

The Northern California DX Club, Inc.

The DXer

May 1981

Volume XXXV

Number 5

MAY MEETING

- PLACE:** ART'S RESTAURANT, 4031 Broadway, Oakland. Phone: (415) 654-2864
- DATE:** Friday, May 15, 1981
- TIME:** 6:30 P.M. --- Happy Hour 7:30 P.M. --- Dinner
- PROGRAM:** CHARTER MEMBER NIGHT. Many former members have been invited as well.
- DIRECTIONS:** From South Bay: Take Hwy. 580, exit on Broadway (puts you on 35th and Broadway), go to 40th and Broadway. Option 2: Take Hwy. 17, exit Broadway (puts you on 6th and Broadway), go to 40th and Broadway. From Sacramento or Bay Bridge: Hwy. 580 to Broadway exit (puts you on 35th), go to 40th and Broadway. **Note:** From 6th Street to 40th Street, Broadway is about 4 miles long. **At this time of night, traffic will be absurd, so LEAVE EARLY. Good luck, OM.**

DX CONVENTION 81 - VISALIA

A truly international event with many overseas visitors in attendance, including 7Z2AP, OH2BH, HV2VO, GU4EON, DL7FT, OH2FR, OH2TC, HB9MX and HS1AMI. Over 520 DX'ers and guests were in attendance. The NCDXC DXer of the year was awarded to Lloyd and Iris Colvin, SCDXC DXer of the year is AA6AA. Excellent presentations by WA1SQB on Easter Island; AA6AA and N6ZV on the Tromelin DXpedition; Harvey and Jeannie McCoy on China; K5VT on Burundi; and W6KG and W6QL on their latest trips. K6SSJ took us to the roots and traditions of DX, introducing Doc. Stuart W6GRL, and W6ITH, W6AM, W6WB, W7AO, W7SA, and W6QD.

K6LPL was the main banquet speaker with his presentation of the Juan Fernandez DXpedition. One of the TS-830S donated by Madison Electronics was won by K6LPL. Other prizes: TS-830S to K20N, KT-34 to K6DR, and IC2A to W6SZN.

W6GO stumped the crowd with his excellent DX quiz, AA6AA won with 62 out of a possible 94 and AA7A had 60. Spirits were high and many renewals of friendships took place.

Many club members performed superbly to make an event of this magnitude successful. Thanks to K6SSJ for many hours of work organizing, making world-wide phone calls and directing the convention; W6VG for turning the copier crank to make over 800 programs, XYL of AC6V for typing same; K6HHD/W6GO for pens, QSL lists, and the quiz; AA6XI for the convention design; Rubin and Fern Hughes for the pre and on-site registrations; and many more including AA6AD, W6NLG, AK6P, KB6FM, WD6DLK, N6AUS, W6KH, who all seemed to be everywhere doing a dozen things at once.

--By America California Six Visalia

DX NEWS

Listen for:

HFØPOL South Shetland Polish base, 7.005 MHz from 0100Z; 14.002 MHz from 0300

9N1MM Nepal 14.220 or 14.280 MHz from 1200Z or list operation 14.235 MHz Tues. 0000Z

FR7AI/G Glorioso 14.230 from 1600Z thru May 11

VK9ZD Willis Isle at 14.220 MHz, 14.265 MHz from 0700Z

9U5JM Burundi, list on 21.280 MHz from 1700Z. DXCC status is questionable

Rumors of:

ZD9 operation around middle of May

Kermadec operation by ZL1AMO

Heard on the bands:

TL8CN was heard at 28.525 around 2117Z

YS9RVE was heard at 7.087 0400Z

VR6TC was heard at 21.348 MHz around 2300Z

9J2BO was heard at 14.018 around 1330Z

TA2TAT was heard at 14.028 around 0230Z

--Tnx to Southern California DX Club Bulletin

N6RO OPEN HOUSE

Ken will have an open house at his antenna ranch Sunday, June 7th, in Oakley, California, Hwy. 580 past Livermore near Vasco and Sellers Roads. NCDXC invited.

ELECTIONS IN JUNE

Officer elections are coming up at the June 12th meeting at Harry's Hofbrau. Nominations are in order; contact the Nomination Chairperson, WD6DLK, Gene Spinelli.

DEADLINE FOR THE JUNE DXER

Contributions for the June DXer should be received by the editor by May 27th.

