

dx news

the magazine of the National Radio Club



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NUMBER 10

"I was debating on whether to rejoin, but when NJPC took over I noticed a marked improvement in the magazine. At that time I made up my mind to re-join. Also, I like the clippings that appear in the bulletin, they are really informative." (Terence Feltz, Milwaukee, WI)

ON THE INSIDE

Trans-Polar DX, Parts III & IV - RJE
LA Changes - WRTH via Glenn Hauser
Modifications to the Worcester SM-2 Antenna - Tom Sundstrom

NEW MEMBERS

- * Reid C. Wheeler, 6933 43rd Loop SE, Olympia, WA 98503 (rejoins)
- * LTC Anson D. Reynolds, 1985 Golf Links Rd., Sierra Vista, AZ 85635
- * LTC Henry L. DuRant, Special Activities, USMACHTHAI/JUSMAGT, APO San Francisco, CA. 96346
- * Arch L. Madsen, Bonneville Int'l Corp., 136 E. South Temple St., Suite 2000, Salt Lake City, Utah 84111
- * Gary Schnabl, 3137 Hermina, Madison, WI 53714 (rejoins)
- * Alan Imprescia, 201 E 17th St., Apt. 17C, New York, N.Y. 10003 (re-joins)
- * Thomas B. Morrow, 3715 Seville Dr., Florissant, MO 63033
- * Leon Tannenwald, 1159 E. 10th St., Brooklyn, N.Y. 11230
- * Lowell Pankake, 326 6th Ave SE, Apt. 201, Minneapolis, MN 55414 (rejoins)

RENEWALS

Territo, Schatz, Wesolowski, Nordquist, Brockway, Worcester, S. Kennedy

NOTES &c FROM NJPC.....

We apologise for the "chicken tracks" that graced some of the copy in the last issue. It seems that not all "offset blue" pencils are really invisible to the film our printer uses, and we found it out the hard way. Likewise, we missed a few rather blatant typos in PT's and my articles.... next time we'll proof-read each other's copy, since the originator of an error will frequently read right over it again.

We are currently hoping to run another 48-pager again with #11, including some of the "holding pattern" items mentioned in last week's bulletin. Then it'll be back to 24-pagers for a while.

NO MUSINGS IN THIS ISSUE..... ERC misinterpreted our comments on deadlines in the 12/3/73 issue, and thought he'd missed the deadline. So instead, we've run a few articles in a 24.... novel !!

MORE NOTES &c FROM NJPC,....

This is the last issue you'll see with either 8 or 11 ¢ postage on it. The new postal rates will be in effect for #11, dated 1/9/74 (the holiday skip becomes reality, hi), so we'll have to use up our random-denomination stuff based on old rates. As of this time, we are still not sure as to what changes will be forthcoming in international rates, so we'll just have to wait and see. The proration process will begin shortly, so if you are due to expire before 3/1/74, you will most likely be prorated by two weeks, so please act accordingly, even if we don't send a renewal notice promptly !!!



As you by no doubt now know, January 6, 1974 will see the U.S. go back to Daylight Savings Time. As we have already mentioned in DX NEWS, our domestic sections will follow the normal reversion also, as they traditionally stick with Eastern Local Time (i.e. that time which prevails in the Eastern time zone). As of this writing, no one is quite sure what Canada will be doing, so it is evident that there will be no small amount of confusion what with the US on Daylight Time throughout and Canada on Standard Time. CPC'ers are strongly urged to re-contact all stations sked for tests, to remind them that we will be expecting them at the scheduled time translated into DAYLIGHT time. If there are deviations, please let us know at HQ asap. Also, we expect that those stations whose f/c skeds remain on standard time during the summer will likewise run their checks on standard time throughout the period of emergency Daylight time. Be sure also to watch for station mistakes and general confusion during the first week of the new time with stations signing off and on early or late, and the same with power/pattern changes. Some good DX might be logged at these times. Also bear in mind that the Canadian clears will be blocked an hour longer b4 s/off, but remain open an hour longer b4 s/on.....

As many of you know, the NRC is operated solely by volunteer efforts of our editors, the NJPC, and other contributors. As you also know, the nation is gripped in an energy crisis, and, whether we like it or not, or believe it or not, we have to live with its consequences. The NJPC has prepared several sets of contingency procedures in the case of several possible ramifications of the energy crisis which might directly affect the operation of the NRC, and the publication of DX NEWS. Right now, we must cope with spiraling gasoline prices. The NJPC has broken the tradition of charging for mileage used up in the course of NRC business, and donated that amount to the club. As gas prices continue to rise, however, this practise will be jeopardised. We ask therefore, that in order to help the NRC through the trials of the energy crisis, that any member who is willing and/or able, make a small donation to help us defray expenses. This fund may be the only way we can survive if rationing or excessive gas prices of \$1 or more per gallon become a reality.

4 SALE: We have here at HQ one Hammarlund HR-10 portable rx, w/ AM, FM, FM-AFC, Marine, and Weather. This rx was reviewed in August here in DXN. Price is still \$29.95, plus shipping. This set has to be the best value for an AM-FM portable in existence. We'll also supply schematic & other data we've obtained from Hammarlund. First order arriving at HQ takes it. We'll bill you for total. Satisfied users include RJE, PT, TRS, John Sampson, Jerry Conrad. If you aren't the first, we put you on the list in case I can get any more of them.... -RJE

Geomagnetic Indices for December 5-11: 14, 8, 6, 5, 12, 8, 7.

C. P. C. TEST SCHEDULE

SAT.	Jan.	5	- 0015-	* WALY-1420	Herkimer, N.Y.	1000 D	NNRC
SAT.	Jan.	12	- 0015-	* WCSS-1490	Amsterdam, N.Y.	1000/250 U	NNRC
MON.	Jan.	7	- 0100-0530	* KBUC-1310	San Antonio, TX	5000 D & 500	IRCA
			- 0300-0330	* KPCA-1580	Marked Tree, AR	250 D	NRC
MON.		14	- 0200-	* WDBC- 680	Escanaba, MI	10000/1000 U	NNRC
			- 0600-0800	* WKRT- 920	Cortland, NY	1000 U	NNRC
MON.		21	- 0100-0200	* WSSH- 970	Portland, ME	5000 U	NNRC
			- 0300-0400	* KABQ-1350	Albuquerque, NM	5000/500 U	NNRC
MON.		28	- 0330-	* KFAY-1250	Fayetteville, AR	1000 D	IRCA
			- 0400-0500	* KCRA-1320	Sacramento, CA	5000/1000 U	NNRC
			- 0515-0545	* WTSO-1070	Madison, WI	10000/5000 U	NNRC
THU.		31	- 0645-0700	* KBTC-1250	Houston, MO	1000 D	IRCA
MON.	Feb.	11	- 0200-	* WHIS-1440	Bluefield, WV	5000/500 U	NNRC
WED.		13	- 0545-0600	* KLYR-1360	Clarksville, AR	500 D	IRCA
MON.		18	- 0130-0330	*-1505	The Valley, ANGUILLA	500 U	NNRC
SUN.		24	- 0230-0300	* KGV0-1290	Missoula, MT	5000 U	NNRC

DETAILS...

- WALY - This will be a PoP. Reports to Lloyd Smith, Chief Engineer, WCSS Radio, Midline Rd., Amsterdam, N.Y. 12010. (Arr. Ken Benner)
- WCSS - This will be a PoP. Same info as above. Mr. Smith is CE for both stns.
- KBUC - Will test w/ 30-50/100/400/1000/5000/7500/& 10kHz. TTs w/differing modulations. C&w mx, many IDs. Using 5000 regular power and 500 watt PSA. V/s: Howard E. Hettinger, KBUC, Box 20267, San Antonio, 78220 (Arr. Artie Bigley)
- KPCA - Will use TT, c&w mx, CW IDs. V/s: Dale Sanders, KPCA, Box 550, Marked Tree, 72365. (Arr. Carl Dabelstein)

AND STILL MORE NOTES &c FROM NJPC,.....

The TA Logs have all been mailed out, and we have more copies here at HQ. Cost is \$3.00 per each. Orders to HQ.

Outlook for next issue includes the conclusion to Trans-Polar DX, The Etiology of the Great Circle Path (GPN), and A Review of the FMS-3 Frequency Marker Standard by Bob Foxworth. And of course, we'll have a great big Musings section.

Schedule for the next month or so is as follows: weekly again after No; 11 (1-9-74) thru January. Next skip is sked to be over the week of Lincoln's - Washington's Birthdays. More on that later.

REMEMBER !!! We all benefit if you get lists of reporters to your CPC tests and send them to HQ for sample kit mailings. Also, try to get to your near-by stations to get the names of all DX'ers reporting to them, and send their names and addresses to HQ.

