

DXer

N O R T H E R N
 C A L I F O R N I A
 D X C L U B



Club Members' Names

by Steve Thomas, N6ST

I have a common name. Look in any phone book and you'll find plenty of Steves.

As I was helping Melissa prepare NCDXC dues reminder, I realized I had at my fingertips the perfect tool to see how many nicknames are used by club members, and what names are even commoner than mine. I sorted the database by nickname, then found the totals for each name.

I was heartened to find mine only the 6th-most-common first name in the club, and that club members use 172 different nicknames—with the following frequency:

Bob: 27, Bill: 16, Dave: 15, John: 15, Jim: 14, Steve: 11, Dick: 10, Chuck: 9, Al: 8, Ron: 8, Ed: 7, Don: 6, Ken: 6, Larry: 6, Tom: 6, Jack: 5, Doug: 4, Greg: 4, Jerry: 4, Norm: 4, Paul: 4, Rich: 4, Stan: 4, Andy: 3, Art: 3, Bruce: 3, Dennis: 3, Fred: 3, Gene: 3, George: 3, Harry: 3, Joe: 3, Mike: 3, Phil: 3, Ted: 3, and Walt: 3.

Here are a few people who share their names with only one other club member:

Bud, Carl, Claude, Duane, Frank, Gary,

Gerry, Gordon, Henry, Howard, Jan, Lloyd, Lou, Michael, Pat, Ralph, Ray, Russ, and Vince.

And the following stalwart individuals refuse to share their nicknames with anyone else in the club:

Ace, Alex, Armond, Baldur, Barbara, Ben, Bip, Brad, Brian, Bruno, Burley, Cab, Cass, Charlie, Chod, Chris, Cliff, Clint, Craig, Curt, Daniel, Dean, Dewey, Doyle, Ellen, Elliot, Elmer, Elvin, Eric, Erik, Ernie, Ev, Garry, Gerard, Gil, Glenn, Gregg, Hal, Hank, Heimo, Herschel, Hillar, Hugh, Iris, Irv, Jacques, Jay, Jeff, Jo, Joel, Jon, Kan, Karl, Keith, Kenny, Kim, Kip, Klaus, Knock, Lars, LE, Lee, Len, Linda, Lindy, Louese, Mac, Marc, Marilyn, Mario, Marion, Mark, Martin, Martti, Marv, Mason, Melissa, Merle, Mickey, Nadine, Natan, Nolan, Nose, Omri, Perry, Pete, Pres, Randy, Reg, Reginald, Rick, Roger, Roland, Rolph, Ross, Rowland, Roy, Rubin, Rusty, Sam, San, Scott, Scotty, Smitty, Tak, Taylor, Terry, Todd, Tommy, Tony, Tudor, Val, Virg, Warren, Wayne, Wes, and finally, Woody.

Sled Ride Launches Law



In 1949, in California's Mojave Desert, Major John Paul Stapp survived an experimental rocket-sled ride with acceleration beyond 31 times gravity—31 "G's." Only afterward did he learn every G-sensor had failed.

Captain Edward Aloysius Murphy Jr., called in to investigate the problem, found all six G-measuring devices installed backwards. He remarked, "If there's more than one way to do a job, and one of those

ways will end in disaster, somebody will do it that way." Thus was Murphy's Law born.

Murphy said later, "I never meant to be fatalistic. I just wanted to warn people to cover all the bases, because if you don't you're in trouble." Murphy's Law achieved lasting fame, and made several people rich, but not Murphy.

from Nuclear Age, via Hale Blakely, W9CBE, via the November '92 West Allis (WI) RAC "Hamtrix"—Les Peterson, W9YCV, Editor

Inside

Minutes, Roster Changes	2
Service Numbers—KZ1Z	3
600-Meter Watch—W2LV	4
Amidon Baluns—WA8MCQ	5
The Bomb Crater—WB8OET	6
Curses—G3ATH	6
Audio DSP Kit—WW7E	7
Easy Satellites—N9LTD	8
EMF Exposure—K2AIO	8
GPS in Place—N2SYJ	8
4-Rotator Pileup—WAØRJY	9
EVs Maturing—Paul Brasch	9
Bartender's Guide—KB6LE	10
Logical English—Clemens	10
Satellite Packet—WB8IFM	11
An Editor's Lament	11

August Meeting

The August meeting will feature Tom, NW6P, moderating a panel discussing the DX Packet Spotting Network, planned hardware additions, and the DXPSN Users' Group which supports the system.