APPLYING FOR OBLAST AWARDS

The Central Radio Club of Russia, Box 88, Moscow, offers two excellent DX Awards. R-100-0 is offered for contacts with 100 of the oblasts (regions); contacts since January 1, 1957 are valid. R-100-0 is offered in three classes, first class for 80 meters only, second class for 40 meters only, and third class for mixed bands. R-15-R is offered for contacts with the 15 USSR Republics; contacts since July 1, 1958 are valid. For both R-15-R and R-100-0, all contacts must be either on c.w. or phone only, minimum reports acceptable are RST-337 or RS-33, both the QSL cards and a list including dates, calls, modes, and frequencies must be enclosed, and 14 IRC's will cover the cost of postal registry expenses.

This is a late addition to the DXer and supplements the article on Oblast Awards on Page 3. We intended to supply this information next month but due to a late deletion of an article, we found room to present it here.

-- The Editor

OBLAST AWARDS

Included in this issue is a list of the oblasts (like our counties) in the USSR. Special thanks to the following who made the list possible: W1YL, W6ISQ, WB6ZUC, K1KI, HB9RS, and AA6AD who was called upon to interpret lists written in Russian. This probably represents one of the most complete lists available in the USA. In the next issue of the DXer, we will have more details on how to apply for these awards.

OUT OF THE SHOEBOX

Most DXer's I've talked to store their QSL cards in a shoebox. An alternative is to show them off in a photo album like those available in ham magazine ads or those available from your local photo or large department store. KR6O and others have found a local supplier and the price is right --give Steve a call for details.

LAST MONTH'S PUZZLE SOLUTION WINNER -- AJ6V

Only 5 solutions were received for the April Crossword Puzzle. Of these, AJ6V, W6GO/K6HHD, and WA6OEY sent in the correct solutions. Two anomalies: A black square was left out in the last space of 11 down, so anything counts for that one. Second funny was the number in the last space of 31 down; we had in mind Ø, but any number would be OK. See, I told you it was an Amateur (pause) Radio Crossword Puzzle. Anyway, of the 3 correct solutions, at the luck of the draw, AJ6V Ed Radlo wins and receives 5 IRC's. See Page 9 for the May brainteaser.

CONTEST INFO

- Apr. 25 Utah QSO Party
- May 1-10 Tin Plate QSL Card
- May 2-3 USS Croaker Expedition
- May 2-3 Mt. Clemens Operation
- May 2-3 Alexander Volta RTTY
- May 2-3 County Hunters SSB
- May 9 World Telecomm. Phone
- † May 9-10 USSR "CQ-M" Contest
- May 10 "Corona" 10 Meter RTTY
- May 9-10 Rocky Mt. QSO Party
- May 16 World Telecomm. C.W.
- May 16-17 Florida QSO Party
- May 16-18 Mass. QSO Party
- May 16-18 Michigan QSO Party
- May 30-31 CQ WW WPX CW Contest
- Jun. 6-7 N. Y. State QSO Party
- Jun. 13-14 ARRL VHF Contest
- Jun. 20-21 All Asian Phone Contest
- Jun. 27-28 ARRL Field Day
- Jun. 27-28 Millwatt Field Day
- July 4-5 Venezuelan Phone Contest
- July 25-26 Venezuelan CW Contest
- Aug. 8-9 European CW Contest
- Aug. 22-23 All Asian CW Contest
- Aug. 22-23 Ohio QSO Party
- Sep. 12-13 European Phone Contest
- Sep. 26-27 Delta QSO Party

† Not Official

1	Q	2	S	3	O	4	L	5	D	6	G	7	E	8	I	9	R	10	E
12	R	O	N	13	A	M	A	I	N	14	N	A	N						
15	P	L	E	16	B	G	E	D	17	A	18	C	U	R	E				
					19	R	O	N	20	A	B	A	S	E					
21	A	22	H	23	O	S	24	F	A	L	S	E							
25	G	U	A	M	26	T	R	B	E	S	27	Z	28	A					
29	A	N	M	30	T	R	I	A	D	31	G	U	R						
32	D	E	33	T	R	I	A	D	34	K	O	L	A						
				35	B	R	I	E	R	36	R	E	D	U	L				
37	R	38	I	V	I	E	R	39	R	A	P								
40	O	D	2	P	S	41	G	E	T	42	T	43	44	S					
45	L	E	A	46	T	I	B	E	T	47	G	A	S						
49	L	A	B	50	E	I	9	D	S	51	G	M	T						

MADISON ELECTRONICS SUPPLY, INC.
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Dear Members of the Northern California DX Club:

We are an old (since 1940) established supplier of amateur equipment. We would like the opportunity of serving your needs. We handle and inventory most products. We promise competitive prices and prompt, courteous service.