WTIC  TV3 · AM · FM

Broadcast House · 3 Constitution Plaza · Hartford, Connecticut 06115

Late LA Changes

From WRTM Bulletin 1973/2

via Glenn Hauser

Freq.	kW	call	name	location	country	Change
720	1	TUHO	H. Coronado	Calle Principal, Morales, Izabal	Guat.	comp. info
745	1	HELV	H. Comayagüela	Tegucigalpa, Honduras		(ex-740; NRC)
945	5	HEVW	H. Panamericano	Tegucigalpa, Honduras		(ex-950; NRC)
1100	5	HIPS	H. Noguez	Ap. 3, Noguez, Dom. Rep.		par/adr
1170	5	TUHL	H. Landívar (ex-R. Reisma)	Quezaltenango, Guatemala		
			H. Reisma	should have moved to 950. (see WRE 1973/1. DX'ers report R. Recuerdo on 1170. What is what?)*/name		
1170	10	BJGA	H. Boyaca	Tanja, Colombia (ex-1500)		f/p
1190	10	HEVW	L. V. de Centromerica	S. Pedro Sula, Honduras (ex-1000)		f**
1270	1	HITA	H. Ambienta	Ap. 12, Sanf, Dom Rep. (ex-1560)		f/p
1360	1	HIMG	H. Mutag Musical	Ap. 110, La Romana, Dom. Rep.		name/asked
			Mgr.: N.A. Penzo; Sked: 1000-0500			
1390	5	TOYO	H. Infancia	Ap. 1405, Guatemala City, Guatemala		adr
1410	5	HLAE	H. Ericson	Calle 18, Nr. 156, Bn. La 76, Sto. Domingo, Dom. Rep.		Dir. Gen.: H. Hernandez Ilaverias p/adr/ctaf
1450	1	HLAC	H. Tenares	Calle 16 de Agosto, Tenares, Dom. Rep.		adr/p/asked
			Dir. Gen.: P. M. Bencosne G.	Sked: 1300-0400		staff
1470	1	EXRY	H. Rosa	Edif. Municipal, Chiquimilla, Sta. Rosa, Guatemala		
			Mgr.: E.A. Lid			NEW
1490	1/.25	WINS	H. Senorial	NEW, Ponce, Puerto Rico		(IRCA) (NRC)

* See IXDX, p. 8, DE NEWS, Vol. 40, #18, March 7, 1973: 1171v item from Glenn Hauser: station ID'd as Radio Landívar, nominally 1170.
 ** HEVW reported past several seasons operating on 1172 kHz. in NRC. (Page Taylor) Re-typed and edited by PE, NRC HQ.

NOTES Re: FROM NJFC...

Please note the following important items reprinted from HAPPY NEWS (Edited by Gene Moser, 6805 Woodland Court, Coloma, Michigan 49038). Perhaps you can help? Handicapped Aid Program seeks to provide help to handicapped children and adults by promoting an interest in the DX'ing hobby. Contact Gene for further information.

Item: WES OGDEN, P.O. Box 283, Bell, California 90201 has beg in a used U.S. and Foreign postage stamp drive. A minimum of 100,000 used stamps are needed. The stamps will be sold to a professional stamp dealer and all funds collected will be turned over to HAP for their projects and operations. Please cut around the stamps and DO NOT pull them off the paper.

Item: HAP urgently needs headphones, old receivers and other like equipment. We (HAP) will pay transportation charges. Please write to HAP HQ BEFORE shipping the equipment, as equipment is stored at various locations.

Item: HAP has formed a Translations Committee for use by the general hobby. 14 languages can be translated at present. For a fee schedule write: Bill Paschke, TC Chairman, 855 Elm Street, Beloit, Wisconsin 53511. SASE or 2 IRCs are required.

PT



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international dx digest

Phone 703 - 354 - 2135 before 2200/ ELT - All Times GMT - Deadlines are Saturday

- 540 -NICARAGUA YNCW Radio-Corporacion, Managua 12/9 1100 rock solid w/R. Corporacion ID and pop mx, fastly planning spots. (Gleason)
- VENEZUELA YVOV Villa del Rosario. Very good "Radio Perija" ID taped for the library 0826 12/7. (Nelson)
- 560 -GUYANA GRS Georgetown came up out of the mess for only a few seconds at 0030 when a man very clearly said in EE "Guyana, Georgetown". The man continued to talk in EE but faded into the mess, very surprising and lucky catch. (HK)
- 570 -CUBA QMHI Santa Clara noted 0045 11/26 weak and fading behind WSYR w/a man in SS and mention of "La Voz de Cuba". (Kauf)
- DOMINICAN REPUBLIC HIMS Radio Cristal, Santo Domingo even weaker than QMHI and underneath it w/SS type mx and man speaking in SS, mention of Santo Domingo. 0048 11/26. (Kauf)
- 625 -UNID IA's (2) Two stations noted here 12/7 from 0500 onward. One is consistently weaker and is on 624.9980; he goes off around 0015. The second is much stronger and is drifting rather badly around 625.55; he was on all nite on 12/7 and was quite good at times but had very poor modulation; SS pop mx and lots of rock. Almost positive he gave an ID at 0535 but unreadable due to poor audio quality. I believe the former to be the 10 kw. Peruvian listed on the channel and noted in Europe fairly recently; the latter is probably TIRICA, R. Omega. Someone please check these. (Nelson)
- 638 -SPAIN RNE La Corona fair w/ID 0459 12/7; alone on channel. (Nelson)
- 647 -ENGLAND BBC poor 0500; man speaking; unreadable. 12/7. (Nelson)
- 662 -NICARAGUA YNAM Managua 12/9 1120 w/variable mx, putting a bad bet on 660. Had a tropical beat jingle 60 seconds long. Often talked over record w/"Sonos su preferida". (Gleason)
- 665 -PORTUGAL Lisbon good 0434 with MOR mx; freq measured as 664.4999. 12/7. Good DF for Lisbon; alone on channel. (Nelson)
- 680 -MEXICO XEIG Leon, Gto. Finally pulled this one out of the California giant 12/6 1102-1115 in and out w/"L-G Grande" and "Musica de Pegue" after each song. (Gleason)
- 700 -GUATEMALA TGRH Radio Mundial 12/10 1100 w/EST time checks... I'm getting confused, but wasn't Guatemala on CST in the past? With the others I've heard, could all of 'em gone EST? (Gleason)
- 719 -PORTUGAL Norte w/almost local-like sig 0057 12/4; man in FP. Alone. (Nelson)
- 737 -SPAIN Carrier noted 0841 on 12/7; at first I thought it might be Iceland but it proved to be Barcelona. Freq 736.9989; no other carriers visible. (Nelson)
- 742 -CUBA CMJL Camaguey a little off 740 and very poor audio, w/a man in SS and ID as "Radio Libertad" at 0404 11/26. (Kauf)
- 746 -HOLLAND/UNID TA Lopik strong w/TT 0428; they often run ET's prior to s/on. A second stn (TA DF) on 746.0033 at the time; audio unreadable because of Lopik TT; according to latest EBU this is likely the East German, last measured in Europe on 746.0033. 11/17. (Nelson)
- KENYA (Tentative) As expected the onset of midsummer in the Southern Hemisphere has effectively killed this one for now; some very weak traces of carrier noted on 746.0035 some nights around s/on 0250 or so but no trace of audio and usually gone by 0310 at latest. WE'll try again in the spring to nail this one down. (Nelson)
- 764 -SENEGAL Dakar very strong w/man in FP 2225 12/3; alone on channel. Dakar recently adjusted their frequency downward toward the center of the channel; while he was formerly about 87 Kz high he is now at 764.0033 on 12/5. Looks like someone finally figured out how to work the frequency monitor over there, hi. (Nelson)
- 765 -EL SALVADOR/UNID IA One of my stns here is YSKL; ID noted 0230 after long winded political speech. Still working on the second; can anyone help? (GN)
- 782 -EAST GERMANY/PORTUGAL Burg weak with man speaking in GG under CSB9 0330 on 12/4; CSB9 much stronger w/ads in FP. CSB9 measured on 781.9962; Burg on 782.0035. (Nelson)