"Attitude adjustment" begins at 6 at Harry's Hoffbrau in Palo Alto and the meeting begins at 7.

Coming Events

- Livermore Swap Meet: 1st Sunday of each month at Las Positas College in Livermore, 7 till noon all year.
- Foothill Swap Meet: Foothill College, 2nd Saturday of the month, through September.
- Reno Hamfest: Stead A.F. Base August 29. Call Bob Davis, KG7IY, H: 702/677-7877 W: 702/329-2833.
- ARRL Southwestern Div. Convention: Holiday Inn on the Beach, Ventura, Sept. 17-19.

N O R T H E R N
C A L I F O R N I A
D X C L U B

Club Officers:

President: George Allan, WA6O
 Vice President: Garry Shapiro, NI6T
 Secretary: Craig Smith, N6ITW
 Treasurer: Dewey Churchill, KG6AM
 Director: Bob Artigo, KN6J
 Director: Jim Knochenhauer, K6ITL
 Director: Louese Bloom, KA6ING

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Club Repeater, W6TI/R. (147.36+)

Trustee: Bob Vallio, W6RGG
 Comm. Chairman: Ralph Hunt, AG6Q
 Club simplex: 147.54 (suggested)
 Thurs. Net QTR: 8 p.m. local time.
 Net Manager: Ralph Hunt, AG6Q
 DX News: Dave Pugatch, KI6WF
 Propagation: Al Lotze, W6RQ
 Contest News: Rich Hudgins, WX6M
 Westlink: Craig Smith, N6ITW
 Swap Shop: Ben Deovlet, W6FDU
 933 Robin Lane
 Campbell, CA, 95008
 408-374-0372

QSL Information: Mac McHenry, W6BSY

W6TI DX Bulletins:

W6TI Station Trustee Bob Vallio, W6RGG, transmits DX information at 2:00 zulu every Monday (Sunday evening local time) on both 7.016 and 14.002 MHz.

Club address: Box 608
 Menlo Park, CA
 94026-0608

The DXer is published Monthly by the Northern California DX Club and sent to all club members.

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Board of Directors Meeting

The BOD met at Harry's in Mountain View July 2. All directors were present; Bob, KN6J, presided.

- BOD acknowledged receipt from Ron, W6VG, of detailed suggestions for streamlining and clarifying the Bylaws & Procedures Manual. To be considered by the new BOD.
- Melissa, AA6TD, proposed—and WA6O moved—that the Visalia Convention Chairperson and Pre-registration Chairperson be provided complimentary convention tickets. NI6T's motion to table the subject for the new BOD passed.
- BOD discussed annual renewals. BOD had intended to put notices in June DXer, but this was not done and may be impractical. The notification method will be reconsidered.
- AA6TD proposed that NCDXC contribute \$1000 annually to NCDXF. Dewey, KG6AM, so moved but BOD agreed to submit the proposal to the membership at the July 9 meeting.
- Garry, NI6T, discussed Life Member applications of absentee members. Current Club rules require life members to have been voting members—therefore once resident in Northern California. The issue will be discussed further.
- Ron, W6VG, currently DXer Publisher, will also manage the roster, which is currently in the hands of NI6T. NI6T will coordinate purchase of database software compatible with both Macintosh and DOS/Windows computers.
- KN6J discussed the inventory of 40,000 NCDXC QSL cards, a subject to be revisited by the new BOD.

General Meeting

The meeting was held July 9 at Harry's in Palo Alto and was opened by outgoing President Bob, KN6J. Guests were introduced.

- Knock, K6ITL, presented a summary report of the 1993 International DX Convention and suggested donating \$2500 of the \$9000 profit to NCDXF. A spirited discussion ensued, but was suspended until "New Business."
- Garry, NI6T, introduced Pete, NØAFW, the guest speaker. Pete presented a slide show of the recent Kingman Reef/Palmyra DXpedition, which experienced substantial danger and hardship. Pete was on his way back to his native Minnesota, so we were lucky to obtain his presentation.
- The NCDXF contribution matter re-emerged under "New Business" but was put back to the BOD by a floor motion and vote.
- WA6HHQ and AA6MC received first readings. There were no second readings.
- Bob, KN6J, presented the gavel to incoming President George, WA6C. George then presented a plaque to Bob commemorating his year as President.

