The Pileup
Newsletter of the CDXA

DXers Carolina DX Association

W4VHF	Ted Goldthorpe	President
N4PQX	Bob Burton	Vice-Pres.
K4SQR	Jim Miller	Sec.-Treas.
K4MD	Joe Simpkins	Cluster Mgr.
-	Lloyd Burt	Webmaster
K8YC	John Scott	Editor

"Contest Within A Contest" Results

CQWW for 2002 has come and gone but the memory lingers on. Twenty-four members of CDXA submitted scores to Ted Goldthorpe for the annual "Contest Within A Contest". The overall winner of the Phone portion of the contest was Todd Brady, W4WTB, with 2,538,963 points and 1574 QSOs in the phone portion alone. The overall winner of the CW portion was Larry Knain, W6NWS, with 1,633,428 points. Larry amassed 2,191 QSOs by participating in both the CW and Phone portions of CQWW. As winners of their respective divisions of the contest, Larry and Todd will receive a shirt embroidered with the CDXA logotype.

Anyone having more than 500 QSOs in either or both sections of the contest received a certificate from CDXA honoring their contribution to the overall score of CDXA.   Those who had 500 or more QSOs are highlighted in the table below. This year's contest marks the fourth year of steady growth in CDXA's performance in CQWW overall scoring as a club. Let's plan on eclipsing the 2002 score in 2003!

# Qs	Mode	Call	Name	CW Pts.	SSB Pts.	#Qs	Mode	Call	Name	CW Pts.	SSB Pts.
2191	Comb.	W6NWS	Knain	1,633,428	1,128,600	659	A3	KG4NYV	Johnson	29,715	424,560
1809	Comb.	AA4V	Reichlyn	570,741	1,502,052	605	A3	NC4NC	Oakes	—	253,050
1574	A3	W4WTB	Brady	—	2,538,963	585	Comb.	AD4IE	Ponak	108,780	94,230
1354	Comb.	W3GQ	Sturpe	469,092	1,136,854	541	A3	KT4HN	Wright	—	647458
1104	A1	AA4S	Bailey	1,604,225	—	527	Comb.	K2SD	Douglass	169,460	121,432
1098	Comb.	N4PQX	Burton	131,340	1,179,324	517	A3	N4UH	Elwell	—	482,856
772	A3	N1GC	Colborne	—	880,986	514	A3	W3NC	Riffle	—	235,455
686	Comb.	K4GHS	Wasi-lauskas	113,620	142,844	500	A1	AA4NN	Blackwell	407,100	—

CDXA PacketCluster & Other Communication Systems		
W4DXA Young Mountain	144.93 MHz (1200 bits/second)	441.00 MHz (9600 bits/second)
K4MD Charlotte, NC	144.91 MHz (1200 bits/second)	441.075 MHz (9600 bits/second)
Digipeater near Wingate, NC	144.91 MHz (DXWIN)	
CDXA Repeater 147.18 MHz (+600)	W4DXA, Near Fort Mill, SC	
World Wide Web Homepage	www.cdxa.org	
Wednesday Luncheon (11:30 AM)	Shoney's, 355 Woodlawn Road, Charlotte, NC (704-525-4395)	

Officers Chosen for 2003 at Annual Meeting

The Annual Meeting/Christmas Banquet held on December 12, 2002 provided an opportunity for fellowship and a review of 2002 events for approximately 45 members and guests. Below, Ken Boyd (K4DXA), Gary Dixon (K4MQG), Tim O'Rourke (W4YN), and Bill Turner (W4WNT) reflect the levity of the occasion.

After dinner, each member introduced himself and his guest and provided a small vignette of his/her DX activities. Amongst the DXCC Honor Roll members present, one could easily feel among the "Who's Who in DXing". Outgoing President, Bill Turner, took a few minutes to thank all those who helped make the club successful during his regime—particularly our two gurus of the cluster, Joe Simpkins and Paul Sturpe. Award certificates were presented to those who had participated in the "Contest Within A Contest". Pictured below are Joe Blackwell, Paul Sturpe, and Claude. Oakes.

The "official business" of the meeting was to elect the officers for 2003. Your new officers are pictured below.

New Officers for 2003 are: John Scott, Editor; Bob Burton, VP; Jim Miller, Sec.-Treasurer; Ted Goldthorpe, President; Joe Simpkins, Cluster Mgr.; and Paul Sturpe, Assoc. Cluster Mgr.

Our Paths WILL Cross Again!

