	rr (GG)
	KNOE-Ia.	rr (GG)		WDLP-Fla.	MoR/rr (GG)
	WLIX-NY	MoR ¹ (GG)		WRTH-Ill.	MoR ¹ (GG)
	WYLO-Wis	cw (GG)		WEEL-Mass	tk (GG)
	WDAK-Ga.	rr (GG)		WOW-Neb.	MoR (GG)
	WDMV-Md.	rr (LVH)		WARM-Pa.	rr (GG)
	CBK-Sask.	Ft:CBC (PT)	600	KOGO-Cal.	MoR (GG)
	CBT-Nfld.	Ft:CBC (PT)		KSJB-ND	rr (GG)
550	WKRC-O.	MoR/rr (dm)		CJOR-BC	cw/tk (GG)
	KTSA-Tex.	rr (LVH)		WTAC-Mich	rr (GG)
	KAFY-Cal.	rr (GG)	610	CKYL-Alta	cw/rr (PT)
	WAYR-Fla.	Rel (GG)		WTVN-O.	MoR/rr (dm)
	KFRM-Kans.	cw (GG)		WSGN-Ala.	rr (GG)
	KFYR-ND	rr (GG)		WDAF-Mo.	rr/MoR (GG)
	KCRS-Tex.	rr (GG)	620	WTMT-Ky.	cw (GG)
560	KLZ-Col.	MoR/rr (GG)		WJDX-Miss	rr (GG)
	KSFO-Cal.	MoR (GG)		WVNJ-NJ	MoR ¹ (GG)
	WHYN-Mass	rr (GG)		WHEN-NY	MoR (GG)
	WQTE-Mich	MoR ¹ (GG)		KGW-Ore.	rr (GG)
57	WGAI-NC	rr (LVH)		KTAR-Ariz	MoR (GG)
	CKCN-Que	MoR/rr (PT)		WSUN-Fla.	MoR (LVH)
570	WKBN-O.	rr/cw(night) (TD)		WTMJ-Wis.	MoR/rr (dm)
	KLAC-Cal	cw (GG)	630	CFCO-Ont.	MoR/rr (dm)
	WFSS-Fla	rr (GG)		KMAC-Tex.	Rel/rr/cw (LVH)
	WKYX-Ky.	MoR/rr (GG)		KHOW-Col.	MoR (GG)
	WLLE-NC	r&B (GG)		WSAV-Ga.	MoR (GG)
	WFAA-Tex	rr (GG)		KDWB-Minn.	rr (GG)
580	CKWW-Ont.	rr/MoR (dm)		CHED-Alta	rr (GG)
	CHLC-Que.	MoR(FF) (PT)	680	KBAT-Tex	MoR (LVH)
590	KTBC-Tex	MoR (LVH)		WNYR-NY	cw (GG)
	WGTM-NC	cw (LVH)		CHFA-Alta	(FF) (GG)
	WFLO-Ga	cw (GG)		WCAN-WVa	cw (GG)

¹:so-called "Easy Listening"

