



founded 1970

# THE BULLSHEET

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Texas DX Society  
An ARRL Affiliated Club



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The Texas DX Society, P.O. Box 540291, Houston, Texas 77254-0291  
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## Officers and Contributors

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Treasurer:	K5VWW Orville Burg	KE5FI Chuck Dietz
Contest Chairman:	K5LZO Chuck Coleman	K5TU Kim Carr
DX Chairman:	KC5CP Mike Davidson	Columns by: K2TNO, N5JJ, KC5CP, K5LZO

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## ANNOUNCEMENTS

MEETING NOTICE - The Texas DX Society meets the second Friday of each month except when changed by the Board of Directors. The October TDXS meeting will be held Friday, October 11th, at the Bellaire Hospital Professional Building, 6550 Mapleridge at 7:30 p.m.

PRIBILOF NIXED - The ARRL awards committee met on September 17th to consider the country status of the Pribilof Islands. The matter was referred to the awards committee by the DX advisory committee which had recommended addition to the list by a 9 to 7 vote. After many hours of studying the voluminous documentation and two hours of deliberation, the awards committee unanimously voted, 7 to 0 that the pribilof islands not be added to the DXCC countries list. (Courtesy of W5DOZ - ARRL DX Bulletin #37)

FEDERAL PREEMPTION OF ANTENNA REGULATIONS - In an FCC news release dated September 18, the FCC announced favorable action on PRB 1, the league's request for a declaratory ruling preempting local antenna ordinances. In the September 16 action, the FCC declared a limited preemption over state and local regulations, stating that such regulations which preclude amateur radio communications are in direct conflict with federal objectives and must be preempted. The FCC declared that local antenna regulations must reasonably accommodate amateur radio communications and represent the minimum practicable regulations to accomplish the purpose of the local authority. See the ARRL letter and QST for further details. (TNX W5DOZ)

Governor Creates "Armadillo County" - On October 24th, 1985 a contingent of TDXSers will travel to the State Capitol to attend the ceremonial signing by Governor Mark White of a proclamation creating Armadillo County. Next year as part of the sesquicentennial hoopla any amateur operating from or on property adjacent to the Independence Trail will be allowed to identify his station as being in "Armadillo County." Hats off to Jim, N5DC, who conceived the idea and Tom, K5RC, who provided the energy to get the job done.

K5RC Makes the BIG TIME - Lest you have been hiding under a rock and failed to hear the news, our own Tom Terrific (or is that Taromina?) hit the pages of QST with a full page article heralding the upcoming "Great Armadillo Run of 1986." See Page 50 in October's issue for an extremely well written and interesting piece.

TDXS RAFFLE - at the convention was again a smashing success. Congratulations to (does this sound familiar?) Tom Taromina, K5RC, the first club member ever to win the raffle prize. Tom promptly sold his new TS940 and invested in sugar futures.

WEEKLY DX & CONTEST NET - Just a reminder that each Tuesday night at 9:00 p.m. the Club sponsors a net on 147.96/.36. Participation by non-members as well as members is welcomed. The purpose of the net is to facilitate the exchange of DX, contest, and Club information within the amateur community. Your active support of this activity is encouraged.

BULLSHEET MAILING LIST - It is the club's desire to provide the Bullsheet free to all amateurs in the area with an interest in DXing and/or contesting. If you would like to receive our newsletter, simply send your name, call, and mailing address to the Texas DX Society, P.O. Box 540291, Houston, Texas, 77254-0291. Visitors at the regular club meeting can request the monthly newsletter by providing their mailing address on the sign-in sheet. Articles or other newsworthy items from club members and other interested amateurs are hereby solicited by your editor.

#### THE PRESIDENT'S CORNER (de K2TNO)

Well gang, it's time y'all (see? - I have learned something this year!) got on the stick with nominations to replace your present cadre of officialdom. I know you'll have trouble improving on the present lot - but try! Last month the board got the ball rolling with a proposed slate of candidates. The lucky (?) chosen few were W5ASP (prez), N5JJ (veep) KC5M (treas) and KE5IV (sec). Don't like any of those turkeys? Fine! Get up the 25¢ for a fone call and ask someone you really dig to run against 'em. No hard feelings if the above are not elected - the proposed slate is a suggestion, not a directive.