About 50 years ago, an entry was made in the contest log of W5RSN for a QSO with W2JKH. Who were these two hams and where are they now?

Here's a hint: At the time W5RSN was in Harlingen, Texas and W2JKH was in Hackensack, New Jersey. Today they live within 50 miles of each other.

Packets, Protocols, and What-nots
By John Scott, K8YC

(This is the fifth, and last, article in a series providing a background to the "mysticism" of internetworking.)

In the October, 2002 issue of The Pileup, I discussed different Internet address classes from the viewpoint of the number of bits in the address that are related to the "network address" versus the "host addresses". You'll recall, for example, that a Class B address allots 16 bits to the network portion of an IP address and the remaining 16 bits can be used to address "hosts". Yet, most network administrators have need for subdividing their networks into *subnetworks,* each subnetwork having a number of "hosts" or end-connected devices. With only 16 bits of the 32 bit IP address available, how is one to do this?

The answer comes in the form of a *subnetwork mask.* Let's say we've been issued an address of 154.135.0.0 as our registered IP address by the InterNIC. Let's also say that we find that our network has 240 LANs at a number of sites with Ethernet connections as high as 220 hosts for several of those LANs. Therefore, a logical way to make use of "our" 16 available bits would be to use 8 bits to provide addressing for our 240 LANs and 8 bits to provide for addressing the 220 hosts we expect to find on some of those LANs. We might start by numbering our LANs from #1 and numbering consecutively to #240. [Number zero (all 0 bits) and number 255 (all 1 bits) in any one byte of the host portion of an IP address are reserved for special use.] Host devices on each LAN segment can then be numbered consecutively. Note that many network administrators set aside address #1 for the router interface on the LAN segment and several other addresses as static addresses for shared devices such as printers and servers. Often these "system devices" start their numbering from #254 and work down and PCs from #2 and work up. This is particularly useful in problem resolution when needing to know which addresses to "ping".

So how is the subnet mask used? We've decided that with 240 LANs we'll need to use 8 bits to define subnetworks with the remaining 8 bits used to define devices on each of those LANs. The subnet mask is set to binary ones for each portion of the IP address used to define a network or subnetwork. The mask is applied bit by bit using a logical "AND" function to find the network portion of the address. In our example case, let's say a router has an address for a device of 154.135.86.174, and needs to compute what subnetwork that device is on. With 8 bits being used for subnetworking, our subnet mask in terms of binary numbers would appear as follows:

```
11111111.11111111.11111111.00000000
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It's "dotted decimal" equivalent would be:

```
255.255.255.0
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Here's how the router "computes" the subnetwork address using a logical "AND" and the subnet mask. The entries below are (1) dotted decimal IP address of the device being sought, (2) binary equivalent of the IP address, (3) binary subnet mask, (4) address resulting from "ANDing"items (2) and (3) bit by bit, and (5) decimal equivalent of subnetwork address:

```
(1)    154  .  135  .   86  .   174
(2)  10011010.10000111.01010110.10101110
(3)  11111111.11111111.11111111.00000000
(4)  10011010.10000111.01010110.00000000
(5)    154  .  135  .   86  .    0
```

Thus the router knows the LAN where a packet is to be routed is number 86. This case is somewhat trivial in that I have chosen the subnetwork address to align with a byte boundary, but it makes the binary arithmetic a little more straight forward.

When the packet gets delivered to the LAN, how does the LAN know where to deliver it? Since LANs were around before the Internet was pervasive, an addressing scheme for LANs had already been created. It used the unique "MAC Address" assigned to each and every Network Interface Card (NIC). MAC is an acronym for Media Access Control, and by agreed standards each manufacturer of a NIC has a range of MAC addresses it assigns to each card manufactured. The router serving the LAN has a table (ARP Cache) which makes a correspondence between the MAC address of the physical device and the IP address being sought by the incoming packet. The protocol to perform this operation is called ARP—Address Resolution Protocol.

Two good references on TCP/IP:
TCP/IP Addressing by Buck Graham, Academic Press, ©1997 – ISBN 0-12-294630-8
Hands-on TCP/IP by Paul Simoneau, McGraw Hill, ©1997 – ISBN 0-07-912640-5.

Using H Double Bay Antennas
For Contest Diversity
by Ron Bailey, AA4S

In the September, 1995 issue of CQ Magazine Paul Carr, N4PC, published an article entitled "The H Double-Bay Antenna" describing one for 17 meters. (Before proceeding I recommend digging out and reading his article.) Back then I was using my 4 element 40 meter KLM log-periodic-yagi as a 17 meter antenna for casual DXing with reasonable success. Roger Burt, N4ZC, had tipped me off to the fact that his KLM tuned and worked well.