680	WWBA-Fla.	MoR (GG)	910	KIXI-Wash	MoR (PT)
	CJOB-Man.	cw (GG)		KNAF-Tex	cw (LVH)
	WRNG-Ga.	tk (GG)	920	WPTX-Md.	rr (LVH)
690	WZAF-Va.	MoR (GG)		WMNI-O.	cw (GG)
	KKUA-Haw.	rr (GG)		WGST-Ga.	rr (GG)
	KGGF-Kans	MoR/rr (GG)		WJAR-R.I.	MoR (GG)
	WTIX-La.	rr (GG)	930	WKXY-Fla	rr (GG)
	KTCR-??	cw (GG)		KITE-Tex	Cl (LVH)
	KHEY-Tex.	cw (GG)	940	WCIT-O.	rr (dm)
700	WLW-Ohio	rr/MoR (dm)		WYLD-La.	r&B (GG)
710	KEEL-La.	rr (LVH)	950	KIMN-Col.	rr (GG)
	WKRQ-Ala	MoR (GG)		KJR-Wash	rr (GG)
	WROM-Ga.	MoR/rr (GG)		WLOP-Fla	rr (GG)
	KMPC-Cal.	MoR (GG)		WXGI-Va	cw (GG)
	WHB-Mo.	rr (GG)		WXLW-Ind	rr (GG)
730	WMS-O.	cw (dm)		#WWJ-Mich	MoR/rr (dm)
	KKDA-Tex	cw (GG)	960	WSET-Ind	rr (dm)
	WPAL-SC	r&B (GG)		WBOC-Md.	MoR (LVH)
	WVIC-Mich	rr (GG)		KABL-Cal	MoR (GG)
740	WSBR-Fla.	MoR (GG)		CKWS-Ont.	MoR/rr (GG)
	WKIR-??	MoR (GG)	970	WIIN-Ga.	rr (GG)
	WBAM-Ala.	rr (GG)		WREQ-O.	rr (GG)
	WNOP-Ky.	MoR/J (GG)		WDDJ-NY(J) ³	rr (PT)
	KBIG-Cal.	MoR ¹ (GG)		WRCS-NC	rr (LVH)
	KYME-Ida.	rr (GG)		KTAP-Tex	MoR (LVH)
	KTRH-Tex.	Nx (LVH)	980	KFWB-Cal	Nx (GG)
	WMBG-Va.	rr (LVH)		WPHG-Va	rr (GG)
750	CPCW-Alta	cw (PT)		WILK-Pa.	rr (GG)
	CHIC-Ont	rr (PT)		WLOD-Fla	MoR ¹ (GG)
	WFUN-Fla.	rr (PT)	990	WHOO-Fla	cw (GG)
	KTHT-Tex	rr (LVH)		WFAB-Fla	(SS) (GG)
	KABC-Cal	tk (GG)		WTIG-O.	rr/MoR (TD)
	WYNR-Ga.	cw (GG)	1010	KAWA-Tex.	cw/Nx (LVH)
	WEAQ-Wis.	rr (GG)		WPMH-Va.	Cl (LVH)
800	KDDD-Tex	cw (LVH)		WGUN-Ga.	cw (GG)
	KUZZ-Cal.	cw (GG)	1030	KLTA-Tex	Rel (LVH)
	KBRN-Col.	cw (GG)	1050	#WPAG-Mich	rr (GG) (dm)
	WSHO-La.	cw (GG)		WAUG-Ga	MOR (GG)
	CJJC-BC	cw (GG)		WSEN-NY	cw (GG)
810	CHQT-Alta	MoR ² (PT)		WCMS-Va.	cw (GG)
850	WRAP-Va.	r&B (LVH)		WZIP-O.	cw (TD)
	WJW-O.	MoR (TD)	1060	CJRP-Que	rr/Tk ⁴ (PT)
	WEAT-Fla	cw (GG)		KHRB-Tex	MoR (LVH)
	WKIX-NC	rr (GG)	1070	WDIA-??	r&B (GG)
	WIVK-Tenn	cw (GG)		KENR-Tex	cw (GG)
870	*WKAR-Mich	tk/MoR/Cl (dm)		KFDI-Kans	cw (GG)
900	*WKIV-Tenn	Rel (MC)		KOPY-Tex	cw (LVH)
	WFRO-O/	MoR (dm)		CFAX- xxxx BC	MoR (PT)
	CHML-Ont.	MoR/rr (PT)			
	CJVI-BC	Tk/MoR (PT)			
	WFLN-Pa.	Cl (PT)			
	WGOK-Ala	r&B (GG)			
	WNYN-O.	MoR ¹ (TD)			
910	WIGS-La.	rr (GG)			
	WFDF-Mich	rr (GG)			
	KDEO-Cal.	MoR (GG)			
	KNEW-Cal.	rr (GG)			
	WABI-Me.	rr (Me)			

³: Should be NJ

⁴: Tk-21:30 to 2300 EST

¹: See First page.

Some Abbr. for those who forget:

rr-Rock MoR-Middle of the Road
 Cl-Classical cw-Country(western)
 Tk-Talk r&B-Rhythm & Blues Nx-News



MUCH MORE FORMATS AS DX'TRAS DX-INFO'S ON!!