Lots of good news for once - the Ham Convention of September 21-23 was a big successful plus for local radio persons, especially TDXS. My hat's off to N5RP, WA9VLI, NT5D, and KF4VS who managed to bilk over \$450.00 out of the unsuspecting multitudes at a flea market that was put together at the last minute in typical club fasion. George, NR5M and Kenny, KE5IV, did the lion's share of the ticket sales for the raffle. I tried to help out, but George said I couldn't sell umbrellas in a rainstorm so I was dismissed (sob, sob) (We let

Bill go cuz he was hurting the rate. Ed.). Special kudos go to Don, K5AAD, and Madison Electronics for the phenomenally generous "deal" we got on the TS-940. Finally, a kindly word to N5EA and K5YCP who threw a fine hospitality suite. How those guys managed to turn a perfectly respectable bordello into a hospitality suite is beyond me. Mike, KC5CP, arranged the BBQ at my QTH Friday night. If you missed that event, you missed my famous "fried rat and chicken entrails a la Tuna." (The cat left home rather than be forced to eat the leftovers...Ed.)

Finally, Tom, KD5SP, ran the DX/contest forum. I think the program ran very well. 'Specially Rusty, W6OAT, did a great job - he gave a superb talk and genuinely seemed to enjoy his visit.

If you've been near the repeater recently, you may have heard that the GUV WENT FOR THE ARMADILLO COUNTY GAMBIT! It'll be official October 24, when a small delegation of clubbies will trot up to Austin to have an eyeball with Mark White hisself. Get your ideas set for March 2, 1986 - we need a good Field Day style setup to ring in Armadillo County. Has to be a QTH on or adjoining the Texas Independence Trail. The logical QTH is the San Jacinto Monument for that day; we'll be looking into that one! Besides HF I think we need all modes QRV at the site, including satellite. Any volunteers for specific modes? Sould be a ball.

There was a squib in September QST that caught my eye that I think is interesting in "How's DX?" They highlighted K5LZO as the speaker at Louisville and said he was going to discuss the TDXS Desecheo DXpedition. Know what tickled me about that? The editors didn't feel it was necessary to spell out the club name - just "TDXS." Man, that's call recognition! I think we all deserve a couple of "attaboys" for keeping the club's activity up enough to make it a household name in DX/contesting circles.

Finally, a sad note on the unfortunate passing of Radio Manvel into history. I know I speak for everybody in saying we hope NA5R will be reborn one day. Perhaps not on so grand a scale, but it would sure be zoomie to hear/see Grady around some more.

That's it folks - hope you're all getting those beams/rigs set up for the fall. Won't be long before SS is upon us!

CONTEST CORRAL (de K5LZO)

Contest Results

ARRL DX

Phone

NA5R (K5GN)	#5 USA Single op all band
KC5CP	#1 W5 Multi-single
NR5M	#5 USA Multi-two
K5LZO	#6 USA Multi-multi
K5RVK	#8 USA Multi-multi
K5NA/KP2	#2 World Single-op all band

CW

K5RC	#3 USA Multi-two
NR5M	#4 USA Multi-multi
K5LZO	#5 USA Multi-multi
K5RVK	#11 USA Multi-multi
K5DX	#5 USA Low Power Single-op all band

CQ WW DX CW

K5RC	#1 USA Multi-single
N5JJ	#1 USA 7 MHZ single band
N5DU	#1 W5 Single-op all band
K5LZO	#8 USA Multi-single

VHF SPRINT

WE5RUS	#1 STX 50 mhz
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73 Magazine 15 and 20 meter Contests

<u>15 meter</u>	K5LZO	#1 World Multi-op
<u>20 meter</u>	NR5M	#1 World Single-op
	K5LZO	#1 World Multi-op

Contest Rumors

North American Sprint CW

<u>TDXS #1</u>		<u>TDXS #2</u>
N5JJ	272 43	W5ASP 187 ?
NM5M	247 39	KA5SBS 70 ?
KG5U	207 34	NT5D 119 ?

TDXS #1 (cont.)

K5TU	210	36
K2 TNO	231	34
K5GN	276	43
N5DU	240	34
KN5H	212	35
K5LZO	294	38
K5DX	?	?

TDXS #2 (cont.)