Somewhere along the way I had put a linear-loaded rotatable dipole at 62 feet, but it mysteriously quit working after a thunder and lightning storm. I see from my log that I was also experimenting with a delta loop in various orientations; however, I don't recall doing this! (Not surprising at my age.) I was late getting on the WARC bands, and by 1996 I had logged only 62 entities on 17 meters.

In April of 1996 I constructed an H Double-Bay from Paul's article. It was hung off the side of my 75-foot tall forest ranger's tower with the top spacer at 72 feet. A fiberglass rod strapped across the top of the tower supported the antenna about 8 feet out. Ropes were attached to the ends of the bottom spacer and run to a handle bar arrangement secured ~5 feet above ground in order to allow manual rotation of the antenna when necessary.

I wasn't particularly excited by it until I made a direct comparison with the 40 meter KLM on May 19 with ZL2BPT. Graham indicated I was two S-units stronger on the "H"! I now use it exclusively on 17 meters and have logged 248 entities with it.

With all this in mind and with the CQ WW CW contest approaching, I got to thinking that a set of Double-Bays for 10, 15, and 20 meters fixed southeast/northwest (~148 °/328 ° from my QTH) might be useful for quickly knocking off needed Multipliers/QSOs in their favored directions while my yagis were pointed elsewhere. To me the biggest advantage was that they could be constructed at virtually no cost compared with the expense and effort involved in mounting beams at different heights for various directions, possibly, with sidearms, rotators, or even additional towers.

The task of constructing and hanging these three separate antennas was completed two weeks before the contest. Design frequencies of 14.050, 21.050, and 28.050 were selected. Only slight adjustments were necessary after using the published formulae to achieve excellent SWR values at these frequencies. The 1.5:1 SWR points appear to be +/-72 kHz. on 20m, +/-168 kHz. on 15m, and +/-156 kHz. on 10m. Paul cautions "the bandwidth between 2:1 SWR points seems to be about [only] 1.3%" which explains why I did not chose a design frequency in the middle of these bands.

H Double Bay Antenna is pictured to the left of the tower at the QTH of Ron Bailey, AA4S. This inexpensive fixed antenna performed well and negated need to swing a beam for needed multipliers.

Received signal strengths on the international beacons compared to my monoband yagis showed the Double-Bays to be about an S-unit down. I didn't flinch at this, however, because my monobanders consist of a 5 el 205CA at 87 feet, a 4 el W2PV redesign of a 155BA at

(Continued from page 4)

60 feet, and a 5 el N6ND redesign of a 105BA at 62 feet on 3 separate towers. These have served me quite well under even the most difficult operating circumstances.

CONTEST RESULTS: 27.67 hours of operation—most of it in the S&P mode—resulted in 1104 QSOs, 129 zones, and 386 entities for a single-op, all-band, high power score of 1.6 million points. The breakdown on 20 through 10 meters is as follows:

Band	QSOs	Zones	Entities	H D-B QSOs
20	284	33	88	39
15	325	28	86	38
10	285	28	98	41
Totals	894	89	272	118 (13.2%)

As you can tell, this effort was not designed to win anything or beat anybody, but rather to evaluate antenna performance. I was totally amazed by the results, however. The H Double-Bays far exceeded my most optimistic expectations. They contributed 26 zones (29%) and 75 multipliers (28%) in 34 DXCC entities including 9M2TO via the 20 meter SE long path late Sunday afternoon. The most remarkable thing was that nearly all but three or four of these QSOs were made on the first call! Considering the contribution to my score in addition to the time saved by not having to rotate beams, I've concluded my efforts were richly rewarded.

I now intend to keep these antennas as a regular part of my contest station. I'm wondering how they will work in domestic contests such as the Sweepstakes, Sprints, and NAQPs. The only other question is "Why did they work so well?" I've ordered EZNEC software from W7EL for the purpose of fully analyzing them and will publish my findings in a future article. Very 73, AA4S.