Roster Changes

Reg Olsen, NH6T, now resides in Virginia and is an absentee member.

The correct spelling of K6AFL's name is Rowland Haegele.

KJ6PJ and N6SSM now hold Extra Class licenses.

Change of address

Kenneth Oscar (Ken) Swanson, KK6TX
 941 Jennifer
 Incline Village, NV 89451
 H: 702/832-2560
 (No business phone provided)
 By moving to Nevada, Ken has become an absentee member.

Sonnet on a Linear Amp

©1993 by Ed Radlo, AJ6V
with apologies to William Shakespeare (Sonnet XXIX)

When in disgrace with *QST* and *CQ*,
I all alone beweeep my outcast state
And trouble deaf heaven with unheeded calls
And look upon myself and curse my fate,
Wishing me like to one more rich in counters,
Featured like him atop the Honor Roll,
Desiring this man's beam and that man's scope,
With what I most enjoy contented least;
Yet in these thoughts, myself almost despising,
Haply I think on thee, and then my state,
Like to the ZA at break of day arising
From QRN, sings CQ at heaven's gate,
For thy raw power remembered such wealth brings
That then I scorn to change my state with kings.

Prez Sez

by George Allan, WA6O

As we begin this season at NCDXC, I would like to thank Bob Artigo, KN6J, for serving as president this past year. As junior past president, Bob will be on the Board this year. It reassures me to know Bob's sage counsel will be available when I need it.

Regular Board meetings will be held on the third Wednesday of each month.

One matter before the board is the proposal to donate \$1000 to the Northern California DX Foundation. A related proposal would donate \$2500 of convention proceeds to NCDXF. The board's recommendations will be brought before the membership at the August meeting. It's a hot issue, so please attend if you can.

I would also like you to update your roster as follows:

George Allan, WA6O
668 Chemeketa Drive
San Jose, CA 95123
phone 408/226-0497

The answering machine is always on. I pick up messages twice daily, and will return your call as soon as possible.

The August meeting is probably our last at Harry's for a while. Costs to the club are high, and Harry's is inflexible in demanding we vacate the place by 9:30. If you know a place that you think might be a suitable meeting site, please let me know.

CW Lives On in the Amateur Service

by Paul Wolcott, N2JTD

Tune the CW subbands and you find hams who enjoy CW. But some of us have let our CW skills slip in favor of other modes. Life gets busy, and there are so many things to do—packet, repeaters, HF and VHF SSB, and (uh-oh) typesetting this newsletter.

But letting my CW go seems a shame, so I'm getting my skills back by taping the WIAW code transmissions a couple of times a week, then listening while driving to work.

Check out WIAW on 3.582 MHz. See any *QST* for the sked.

from the April '93 Shore Points ARC "The Sparc Gap"—N2JTD Editor

Errata

Brad Wyatt, K6WR, has written to say he was misquoted in the July DXer minutes. It was ARRL Midwest Division Director Paul Grauer, WØFIR, who became a silent key, not Ed Metzger, W9PRN.

ELMER

By Rich Regent, K9GDF



from the Copper Country RAA (Dollar Bay, Michigan) "The Landline"—Brian Suits, WB8WKN, Editor

An Old-Time Radio Story The WEAF 600-Meter Watch

by Robert M. Morris, W2LV

In the 1920's, it was feared the new broadcast station transmitters, operating in spectrum recently used by ships, might interfere with weak distress signals. So broadcast stations, including WEAF, had to maintain a continuous watch on the 600-meter band whenever they were on the air.

In New York harbor, a small Navy ship with the call letters NURL met incoming ships stopping at quarantine, to take their mail. NURL would contact them on 600 meters, to determine their time of arrival.

At about 11:30 one evening, the WEAF operator heard NURL call a ship. The ship's operator said he was 35 miles east of Ambrose Light with 60 bags of mail, and would reach Ambrose at midnight.

After a pause, NURL replied, U SA 35 MILES EAST OF AMBROSE, EH?

The answer was affirmative. Again from NURL: ES U SA U WL ARRIVE AMBROSE AT MIDNIGHT, EH?