NZ5I	119	?
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Also present was K5NA from NY. Remember Richard you can bump someone off the first team with a higher score than theirs. In this contest you can compete with us on our team.

North American Sprint Phone

TDXS #1

K5LZO	314	46
KE5IV	221	32
K5WA	245	?
W5ASP	228	34
K5DX	196	?
KD5SP	219	35
KB5FU	216	36
NR5M	277	43
N5DU	283	40

TDXS #2

NZ5I	149	28
NT5D	172	?
KF4VS	123	34
N5JJ	43	5
KN5H	105	?
KE5FI	238	38
KC5CP	150	32
K5GN	?	?
KA5SBS	87	22

Once again thanks to K5NA for the points.

CAN-AM CW CONTEST

W5ASP banged out about 480 qso's. Also heard were N5EA and KN5H. Sorry I don't have all the scores but good going anyway.

FROM THE TRENCHES (AND UNDER) (de K5LZO)

It is with great sadness that we report the passing of super station NA5R, K5RC, and K5GA. We all hope the operating ability of these three will not also go by the wayside. They deserve credit for putting together an imaginative station and its sad to see all the hard work go for naught. On the other hand, it's nice to know that all the hardware will still be with a club member (NR5M). Just as the Manvel crew needed help, I'm sure George will be looking for people who now or in the future plan to operate from Hempstead who could find time to lend a hand.

The new plans for Hempstead include erecting the 4 element 80 meter beam at 240 feet. It will be installed on top of Rohn 55 tower using a 265 foot crane. The ten meter stack is to be put up about the same as it was in Manvel. The tall 40 meter beam is to be raised to 185 or so feet.

Another interesting plan under review is to install another station across the ranch about a mile away and use it for spotting multipliers on the same band where the main station operator is running JA's or Europe. Hopefully this will prevent rf overload at the multiplier receiver.

Carrying the 2 meter spotting link used last year a bit farther this year, during CQWW phone we hope to set up a 2 meter SSB link with N5AU in Dallas. This will allow us to trade multipliers thereby helping both 5-land stations to a better score. We need all the help we can get to offset the East Coast advantage.

Sounds like the Anahuac Swamp Thing (KE5FI) is close to having his crop of towers bloom with aluminum. He hopes to be QRV on several bands before CQWW phone.

Dennis, KZ5M has been appointed to the Contest Advisory Committee (CAC). I highly encourage anyone with a complaint about ARRL contests to let Dennis have it with both barrels!! After handling your complaints maybe he can get his station back in shape. Any volunteers?

Watch out for the sleeping giant (the lumber yard). RVK, ASP, and SJS have plans to increase their ERP on several bands not to mention lowering the take off angle. These guys may need a hand also.

Congrats also to new members N5RP, KF4VS, WA9VLI, and NT5D. Now how do we get rid of K2's??

Keep an ear out, sounds like some big plans are possible for the ARRL DX phone and cw weekends. Any ideas?

If you didn't hear the news, a club member finally won the TDXS raffle. The bad news is it wasn't me. Contrats to Tom K5RC who won it. Instead of taking the TS940 home where he might fall in love with it, sold it to Hose KN5H, who promised to give it a good home.

Finally, I would like to see each member make an effort during the November Sweepstakes Contest to get on and give their fellow TDXSers a Q. With 70 members it surely would help the club total.

73 Chuck K5LZO

DX REPORT (de KC5CP)

KERGUELEN ISL. -

FT8XA on 40cw at 7006 about 1145 to 1230Z. Working into Houston with a weak signal. FT8XB has been reported on 14185 to 14195 at 0500Z but no propagation to Houston.

SAO THOME - S92LB - Luis was worked on 14183 at 2130Z in Houston. Luis appears to like Fridays at 2130.

MOROCCO - CN2AQ - Sjoerd worked on 3792 at 0330Z to 0430Z in Houston.

THAILAND - HSOA - Worked on 14198 at 1315Z in Houston.

E. CAROLINES - KC6JC - has been regularly on 7088 at 1100 to 1200Z, listening up about 100 KHZ.

CONGO - TN8EE is active on 40 and 20 CW around 14030 at 1930Z and later on 40.