- 785 -CUBA Extremely strong Cuban noted here 12/7 0545; "Reloj Nacional" ID and UN news; freq measured as 784.6929 and drifting. (Nelson)
- 818 -MOROCCO Rabat very high w/man speaking rapidly in AA 2126 11/16. Freq measured as 818.0414 - thus ending the longest period of on frequency operation for an Arab I've ever seen, hi. Not // to 935 at this time. (Nelson)
- 820 -CUBA CMCA Havana (formerly 830) has dropped the name "Radio Cordon de la Habana"; now is simply "CMCA del Instituto Cubano de Radiodifusion". Most ID's by a YL w/a thick Cuban accent. (Schatz)
- 830 -UNID At 0400 a man said in SS "Republica de _____, Radio _____ de Nacional then short mx and then man talked in SS and said something about antenas then said "Buenos Noches" then an anthem. Could this be D.R? (Kauf) Yes. (ED)
- 903V -UNID TA? This is a real puzzler. I first noted him 11/2 on 907.955 at 2224. Only faint traces of audio then; US pop mx. DF suggested Africa; mean bearing 104.4 ± 3 based on 10 bearing measurements. Faded out or signed 2230. As this seemed to be a new African I kept checking the channel on successive nights but in vain. Then on 11/6 I found him again on 902.83 w/a much better signal than before. He was drifting quite badly and almost seemed VFO instead of crystal controlled. Measured bearing this night was 100 ± 5 which almost certainly makes him identical to the one noted earlier on 907.955. Programming consisted of rather recent rock: "Angel", etc., as well as oldies like "Cherish" and "Lucy in the Sky with Diamonds". Man and woman alternating w/announcements; modulation rather mushy and while I couldn't get enough to ID the language I'm fairly certain it wasn't EE or if it was there was a significant accent on the announcers. Seemed to alternate man and woman announcers w/2-3 commercials between cuts. First noted 2155; carrier noted as late as 2316 and best audio around 2218-2230. They were definitely having transmitter problems whoever they were: a bad drift, modulation troubles and a hum on the carrier. I suspect this may turn out to be the 5 kw Radio Syd in Gambia: DF is OK (Gambia is 105 degrees); Radio Syd is commercial rock programmed and sked on until 0200; West African reception was particularly good both nights. No trace of this station since the 11/16 reception; perhaps he's effected repairs and gone back onto his regular channel - whoever he was? (Nelson) Mozambique, down from 917 would seem to be a possibility here also and the programming would fit. (ED)
- 908 -ENGLAND BBC good w/man giving talk 2344 11/16; alone on channel. (Nelson)
- 910 -BELIZE Punta Gorda still another flea powered repeater mentioned by 834 at 0400 s/off. Tried for this and Belmopan-920 12/11 0400 - not a bloody trace.
- 917 -SPAIN EAJ2 good with "Radio Espana" and call letter ID 2200 on 11/21/(Schatz) Alone on channel. (Nelson)
- 935 -MOROCCO Agadir strong w/woman speaking in AA 2146 on 11/16; freq measured as 935.0871. Two carriers visible on 935 within a couple Hz of true; this would be AFN Germany and Lvov according to the latest EBU data. (Nelson)
- 944 -FRANCE/UNID TA ORTF good w/piano mx 2143; good slow SAH from second stn but TVI killed the channel before I could make any measurements. 11/24. (Nelson)
- 990 -MEXICO XET Monterrey, N.L. 12/6 1200-1230 w/nortena mx and greetings to listeners. ID by call letters. (Gleason)
- 999 -UNID IA Someone off freq 2149 11/24; freq measured as 998.817; not a TA. (Nelson)
- 1011.6 -UNID Noted 12/7 w/pip noticed high side of WINS-CFRB, but abruptly lost /son) 0150 w/carrier dropping off air. Later noted 0300-0400 but too weak to get low audio except in patches, carrier difficult to keep on air apparently as abruptly lost for 30 seconds at a time 0332, 0357. Apparently went off air for good 0403. Much weaker than YSC-1015. Noticed HJDP-1005 was not present, could it be they? Also 12/11, 0300-0400, no ID possible. (Sundstrom)
- 1025 -NICARAGUA YNW3 Esteli 12/9 1110 w/"Cadena Nicaraguense de Radiodifusion, S.A. desde Radio Mundial en Managua" and mx show. (Gleason)
- 1100 -ANTIGUA ZDK St. John's 12/7 w/series of ads 0135+, including ones for local liquor store and a hotel, w/ex sig o/WWWE. Like that accent. (Sundstrom)
- 1135 -UNID IA 12/9 1050-1100 IA station w/EST time checks, no particular mx style. Mushy audio. (Gleason)
- 1190 -MEXICO XEPZ Ciudad Juarez, Chih. 12/5 0045-0105 and on w/"Radio Nortena" IDs and, naturally, nortena mx. Rough w/KRDS, but enough for report. (Gleason)
- PUERTO RICO WEMJ San Juan changed to all SS 2 months ago, now using "Radio Rock" as slogan w/SS accent, of course. The term "rock" has been adopted in several SS countries, particularly Mexico, and means Top 40 or rock n roll music. (Gleason)

- 1196 -MOROCCO Agadir noted in FF 2207 on 11/21; seems to be a switch here from the AA net to the FF one. Will check again when possible to determine if this is permanent change. Freq measured as 1195.9546 and drifting several Hz per minute. (Nelson) According to sked received w/recent QSL this one carries the FF program 0600-1200 and at other times is in local dialect.
- 1205 -SIERRA LEONE/France Even mixture 0558 of Sierra Leone's IS and Bor- / (ED) deaux w/a man talking in FF. ORTF dead center on channel; Freetown 14.9 Hz on high side. 12/1. (Nelson)
- 1211 -VENEZUELA YVMN Radio Coro, Coro; overpowering WCAU w/ID 2234 on Beverage 12/3. Noted signing on 1008 w/anthem and s/on announcements by man; news to 1018 and then Xmas mx. The ID threw me for a moment as the final "o" in Coro is very soft in announcement. Freq measured as 1211.0357. (Nelson) 12/10 w/super sig, 0600+ w/clear ID 0655 o/hets from signals on 1210 and 1212 (probably Pereira and Cucuta). Latter could not be cleared up enough for positive ID's through splashy YVMN. YVMN w/lots of pop mx, anmts. New. WCAU had gone to 50 kw OC 0500-0600, then off the air, put low-powered aux on air at times after 0700 but all 3 still came through the OC (no TT). WCAU apparently playing games w/an oscillator as I could "see" on the SB-620 a pip swinging back and forth +/- 8 kHz and hear a "Swish" crossing freq tuned to. (Sundstrom)
- 1214 -GREAT BRITAIN BBC fair 2240 on Beverage 12/2. (Nelson)
- 1235 -UNID After digging in some old DX notes I came across a very long write up on a transmission from 3/8/73 from 0102-0130 at which time there was no ID. There was a woman asking a man questions in EE. Could this be ZEM1? (Kauf)
- 1240 -MEXICO XEBQ Guaymas, Son. 12/4 0110 and also s/on at 1155 w/very stable signal. On both occasions they were very excited about the 12/4 visit of the President to Guaymas. (Gleason)
- 1270 -MEXICO XEWN Radio Variedades, Gomez Palacio, Dgo. s/on 12/11 1200 and into dedication show of ballads. Sig just strong enough to keep it tuned in. Another XE w/same format didn't help, either. (Gleason)
- 1280 -MEXICO XEBW Chihuahua, Chih. Radio Variedades after a month, was able to definitely tie the station to the city. Having been fooled before, I am hesitant to ID XE's by just the slogan, since many frequencies have several w/same common name, i.e. R. Variedades, R. Mexicana, R. Fiesta and Radio Ranchito. (Gleason)
- 1286 -PORTUGAL CSB3, Radio Renascenca, Lisbon; fair to good 0625-0635 12/7; very soft mx and ID by man in PP 0630; very fast fade and only readable on peaks. Alone on the channel; freq 1286.0088. Generally puts in a pretty good sig for 2500 watts; I've noticed him on quite late during the past few months; I think he may be AN. (Nelson)
- 1330 -MEXICO XEWQ Monclova, Coah. heard 12/12 0100 w/live remote and a raffle, amateur singer, etc. Jingle ID as XEWQ w/chimes after. Heard while trying for XEUAS to hear dedication program which came later at 0200. (Gleason)
- MEXICO XEUAS Radio Universidad, Culiacan, Sinaloa. Some stations still like DXers: yesterday 12/11, I received a phone call from Ignacio Acuna L., Director who said that the staff had been so excited about the report I sent that they wanted to call, and he talked for a half hour! They are asking permission to move to 890 in early 1974. They are now on daytime only, due to interference to KFAC which they caused when fulltime w/5 kw. They dedicated programs to me on 12/11 and 12/12. Promised letter also, and said they had called in a photographer to take pix of the station to send me! First one like this in 14 years of DXing. (Often ID as "X-E-wahss" pronouncing "UAS" as a word). (Gleason)
- 1367 -INTERNATIONAL WATERS (HOLLAND)/PORTUGAL Radio Nordsee very good at times w/US pops and anmts in DD; ID 0731. Porto in background most of the time and fading up over Nordsee now and then; mostly woman speaking in PP. Freq for Nordsee 1366.9996; Porto exactly 1 Hz lower. 12/7. (Nelson)
- 1375 -ST PIERRE ET MIQUELON ORTF quite good 1037 on 12/7; stayed in this AM until 1216 w/sun showing on horizon. This isn't as odd as it seems at first; on this date the terminator approaches the signal path almost broadside-thus the path remains in almost total darkness until the entire path is suddenly illuminated almost all at once. Needless to say, the signal drops out so fast you'd think the engineer threw the switch in this unusual case where the terminator and signal path are parallel! (Nelson)
- HAPPY NEW YEAR AND THE BEST OF DX IN 74. REPORT OFTEN. WE NEED YOUR SUPPORT!

I have gone back through my file of past EBU internal monitoring reports in an attempt to resolve the question of how many stations the Russians are using in an attempt to jam the Sinkiang propaganda station on 1525 kHz. Before the Chinese station came on the air about 5 years ago, the Russians had only two low-powered stations in the region around 1525: one in Riga and one in Tallinn, both operating on 1511 kHz. After the Sinkiang station had been on several months, some of the EBU monitoring sites began to hear a Soviet station carrying the Mayak program on a frequency which varied from 1524 to 1529. The original EBU designation for the station gave the location as "Moscow" but this identification was later dropped.