After a longer pause, another affirmative came back. Then NURL sent, SPEED, followed by a chorus of HI's.

We once learned in an unusual way of WEAF's reputation for an efficient watch. One evening in June 1927, the generators quit, shutting down the BC transmitter. It took only seconds to telephone the engine room in the basement of 463 West Street and learn the power failure affected the entire Bell Laboratories Building, where WEAF was located.

With no emergency power source, there was nothing to do but advise the studio headquarters at 195 Broadway, and wait for power to return.

The 600 meter receiver, a Western Electric 4B Superhet, operated on batteries, so it continued to function. Suddenly we heard NAH, the Brooklyn Navy Yard, asking, "Where was the SOS?" Since no one on 600 meters knew of any distress call, we called NAH on the landline to pass along this information. It developed that NAH often monitored WEAF. When they found us off the air, they assumed we must have signed off for an SOS. We at WEAF appreciated the Navy's compliment.

from the May '93 North Jersey DXA "NJDXA Newsletter"—Ron Levy, K2AIO, Editor

Spell-Checker

by Carlton Smith, KA4VPM

I have a spell-checker;
It came with my PC.
It planely marques four my revue
Mistakes I cannot sea.

I've run this poem threw it,
I'm sure your please to no.
It's letter prefect in it's weigh;
My checker tolled me sew.

from the May '93 Bluegrass ARS "Qua/Ham"—Bill De Vore, N4DIT, Editor.
(Carlton Smith edits the Daytona Beach ARA newsletter, "The Groundwave.")

A TV Repair Call In Ohio

by John Myers, WX8G

I was called out to a home near Westlake (Ohio) that had been hit by lightning during a severe storm. It must have been a direct hit, because the TV antenna had vaporized right off the tower.

All that was left was the mast-pipe and little bits of hardware where the feedline and rotor cable entered the house—and a hole in the siding two feet in diameter!

Yet the house did have lightning rods. The ground rod was about six inches below grade and its hole was backfilled with dirt and gravel. The energy released by that lightning bolt must have equalled a stick of dynamite; not only was all the gravel was blasted out of the hole, gravel had pierced the siding like bullets—in 20 or 30 places.

Inside, the phone line was burned so badly new wire had to be installed—this time underground. In all my years as a TV repairman, I've seen only one other case as bad as this. I'm sure glad that strike didn't hit my house.

from the December '92 Alliance (Ohio) ARC "Zero Beat"—N8LVO Editor

This DX Needed an Elmer

by Derek Wills, AA5BT, G3NMX

I heard something sad but funny. A newly-licensed ham on a rare-DX island had gamely entered a CQ Magazine-sponsored DX contest, but he wanted people's names for the log. You don't exchange names in a DX contest, of course, but people went along because they needed the "multiplier."

An American suggested he go by call areas to make it easier, but the DX guy misunderstood. Another American explained he could take 1's, then 2's, then 3's, etc. The DX said, "Okay, I'll take Zone 1. Any Zone 1?" No Alaskans, who are in CQ Zone 1, got through—but lots of W1's did.

The DX fellow berated the 1's, who are in CQ Zone 5. Eventually he got the hang of it, though he continued to say things like, "Okay, now everyone with a 4 in their call or in Zone 4. (Zone 4 includes most of central U.S. and Canada.)"

It was fun, though I might not have thought so had I needed this island on the band or mode. The guy was doing his best. It takes a while to learn proper contest procedures, and it must be extra tough for a rare one. I can imagine what that pileup must have sounded like on his end.

from the January '93 Austin (TX) ARC "AARC-Over"—Anne Click, KB5RHA, Editor

Review: A W2FMI Balun by Amidon

by Michael A. Czuhajewski, WA8MCQ

Most of you probably know of Jerry Sevick's *Transmission Line Transformers* (ARRL), and that Jerry is a recognized expert on RF transformers. He has written numerous articles for *QST*, and an August 1992 *CQ Magazine* article on "ununs"—UNbalanced to UNbalanced, rather than BALanced-to-Unbalanced, baluns. Jerry also wrote on baluns in the Summer 1992 *Communications Quarterly*.

The advantages of transmission line transformers over other types include high efficiency and broad frequency coverage.