TOKELAU ISL. - ZM7PM - Peter has been reported on 14180 around 0245Z. Expects to leave mid-October, possibly when ZLIAMO, Ron, arrives using ZK3AA for about a month? Look for Ron on 20 & 40 CW, with some SSB on 14236 at 2330Z on October 19 & 26.

CURACAO - P40GP from October 6 - 13 by six 8 land stations portable PJ2. Nightly activity on 40 & 80 SSB and RTTY with other bands possible. PJ2FR by N6KT, Rich, for CQWW Phone.

WILLIS ISL. - VK9ZB is active on 14220 at 0700Z or 40 & 75 at 0100Z.

MALI - TZ6FE has been active on 14227 at 2220Z on Sunday with a nice signal into Houston.

JUAN FERNANDEZ - XQ0ZFZ - Special prefix from Robinson Crusoe Island by CE3BFZ Pedro and EA4LH/CE3 Jorge during the last weekend of October for CQWW. Before and after the contest check 6 and 2 and Oscar 10.

RHODES - SV0DV-Hal, WOPU, will be active October 3 - 10 on CW only. Check 2200 to 0400 Z on the low ends of the bands.

MALDIVE ISL. - 8Q7ITU reported on 14183 about 1230Z.

TAIWAN - BV2EA or BV2DA. FENG will soon be active on 20 & 40 cw About 8 BV calls have been issued by TAIWAN.

SABLE ISL. - VE1RM expects to be there October 21 - 29 or November 18 - 25 with 4 other operators. Mostly 40, 80 & 160 operation but Oscar 10, 6 - 160 will be available with RTTY.

SYRIA - OE7RKH/YK has been active on 40 or 80 CW at 0000Z.

YASME DX-PED - October to April '86 by Iris W6QL and Lloyd W6KG from ZS6 for CQWW Phone. Soon after they will sign ZS3, A2, 7P, 3D6, S8, ZE, 7Q, 9J and possibly other countries. Expect CW & SSB equally on as many bands as possible. Anyone hearing them on 10 meters please call me on 790-3049 at the office during the day.

PROPAGATION by N4XX.

High Norm: October 2 - 4, 9 & 10.

Note: The 27 day cycle has been erratic making forecasting unpredictable. Suggest you listen to the 9 P.M. Tuesday night net for the latest info.

73 Mike KC5CP

SQUELCH TALE (de N5JJ)

IN AND ABOUT THE CLUB

It is rumored that...another club member is in business for himself. WBSUSV is ready to custom design any metal object you might need...We should let N5EA buy the club's drinks for the meetings. He has a way of swinging a deal with the grocer...KC5CP recently had some damage to his TS820 due to front end overload...KE5FI has moved his shop next door to N5EA's. Isn't it great to have a ham set up a station close to where you demo audio/visual equipment?!...JY8FW in the last all Asia CW contest was non other than K5KG. K5TU for QSLS...KB5FU, KN5H and others have been working the Russian satellites of late. KN5H's signal seems to FM a bit though. I guess a TR7625 leaves something to be desired for CW work...KY5A has settled down in DL land. For mail, send to Paul Jaeger, Lodenheide 2A, 4010 Hilden...K5WA seems still deeply involved with diving...KG5U is just back from Mexico City after helping with passing emergency and health and welfare traffic. Hats off to Dale for his work. His description of the destruction is pretty amazing. The September definition of "coincidence" is Dale being asked how to operate a KWM2 that had been donated by KE5FI a few days before...quite a club contingency going to the Louisville convention - K5LZO and WBSRUS, K5RC, K25M, NT5D, and NMSM...well, after seven years a club member has finally won the TDXS annual raffle for the Houston convention. Congrats to K5RC on his new TS 940S...and KN5H has a new TS940S...we had a really super Bar-B-Q at K2TNO's house Friday night of the convention. Bill's outdoor wildlife was held at bay...KD5SP has a new two meter radio after his other was relieved of him in his driveway...W5SJS has a like new Alpha 78 after factory rework...good news and bad news for W5ASP. He has a new TS930S, but was bad out of the box. Joe has presented it locally for prompt and courteous service...W5LLU has a new Kenwood for two meters. His was borrowed from his vehicle also...Welcome to KF4VS, NT5D, N5RP, and WA9VLI. TDXS' newest members...K5GN is now a graduate student as a part time candidate for a MBA.