(GROK?)

DX'TRAS:EAST GOES ON & ON & ON....

1080	WVCG-Fla.	C1	(GG)	1250	CKJD-Ont.	MoR	(dm)
	WBIE-Ga.	MoR	(GG)	1260	WWOK-Fla.	cw	(PT)
	CKSA-Alta	Block ⁵	(PT)	1270	WTNT-Fla.	rr	(LVH)
	WMVR-O.	rr	(dm)		KFJZ-Tex.	rr	(LVH)
1090	WILD-Mich	MoR	(dm)		WTID-Va.	cw	(LVH)
	KING-Wash	rr	(GG)		WMPM-NC	cw	✕
1110	WALT-Fla	cw	(GG)	1280	WONW-O.	MoR	(dm)
	CHQT-Alta	MoR ⁸	(PT)		CKCV-que.	rr/Tk ⁶	(PT)
	WUNN-Mich	MoR	(dm)		KVMG-Tex	cw	(LVH)
	WELX-O.	cw	(dm)	1290	WNRS-Mich	cw	(dm)
	KDRY-Tex	Rel	(LVH)	1300	*WKQW-NY	MoR	(MC)
	WHIM-RI	cw	(GG)		WERE-O.	tk	(TD)
	KRLA-Cal	rr	(GG)	1310	WRR-Tex.	cw	(LVH)
1130	WDGY-Minn	rr	(GG)		KBUC-Tex.	cw	(LVH)
1140	WCLW-O.	cw	(dm)		WGH-Va.	rr	(LVH)
	CJTR-que.	rr/Tk ⁴	(PT)	1320	WILS-Mich	rr	(dm)
1150	KBER-Tex.	cw	(LVH)	1330	*WEVD-NY	Multi-L.	(MC)
	KIIS-Cal	MoR	(GG)		*WPCW-NY	Rel/Multi-L.	(MC)
	WTMP-Fla	r&B	(GG)		#WFIN-O.	MoR/rr	(dm)
	WJEM-Ga.	cw	(GG)		WELW-O.	MoR	(TD)
	WYFE-III.	rr	(GG)	1340	CFOM-que.	MoR/Ft:CBC/rr ⁷	(PT)
	WJBO-La.	MoR	(GG)		WALL-NY	rr	(PT)
	WCOP-Mass	cw	(GG)		KVOB-La.	cw	(MC)
	KKEY-Ore.	rr	(GG)		WMID-NJ	rr	
	WGOW-Tenn	rr	(GG)		WHAP-Va.	rr	
	WGRK-Tenn	MoR		1350	KCOR-Tex	(SS)	(LVH)
	KAYO-Wash	cw	(GG)		WKIX-Va.	rr	(LVH)
	WKPA-Pa.	cw		1360	WSAI-O.	rr	(TD)
	WYNE-Wis.	rr	(GG)		WWOW-O.	cw	(TD)
	CJRC-Ont.	(FF)			WNNJ-NJ	MoR	(PT)
	CKOC-Ont.	rr			KRYS-Tex	rr	(LVH)
	WCUE-O.	rr	(TD)		WKAT-Fla.	Tk	(PT)
	#WIMA-O.	MoR/rr	(dm)	1380	WLRO-O.	rr	(TD)
1170	WCOV-Ala.	MoR	(GG)		KBOP-Tex.	cw	(LVH)
	KCBQ-Cal	rr	(GG)	1390	WTOO-O.	MoR	(dm)
	KLOK-Cal	rr	(GG)		WCER-Mich	MoR/rr	(dm)
	KUAD-Col.	cw	(GG)		*WFMJ-O.	rr	(TD)
	KVOO-Okla	cw	(GG)	1400	WFTL-Fla.	MoR	(PT)
	KPUG-Wash	rr	(GG)		KVOU-Tex.	cw	(LVH)
1190	WANN-Md.	Rel	(LVH)		WWOZ-Va.	rr	(LVH)
	KRDS-Ariz	cw	(GG)		WJLB-Mich	r&B	(dm)
	KEZY-Cal	rr	(GG)		WMAN-O.	MoR	(dm)
	WAVS-Fla.	MoR ¹	(GG)	1410	CFMB-que.	Multi-Ling/MoR ⁸	(PT)
	WGKA-Ga.	MoR ¹	(GG)	1420	KGNB-Tex	MoR	(LVH)
	WLIB-NY	r&B	(PT)		WDDY-Va.	r&B	(LVH)
1200	WOAI-Tex	rr(Rel:Sun)	(LVH)		WHK-O.	MoR	(dm)
1210	WKNX-Mich	rr	(GG)	1430	WFOB-O.	Tk/MoR	(dm)
1220	CJOC-Alta	rr	(PT)		WNAV-Md	rr	(LVH)
1230	KKAR-Cal	rr	(GG)		KELI-Okla	rr	(LVH)
	WRIB-RI	cw	(GG)	1440	KEYS-Tex.	rr	(LVH)
1250	WNOR-Va	rr	(LVH)				
	WCWA-O.	MoR	(TD)				
	WUBE-O.	cw	(TD)				
1240	WJIM-Mich	rr	(dm)				
	WBBW-O.	MoR ¹	(TD)				
1250	KUKA-Tex	(SS)	(LVH)				
	WYSR-Va.	MoR	(LVH)				
	WMTR-NJ	MoR	(PT)				