For two years, Amidon has offered many of the designs in W2FMI's book in kits and as built units. Also, Amidon's 58-page *Transmission Line Transformer Handbook*, subtitled "48 Improved Designs by Jerry Sevick, W2FMI," is well worth its \$8 price. It contains a brief introduction to the subject, tips on building RF transformers, and data sheets on the designs Amidon offers for sale. Each data sheet includes a schematic and a photo of the completed unit (before mounting in a box), and the core and winding information needed to build one.

The subtitle, "Improved Designs" is meaningful. The introduction says, "All these transformers were selected from the author's book, but many have improvements offering more margins at the low-frequency end, where excessive core flux—hence heating and possible damage—could occur."

In his *CQ* article, Jerry says, "Most transformers in my book have been redesigned to optimize the performance-to-cost ratio."

The balun I reviewed is model W2FMI-4:1-HBM200, a 4:1, high-power, 200-Ohm balanced-output balun. Mounted in a Bud CU-234 die-cast aluminum box, this balun is built like the proverbial commode. And don't worry about the label fading or falling off; it's etched into the cover. Five-hundred years from now there will be no question who made this balun.

The balun has an S0-239 connector for the coax, and ceramic feed-thru insulators for the 200-Ohm outputs. Inside, spray-on self-curing foam insulation mounts the balun itself. (The material comes out of the can like butterscotch pudding, and hardens in a few hours into rigid foam.)

Amidon's people assemble the baluns by filling the bottom with foam, allowing it to partially cure, putting the wound core to bed, then globbing more foam on top.

But they leave it partially exposed, so you can see the massive ferrite toroid, and the double winding of Teflon-sleeved wire wrapped with the fiberglass tape—just like the Sevick book says to do.

The box was not sealed around the edges. This could be debated either way, but if they sealed it, you'd be forever curious about how it looked inside.

In a November 1992 *CQ* article, W2FMI said the baluns require no special precautions for outside use, since ferrites are not affected by moisture. He did recommend keeping the transformers out of a pool of water, though. You should drill a 1/8-inch hole at the lowest point, to prevent condensation buildup.

Apparently not all Amidon transformers come in die-cast boxes. Their 1992 summer

specials flyer lists seven ununs, and the parts lists for the kits show a Bud CU3015A "minibox"—a sheet-metal box. That seems a bad idea for outdoor use, as the wind will drive water or snow inside.

The kits appear to be complete, except for the foam insulation; they include the core, wire, Scotch #27 glass tape, solder lugs, copper strip, S0-239's, hardware, the box, and adequate documentation. The special kit price for the ununs is \$28 each.

Assembled units range from \$45 to \$50. I have no way to test the 2000-Watt rated power capacity, but I trust Amidon enough to believe their ratings are conservative.

I did test the sample on a Hewlett-Packard 8753C network analyzer. I terminated the high-impedance side with a 200-Ohm non-inductive resistor, and measured 1.04 SWR at 3 MHz. SWR dropped even lower as I increased the frequency, came back up to 1.04 at 24.5 MHz, and rose to 1.07 at 31 MHz. At 1 MHz it still showed a respectable 1.14, so the unit should work well even on 160 meters.

Amidon offers baluns and ununs in a variety of impedance-matching ratios. If you think the prices too steep or if you prefer to roll your own, Amidon offers the cores, wire, Teflon tubing, and glass tape.

If you do antenna work, check out the W2FMI transmission line transformers. They cover a wide range of impedance ratios, have high efficiencies, and can solve your matching problems.

from the April '93 "QRP Quarterly," journal of the QRP ARC—Jim Griffin, W9NJP, Editor. (Address: Box 776, Alpine, Texas 79831)

Antimony:

A poisonous metal, so called because of its use in a famous case of mass poisoning of monks in the 15th century by an alchemist named, delightfully, Basil Valentine. Hence anti-moine, or "hostile to monks."

It's appropriate useage today would be to administer it to people who smoke in elevators.

Aprosexia:

Inability to concentrate, not—as might incautiously be assumed—après-sex activities. The best known use for the term is when completing the "nature of illness" section on a sick-leave form.

both gems are from the June '93 Engineers Club of San Jose (CA) "Done Sheet"

High Lookout

A contester spent an amount, he
Bought on a hill in the county.
Outside jurisdictions
With tower restrictions,
He'd soon the king of the mount be.