73 Dave N5JJ



HOW TO MEASURE ANTENNA IMPEDANCE IN YOUR SHACK.

Transmitted by K2TNO.

OK, so you've bought this really great beam and you'd like to know whether it's resonant, and whether or not the matching is correct. You own an R-X noise bridge, but the damn driven driven element is too far out the boom for you to reach it. Isn't there a way to make meaningful measurements in the shack at the transmitter end? Sure - use the Smith Chart. You know, those weird drawings on circular graph paper full of lines, arcs and intercepts that you skip over while thumbing thru a free copy of the Handbook down at Madison's.

I came across a Commodore 64 program in September 1985 QEX by KOOP that does the Smith Chart calculations in a snap. All you need to know is the EXACT LENGTH OF YOUR ENTIRE COAX RUN FROM THE SWR BRIDGE CLEAR UP TO THE ANTENNA. The text included below plus the program (see table 1) show how it works. Suffice to say you will get a number for the resistive component and reactive component, so then a match can be designed. The word-to-the wise here is to measure your feedline before installation. Then if you ever need this program, you're all set.

Program Operation

A listing of the prototype program is shown in Table 1. The constants of the equation are first entered. This allows the user to restart the program at line 39 (with GOTO 39), for successive passes with different noise bridge readings. Many of the popular bridges on the market use a range expander (typically a 100-ohm resistor in series). If your noise bridge does not have this feature, or if you are not using the range expander, be sure to answer No or the output values will be incorrect.

For example, an 80-m antenna is fed with 60 ft of RG-8 (50-ohm characteristic impedance; velocity factor 0.66). At 3.65 MHz, the noise bridge obtains a null with dial settings of resistance = 240 ohms and capacitance = -98pF. We can assume that the attenuation or loss is zero. In addition, the range extender is being used. Running the program with these inputs should yield a SWR of 4.41859309:1 and an antenna series resistance/reactance of 24.0716376/.50.1107286 ohms. Other intermediate results are also displayed.

Summary

This program has been written as an aid in encouraging the use of the noise bridge in amateur antenna experimentation and development. It was also written with a minimum of computer unique language and commands.

Therefore, it should lend itself to an easy conversion to other home computers. Please feel free to copy and pass this program to your friends, user groups and so on. However, marketing of this program is reserved by the author under existing copyright laws.

References

- (1) Hubbs and Doting, "Improvements to the RX Noise Bridge," Ham Radio, February 1977, p 10.
- (2) MacCluer, "Numerical Smith Chart," Ham Radio, March 1978, p 104.

NCDXF 20 METER BEACONS

This is a reminder to take advantage of a set of eight CW beacon transmitters operating on 14100 around the clock. They cycle from one to the next as shown below, and vary their power output so you can judge how good the path is. Since they use a maximum of 100W to a vertical antenna, if you can hear a beacon it's a good bet there is an opening in that direction. The latest addition is the LU4; perhaps they will one day be able to add a VK or a UL7 to make a list complete.

By the way, if someone had the inclination, it would be very interesting to report signal strengths of those various beacons over an entire day, and see how closely the observed openings correlate in time with the propagation charts.

Here is the current schedule and an explanation of the format:

The sequence begins at 0000, and repeats beginnings again at 0010, etc

<u>Time</u>	<u>Station</u>	<u>Location</u>
0	4U1UN	New York City
1	W6WX	Stanford, CA
2	KH6O	Honolulu
3	JA21GY	Mt. Asama, Japan
4	4X6TU	Tel Aviv, Israel
5	OH2B	Helsinki, Finland
6	CT3B	Madeira Is.
7	ZS6DN	Transvaal, S. Africa
8	LU4AA	Argentina

The transmitted sequence is:

<u>Power</u>	<u>Message sent</u>
100W	QST de (callsign) Beacon
100W	. _ (9 second dash)
10W	.. _
1W	... _
0.1W	.... _
100W	SK (callsign)