Since the monthly confidential EBU internal reports indicate how well each European station is heard at the 8 EBU monitoring sites during various time periods it is often possible to get some idea of the location and/or power of a station by analyzing the reception patterns at the various EBU sites. The original drifting Mayak station, for example, appears to have remained in operation continuously since it was originally inaugurated; it is reported every month by at least one EBU station. The lowest frequency ever noted was 1523 in 1970; the highest, 1529 kHz, has been reported often in the past, including last month. His general range of frequency drift during the past year has been from 1525 to 1529.

He is definitely located in the Eastern part of the Soviet Union; he is most often heard at the Jurbise (Belgium) monitoring station - 14 times in the past year. He is reported only half as frequently from Helsinki (7 times), and even less frequently from Wittsmoor (Germany) - only 4 times. As the Helsinki monitoring station is the only one which hears Far East stations (with an almost negligible number of exceptions), the consistent pattern of reception at Jurbise indicates a European site. This pattern of reception - best at Jurbise, next Helsinki, and then Wittsmoor is consistent all the way back to 1968.

A second station, also carrying Mayak, came on about 1969. He is obviously more powerful; he is reported from practically all of the EBU sites, frequently with much better signals than the drifter. Again, the pattern of reception at EBU sites definitely rules out any but a location in the northeast part of the USSR. The latter station is characterized by vastly better frequency stability; during the past month, for example, his mean frequency was 1525.0000 with about a 10 Hz maximum drift. This second station is often noted here in Watertown as a SAH against the Chinese station in the late afternoon hours; on some days there is audio. The drifter, on the other hand, has never produced any but very weak garbled audio and is noted here much less frequently than the one on 1525.

The Far East Soviet station on 1529 that has been reported by Lars Ryden is probably not too powerful or it would have been noted at Helsinki who frequently hears Far East stations (including Okinawa, China, and Japan) in season.

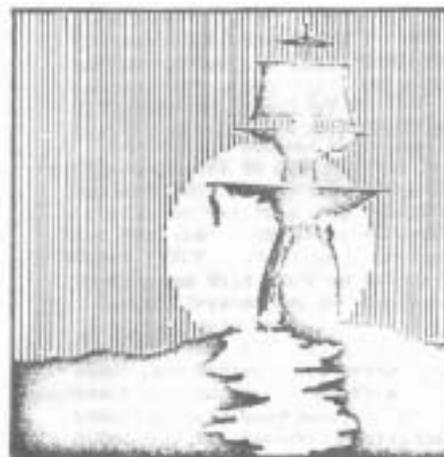
-30-

AS A POSTSCRIPT to this item, we should note that info received from WRTH and corroborated by some European DX clubs indicates that the Mayak station is located in Moscow. PT & RjE have both heard occasional audio from this one here in N.J. The Eastern station, tentatively noted by PT & RjE 1-15-71, and which served as the initial impetus for the article "Trans-Polar DX" has been rumoured to be not too far distant from the area of the Chinese transmitter..... NJPC

The Air Pirate

SHORTLY after last Thanksgiving day, the broadcast listeners of Lancaster, Pa., became the object of the wrath, or whatever else it may have been, of a misguided individual who apparently took extreme delight in breaking up their concerts. His method was quite simple and he used a spark coil with a gap connected directly in the antenna circuit. The results were excellent as far as the manufacture of interference was concerned. The towns-folk not only admitted this but actually asserted it in the newspaper as well as via the "grape vine telegraph".

Reception anywhere from 20 meters to above 5,000 was impossible and public opinion of "those amateurs" ran somewhat above the tepid point. This seems to be the usual reaction to interference and it was practically impossible to make anyone be-



lieve that the amateurs themselves were just as much interfered with and could do no work through the rumpus.

The interference was on about one night each week and seemed to be for the benefit of the local BC station. This saved the hunting party much time as they could make all their preparations in advance and could tell just about when they should start out on the hunt.

S. E. Fraim, 3BIT, gives us the following report on the proceedings. "In company with E. W. Fohl, 3VB, and John A. Roehm, 3ADM, I started out and, in the course of the next few weeks, we spent many nights driving around the streets of Lancaster in the writer's car with a superhet BCL loop set.

"After many guarded inquiries and many nights of such waiting, we finally made some headway. On the night of

January 28th during the course of the opera broadcast by WJZ and its chain, the interferer did his worst. He broke up the entire opera program from start to finish by playing with his key, imitating the starting of a train and by alternately keeping time with the opera as it was broadcast.

"While all this was going on, we were working fast and after getting several different readings on him, we located his house and station in one of the toughest and worst sections of the city. We found the source of the disturbance to be in a chicken coop in the rear of the dwelling. We kept very quiet and did not go in as we were not sure but that he had some confederate watching and that it might go hard with us if we were discovered.

"After talking things over, we got into immediate touch with the U. S. Radio Supervisor at Philadelphia. He came up to Lancaster on Thursday of the following week and although we sat around waiting, the "Pirate" did not again come on the air. The inspector wanted to catch him at it but after waiting till after 10:30 on Friday night and not hearing him, he decided to end the matter there and then and went into the house. We found part of his apparatus and the Inspector did the rest. The "Air Pirate" is no more.

"There were several other would-be and well meaning investigators working on the case, who by the leadership of a certain chap unwittingly balked almost all of our moves by his inappropriate actions. We did the whole thing secretly and to this day, there are only five of us, including the R.I., who really know who the "Air Pirate" was. It is for this reason and partly to keep the "Pirate" from bodily injury after the R.I. gets done with him, that the whole matter has been kept secret. The present feeling in some quarters of the town is to tar and feather him.

"No names were published in the newspaper but our work was terminated in a notice that the "Air Pirate" was no more. We, as amateurs, have performed our duty to clear the air and this, being finished, we will simply sit back unannounced and forget about it, chalking it up as another radio amateur's service to his community."

These men deserve a great deal of thanks for their splendid, unselfish work and we would like to say that this account was sent at the request of headquarters for our information, but we feel that such actions should be brought to the attention of the rest of the membership as well as the broadcast listener to help promote a more brotherly feeling between these two neighboring groups of radio enthusiasts.

-H. P. W.

MODIFICATIONS TO THE WORCESTER SM-1 ANTENNA

by Thomas R. Sundstrom

The SM-2 has been in use here for well over a year now and does meet a need for a large group of DX'ers who, for one reason or another, can't or won't "roll their own." Unfortunately, its biggest drawback is that it requires a 9 volt battery...and in this shack a couple of nights of forgetting to turn it off will result in one dead battery. After replacing several batteries I decided to make the SM-2 run on a.c.

A Heath IM-18 1-15 volt dc power supply was recently purchased, and this fits the bill quite nicely. Both voltage and current are independently controllable; I find the SM-2 functions quite well at 9 volts 10-15 ma., well below the 300+ ma. a 9 volt battery puts out.

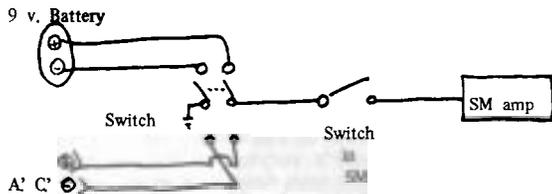
Using alligator clips (Radio Shack 270-378) attached to the SM-2's battery clip, this worked for awhile until a lead in the battery clip broke. We set out to make the a.c. hookup a bit more permanent.

A miniature DPDT toggle switch (Radio Shack 275-1546) was installed between the SM-2 on-off switch and the battery holder. The 5-way binding posts, one red and one black (Radio Shack 274-661), were mounted to the right of the battery holder, at the bottom of the same plane as the battery holder screws.

One side of the DPDT switch was wired to the binding posts, and the second side to the battery clip for the 9 volt battery. The centre pair of lugs on the DPDT went to the on-off switch (positive lead) and the ground lug (negative lead). Watch the polarity in wiring the switch, i.e., keep the positive wiring on one side of the switch.

I could have replaced the SM-2's original SPST switch with a DPDT and have one switch serve both purposes, i.e., when switched to a.c. the battery would be cut off, and vice versa; I opted for the method described because I frequently turned off the SM-2 without turning off the IP-18 for purposes of clearing the receiver/Heath SB-620 panadaptor screen to punch up 10 kHz. markers to calibrate the SB-620's baseline. I believe there is less damage to associated parts to minimise the "surge" of current within the IP-18; as stated before, the SM-2 seems to require voltage and only a very minimum of current.

At least with this power supply I do not seem to have any a.c. hum pickup, but I suppose the purist would be able to detect some. In any case, I dressed the leads around the switch and binding posts close to the outer aluminum shell inside the SM-2. In weak signal conditions I can easily switch to the battery and remove the trailing IP-18 power supply leads, but to my untrained eye, there seems to be no material differences in the SM-2's performance with the modifications described. As an aside, I would imagine an unfiltered power supply would cause problems but the IP-18 seems to be quiet and also provides me with voltage and current for other projects around here.