—AF6S (1993)

The Bomb Crater

Or How Not to Put in a Tower Base

by Mark Collins, WB8OET

I found the buy of a ham's lifetime in a local trading paper's ad: "70-ft. fold-over tower with motor, \$300." The voice on the phone described a Heights free-standing aluminum tower, with base and motor-driven fold-over kit. It was too good to be true. I hurried over, loaded up, paid him, and got out of there.

I decided to pour the base before winter, so I gathered the necessary hardware—one-inch threaded rod for the tower legs, etc., and recruited a couple of ham co-workers and my father—who always gets himself caught up in my adventures.

The manufacturer recommends a 5 x 5 x 5-1/2-foot deep hole. We figured if some is good, more is better, so we dug down six feet, a depth that makes for 6 cubic yards—just enough to avoid the concrete company's \$50 short-load fee.

During the second evening of pick-and-shovel work, we hit water—in what is normally bone-dry clay. For two evenings we "played in the mud." We finally finished the "hole" on a Thursday. I planned to pour early the following Saturday.

But my helpers had other things to do Saturday. Perhaps they had enjoyed about all the "ham radio" they could stand.

And Saturday night it rained, and it rained into the next week. Monday morning it looked as though someone had dropped a 500-pound bomb in my back yard. My prized hole had grown circular, ten feet in diameter. I also soon realized the missing dirt was in the hole, under the water.

That evening, busying myself to fight my depression, I poked around and discovered the water was only one foot deep. All below that level was real mud. If a truck loaded with dirt had happened along then, I would have asked the driver to dump it in the hole.

My co-workers seemed to forget their previous week's experience, though; they anxiously awaited the opportunity to involve themselves once more in "ham radio." We spent a week cleaning out the hole, despite continual cave-ins.

Eventually we decided the only way we could save this hole was to build a form and somehow put it in the hole. So we built one of plywood and 2x4's, with dimensions of 5 x 5 x 4 feet, and dropped it in.

No more dirt could fall in after that, but by the time we finished cleaning the hole out, it was over 6 feet deep. But what the heck, we built a second form and spliced it on top of the other one, so the top would reach the level of the ground surface.

We cleaned up the whole area, threw a sump pump into the hole, and agreed meet again the following Saturday morning.

A smiling truck driver arrived with exactly the ordered amount of concrete—and tried his best not to laugh. We began the big pour in a light snowfall.

When the concrete in the form was about two feet deep, we heard snaps, crackles, and pops. No one could remember hearing concrete sound like breakfast cereal.

We asked the driver to stop pouring. Then we saw that the form's seams were parting. We shoveled mud around the outside of the form, to act as a backfill.

Then everything was rosey until, with the concrete just one foot from the form's top, the truck driver said, "that's it." He was out of concrete.

The 24,000 pounds of concrete apparently compressed the back-filled mud enough to balloon the form out one-and-one-half cubic yards.

The driver arrived back in forty minutes with exactly one-and-one-half yards more concrete. He must have felt sorry for us, because he didn't charge a short-load fee. He probably figured he got his money's worth in laughs.

We covered the concrete with straw and visqueen, and allowed it to set for ten days. The installation of the tower was, vis-à-vis the concrete base anyway, uneventful.

from the January '93 Toledo Mobile Radio Association "Amateur Radio Beacon"—Chuck Krukowski, KB8FXJ, Editor

Curses

by H. Pain, G3ATH

I just read an intriguing book called *The Habsburg Curse*. What exactly is a curse? Belief in curses has existed from time immemorial. And strangely, the evil power of curses is balanced by power for good. The ancient terms *malediction* and *benediction*, in their similarity, bear witness to this relationship.

Unfortunately, the negative is usually stronger than the positive; it involves stronger emotion—hatred on the part of the individual performing the magic act called cursing. To summon similarly strong emotions when blessing someone is rare.

I'm not going to tell you how to make a curse; you'll have to read the book to find out. But I will point out that a curse can be tailored to any one individual whom the curser wishes to reach.

Now that I know what to do, I'm able to deal with the receiverless types who tune my operating frequency—sloppy operators who ought to know better. I can also deal with those who run too much power or splatter all over the band—the abusers of the system. I may even turn my sights on those who don't QSL ...