5: Day-cw/MoR Night-rr/MoR
6: Tk-0330 to 0500 EST
7: rr after 1930 EST
8: MoR at night;"also bi-lingual"
Other symbols: Rel-Religious
Multi-L.-Multi-Lingual J-Jazz

1450	WLEC-O.	MoR	(TD)	1520	WTTO-O.	rr	(dm)
	WLPM-Va.	rr	(LVH)		WINW-O.	MoR	(TD)
	WIBM-Mich.	MoR	(dm)		WKNT-O.	MoR	(TD)
1460	WMBR-Fla.	MoR	(LVH)	1540	WPME-Pa.	rr	()
	KRME-Tex	cw	(LVH)		KGBC-Tex	rr	(LVH)
	CKRB-que.	MoR/cw	(PT)		KEDA-Tex	(SS)	(LVH)
	WPVL-O.	MoR ¹	(TD)		WRGM-Va.	rr	(LVH)
1470	WSAN-Pa.	rr	(PT)		WABQ-O.	r&B	(TD)
	KREC-Tex	cw	(LVH)		WNIO-O.	rr	(TD)
	WqXL-SC	cw/Rel	(MC)	1550	WVAB-Va.	MoR	(LVH)
1480	KBOX-Tex	cw	(LVH)		CBE-Ont.	Ft:CBC	(dm)
	KAPE-Tex	r&B	(LVH)	1560	WTOD-O.	cw	(dm)
	WCIN-O.	r&B	(TD)		WAGL-SC	r&B/rr	(LVH)
1490	WJMO-O.	r&B/J	(TD)		WRKC-O.	cw	(TD)
	WVEG-Va.	C1	(LVH)	1570	WTCL-O.	rr	(TD)
	WABJ-Mich	MoR	(dm)		KACE-Cal	cw	(MC)
1500	WKIZ-Fla.	rr	(LVH)		WKOL-NY	cw	(MC)
1510	WLKR-O.	MoR	(TD)	1590	KIKN-Tex	cw	(LVH)
	WRAN-NJ	MoR	(PT)		KUUU-Wash	rr	(PT)
1600	WAAM-Mich	rr/MoR	(dm)		WTVB-Mich	rr	(dm)
	WKWF-Fla.	MoR	(LVH)	1600	KBOR-Tex	rr	(LVH)
	KCFH-Tex	cw	(LVH)		WAQI-O.	MoR	(TD)

II. UN-IDENTIFIEDS

1410 //??-?? Hrd 2/8/72 w/female ann. s/off @1845; then Kate Smith singing "God Bless America". Bearing from Homewood, Ill.: S-SW. Signal was weak.(KO)