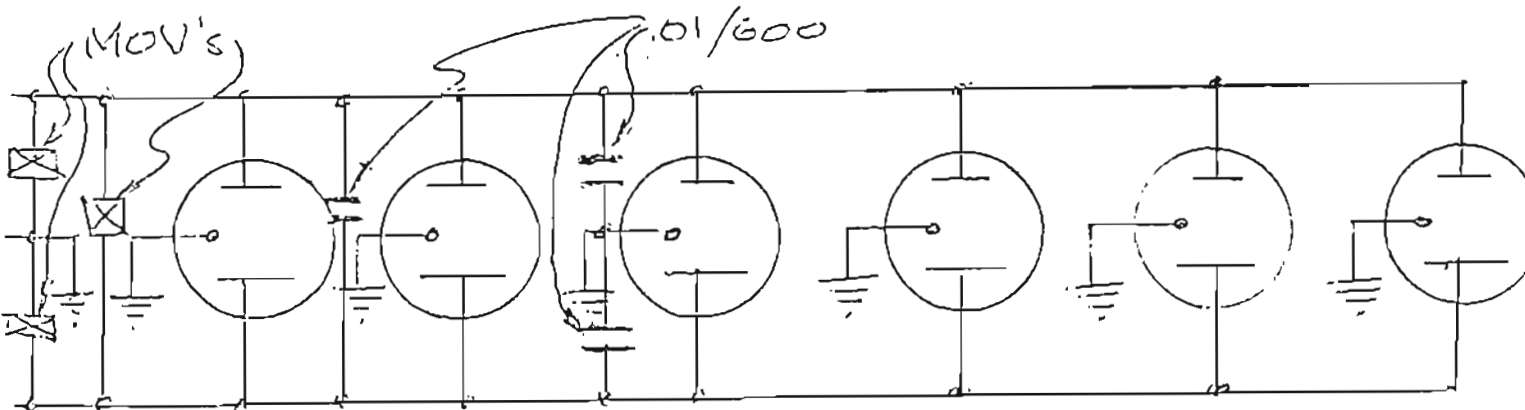
73 Bill K2TNO

NEED AN INEXPENSIVE SURGE PROTECTED OUTLET STRIP? (de KF4VS)

From time to time, K-mart, Woolco, etc. put their six outlet portable extension cords on sale for less than \$10. With one of these, you can make the equivalent of a much more expensive surge-surpressed outlet strip, and have it filtered as well. You'll need the following bits and pieces:

- 1 - Above mentioned six outlet strip
- 3 - MOV'S (Metal oxide varistors), V130LA10A; (Radio Shack Cat. No. 276-570 @ \$1.59 ea)
- 3 - .01/600V Silver Disc (preferable) or other high grade capacitors.

Install the parts in accordance with the sketch below. Plug it in; you are now surge and spike protected!



TONE DECODER FOR QST DX ALERTS (de K5TU)

Many of you will remember a simple tone decoder I designed and demonstrated some years ago to allow clubmembers to silence their 2M rigs from some of idle conversation, but be alerted to QST's for DX stations. The decoder was a single tone that had to be present for one second before the speaker would open. The club thought it was a good idea, and voted to continue development. For a number of reasons (none of them adequate), I never completed the project.

At the convention, I ran across a complete tone decoder kit. It uses standard Touchtones (DTMF), and would connect between your 2M rig and the speaker. A combination of four tones is required to activate the unit, turning on the speaker.

One feature I particularly liked is the "All Call" command. In addition to the four digit command, the "All Call" function is single digit command that, when sent for several seconds, would turn on everyone's speaker! (like a 'QST')

This unit is quite sophisticated, allowing up to 9999 different codes. Each club member could have his own unique alert code, and decide whether to hear all QST's, or just those directed to him with his unique code.

The possibilities are too numerous to present here. I would like to see the club continue the decoder project, and this is just the unit to do it! The only drawback, if you consider it one, is the price. In single unit quantities, the price runs just over \$50. (The decoder I designed would have cost just over \$30 two years ago.) If the club were to place an order for 20 or 30 of them, the price would drop into the low \$40 range.

Think it over, and lets discuss it at the next club meeting. I'll be glad to organize the project, if we decide to pursue it.

73 Kim K5TU

ANTENNA PARTY

This fellow is sitting at his desk answering a letter from his insurance company.....

"I am writting in response to your request for additional information. In block no. 3 of the accident reporting form, I put "poor planning" as the cause of my accident. You said in your letter that I should explain more fully. I trust the following details will be sufficient. I am an amateur radio operator. On the day of the accident, I was working alone on the top section of my new 80 foot tower. When I had completed my work, I discovered that I had, over the course of several trips up the tower, brought up about 300 pounds of tools and spare hardware.