Bill Taylor, W4WBT, SK

It is with great sadness that I report the passing of Bill Taylor, W4WBT on Thursday, December 26, 2002. Bill was the moving force behind the creation of the CDXA 147.18 MHz repeater enjoyed by both CDXA members and others passing through the Charlotte metropolitan area. Bill also was the principal creator of the CDXA spotting system we all find so useful in pursuing DX contacts. I didn't know Bill as well as some of the long-time members of CDXA, but he always had a friendly "hello" when I met him on the repeater he originated. He'll be missed. *—The Editor*

Why Join a DX Club?
By John Scott, K8YC

It is the day after CQWW CW contest as I write this. As a "little pistol" in this contest, I can only claim self-satisfaction rather than a big score. Yep, satisfaction at knowing that while I don't have a great "antenna farm", I've become a pretty good DXer.

How does that happen? It happens by rubbing elbows with other good DXers and getting to know what works, and what doesn't. All one needs to do is to listen around the bands for a while to understand that there are many who don't have that advantage.

What are some of the little things that work. I'll first go back to one of our old master's at the game, Dave Kennedy, N4SU. Dave's words are "Listen, listen, and then listen some more". On Thursday before the contest, I had the opportunity to work a few prospective contesters. I heard the DX sending his callsign followed by "UP A" or "UP 1". Immediately, several callers sent their callsign right on the DX frequency. So I slid up the band one kHz, listened for a cycle or two to get the rhythm, called the DX, and got him on the first call. Bingo! Did they listen? Apparently not.

Now it's contest time. A rare multiplier showed up on the cluster. On his frequency is a horrible pileup. My mentors have told me to listen and figure out what's happening, even if only for a call or two. I then recalled Roger Burt's advice—say or key your callsign once or twice in your head before calling so you are on the tail end of the pileup trail off. I try this. The DX hears my call as the pileup wanes, and back comes my callsign suffix followed by a question mark. I'm in the log and off to the next QSO. I made this little trick work at least four or five times in the contest.

If delaying your call doesn't work, your buddies in the club have told you to try working "around the edges" of the pileup. Did I just hear that fellow 300 hertz low get acknowledged? Yep. My "zero beat" signal sounds like all the others. Change frequency a bit and stand out from the crowd. Golly, that worked too!

I've learned a lot about DXing in the five years I've been affiliated with CDXA. In recent discussions with a few other members, I know we're all still learning a few new tricks from our mutual association. Never too old to learn! What better reason to join a DX club?

Our Paths WILL Cross Again-(Con'd)

Okay, so you turned to this page from Page 2 to get the answer to the riddle. Well, below is the QSL card for W2JKH. Inspection will show that it is none other than our own "Uncle Henry", N4UH.
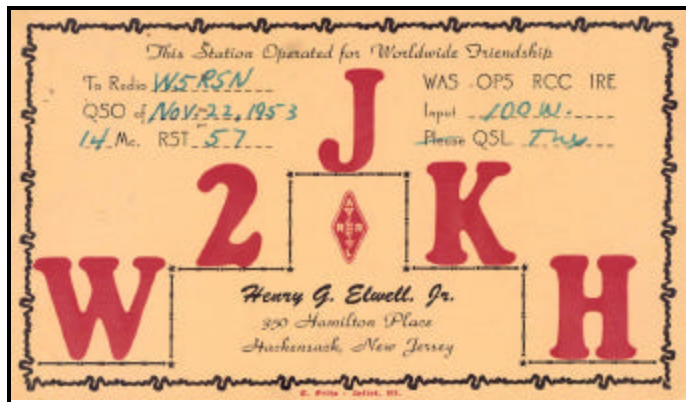
The "other end" of this QSO was Dick Genaille, now W4UW, as shown below. Dick and Henry now live in Winston-Salem and Cleveland, NC, respectively.
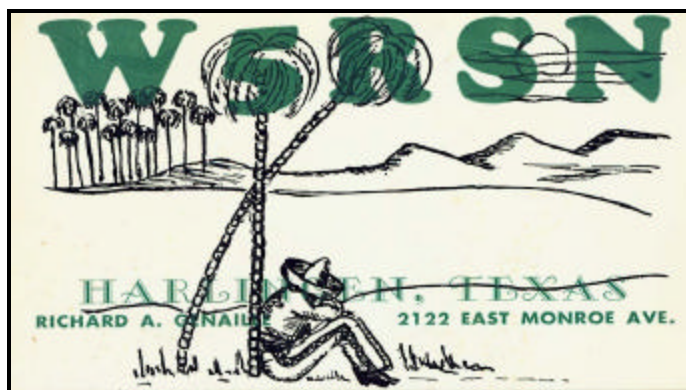
In reporting this coincidence, Dick Genaille writes, "I lived in a town in New Jersey called Ridgefield Park and left there in 1950 as a Field Engineer for Western Electric. My call then was W2MRK. At the time, I didn't know 'Uncle Henry' , who lived in Hackensack only a few miles away. His call then was W2JKH."