If none of those shoes fit you, you've nothing to worry about; but if any do, watch out! Don't be surprised if, one of these days, your cherished transceiver goes up in smoke.

from the Southwestern Virginia Wireless Assn.'s May '93 "The Ground-Wave"—Bill Svec, WA4BKW, Editor

"Don't Try It"

Warner Brothers once threatened to sue Groucho Marx, when they heard that the next Marx film would be called *A Night in Casablanca*, objecting to the similarity to their *Casablanca*.

"Do that and I'll sue you for using t' word *Brothers*," Marx replied.

from "The Working Communicator"—5/93

Audio DSP Kit Proves Useful

by George Uebele, WW7E

"DSP" stands for "digital signal processor." What can a beast with a name like that do for you? A DSP can modify a signal, by digital means, to remove unwanted parts of the signal.

A DSP "filter" can modify the audio signal between your rig and the speaker or headphones. Why do that?

On the HF bands, noise can be a problem, as can heterodyne tones from AM broadcast stations, CW signals other than the one you are trying to copy, etc. You already use RF and audio filters to restrict the bandwidth—one way to reduce QRM. And most rigs have blankers to help you copy through impulsive noise.

A DSP unit first converts the audio from your receiver into digital form. Next its special DSP computer chip processes the digital data to remove undesired signals—using mathematical means. It then converts the modified digital data stream back to audio.

I recently visited a friend in Grass Valley, who demonstrated the DSP kit described on page 43 of the September 1992 *QST*. I hadn't taken much notice of the article at the time, but my friend's demonstration impressed me—so I ordered a kit. That's when I learned demand for the kit was so great delivery might take months!

Well, they did better than their estimate and delivered the "multi-program chip" \$125 version. The \$90 version has only one mode-controlling program, whereas the one I bought has ten.

The program included with both kits allows a choice between a noise filter and an automatic notch filter that attacks heterodynes. Here is what other programs that come with the multi-program kit can do:

Program 2 is a simultaneous auto-notcher and denoiser. The front-panel mode switch selects FILTER IN/OUT. The threshold for the automatic notch higher than it is in programs #1 and #4, but even with that compromise, the mode is nice when you experience impulsive noise and an offending carrier simultaneously.

Program 3 is an optimized denoiser only, and its denoising function is more effective than the combined function in program 1.

Program 4 is an optimized automatic notch filter only. It is optimized in the sense that it distorts some voice signals less than the auto-notcher function in program 1.

Programs 5-9 are CW filters, as follows:

- 5: 400-Hz centered, linear-phase filter with 200-Hz bandwidth.
- 6: 600-Hz centered, linear-phase filter with 200 Hz bandwidth.
- 7: 750-Hz centered, linear-phase filter with 200 Hz bandwidth.
- 8: 1000-Hz centered, linear-phase filter with 200 Hz bandwidth.
- 9: 750-Hz centered, linear-phase ultra-narrow filter (30 Hz bandwidth) useful for extremely weak CW signals, such as moonbounce produces, and for machine-copying of CW signals.

Program #10 is an HF packet (1600/1800 Hz) or RTTY (2125/2295 Hz) bandpass filter. The front panel mode switch selects either the packet tones or RTTY range.

The kit does not include a case, a pilot light, or connectors. It requires a 12-Volt DC power source, from which the low-cost model draws about 400 mA vs. 175 mA for the "multi-program chip" model.

Assembly instructions are clear, but the first paragraph does give a warning:

To ... build this kit you should be capable of constructing a PC board from a parts list and schematic diagram, recognizing electronic component parts, identifying integrated circuit pin numbers, and soldering. Potential kit builders lacking these skills are referred to *The ARRL Handbook*. This is not a kit for beginners!

This is not a Heathkit, but you don't need an EE degree to successfully complete the project either. And soldering skills aren't the only ones required; the 10-segment LED bargraph display (which shows either the

incoming audio level or which of the 10 programs are selected) requires cutting a rectangular hole in the front panel. Radio Shack has cases and connectors appropriate for the project.

Although I haven't needed all the filter modes, I'm pleased with my DSP unit. I wouldn't go on the air without it now.