Please call me personally,
 Don Busick - K5AAD
 Owner

Texas residents only - add sales tax

MINUTES BoD MEETING

April 20, 1981

Meeting called to order at 750 PM by president Bruno Bienenfeld. Present were Ted Park, Gene Spinelli, Ron Panton, Ted Davis, and Hal Godfrey.

First order of business was the DXer. The Board is very happy with the nice job of Rod Dinkins. The BoD considered a request by a club member that the NCDXC accept equipment in lieu of money payment for a life membership. After discussion, the BoD voted unanimously against the proposition.

DX Convention: The Board is sorry that there is not more action on the part of the membership to activate the bus. The procedures manual suggests a no loss- no gain handling of the Convention bus. At the present time it looks like we are around five persons short of the required minimum to break even.

The board voted to include a ladies door prize of a gift certificate at one of the major department stores.

The May 15 NCDXC meeting will be held at Arts Restaurant, and will be in honor of the charter members. Many former club members have also been invited. Looks like a very fine get together with wives urged to attend.

Meeting adjourned at 1056 PM.

Respectfully submitted,

Ron Panton, W6VG
Secretary, NCDXC

Ron



MINUTES OF NCDXC MEETING

April 10, 1981

The meeting of April 10, 1981 was held at Harry's Hof Brau in Palo Alto. After the conviviality hour, the meeting was called to order by President Bruno Bienenfeld AA6AD at 820 PM. We were treated to complimentary wine by generous Jay O'Brien in honor of his 5 band DXCC, and the start of Jay and Jans second year in the Qsl manager list publication, and last but certainly not least, the final confirmation of 300 countries. Thanks much, W6GO and we all look forward to wine after the honor roll is reached.

The program was presented by Dave Hillman N6AUS. A very fine demonstration and comprehensive discussion on the computer use in the ham shack was enjoyed by the membership.

First readings were given to NA6F, AG6D, KK6X, KA6CQQ, and WB6NBR. Each applicant gave a brief talk on his background and interests. Welcome to the three new members - KD6QT - Casey, KD6EO - Jim, and WB6KJE - Mike.

All received their second readings and unanimously voted into membership. Congratulations fellows.

Bill Vette, K6TXR was introduced by president Bruno with some background into the many years of experience of Bill. Bill was voted into Life Membership #3 by unanimous vote of the multitude. Congratulations Bill, and we wish many more happy years of ham radio for you.

A vote of thanks and a very vociferous accolade of approval to Rod AC6V for the very fine job on his issue of the DXer edition for April.

Our custodian of the exchequer, Gene Spinelli WD6DLK gave us the latest update on the club finances. So far, so good. Money is coming in from the DX Convention pre-registrants, so the current expenditures are not hurting the bank accounts. Genial Bob Thompson spoke on the DX Convention progress, and it looks good. Should be a fine one. Meeting adjourned at 1005 PM.

Respectfully submitted,

Ron Panton W6VG, secretary NCDXC

THE LAST ONE-RINGER (by AC6V)

Setting: Budding DXer's sleep shack well after one in the morning. DXer is dreaming of operating from a rare Indian Ocean isle. XYL is dreaming of a 3-month power outage in the ham shack. The phone is installed on the XYL's nightstand.

BBRRINNNNNGGGGGG

XYL: Hello...(yawn)...Hmm, no one there.

DXer (turning on HT on his nightstand): Sorry, hon, forgot to tell you about the one-ringer.

XYL: What's a one ringer?

DXer: I asked the guys to give me a quick phone call when a rare DX station comes up.

XYL (pulling the covers over her head): At 1:20 in the morning? You have got to be kidding!

An hour later, our triumphant DXer slips silently under the covers after working XW1 _____. Ten seconds of silence.

XYL (raising up on one elbow): How many more countries do you have left to work?

HEARD ON THE REPEATER

DXer 1: I've done a lot of reading and studying on propagation, but after today it's all a mystery.

DXer 2: Why is that?

DXer 1: 10 meters is dead, 15 is as flat as a pancake and 20 is weak as a kitten; however, the Woodpecker is 40 over S9.

DXer 2: Guess you don't need propagation when you run 20 Megawatts.

(Idea from W6G0)

* * * * *

WB6 ____ with new HT: Can someone tell me where this repeater is located?

W6KH: It's the repeater of the NCDXC, etc etc. Used to report rare, medium rare, (a pause and reflection) and even well done DX.

(True story of W6KH)

ONE LINERS

During a J5 pileup: Can't U guys hear, he's calling for elevens. (WB6WKM)

During a superb 10 meter opening: There's so much DX on there's not enough jammers to go around.