III. ACRONYMS

(Phonetic Spelling) 1

580	WKAQ-PR	"Mas Musica"
640	WHLO-O.	"Hello Radio"
710	CHYR-Ont.	"Cheer Radio"
730	CHIR-Ont.	"Chir Radio"
800	CKLW-Ont.	"The Big 8" (dm) That shure wuz hard to think up --- C. Hobart, WRKO
=790	CHIC-Ont.	"Where the Girls Are" (PT)
860	WAMC-Pa.	"Whammo"
940	KHOS-Ariz	"Kay-Hoss" (JS)
970	WWSW-Pa.	"Double Double"
1050	CHUM-Ont	"Chum"
1060	WEEP-Pa.	"Weep Radio"
1090	WILD-Mich	"Wide World of Music" (dm)
1130	WASP-Pa.	"Wasp"
	WCAR-Mich	"W-Car" (dm) "The Car that moves the city"
1230	WCWA-O.	"Seaway Radio" (dm)
=1060	CJRP-que.	"Geant Musical" (PT)
1260	WIXY-O.	"Wick-see" (dm)
1290	CJOE-Ont	"Sea-Joe"
	WNRS-Mich	"Winners Radio" (dm)
1310	WKNR-Mich	"Keener Radio" (dm)
=1080	KENR-Tex	"Keener Radio"
1350	WSLR-O.	"Whistler Radio"
1360	WIXZ-Pa.	"Wick-see"
1410	CKVN-BC	"Rock of Vancouver" (PT)
	KqV-Pa.	"The Big 14"
1460	CJOY-Ont	"Sea-Joy"
1470	CHOW-Ont	"Sea-How"
	WOHO-O.	"Woe-Hoe" (dm)

UNCLE BLAKE WANTS YOU
(unless you live back East;
then you should be here!)

C-9-N-MIAMI-N-'72???

ANOTHER PAGE OF THE TOP INFO IN MISCELLANEOUS ITEMS: er, DX'TRAS, EAST.

III. ACRONYMS(CONT'D.)

1500	WDEE-Mich.	"The M Big D" (dm)	
1510	WPSL-Pa.	"Whip-syl"	
1520	WKBW-NY	"Kay-Bee Radio"	NOW IS THE TIME TO
	WTTO-O.	"Big Tee Radio"	SEND IN A REPORT TO
1590	WAKR-O.	"Wacker Radio"	YOUR LOCAL DX'TRAS!
	WZUM-Pa.	"Zoom"	

IV. QUESTIONS

- 1) How come we never get to answer any questions???
- 2) Who is GPN, anyway? (Paul Barker-NJ) (Who cares, hi-Ed.)
Thanks loads---*GPN

In compliance with a new law passed by Congress, anyone contributing their ~~2x~~ 4x worth (inflation, hi) in DX'tras, must be listed openly:

(GG) :George Greene-Akron, Ohio
 TD :Tim Davisson-wCUE-Akron, Ohio
 KO :Ken Onyschuk-Homewood, Illinois
 LVH :Larry Van Horn-FIC New York, NY (3rd Division)
 MC :Mike Collins-Connecticut
 PT :Pierre Tremblay-Quebec, Quebec, Canada
 dm :Dan Myers-Toledo, Ohio (Incidentally, it's not that I don't like Dan, he requested small letters)
 JS :John Shannon-Kittanning, Pa. (Near Kitatining Mtn)

Please excuse all spelling errors. We kindergarten kids have problems, too, you know, hi. Wonder what HQ will do w/the extra space this time around????????????? Who gives a damn, Eric? - HQ
 --Many thanks to all the contributors. Special thanks to those who have reported to more than one section.
 --Send a SASE to find out the real truth behind all those big radio contest wins by Blake Lawrence!!!! (hi) **TI TAE --- BWL**

73's & REPORT NOW!!!

EDP *Eric*

INDIANAPOLIS, March 19 (AP)—It had a touch of romance and adventure: unidentified voices booming thru the night and hard, acid-rock music blaring its defiance for all to hear. But no more. The voice of "Radio Free Naptown" was stilled yesterday when federal authorities arrested seven young men on charges of operating an illegal radio transmitter.