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First of all, we have a list of changes/additions to the New FC List from Joe Fela who sez he'll be running a complete updater in about a month but there is enough info now to merit the following:

ADDITIONS:

- 1st MM: KEOS-690 0200-0215; KAWT-1450 AZ 0205-0220; KGRL-940 OR 0315-0330
 - 1st TU: KVOY-1400 AZ 0200-0215; KINO-1230 AZ 0215-0230; KATO-1230 AZ 0230-0245
 - 3rd MM: WSSC-1340 SC 0050-0100
 - 3rd TU: WYMB-1410 SC 0030-0045 (ex-3rd MM)
- TIME CHANGES:
- 1st MM: KYLT-1340 MT 0345-0400; KVAC-1490 WA 0345-0400
 - 3rd MM: WDXY-1240 SC 0030-0040; WCON-1450 GA 0040-0100
 - 4th MM: WJDY-1470 MD 0015-0030

HEARD PER NEW LIST:

- November:
- 4th MM: WTON-1240 (JMP)
- December:
- 1st SA: WSHN-1550 (KDF)
 - 1st MM: KNOX-1310 (DS), KGHL-790 (DS), KFSA-950 (DS)
 - 1st TH: WSVL-1520 (JS), WKCB-1560 (JS)
 - 2nd MM: WGOH-1370 (JS)
 - 2nd TU: WRSL-1520 (JS), KCHR-1350 (JS)

NOT HEARD BUT ON NEW LIST:

- 2nd SA: WYWY-950, WGHT-1380, WSIP-1490, WHIC-1520, WGRK-1550 (all JWB)
 - 1st TH: WATO-1290 (JS), WLSI-900 (JS)
 - 2nd MM: WVAK-1560 (JS), WQBK-1300 (HWB), WPAD-1450 (HWB), WKCW-1420 (S&B)
- +Note: WKCW-1420 VA is also listed 1st SA 0200-0215 w/music. WANY-1390 and WCYN-1400 were heard but do not ID at any time during FC, TT was noted during the specific time periods and DF was OK-JS

changes

- 540 ---- Delta, Utah seeks KDLT
- 740 ---- Martinsburg, WV application for 250 D
- 950 WJPC IL, ex-WGRT
- 1060 ---- Tallapoosa, GA application 1000 D
- 1340 KVRH CO Ant: U
- 1350 WZIX PA Net: M (ex-WORK)
- 1410 KLSC OR ex-KPAN

CANADIAN CHANGES, all per John Oldfield

- 540 CBKO BC Coal Harbor LPRT
- 610 CJAT BC will be heading AN-6 net w/CKEK-570 and CFEK-1240 CHNL BC application for 10000 5000 U4
- 630 CBKU BC Kelsey Bay LPRT
- 680 CHFA AB will be taken over by CBC, spring 1974
- 740 CBKW BC Jaffaray LPRT
- 790 CFCW AB is on w/50000 50000 U4, MM SP 0200-0800
- 800 CB?? ON Thunder Bay will be CBC EE Regional, will add 8 new LPRTs plus take over 11 old LPRTs now // CBW and CBL
- 810 C??? NB Caraquet will be 100% FF
- 900 CBKV BC Radium LPRT
- 910 CFJC BC Kamloops is correct call, not CFCR as per local TV call

1140 CBWR BC, Rogers Pass, LPRT
 1150 CKIQ BC application 10000 1000 U3
 1170 CFNS SA is now CBC FF, will be // CFRG-710 (CFGR-1230 nite) which is now CBC FF, both will have programming from new FF CBC studio in Regina
 1240 C??? MB The Pas, station to be // twin CFAR-590
 C??? NF Baie-Verte // CKCM-620
 1340 CKNR ON to 1000 250 U1
 CKBR AB now 8 1/2 hours local-live evening program, otherwise // CJDV
 C??? BC Vanderhoof will twin CJCI-620
 1400 CB?? NF Baie-Verte 40 40 U1 LPRT to be // CBY-590
 C??? BC Golden 1000 250 U1 // CKAR-580 and CKCR 1340
 1490 CFNC MB Cross Lake (Indian Reserve) 25 25 U1 (75% Cree language) (I'll award a case of Coors to the first NRCer east of the Mississippi to verify this one-JS)

sunset & evening

540 WDXN TN 11/26 local nx and spots to 1745 s/off (KDF)
 800 WDXN WI 11/20 noted fair w/ s/off 1728 (KDF)
 880 WRFD OH 11/20 fair w/WCBS and weak KRVN 1709 (KDF)
 920 WKRT NY 12/2 sign off 1622 (MK)(NRC log sez he is full-time with 2315 s/off. ??? -HWB) (Perhaps he makes some sort of announcement before going to night power/pattern that could sound sign-off-like?-JS)
 940 WFNC NC 12/2 on top 1631 (MK)
 WCPC MS 11/2 strong 1735-1800 s/off w/reli, RR and many spots (WDF)
 *950 WJPC IL 11/26 noted on new calls, ex-WGRT w/jazz (KDF)
 980 WKFL NC 12/3 just over WRC/WILK w/ s/off 1700, no SSB (JMP)
 CFPL ON equal w/WRC 1640-1647 on 12/2 (MK)
 990 WNRV VA 12/2 very loud 1658 w/many spots (MK)
 WNOX TN 12/2 on top w/nx 1704, wx 1705 (MK)
 1010 KLRA AR 11/15 good u/CFRB 2110, CBS nx, wx, local spots w/C&W mx past 2200 (WDF)
 1060 WHFB MI 12/7 noted s/off 1715 (JWB)
 1240 WENK TN 11/29 w/spots for downtown Union City stores 1815 (KDF)
 1280 WYVE VA 11/19 o/u WADO, mess w/ s/off 1716, no SSB (JMP)
 1330 WDAL MS 11/27 fair w/ s/off and FM promo 1800 (KDF)
 1360 WNAH TN 11/29 fair w/ s/off choral hymn 1744 (KDF) (Which one? JS)
 *1370 WPTD GA 11/25 good w/ s/off 1729 plugging FM 93.3 (JMP)
 WLOP GA 11/26 w/minor QRM s/off 1730 plugging FM 105.5, no SSB (JMP)
 1380 WAOK GA 11/16 local nx 2230, many spots, R&B mx (WDF)
 1390 WEOK NY 12/6 ID hrd u/WFMJ 1740 (WDF)
 1440 *WZLX SA 11/25 xlnt w/ "Wonder Rock" ID 1801, RR format (JMP) 12/5 thru BKB game on WHIS 1945 w/ R&B (WDF)
 1500 WBFN MS 11/27 poor w/ s/off, SSB 1801 (KDF)
 1520 WARR NC 12/8 noted s/off 1700 (JWB)
 1540 WRGM VA 12/1 w/RR and spots 1750+ o/WPTR (TRS)
 1550 WYOU FL 12/1 heard "Comprehensive Nx from You Radio" 1700 (MK)
 1570 WPGM PA 11/27 heard to 1645, QRM by WFLR and CKGM (SM)
 WQTX AL 11/27 soul mx to 1745 s/off (KDF)
 KLOV CO 11/23 u/XERF w/brief s/off and FM promo 1844 (KDF)
 1580 WHEX PA Hex Radio s/off 1645 12/1 (MK)
 1590 KHEN OK 11/26 fair w/wx for eastern OK 1801 (KDF)

midnight to sunrise

550 WHLM PA 12/10 DX another no-show (HWB, JS, JWB)
 710 Unid ?? 12/3 at 0229 heard "This is W--- ---- kilocycles, owned and operated by -----". Definatly W-call w/4 letters, WGBS listed off at that time, just after WOR ID (MK) As I recall, WGBS has a recorded ID they use during OC/ETs that gives name of company, etc.-JS
 740 WKIS FL 12/3 all alone w/talk show 0225 (MK)