"Rather than carry the now unneeded tools and materials down by hand, I decided to lower the items down in a small barrel which, fortunately, was attached to the gin pole at the top of the tower.

"Securing the rope at ground level, I went to the top of the tower and loaded the tools and materials into the barrel. Then I went back to the ground and ~~untied~~ the rope, holding it tightly to insure a slow decent of the 300 pounds of tools. ~~You will note~~ in block no. 7 of the accident reporting form that I weigh 155 pounds. Due to my surprise of being jerked off the ground so suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rather rapid rate up the side of the tower...In the vicinity of the 40 foot level, I met the barrel coming down...this explains my fractured skull and broken collarbone...slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley...

"Fortunately, by this time, I had regained my presence of mind and was able to hold onto the rope in spite of my pain...At approximately the same time, however, the barrel of tools hit the ground, and the bottom fell out the barrel.

"Devoid of the weight of the tools, the barrel now weighed approximately 20 pounds! I refer you again to my weight in Block No. 7. As you might imagine, I began a rapid descent down the side of the tower. In the vicinity of the 40 foot level, I again met the barrel, this time coming up. This accounts for the two fractured ankles and the lacerations of my legs and lower body.

"The encounter with the barrel slowed me enough to lessen my injuries when I fell onto the pile of tools and, fortunately, only three vertebrae were cracked. I am sorry to report, however, that as I lay there on the tools, in pain, unable to stand, and watching the empty barrel 80 feet above me...I again lost my presence of mind.....I let go of the rope.

(Thanks to W5DOZ who intercepted the above tale over RTTY.)

SUNSPOTS - PART II - KE5FI

THE SUNSPOT CYCLE

Sunspot activity is not at all constant, but increases and decreases in several cycles of different periods. The most important and widely heard of cycle is the "Sunspot Cycle" which occurs roughly over an eleven year period. Sunspot cycles are measured from one low to the next low. They are numbered beginning with the first full cycle recorded which peaked in about 1761.

Figure 1 graphs the average monthly sunspot number for all the recorded cycles from about 1750 to 1984. Sorry about the size - you will have to put on your spectacles.