FROM THE DX DICTIONARY

STACKED BEAMS: An awesome array where one beam is used to ionize the transmission path and the other sends the signal.

INDUCTOR: A ductor accepted by the group.

EXCITER: A BY or ZA station.

IONIZED LAYER: A phenomenon caused by a DX contest.

JAMMER: A crazie who failed at CB Radio.

GROUND PROPAGATION

BY DAVID M. BARTON, AF6S

Most DXers are well aware of differences among QTH's and the great advantage of those on hilltops or with down-slopes toward Europe. A perhaps less-understood advantage enjoyed by some is that resulting from good soil in the antenna's reflection-zone.

PERFECT SOIL (or seawater)

The ARRL ANTENNA BOOK shows vertical-plane patterns for both vertical and horizontal polarization for antennas at various heights (pages 55-57). These patterns are for a perfect reflecting ground, however, and may bear little resemblance to some real cases. The patterns do demonstrate some fundamental facts about the effect of the reflected wave on the total signal and are worth studying for insight they offer. The patterns result from the vector-summation of the direct and reflected wave at each vertical angle. One can easily find the wave angles at which maxima (peaks) and minima (nulls) in the patterns occur by remembering the following:

1. Total phase difference of the reflected vs. direct waves is simply the sum of that due to the difference in path length and that due to the ground reflection.
2. Path length difference is given by:

$$\text{LENGTH} = 2 \times \text{HEIGHT} \times \text{SIN}(\text{THETA})$$

where LENGTH will be in wavelengths if HEIGHT is.

3. For perfect ground, the phase change on reflection is zero for vertical polarization and 180 degrees for horizontal. On real grounds, this is not true and is much more complicated.

Since the waves vector-add, maximums occur whenever total phase difference is zero or any multiple of 360 degrees. Similarly, nulls occur at differences of 180 degrees and 180 plus any multiple of 360.

For perfect ground, the result is that a series of maxima and minima occur at angles dependent only on height and polarization. For most DXers, the first maximum is the only one of serious concern, since at normal heights the second maximum would be at a very high angle. Horizontal polarization always produces a first null at zero elevation angle. At 14 MHz and height of 60 feet, the first maximum will be at about 17 degrees. For vertical polarization the first peak is at zero elevation angle.

Those DXers living in a salt-marsh should consider mounting a pair of monobanders or big tribanders on a low tower with a cross-boom vertically-polarized (2-meter style). The signal should compare favorably with horizontally-polarized antennas 150 or 200 feet high! QSB should be lower also, since the low vertical would not have any pattern-nulls at the normal DX-signal wave-angles. Anyone know where I can buy a few acres of salt-marsh with a island in the middle...cheap?

REAL SOIL

Sorry to say, urban California soils don't much resemble a salt-marsh. Soil conductivity may be in the .01 to .001 mho/cm range rather than the 5 mho/cm value of seawater. Comparisons of dielectric-constant are similarly unfavorable.

The effect on horizontally-polarized waves at low angles is minimal, as shown in one of the references (Picquenard). However, the effect on vertical signals is truly disastrous. At low angles, reflection coefficient is high, but phase is reversed which causes wave cancellation. At higher wave angles the reflection coefficient and the phase both fall. At some "critical angle" a minimum coefficient is reached, above which it gradually increases again. Reflection phase is about 90 degrees at the minimum point and continues to approach zero at larger angles. This pattern is the same for a wide range of soils but the "critical angle" depends both on soil parameters and on the frequency. Generally, it declines with increasing soil conductivity and dielectric constant and increases with increasing frequency. Over poor soils, verticals most certainly do not have a low radiation angle despite common knowledge.

WHAT TO DO

Computer simulations, which I have been doing, and some actual comparisons between low inverted-vees and fairly good verticals have tended to agree most of the time. An inverted-vee with its apex at 55 feet compares favorably to a halfwave vertical on 40 meters and to a quarter-wave vertical on 80 when direction is (broadside to the inverted-vee. Obviously, on better soil the results could be inverted. Therefore, one can confidently say that those who have a vertical on 80 and 40 should try a dipole or inverted-vee for comparison. On the 20, 15 and 10 meter bands the difference between a 3-element phased-array and a small tri-bander was very pronounced (over one S-unit on 20 meters). Thus, on urban California soil a horizontal antenna seems to be always either better or equal, at least down to the 80 meter band.

references:

1. ARRL ANTENNA BOOK
2. Picquenard, "Radio Wave Propagation", Wiley & Sons, 1974

USSR Oblasts, by call

UA1...A.....Leningrad.....169	UA9...A.....Cheliabinskaya.....165	UB5...A.....Sumsкая.....075	UI8...U.....Khorozmskaya.....055
B, F...Leningradskaya.....136	C.....Sverdlovskaya.....154	B.....Ternopolskaya.....076	V.....Dzhizakskaya.....181
N.....Karelian.....088	F.....Permskaya.....140	C.....Cherkasskaya.....080	Z.....Kara-Kalpak.....056
O.....Arhagelskaya.....113	G.....Komi Permyatsky.....141	D.....Zakarpatskaya.....063	
P.....Nenetskiy.....114	H.....Tomskaya.....158	E.....Dnepropetrovskaya.....060	UJ8...J.....Tadzhik.....040
Q.....Vologodskaya.....120	J.....Khanty Mensyjsky.....162	F.....Odesskaya.....070	K.....Kulyabskaya.....182
T.....Novgorodskaya.....144	K.....Yamalo Nenetsky.....163	G.....Hersonskaya.....078	R.....Gorno-Badakhshan.....042
W.....Pskovskaya.....149	L.....Tiumenskaya.....161	H.....Hmelnickaya.....071	S.....Leninabad.....041
Z.....Murmanskaya.....143	M.....Omskaya.....146	I.....Doneckaya.....073	X.....Kurgan-Tyubinskaya.....183
	O, P...Novosibirskaya.....145	J.....Crimskaya.....067	
UA2...F.....Kaliningradskaya.....125	Q.....Kurganskaya.....134	K.....Rovenskaya.....072	UL7...A.....Mangishlaksкая.....179
	S.....Orenburgskaya.....167	L.....Karkovskaya.....077	B.....Celinogradskaya.....016
UA3...A, B...Moscow.....170	U.....Kemerovskaya.....130	M.....Luganskaya.....059	C.....North Kazakhstanskaya.....028
D, F...Moscow.....142	W.....Bashkir.....084	N.....Vinnickaya.....057	D.....Sempalatinskaya.....029
E.....Orlovskaya.....147	X.....Komi.....090	P.....Volinskaya.....058	E.....Kokchetavaskaya.....025
G.....Lipeckaya.....137	Y.....Altai.....099	Q.....Zaporojskaya.....064	F.....Pavoldarskaya.....027
I.....Kalininskaya.....126	Z.....Gorno-Altai Aut.....100	R.....Chernigovskaya.....081	G.....Alma-Stinskaya.....018
L.....Smolenskaya.....155		S.....Ivano-Frankovskaya.....074	I.....Aktubinskaya.....017
M.....Yaroslavl'skaya.....168	UA0...A.....Krasnoyarsk.....103	T.....Hmelnickaya.....079	J.....East Kazakhstanskaya.....019
N.....Kostromskaya.....132	B.....Tajmyrsky.....105	U.....Kievskaya.....065	K.....Kizil-Ordinskaya.....024
P.....Tul'skaya.....160	C.....Khabarovsk.....110	V.....Kirovgradskaya.....066	L.....Kustanaidkaya.....026
Q.....Voronejskaya.....121	D.....Jewish.....111	W.....Lvovskaya.....068	M.....Uralskaya.....022
R.....Tambovskaya.....157	F.....Sakhalinskaya.....153	X.....Zhitomirskaya.....062	N.....Chimkentskaya.....031
S.....Riasanskaya.....151	H.....Evenkiysky.....106	Y.....Chernovickaya.....082	O.....Gurievskaya.....020
T.....Gorkovskaya.....122	I.....Magadanskaya.....138	Z.....Nikolaevskaya.....069	P.....Karagandinskaya.....023
U.....Ivanovskaya.....123	J.....Amurskaya.....112Drogobchskaya.....061	R.....Dzhezkazganskaya.....178
V.....Vladimirskaya.....119	K.....Chukotskiy.....139	UC2...A.....Minskaya.....009	T.....Jambul'skaya.....021
W.....Kurskaya.....135	L.....Primorye.....107	I.....Grodnenskaya.....008	V.....Taldy-Kurganskaya.....030
X.....Kaluj'skaya.....127	O.....Buryat.....085	L.....Brestskaya.....005	Y.....Turgay.....176
Y.....Brianskaya.....118	Q.....Yakut.....098	O.....Gomelskaya.....007	
Z.....Belgorodskaya.....117	S.....Irkutskaya.....124	S.....Mogilevskaya.....010	UM8...M.....Kirghiz.....036
	T.....Ust. Ordynsky Buriatsky 174	W.....Vietetskaya.....006	N.....Oshkaya.....034
UA4...A.....Volgradskaya.....156	U.....Chitinskaya.....166Molodechenskaya...011	Q.....Issyk-Kul-Przhevalsk...033
C.....Saratovskaya.....152	V.....Aginsky Buriatsky.....175	UD6...C.....Nakhichevan.....002	****
F.....Penzenskaya.....148	W.....Khakass Aut.....104	D.....Azerbaijan.....001	UO5...O.....Moldavia.....039
H.....Kuibishevskaya.....133	X.....Koryaksky.....129	K.....Gorno-Karabakh.....003	UP2...B, P...Lithuania.....038
L.....Uljanovskaya.....164	Y.....Tuva.....159		UQ2...G.....Latvia.....037
N.....Kirovskaya.....131	Z.....Kamchatskaya.....128	UF6...F.....Georgia.....012	UR2...R, T...Estonia.....083
P.....Tatar.....094		O.....South Ossetia.....015	
S.....Mari.....091		Q.....Adjar.....014	
U.....Mordovian.....092		V.....Abkhazian.....013	
W.....Udmurt.....095		UG6...G.....Armenia.....004	
Y.....Chuvash.....097		UH8...B.....Nebit Dag.....180	
.....Balaschovskaya...116		E.....Maryiskaya.....044	4K1.....Antarctica.....172
UA6...A.....Krasnodar.....101		H.....Turkoman.....043Arctica.....171
E.....Karachai-Cherkess.....109		P.....Narynskiy.....177	
H.....Stavropol.....108		W.....Tashauzskaya.....045	
I.....Kalmyk.....089		Y.....Chardjouskaya.....046	
J.....North Ossetian.....093			****
L.....Rostovskaya.....150		UI8...A.....Tashkentskaya.....053	UM8..M....Jalal-Abadskaya....032
P.....Checheno-Ingush.....096		C.....Namanganskaya.....049Tyan Schanyskaya....035
U.....Astrakhanskaya.....115		D.....Syrdarinskaya.....173	P....Narynskiy.....177
W.....Daghestan.....086		F.....Andijanskaya.....047Talaskaya.....184
X.....Kabardino-Balkarsk...087		G.....Ferganskaya.....054	
Y.....Adigei Aut.....102		I.....Samarkandskaya.....051	
		L.....Bukharskaya.....048	
		O.....Namangan.....050	
		T.....Surkham Darinskaya...052	