"In 1953 our paths crossed when I was assigned to Harlingen AFB in Harlingen, TX and I had the call W5RSN. We worked each other in a sweepstakes contest. We exchanged QSL cards. Years later our paths crossed again when we both moved to North Carolina within not too many miles of each other and got to know each other because of our memberships in the Quarter Cen-

tury Wireless Association and CDXA! We have been good friends for a number of years now and I have to say it has been my pleasure to know Henry although we missed meeting all these years until coming here."

(Dick sent me not only the two QSL cards pictured but the actual logsheet used in the contest in which he worked "Uncle Henry". —The Editor)

Ice Storm Slams the Blue Ridge

The picture below tells it all. Following the big ice storm early of December which slammed much of South Central North Carolina, the folks on top of the Blue Ridge got a similar treatment.

Many of us down in the "flatlands" did not know of this storm, but Roger Webb, W4MW, who enjoys mountain-topping with his 6m VHF beam sure did. Looks like another antenna party is in the works when it warms up a bit.

Lookout, Dayton, Here we come!

Since we've been dealing with a little nostalgia in this and recent issues, we knew you'd enjoy this crew sporting their early 1980's hair styles and clothing! They're off to the 1983 Dayton Hamvention. Who are they? From left to right are: Joe Fesperman (K4LVV, silent key), Ted Goldthorpe (W4VHF), Bill Taylor (W4WBT, silent key), Gary Dixon (K4MQG), Roger Burt (N4ZC), Frank Dowd, Jr. (K4BVQ), and Bill Parris (AA4R). Photo courtesy of Ted Goldthorpe, plane courtesy of Frank Dowd, Jr. *(When Ted provided this photo to the editor at the Annual Meeting, he remarked that all were still living except for K4LVV. Sadly, since that time W4WBT has become a silent key. See Page 5 of this issue. —The Editor)*

Sunspot Cycle Offers Rewards

With the submissions for DXCC in 2002 came the rewards of the fine propagation conditions offered by the current solar sunspot cycle. At least four CDXA members have earned the ability to now put "DXCC HONOR ROLL" on their QSL cards. One at a time I've heard four YEEE-HAWS come booming into my QTH in Cornelius as this high plateau of achievement has been reached.

First to be heard from was Bob Burton (N4PQX). Close on his heels, Ken Boyd (K4DXA) announced that he had received the QSL card which put him over the top. A quiet note from Arlin Wilson (K4QVK) in Kings Mountain, NC announced that he had received his 326th confirmation of currently active DXCC entities. The last announcement was the one I enjoyed the most. Kent Miller (K4MK) sent me an email. In the email was a photo attachment showing his DXCC Honor Roll plaque proudly on his wall with the K4MK callsign as big as life right there! Is there anyone out there in CDXA-land who's not spoken up yet?

Earning DXCC Honor Roll status represents a lot of work, a lot of listening, and lots of persistence in pursuing QSLs. For each of you earning this award, our hats are off to you.

The Back Page

It is time for payment of your **2003 Dues**. Please help Jim Miller by remitting your dues promptly to his address shown below. Dues are $30/year for Cluster users, $15/year otherwise.

It's time to start planning for the **Charlotte Hamfest**. The dates this year are March 8 & 9. CDXA is currently planning on having its annual dinner on Saturday evening, March 8. More will follow in February. Some of the planned forum speakers are: Riley Hollingsworth (K4ZDH), Bob Heil (K9EID-"The Science of Audio-Chapter 2"), Dave Anderson (K4SV-Chatham Island DXpedition), and Wayne Mills (N7NG). Full details can be found on the Mecklenburg Amateur Radio Society at: http://www.w4bfb.org , click on "Hamfest".

Upcoming **contest** activity:

Dates	Contest	Comment
January 24-26	CQ 160 Meter Contest, CW	
February 15-16	ARRL International DX Context, CW	
February 21-23	CQ 160 Meter Contest, Phone	
February 23-24	North Carolina QSO Party	
March 1-2	ARRL International DX Contest, Phone	Will not interfere with Hamfest!

Jim Miller, K4SQR
11600 Hilda Court
Charlotte, NC 28226

k4sqr@juno.com

First Class Mail

See something wrong with your address label? Notify K4SQR at once, please.