The station reportedly had been operating on both AM and FM frequencies for more than five years.

Assistant United States Atty. John E. Hirschman said two field investigators from the Federal Communication Commission's Chicago office arrived in Indianapolis and asked his help in tracking down the source of the underground broadcasts.

He said the FCC investigators searched for the station by driving around in two detection vehicles with large antennae mounted on top.

Hirschman said that about 2 a.m. yesterday they pinpointed the source and parked near a house on the city's north side.

Five young women were in the house, but they were not charged with the men. Jordan said this was because no female voices had been heard on the station and also because he doubted the women had the technical knowhow to operate the equipment.

FOREIGN CONTEST STANDINGS AS OF 5/1/72:

(GET ALL FINAL ENTRIES IN AS SOON AS POSSIBLE)

PACIFIC DIVISION

	PTS.	FORM
Bundy	323	1
Marley	180	1 *

LA DIVISION

	PTS.	FORM
Edmunds	1124	6
Objio	831	5
Taylor	408	2
Alster	123	1 *
Steele	120	1 *
Parsons	71	1 *

TA DIVISION

Edmunds	925	4
Taylor	863	3
Alster	102	1 *

* denoted final form received

DUE TO THE MEAGER RESPONSE TO THE PAST TWO CONTESTS, I WILL NOT RUN ONE AGAIN NEXT YEAR. IN FACT, IF MORE OF THOSE WHO ENTERED THIS ONE DO NOT SEND IN THEIR ENTRIES, I WILL NOT JUGGLE PRIZES AROUND AS LAST YEAR. IN THIS EVENT, ALL PRIZE MONIES WILL BE TURNED OVER TO THE N.R.C. TREASURY INSTEAD. -RJE, contest manager.

TELEPHONE: 2217

P.O. BOX 669, NEWCASTLE
N.S.W.

AUSTRALIAN BROADCASTING COMMISSION

Mr. J. M. Kadet,
8047 Park Overlook Drive,
BETHESDA,
Maryland 20034. U.S.A.

47 NEWCOMEN STREET,
NEWCASTLE.

23rd February, 1966.

Dear Mr. Kadet,

Thank you for your letter advising of your reception of 2NA on 14th February, 1966.

The information you gave was most interesting and showed without doubt that you were listening to the programme at the time you stated, i.e. between 7.23 and 7.45 p.m. Australian Eastern Time.

The spoken word programme you heard first was a current affairs discussion and the musical programme which began at 7.30 was a recital by the Sydney pianist, Henri Penn.

I am happy to send you with this letter a Q.S.L. card confirming your reception of 2NA and offer you our congratulations on earning it.

Yours sincerely,

E. P. Colman
E. P. COLMAN.

Newcastle Representative.

Pirate Radio Falls
Voices in the Night
Traced—and Stilled

"Killer"
POPKIN
STRIKES
AGAIN!

34
ERC has hit the Schmidt's again... and has assaulted us with another...
COMEDY CORNER

DEFINITION: CHICKEN ROCK. It's what a rooster does to his girl friend.

NEW SHOW FOR CHILDREN. It had to happen sooner or later. Starting next season, there will be an all-nude show for children on Saturday mornings. The only catch is this - it will be on RADIO!

ROCK STATIONS. There are now SEVEN of them in the N.Y.C. area, including AM & FM. WPLM-1390, Plymouth, Mass. is an MoR station. Wouldn't it be groovy if they'd put on at least one rr show a week? They would just HAVE to call it "PLYMOUTH ROCK."

NSP STATIONS. WKBW-1520, an NSP rr station, told us they are AN-7 only because their local competitor is. Know who their local competitor is? WYSL-1400! That's like Montgomery Ward deciding to be open Sundays because there's a guy with a push-cart selling stuff in front of their store on the Sabbath!