800 CHRC PQ 12/3 in CKLW null w/ FF MoR (JMP)
 850 WYDE AL 12/3 atop ET/OC, ID 0150(JMP)
 WRUF FL 12/10 DX also a no-sho here (JS, HWB, JWB)
 880 KRVN NE 12/3 DX per Foxy tip, tune-in 0233 to catch end of ID, TT another ID for 50 kw ND 0246 (TRS)
 +900 WLSI KY 12/6 0430 fc not heard altho usually good here (JS)
 + CKTS PQ 12/10 killing CHML w/Top 40 and FF 0300+ AN now? (JS)
 910 WRNL VA 12/10 in WSBA null all AM (HWB)
 + WSBA PA 12/6 noted s/on w/SSB 0600 atop freq (WDF) (Used to be AN-6 w/SM SP 0300-0700. Change? -JS)
 *920 WJAR RI was AN two MM in row, now off last two MM in row (SM)
 930 WJAX FL 12/1 atop 0050 w/mood mx thru 0100 ID, then NBC nx (TRS)
 KWOC MO 12/1 NNRC DX not heard if on (TRS) (Ho-Hum-JS)
 *940 WIPR PR altho not a domestic, can fool you, has s/on 0430 daily followed by SSB, into nx. Strong 12/6 (JS)
 970 WANV VA 12/10 NNRC DX not heard (HWB, JS)
 1070 WIBC IN 12/6 completly covered CHOK 0800 w/local nx (WDF)
 WFLI TN 11/26 atop w/ET/OC 0300 (JMP)
 KNX CA 12/3 first this season 0210 (MK)
 +1110 WBT NC noted AN 12/3 w/Carolina Country C&W (DS) On MM 12/3 w/C&W but off SM 12/2 (JMP)
 +1150 WDEL DE 12/3 w/ s/off 0027 after nx, deep under Canadians (MK) (Used to be heard past 0100, change, Joe Jones? *JS)
 WSNW SC 11/27 fair 0559 s/on w/SSB (KDF)
 1220 WGAR OH off 0000 on 12/3 (KDF)
 Unid ?? 12/3 Oh Canada hrd 0005, looped E/NE (KDF) (CJSS has 0000 s/off, probably they-JS)
 CJRB MB 12/3, new station mixing w/CJRL and XEG 0102, classical mx, "Radio Southern Manatoba" ID and nx (KDF) 12/3 w/nx, spts, wx, etc about 0105 (Flash)
 CJRL ON 12/3 weak u/CJRB for s/off 0109 (Flash) 12/3 s/off 0109 o/u CJRB and XEG (KDF)
 +1230 WHBY WI 12/10 ending nx, into MoR 0205. AN now? (JS)
 + KYSM MN 12/3 several clear IDs during first 15 min of WBVP DX, RR format, not enuf for rpt (KDF) (NRC Log sez 0200 s/off, change? -JS)
 WBVP PA 12/3 NNRC DX pulled ID 0212, fair/poor (KDF) Fair/good 0208 (DS) At times topping freq, better than WCRO DX (TRS) DX heard 0200+ (Flash) Fair w/IDs breaking thru, local WEEK OC/ET (JMP)
 +1240 WOCB MA has reduced sked six hours per week due to energy crisis, per Broadcasting (SM)
 1260 WBUD NJ 12/1 ET/OC 0408 (JMP)
 1290 WATO TN 12/6 listed 0415 fc not heard altho think should be (JS)
 1310 WGH VA 12/10 ending ET 0437, said s/on 0500 (JS) Ditto (JWB)
 WISE NC 12/10 ET w/RR 0205-0210, TT 0220 (HWB)
 WIFE IN 12/3 doing well '0144 w/RR and WCAM on, CKOY only other one noted, no WEEL this AM (DS)
 1330 WRIE PA 12/5 equal to WFBC and o/WTRX/mess 0200-0300 (SM)
 1340 WLAV MI 12/10 jumped atop 0358 w/wx, ID and Top 40, gone 0400 (HWB)
 1350 KCHR MO 12/11 u/WSLR w/fc 0145, short break in tone every 10 sec or so, uses tones of two different frequencies (JS)
 * WZLX PA 12/2 managed to get rpt for call chng before pattern switch 1633-1640 u/local WHWH (JMP) (In wrong section, oops)
 1360 WCHL NC 12/3 dominant w/WDRC off around 0300, two other domestics which were un-id (JMP)
 1370 WDEA ME 12/2 o/u WSPD w/nx 0530-0537, first time here on RS (JMP)
 WFEA NH 12/5 noted to 0130 weekdays w/nx last half-hour (SM)
 Unid ?? 12/6 u/WSPD 0715 w/list of closed schools due to snow (WDF) (Kowolski sez this might be WIVV)

1380 WAMS DE ET w/RR 0238 on 12/3, gave IDs this time, wonder why, hi (DS)
 WKKE NC 12/10 ET/OC 0200-0215+, ran UNCA BKB promo several times (JS)
 1400 WOND NJ 12/2 noted w/nx 0500 (MK)
 WFIN MD 12/3eeked out of the clutter 0113 (MK) (What are a eek? JS)
 +1420 WHK OH 12/3 noted off 0215, WBSM left (DS) 12/10 ET/OC/TT 0200+(JS)
 12/10 noted off 0130 w/OC/TT 0202+, seemed RS about 0300,
 only WBSM left (HWB) (Looks like now has a regular MM SP-JS)
 WKCW VA 12/10 listed 0200 fc not heard even tho WHK off (JS, HWB)
 1440 WDOV MI 11/27 fair s/on w/SSB 0601 (KDF)
 1450 WWSC NY 12/2 ending nx on half-hour 0433 (MK)
 Unid ?? 12/10 faded up for two spots 0402-0403, gave locations as
 New Albany (HWB)
 1460 WMBA PA 11/26 dominant on DX 0106, unn (KDF)
 Unid ?? 12/10 weak RR 0220-0230+ u/WBNS, no ID but possible WACO,
 no WPNX this AM (HWB)
 +1470 WFAY ?? 12/2 at 0359 heard what sounded like "Good morning, WFAY
 Allentown", is this new call for WSAW? (MK) Nothing known
 about a call change here, how about it JMP?-JS)
 1480 WMAX MI 12/3 seems regular ET now, noted 0013. Four weeks in a row
 and Poterba still ain't heard this one (DS) (Smart guy! -JS)
 12/10 seems another ET 0200-0220+ (HWB)
 WLEA NY 12/2 strong w/s/on just before WBLU 0600 (JMP) (On every
 morning since Sept 1951 and Schmidt still ain't heard this
 one. Touche' -JS)
 1500 WDEN GA 11/26 alone 0119 w/ET/RR (JMP)
 1510 WMEX MA 11/26 strong ET/OC 0123 (JMP) 12/10 ET/TT/OC 0230-0240+ (HWB)
 1520 KMAV ND 12/3 on DX w/C&W 0311 (KDF)
 1540 WABQ OH 12/3 atop ZedNS and KXEL OC, ET 0224 w/Soul mx, completes
 all ov Cleveland here (DS)
 1550 WSHN MI 12/1 ID for ET 0103, RC or what? (KDF) (Yup, per new list-JS)
 KIWA IA 12/10 DX noted early 0217, not as strong as 3/6/73 DX, then
 super-loud topping WAAAY at 0250 re-check (JS) Good o/WAAAY
 and KKHI til 0300 KKHI off, well on top to 0415 off (HWB)
 Likewise (JWB)
 1560 WSHY IL 12/1 ending ET o/KPMC, ID 0109 (KDF)
 WVAK IN 12/10 no sign of 0400 fc altho freq clear (JS)
 1570 WGHG GA 11/20 briefly w/ s/on 0557 286 watt PSA (KDF)
 WILO IN 11/27 poor w/ local wx 0608 (KDF)
 Unid ?? 12/3 TT on and off here about 0030, DF E/W (KDF)
 Unid ?? 12/10 ET/OC/TT/MoR but no IDs all AM (JS)
 +1580 WCLS GA 12/10 s/on w/SSB 0445, seems to change s/on time weekly (JS)
 WCRV NJ 12/10 ET/TT/OC 0050-0125+ (JS)
 1600 WPDC PA 11/24 DX easy o/WWRL at times (SM)

Interesting note from Broadcast Engineering magazine: A North Carolina station has been fined ten grand for questionable activities including publication of a coverage map the Commission held exaggerated the actual coverage of the station. This is believed to be the first fine if it's kind.

And in it's continuing crusade to keep everything on the up-and-up in the broadcasting biz, the FCC has solemnly concluded the, quote, "fairness doctrine does not require broadcasters to provide equal time to respond to Polish jokes." per 11/73 B/E magazine. Wait til Kolowski hears about that. You can sleep well tonight, knowing your FCC is ever vigilant.

Note from KLMO-1060 CE sez sked PoP of 12/15-16 is off, problems getting needed test gear, will re-sked sometime in January 1974. Wonder if anybody will hear it 12/15-16? Hummmmm-JS

And now. our faithful REPORTERS:

Flash: Carl Junker; Greenville, OH, HQ180, SMI
 JWB: Joe Brauner, Punxsutawney, PA, SX-99, longwire
 KDF: Karl Forth, Villa Park, IL, HQ160, SMI, 100' LW
 WDF: Bill Fait; Cleveland, OH; Knight Star Roamer, 15' LW
 MK: Mark Katz, Brookline, MA, HQ180, 4-foot altaz loop
 JO: John Oldfield, Edmunton, AB, CANADA
 SM: Stanwood Morss, Bradford, MA, HQ150, SMI
 JMP: Jim Poterba, Yardley, PA; HQ200, SMI
 DS: Dick Schmidt, New Castle, DE, HQ180, SM2 (Sorry we got your name
 TRS: Tom Sundstrom, Willingboro, NJ, HQ145 wrong last issue, Dick)
 SMI, DX150, longwire
 HWB: Wes Boy, Girard, OH, HQ180, 4-foot altaz loop (Sorry we got your
 name wrong last issue, Mr. Boy)
 JS: Jerry Starr, Hubbard, OH, HQ180A, 4-foot loop
 GPU: Geoff Filburt Uglypuss, Pithole, PA, Majestic 290878955-A, yagi

Comments on comments from 12/10/73 DKN:

To: Ken Onyschuk, page 19 who sez "sorry to hear DDXD is going out of business" We're sorry to hear about that too, Ken. Evidently you know something we don't. Let us know when the services will be held so we can send some poseys. - JS
 To: Bill Stone, page 21 who asks the musical question "What happened to WHOT's Starr?" in reference to missing Musers. Dear Bill, I type out a 5-page Musing every week. It's known as DDXD. Aside from that, I've been OK except for a slight pain in my right elbow. And thanks for caring enough to ask. Sincerely, JS.
 To: Dick Clark, page 17 who states "It's been awhile since my last report, but I'm not inactive." We know, Dick, I've seen all your television programs. Understand a lot of people really enjoy them. I don't. So, there! -JS
 To: Big George Kelley, page 29 saying "I would Muse if I could remember my name" Get it together, George, your name is Bruce-JS

And so, the hour draws late and we find ourselves really glad this latest edition of DDXD is concluded. As Wes Boyd is wont to say: "SO WHAT" Goodnight.