USSR Oblasts, by number

001....UD6D.....Azerbaijan	046....UH8Y.....Chardjouskaya	091....UA4S.....Mari	136....UA1B, F...Leningradskaya
002....UD6C.....Nakhichevan	047....UI8F.....Andijanskaya	092....UA4U.....Mordovian	137....UA3G.....Lipeckaya
003....UD6K.....Gorno-Karabakh	048....UI8L.....Bukharskaya	093....UA6J.....North Ossetian	138....UAØI.....Magadanskaya
004....UG6G.....Armenia	049....UI8C.....Namanganskaya	094....UA4P.....Tatar	139....UAØK.....Chukotskiy
005....UC2L.....Brestskaya	050....UI80.....Namangan	095....UA4W.....Udmurt	140....UA9F.....Permskaya
006....UC2W.....Vietebkskaya	051....UI8I.....Samarkandskaya	096....UA6P.....Checheno-Ingush	141....UA9G.....Komi Permyatsky
007....UC2O.....Gomelskaya	052....UI8T.....Surkham Darinskaya	097....UA4Y.....Chuvash	142....UA3D, F...Moscow
008....UC2I.....Grodnenskaya	053....UI8A.....Tashkentskaya	098....UAØQ.....Yakut	143....UA1Z.....Murmanskaya
009....UC2A.....Minskaya	054....UI8G.....Ferganskaya	099....UA9Y.....Altain	144....UA1T.....Novgorodskaya
010....UC2S.....Mogilevskaya	055....UI8U.....Khorezmskaya	100....UA9Z.....Gorno-Altai Aut.	145....UA9O, P...Novosibirskaya
011....UC...Molodechenskaya	056....UI8Z.....Kara-Kalpak	101....UA6A.....Krasnodar	146....UA9M.....Omskaya
012....UF6F.....Georgia	057....UB5N.....Vinnickaya	102....UA6Y.....Adigei Aut.	147....UA3E.....Orlovskaya
013....UF6V.....Abkhazian	058....UB5P.....Volinskaya	103....UAØA.....Krasnoyarsk	148....UA4F.....Penzenskaya
014....UF6Q.....Adjar	059....UB5M.....Luganskaya	104....UAØW.....Khakass Aut.	149....UA1W.....Pskovskaya
015....UF6O.....South Ossetia	060....UB5E.....Dnepropetrovskaya	105....UAØB.....Tajmyrsky	150....UA6L.....Rostovskaya
016....UL7B.....Celinogradskaya	061....UB5...Drogobchskaya	106....UAØH.....Evenkiysky	151....UA3S.....Riasanskaya
017....UL7I.....Aktubinskaya	062....UB5X.....Zhitomirskaya	107....UAØL.....Primorye	152....UA4C.....Saratovskaya
018....UL7G.....Alma-Stinskaya	063....UB5D.....Zakarpatskaya	108....UA6H.....Stavropol	153....UAØF.....Sakhalinskaya
019....UL7J.....E. Kazakhstanskaya	064....UB5Q.....Zaporojskaya	109....UA6E.....Karachai-Cherkess	154....UA9C.....Sverdlovskaya
020....UL7O.....Gurievskaya	065....UB5U.....Kievskaya	110....UAØC.....Khabarovskiy	155....UA3L.....Smolenskaya
021....UL7T.....Jambulskaya	066....UB5V.....Kirovgradskaya	111....UAØD.....Jewish	156....UA4A.....Volgradskaya
022....UL7M.....Ural'skaya	067....UB5J.....Crimskaya	112....UAØJ.....Amurskaya	157....UA3R.....Tambovskaya
023....UL7P.....Karagandinskaya	068....UB5W.....Lvovskaya	113....UA1O.....Arhagelskaya	158....UA9H.....Tomskaya