ALL-NEWS STATIONS. Within 100 miles, there are FOUR All-news stations, all but one of them NSP, and the other is AN-6. Just think, though - if they all stuck to only GOOD news, they'd be on the air about 15 minutes a week! Two of the stations are in New York, and two are in Philadelphia. Heck, even the baseball news in those towns is BAD NEWS! (Yankees, Phillies).

BROADCASTING recently carried an ad for a c/w DJ for WHVL-1600. On 4/25, a WNBC-660 DJ, "Imus in the Morning" actually called up WHVL while he was on the air, and applied for the job! Both sides of the entire conversation were broadcast over WNBC around 7:40 a.m. PS- Imus was not on the next morning.

Have you noticed? The national crime rate is rising at about the same speed as the all-night broadcasting stations increase! Put that on your turntable and rock it!

We hear one of the local rockers is going to start a new AN show called "Music to Hold up Gas Stations by."

WNYC-830, NEW YORK, has an application in for 50,000 U-3. If they get it, they will also be NSP, with a classical music program from midnight to 6 a.m. Such a show that long will finally force Franz Schubert to finish that symphony. And about time, too. He hasn't had a hit in years.

We have a sports question for you. "Who was the ONLY person to play for both the New York Rangers and the Brooklyn Dodgers?" Answer will appear soon in DX NEWS.

We can't help notice how many NRCers are using new receivers. Well, we heard about a Canadian DXer who is using a radio that is so old it still gets King George!

We've been going to a well-known restaurant in Port Jervis, N.Y. a couple times a year, and only recently did we finally locate the transmitter site of the local graveyarder, WDLG-1490. Where? Right! In the local cemetery!

SCOOP! We have discovered that NSP operation is actually ANTI-AMERICAN! It is a ploy entered into by the various stations so that they will not have to play the National Anthem twice a day, at sign-on and sign-off. No sign offs - no sign-ons - no Star-Spangled Banner! Get it?

A TEXAS FARMER complained to the State Capitol that his cotton crops burned up last Summer. He said it was the state's fault - they burned up, he said, because of the extra hour of daylight brought on by Daylight Saving Time! Who says Musings editors are dull? ---BPC

ANNOUNCING! . . .

THE 1972 ANARC CONVENTION

DATE & TIME: From 4:00 p.m., Friday, July 14, 1972, until noon Sunday, July 16th, 1972.

LOCATION: The Colonial Hilton Inn, Wakefield, Massachusetts.

PROGRAM: Planned are seminars, panel discussions, guest speakers, equipment demonstrations, prizes, -- and much more for DXers of all interests. Full details will be provided in advance of the convention date. But DON'T WAIT--many well-known DXers have already made plans to attend!

REGISTRATION FEE: \$12.00, check or money order only, made payable to "1972 ANARC CONVENTION COMMITTEE". This fee includes the cost of the Saturday night banquet dinner and Sunday morning breakfast. Your check or money order should accompany your registration.

ACCOMODATIONS: Single rooms are now available for \$18 plus tax, and double rooms (two in a room, separate beds) for \$11.50 per person, plus tax. You should reserve a room now by checking the appropriate place on the registration form below, but all payments for rooms will be made by guests at check-out. Room reservations will close June 30, 1972.

TRANSPORTATION: The Colonial Hilton is right off Route 128, and is easily accessible by car. Airport Limosine service is available to and from Boston's Logan International Airport. The Colonial Hilton can also be reached by other modes of transportation (bus & train). Full details will be supplied to each registrant.

Don't wait! Fill out this form now and be sure of getting in on the greatest ANARC convention ever!

NAME _____
ADDRESS _____ CITY _____ STATE _____
MODE OF TRAVEL _____ ZIP _____
DATE OF ARRIVAL _____ DATE OF DEPARTURE _____

- Please register me for the convention. My \$12 is enclosed.
 I would like a single room reserved for me, at \$18 plus tax.
 I would like to share a room with another DXer, at \$11.50 per person, plus tax.

Fill out this form and mail it with your \$12 registration fee today. Send check or money order only, payable to "1972 ANARC CONVENTION COMMITTEE".

Send Them To: Steve P. d'Adolf
16 Westgate Drive; Apt. 201
Woburn, Massachusetts 01801