Jerry A. - [Signature]
 Uncle Wes and Dr. Jerrv
 Partners in Crime



III. SUNRISE & SUNSET EFFECTS

Most DX'ers are familiar with the fact that sunrise and sunset provide two of the more interesting times for DX'ing due to the staggered sign-offs and sign-ons or fade-ins and fade-outs due to the sunrise or sunset "travelling westward" around the globe. Previous articles on the subject have established that one of the causes of the fade patterns is absorption of the signals in the ionosphere which is caused by the heating and cooling of the ions, which results in a shift in the equilibrium in the photodissociation/recombination equations. At sunset, the ionosphere cools, and photodissociation occurs, causing a consequent loss of absorption. At sunrise, the ionosphere warms, and recombination sets in, thereby returning the absorption. It is important to note here that there may be a difference of as much as 45 minutes between sunrise or sunset on the ground and the same condition in the ionosphere, which is of course the more relevant time. This accounts for the disparity, or more precisely a part of the disparity, between sunrise and sunset times and the values which are derived from E20 fade calculations.

The trick to reception of stations of the like we are discussing is in no small part the existence of a darkness path from transmitter to receiver, as the normal absorption would thereby be at a minimum. Inasmuch as absorption is pretty much of a gradual process related to the effects of time, we can readily see that any significant amount of sunlight on the path will probably result in a consequent loss of signal quality. Thus we can account for the fact that a TA signal may remain audible for a time even after the predicted sunrise time at the transmitter even taking the aforementioned 45 minute factor into account. Further, if both ends of the path are in twilight, certain of the sunset and sunrise enhancement factors may well come into play, as well as some additional ones already noted in our discussion of chordal propagation. Even given these possibilities, it may still be difficult to obtain a total- or near total-darkness path between two given points under normal circumstances. For this reason, we must take into account the effects of the geographical phenomenon of Arctic night as it pertains to DX'ing.

IV. THE ARCTIC NIGHT

The Arctic Night, of course, may be an extremely significant factor in the entire business of Trans-Polar DX, inasmuch as the concept involves DX'ing from one geographic hemisphere to the other, thereby necessitating that one end of the path or the other be subjected to daylight or twilight, or so it might appear. At the times of the equinoxes, such receptions as we are discussing might well be impossible due to this factor, and the nature of the increase of the amount of light involved as Spring moves into Summer. As we know, the Arctic Night causes near-darkness and total darkness over a substantial area of the earth in the vicinity of the North Pole. At anywhere from 66° North Latitude onward, some degree of Arctic Night or twilight is going to be a relevant factor to the DX'er. This can work in two ways - 1) it allows for certain northerly stations in one hemisphere to be in darkness when most of the rest of that same hemisphere is in daylight; and 2) it allows for the existence of a total darkness path or nearly so for certain transmitter and receiver locations where the signal path passes over the area concerned. Before we get into the actual mechanics of how and why the Arctic Night or Twilight may help us as DX'ers, we should delve into the question of just how this effect comes about, and how to compute the necessary information regarding the degree of darkness available at any given point on the earth, which will give us at least a reasonable approximation of the conditions in the ionosphere overhead.

For our purposes, it is useful to note several pertinent geographical and physical facts. Due to the tilt of the earth's axis, at the time of the winter solstice, the sun's rays are 90° overhead (directly overhead) at all points which lie at 23½° South Latitude. At the equator, the sun's rays are incident

at an angle of 66½°. In both instances, we are speaking of noon local time, and we will continue to do so throughout this section. At the Arctic Circle, the sun does not rise at all, hence its rays strike at an angle of 0°. At the North Pole, the sun is 23½° below the horizon. In New York, the sun's rays on the day of the winter solstice at local noon are only 25½° above the horizon, a fact which is hard to believe for one who has spent his entire life there, but so says the geography book.¹⁰

Figure 4-1 illustrates this particular phenomenon on a comparative basis. This brings us to the notation that at the North Pole, at the winter solstice, the sun is so far below the horizon that there is indeed no visible light. This period of darkness extends for quite some time either side of the solstice as well. We now begin to see that for the area from the Arctic Circle northward to the Pole, there will be a period of days of total darkness, and two other periods of twilight on either side, except for the lower latitudes near the Arctic Circle, where there is only the twilight.

To explain further, and to shed some light, if the reader will pardon the pun, on the subject, we must investigate the varying degrees of interpretation given to the term "twilight". Essentially, there are four types of twilight which are of concern to us here - 1) Astronomical twilight, which is defined as such time as there is any glow in the sky up to the time that there is enough light to distinguish the outlines of subjects with the naked eye; 2) Nautical twilight, which covers the period of time from when the aforementioned period ends up to the time that the sun is actually at the horizon; 3) Civil twilight, which subdivides the former term to cover the time immediately following (or preceding) the time the sun is at the horizon to the point when normal outdoor activities can no longer be practised due to lack of light; and 4) Ionospheric twilight, which is in many ways similar to astronomical twilight. The definition of ionospheric twilight, or ionospheric dusk, is that time when the direct rays of the sun cease to shine on a point where a given signal path comes into contact with the respective ionospheric reflecting layer. Inherent in this definition are the facts that each determination of the existence of ionospheric twilight is dependent upon the solar incidence angle, the height of the particular reflecting layer in question, and the geometry of the specific signal path as well, which precludes any immediate application of any universal truths for experimental purposes. As it stands, we must compute each case individually. The closest we can come is to note that during the period designated as "astronomical twilight", ionospheric twilight may likely be said to exist for paths which contact the ionosphere directly over the area of "astronomical twilight". The same can be said with respect to darkness on the ground and in the ionosphere above if the sun is more than 16° below the horizon.¹⁰

Taking these categories and translating them into numbers, we find that civil twilight covers the sun's travels from 0° to 6° below the horizon; nautical twilight covers the period from 0° to 12° below the horizon; astronomical twilight covers the period from 12° to 18° below the horizon; and ionospheric twilight will probably exist when the sun is in excess of 12° below the horizon. For the periods when the sun is between 18° and 23½° below the horizon, darkness exists on the earth's surface, and may exist in the ionosphere, depending on indirect light, screening layers, and possibly other factors.

Thus we see instantly that at the North Pole, there must be total darkness at noon for a reasonable number of days owing to the fact that there is darkness as long as the sun remains 18° or more below the horizon. This is the true "Arctic Night". Those periods when it is less than 18° below the horizon, but still below it, may be generically called "Arctic Twilight". The problem now becomes one of determining the length of daylight or twilight or darkness for any given location on the earth's surface. To this end, we employ a device known as an analemma. This distorted-figure-eight type of arrangement is found neatly hidden in the middle of the Pacific Ocean on most globes. Its use is as

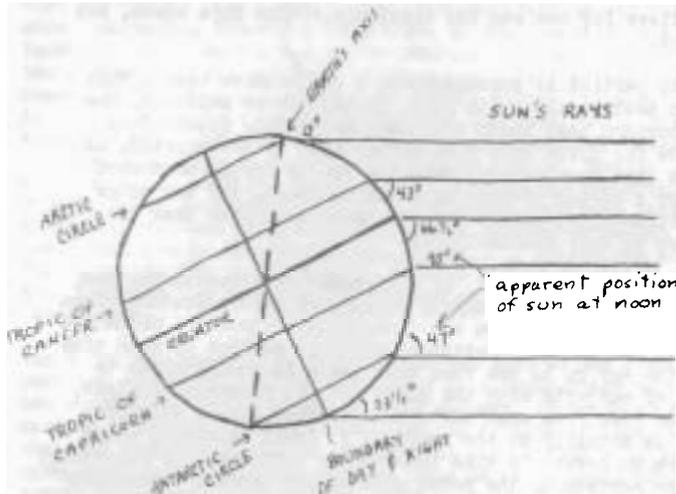


Figure 4-1: Illustration of the Variations in the Sun's Incident Angle Corresponding to Latitude.