024....UL7K.....Kizil-Ordinskaya	069....UB5Z.....Nikolaevskaya	114....UA1P.....Nenetskiy	159....UAØY.....Tuva
025....UL7E.....Kokchetavskaya	070....UB5F.....Odesskaya	115....UA6U.....Astrakhanskaya	160....UA3P.....Tul'skaya
026....UL7L.....Kustanaidkaya	071....UB5H.....Poltavskaya	116....UA4...Balaschovskaya	161....UA9L.....Tiumenskaya
027....UL7F.....Pavoldarskaya	072....UB5K.....Rovenskaya	117....UA3Z.....Belgorodskaya	162....UA9J.....Khanty Mensyjsky
028....UL7C.....N. Kazakhstanskaya	073....UB5I.....Doneckaya	118....UA3Y.....Brianskaya	163....UA9K.....Yamalo Nenetsky
029....UL7D.....Semipalatinskaya	074....UB5S.....Ivano-Frankovskaya	119....UA3V.....Vladimirskaya	164....UA4L.....Ulianovskaya
030....UL7V.....Taldy-Kurganskaya	075....UB5A.....Sumskaaya	120....UA1Q.....Vologodskaya	165....UA9A.....Cheliabinskaya
031....UL7N.....Chimkentskaya	076....UB5B.....Ternopolskaya	121....UA3Q.....Voronejskaya	166....UAØU.....Chitinskaya
032....JM8M..Jalal-Abadskaya	077....UB5L.....Karkovskaya	122....UA1T.....Gorkovskaya	167....UA9S.....Orenburgskaya
033....UM8Q.....Issyk-Kul-Przhevalsk	078....UB5G.....Mersonskaya	123....UA3U.....Ivanovskaya	168....UA3M.....Yaroslavskaya
034....UM8N.....Oshkaya	079....UB5T.....IImelnickaya	124....UAØS.....Irkutskaya	169....UA1A.....Leningrad
035....UM8...Tyan Schanyskaya	080....UB5C.....Cherkasskaya	125....UA2F.....Kaliningradskaya	170....UA3A, B...Moscow
036....UM8M.....Kirghiz	081....UB5R.....Chernigovskaya	126....UA3I.....Kalininskaya	171.....Arctica
037....UQ2G.....Latvia	082....UB5Y.....Chernovickaya	127....UA3X.....Kalujskaya	172....4K1.....Antarctica
038....UP2B, P...Lithuania	083....UR2R, T...Estonia	128....UAØZ.....Kamchatskaya	173....UT8D.....Syrdarinskaya
039....UO5O.....Moldavia	084....UA9W.....Bashkir	129....UAØX.....Koryaksky	174....UAØT.....Ust. Ordynsky Buriatsky
040....UJ8J.....Tadzhik	085....UAØO.....Buryat	130....UA9U.....Kemerovskaya	175....UAØV.....Aginsky Buriatsky
041....UJ8S.....Leninabad	086....UA6W.....Daghestan	131....UA4N.....Kirovskaya	176....UL7Y.....Turgay
042....UJ8R.....Gorno-Badakhstan	087....UA6X.....Kabardino-Balkarsk	132....UA3N.....Kostromskaya	177....UM8P.....Narynskiy
043....UH8H.....Turkoman	088....UA1N.....Karelian	133....UA4H.....Kuibishevskaya	178....UL7R.....Dzhezkazganskaya
044....UH8E.....Maryiskaya	089....UA6I.....Kalmyk	134....UA9Q.....Kurganskaya	179....UL7A.....Manishlanskaya
045....UH8W.....Tashauzskaya	090....UA9X.....Komi	135....UA3W.....Kurskaya	180....UH8B.....Nebit Dag
			181....UI8V.....Dzhizakaskaya
			182....UJ8K.....Kulyabskaya
			183....UJ8X.....Kurgan-Tyubinskaya
			184....UM8.....Tajaf a