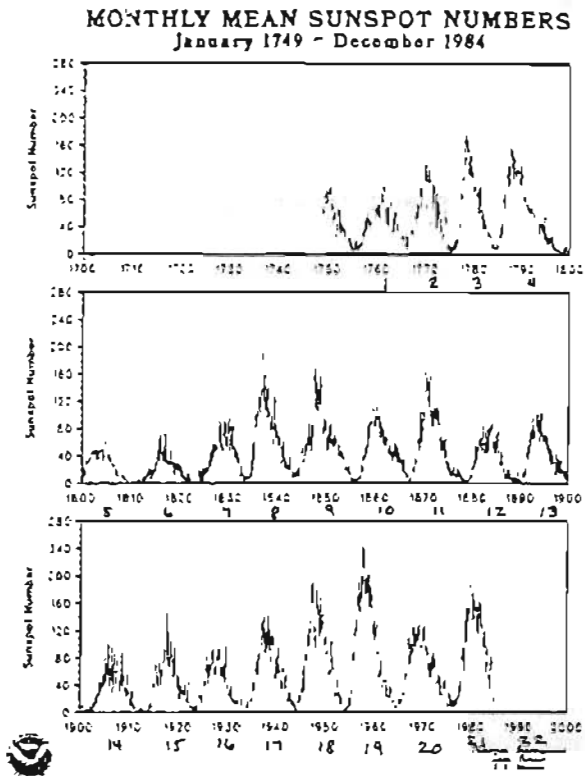


FIG. 1

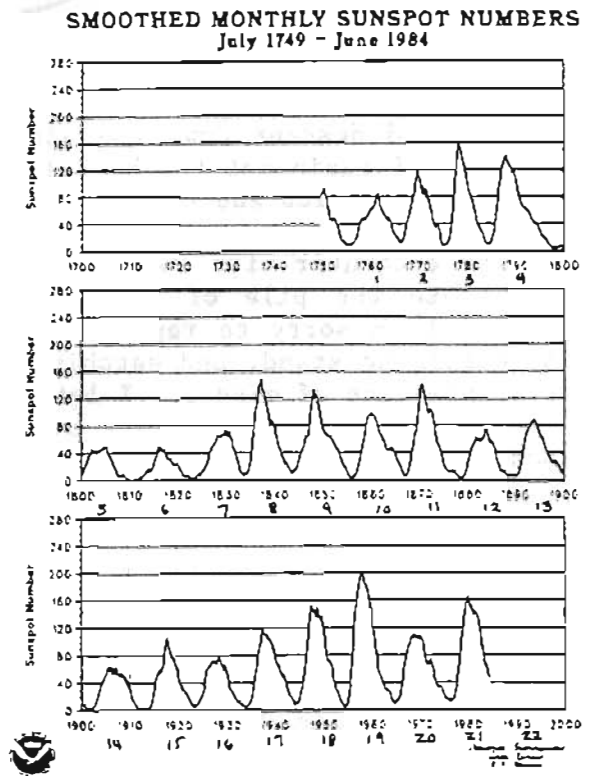


FIG. 2

A couple of interesting things can be observed from these charts (especially the larger versions I have). First, the duration of sunspot cycles varies from about 9 years up to 13 years. If one assumes that cycle 1 began in 1755 and that our current cycle, cycle 21, will bottom out in 1986, simple division shows an average length of exactly 11 years.

I have attempted to find a correlation between the lengths of cycles and the intensity of the cycle and the length and intensity of the preceding cycle, but no verifiable pattern seems to exist.

#### TIMING OF CYCLE HIGHS

One pattern which can be seen from the charts is that the high of a cycle occurs almost universally during the first half of the cycle. The peak of cycle 21 occurred in December 1979. The cycle began in June, 1976 and, assuming it ends in the middle of 1986, the high occurred about 3-1/2 years or 1/3 of the way into the cycle. I am optimistically assuming a cycle length of only ten years. The good news is, if cycle 21 does end in the middle of 1986, we may see the peak of the next cycle by the end of 1989 or beginning of 1990.

#### EIGHT CYCLE TRENDS

Another pattern emerges when the sunspot numbers are charted a different way (Fig.2). The smoothed sunspot number is just another way of averaging the monthly numbers which "smooths" out the curves by averaging prior and future months together to obtain the current month's "smoothed sunspot number." As you can see some of the cycles are higher than others. Cycle 19, for example, peaked at over 200 in 1958 and cycle 14 peaked only in the 60's. Extremely high cycles seem to recur every 8 cycles. Beginning after the highest cycles in these 8 cycle trends, cycles 3, 11 and 19, and numbering each cycle in the trend certain patterns emerge. For example, it is evident that the 3rd sun spot cycle after each of these highs has an extremely low peak. This occurred in cycles 6 and 14. If this holds true in the current 8 cycle trend, cycle 22, our next cycle, will not peak at a very high level. Judging from cycles 6 and 14 at less than a smoothed sunspot number of 80 which is less than half of the high of our current cycle.

#### LAST MONTH

Last month I said the flux would rise beginning on the 14th, peak on the 22nd or 23rd and then decline to 66 by the 6th of October. I also said the A index would be high on 8-11 Sept. and again on the 24th. As usual in the divining of propagation forecasts, I was right and wrong. The A index prediction for the 8th-11th was right on the money. The A index in Anchorage, Alaska climbed to 23 on the 8th, 25 on the 9th, 18 on the 10th and 20 on the 11th. We had an unexpected A index spike on the 14th which probably was caused by a flare at 0736 on the 13th. If you were trying to work any DX between 0600 and 1200 on the 14th you probably thought you had a pin in the coax.

#### NEXT MONTH

Next month I will display daily charts depicting the solar flux and A index for a period of about three months. With these I will try to show how specific daily predictions are derived. Until then, it looks like we are not in for the best in propagation. If we are lucky, we might see the flux climb above 70 on the 27th or 28th. However, we may have to wait for some new spots to appear to have anything to talk about as far as the flux goes. It appears that we may be in for poor conditions in October, with the A index of geomagnetic activity staying high from the 3rd through the 23rd and especially from the 13th through the 17th.

Best days should be Oct 24-30 when the geomagnetic activity should slow down a bit just in time for the CQ contest.