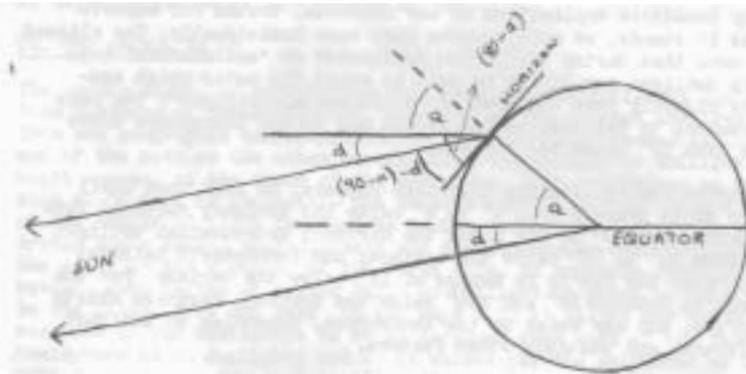
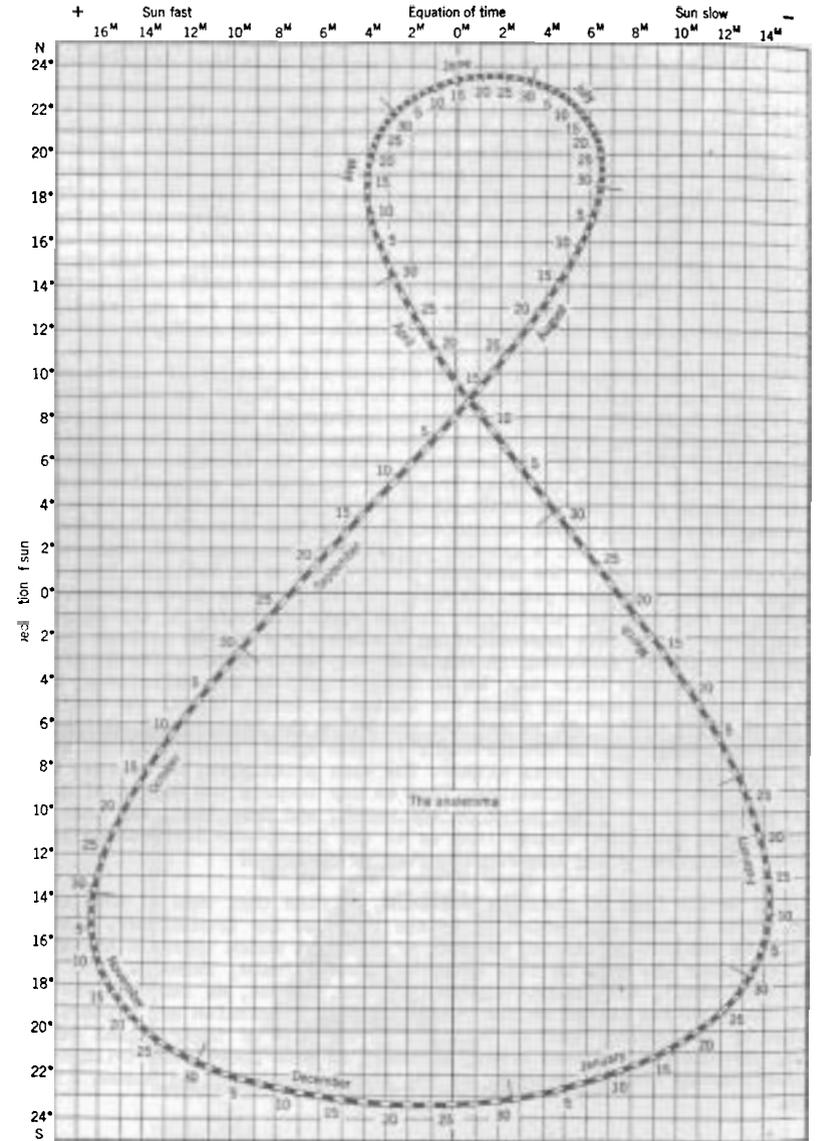


Figure 4-3: Illustration of the Solar Declination Formula.

Figure 4-2: The Analemma.



follows: At the equinoxes, the sun is directly overhead at noon at the equator. Elsewhere, the sun's incidence angle is 90° minus the latitude of the place in question - ($90 - x$). Thus, at noon in New York, which has a latitude of roughly 41° N., the sun is 49° above the horizon (or, 41° less than directly overhead) at the equinoxes. As time progresses away from the equinoxes, however, the sun's noon angle at the equator changes, and thus we must add a variable to the above formula. This variable is the sun's declination, and is therefore represented by the symbol "d". The aforementioned analemma is now utilised to give us the exact amount of declination of the sun with respect to the equator for any day of the year. Thus, for November 1, we see from the analemma, which is Figure 4-2, that the declination is -14° . (Minus declination represents southern declination, i.e. the sun's position at noon which is directly overhead occurs South of the equator). Applying this figure to the formula, we find that the sun's angle with respect to the horizon in New York on November 1, is $90 - 41 + (-14)$ or $90 - 55$, which is 35° . The method is the same for any latitude or day of the year. An illustration of the formula is found in Figure 4-3 ."

Using this formula another way, we may determine the length of time a given point on the earth is in total darkness, in "Arctic Night" as defined herein, or in "Arctic Twilight" as likewise defined. Inasmuch as we know the parameters of these delineations, we can take a given transmitter site, for instance, Thule, Greenland (1425 kHz), at 76° N. Latitude, and use the formula as follows: The sun will not rise at such times as $90 - 76 + d = 0$ or is a negative number. Therefore, Thule is in Arctic Twilight whenever the equation is zero or less at the right hand side. Thus, we can say further that for all dates when d is equal to -14 or less (i.e. a greater negative number, say -20) Thule will be in twilight. According to the analemma then, Thule is in Twilight from November 1 through February 12 each year. In order for Thule to be in total darkness, according to the formula, the figure at the right hand side of the equation must be -18 or less, thus necessitating a value for d or -32 or less ($-14 + -18 = -32$), which, according to the analemma, never occurs. For DX purposes, then, we can see that Thule may be in Arctic Night by our definition, but will not be in total darkness. To reach the status of Arctic Night, the declination must be at least -26° (-14 to get the sun below the horizon and another -12 to reach our definition of Arctic Night). Once again, consulting the analemma, we see that this doesn't occur either. The same principles, of course, would pertain to other such calculations. Thus we may compute the degree of darkness on the ground for any given point on the earth, and from that, may make the aforementioned qualified assumptions as to the ionosphere overhead as it relates to absorption along the signal paths in question."

According to our list of possible stations, we find that none of them are far enough North to have any period of Arctic Night at the transmitter, although they may be subject to varying periods of twilight which approach actual darkness. Only four are even in this category, namely Thule, Murmansk (656 kHz.), Bulun (1394 kHz.), and Sredne-Kolymsk (575 kHz.). Thus, we can consider that all of the stations listed at the outset of this discussion are primarily affected by the Arctic Night or Twilight in the case of their signal paths passing through the darkened areas, although in some cases, the twilight may be significantly intense or dark, at the transmitter sight to become a major factor.

Our next problem becomes, then, the determination of the effects of the solar rays in the ionosphere on the signal path in question at any specific time. In order to get to that point, it is necessary to get back to geometry again, either to compute the necessary values, or to estimate them, based on less cumbersome methods. For our purposes here, we can elect to go the latter route.

Using our computations above, we can determine if astronomical twilight exists at the point on the earth directly under that point in the ionosphere where we may reasonably expect a specific signal path propagating by conventional mode to make contact with it. While this will not tell us for certain the effects of ionospheric dusk on the path, we may use this method to ascertain whether or not there is a probability that the path may be viable for that mode.

It is likewise useful to reiterate here that "ionospheric sunrise" at lower and middle latitudes may precede the actual event on the earth's surface by as much as 45 minutes. By comparing this observation with those made for the various types of twilight discussed earlier, we can see that the existence of astronomical twilight with respect to any specific point on the earth below may augur well for the viability of the signal path which contacts the ionosphere above. Thus, we may geometrically estimate the bounces on the path via F2 skip utilizing the approximate 2500-mile-per-hop limit and work accordingly.

In the chordal mode, we are not too greatly concerned with these concepts, as the signal is being propagated across the areas in question without again contacting the earth or the ionosphere until it reaches the corresponding tilt. It is relevant, however, to observe that the darkness which we have noted is necessary in general for the signal path to be viable as daylight absorption would otherwise occur, but we need not be concerned with trying to deal with specific points on the earth or in the ionosphere. Simple darkness throughout much of the polar area is sufficient. If there is sunset at one end of the path and sunrise at the other, or if both ends of the path are in darkness or in semi-darkness, there will probably be sufficient darkness along the entire path to propagate the signal successfully.

If the whispering gallery mode proves significant, of course, our entire outlook on the effects of ionospheric sunlight might have to be reworked, as there might be many contact points to consider. It is now time for us to move on to deal with the practical applications of the myriad factors we have now discussed.