As you fill in the answers to the definitions, place the letters in the corresponding blanks below. You will discover some words of wisdom and/or wit.

<u>DEFINITION OR SYNONYM</u>	<u>YOUR WORD</u>
1. DX by appointment	<u>21</u> <u>31</u> <u>71</u> <u>74</u>
2. Acknowledge receipt	<u>9</u> <u>30</u> <u>78</u>
3. Dipole	<u>8</u> <u>72</u> <u>63</u> <u>80</u> <u>21</u> <u>20</u> <u>39</u>
4. Found in some cathodes	<u>54</u> <u>13</u> <u>78</u> <u>15</u> <u>57</u> <u>34</u> <u>68</u> <u>58</u>
5. Used to reduce a signal	<u>1</u> <u>40</u> <u>3</u> <u>29</u> <u>49</u> <u>10</u> <u>4</u> <u>44</u> <u>56</u> <u>70</u>
6. Slim	<u>19</u> <u>51</u> <u>55</u> <u>23</u> <u>36</u> <u>60</u>
7. A type of oscillator using a tetrode	<u>28</u> <u>27</u> <u>33</u> <u>38</u> <u>46</u> <u>64</u> <u>66</u> <u>68</u>
8. Measured in mho's	<u>65</u> <u>79</u> <u>53</u> <u>12</u> <u>63</u> <u>5</u> <u>47</u> <u>11</u> <u>53</u> <u>43</u> <u>7</u>
9. Emitter	<u>24</u> <u>26</u> <u>8</u> <u>51</u> <u>18</u> <u>50</u> <u>37</u> <u>25</u>
10. Beat frequencies together	<u>75</u> <u>48</u> <u>36</u> <u>76</u> <u>41</u> <u>62</u> <u>35</u> <u>22</u> <u>49</u> <u>69</u>
11. To shift a frequency	<u>52</u> <u>61</u> <u>73</u> <u>2</u> <u>81</u> <u>46</u>
12. Lesotho is one	<u>6</u> <u>13</u> <u>68</u> <u>32</u> <u>8</u> <u>66</u> <u>57</u>
13. Zulu leader	<u>14</u> <u>17</u> <u>45</u> <u>6</u> <u>42</u>
14. Body language to express indifference after not breaking the pileup	<u>16</u> <u>59</u> <u>67</u> <u>10</u> <u>77</u>

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>					
<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>	<u>25</u>	<u>26</u>	<u>27</u>	<u>28</u>	<u>29</u>	<u>30</u>	<u>31</u>	<u>32</u>	<u>33</u>	<u>34</u>	<u>35</u>
<u>36</u>	<u>37</u>	<u>38</u>	<u>39</u>	<u>40</u>	<u>41</u>	<u>42</u>	<u>43</u>	<u>44</u>	<u>45</u>	<u>46</u>	<u>47</u>	<u>48</u>	<u>49</u>	<u>50</u>	<u>51</u>	<u>52</u>	<u>53</u>		
<u>54</u>	<u>55</u>	<u>56</u>	<u>57</u>	<u>58</u>	<u>59</u>	<u>60</u>	<u>61</u>	<u>62</u>	<u>63</u>	<u>64</u>	<u>65</u>	<u>66</u>	<u>67</u>	<u>68</u>	<u>69</u>	<u>70</u>	<u>71</u>		
<u>72</u>	<u>73</u>	<u>74</u>	<u>75</u>	<u>76</u>	<u>77</u>	<u>78</u>	<u>79</u>	<u>80</u>	<u>81</u>										

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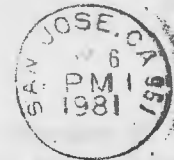
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