Where to buy the kit:

Quantics
Box 2163
Nevada City, California 95959-2163

from the May '93 *Sierra InterMountain Emergency RA "SIERA"*—Dorothy Uebele, N7MXA, Editor

Music & Morse

by Shirley C. Wolter, N6LFA

What is the common denominator of the above words? It has become apparent from my many years of association with hams that there is a tie-in. In seeking amateur radio trainees, individuals with musical training are the best prospects.

But the realization that so many hams play musical instruments only came to me a few weeks ago as I reviewed old files of club members.

It makes sense; learning the rhythms, scales, and chords of music trains both the ear and the hand, as does Morse Code. So a student with music training, having already developed the brain "pathways," should be a quick study of Morse.

What good is this observation? A friend who tickles the ivories, marches with the band, or sings in the church choir, is a potential ham. Recruit him or her!

During my most active years as a ham, my OM and I found enough people in our small California community to form an organ club. Many were members of our radio club, but some of the organ-playing non-hams soon got their licenses too.

from the Sept. '93 *"Amateur Radio News Service "ARNS Bulletin"*—AF6S Editor. (Shirley, a columnist for ARNS for many years, now lives in Twin Falls, Idaho.)

Easy-to-Work Amateur Radio Satellites

by Dave, N9LTD

Any ham can work any amateur satellite. Newcomers can best start by listening to OSCAR 21, RS-10/11, and RS-12/13, which have polar orbits that pass over every spot on earth six to eight times per day. Their 600-mile height gives enough range to work Hawaii from anywhere west of the Mississippi.

OSCAR 21 is an FM, crossband repeater with output on 145.985 MHz. Any two-meter rig, even a hand-held, can pick it up by tuning 145.980 to 145.990 MHz.

Oscar 21 repeats a six-minute cycle of crossband repeater operation, three minutes of recorded speech, and one minute of standard packet telemetry. The OSCAR-21 input frequency is 422.015 MHz. Twenty-five Watts and a six-element yagi will access this satellite—if you can get a word in edgewise between all the other traffic.

My advice is to try this busy bird during its late-night passes. You'll need tracking software to give you antenna pointing numbers. Mounting the beam on a photo tripod and moving it once a minute gives sufficient accuracy.

The RS-12/13 output frequency range is 29.410–29.450 MHz. It also has beacons on 29.407 and 29.453 MHz. Its input range is along the Advanced-Extra 15-meter sub-band boundary, 21.210–21.250 MHz, and you can use CW or SSB modes.

Techs can work the high-orbit birds, ASCII-10 and OSCAR-13, but you need a big beam. The packet satellites are easier and require only modest equipment.

from the April '93 Southwestern Virginia Wireless Assn. "The Groundwave"—Bill Svec, WA4BKW, Editor

More ARRL DX Test Scores

KA6BIM, CW, 326 Q's x 160 M's = 116,480 pts (That's 160 M's—all bands)
KA6BIM, Phone, 720 Q's x 246 M's = 531,360 points

EMF Exposure

by Ron Levy, K2AIO

The March 29, 1993 *U.S. News and World Report* published a short article stating that a new study on the potential health hazards from exposure to electromagnetic fields had found no evidence of increased levels of leukemia, brain cancer, or lymphoma among those who live or work near power lines. Cancer rates for electricians, machinists and mechanics who regularly work in high-levels of EMF were not higher than the general population.

Some scientists were surprised at the findings in view of previous studies. More research is needed, but David Savitz, an epidemiologist at the University of North Carolina, thinks cancer might be unrelated to EMF exposure.

The utility industry is putting millions of dollars into research on EMF exposure. Their concern centers on the legal ramifications if a link between EMF and cancer is established. Costs to redesign and replace power lines throughout the United States would be staggering.

Biological effects of exposure to higher-frequency electromagnetic radiation—frequencies used for radio and television communications—are another matter. We know microwaves can heat water molecules—the basis of microwave cooking. But cellular effects are frequency sensitive at relatively low power levels. When hundreds of watts of RF energy are produced at HF and VHF frequencies, and this energy impinges on the human body, we should at least be cautious.

Yet so far, despite millions of dollars spent by the power companies and government on research, no clear, definitive answer to the question of EMF bio-hazards has emerged.

Sensational TV documentaries and news shows have caused a great deal of public concern and controversy. If there is cause for alarm, we would like to know about it. If not, we would like to know that too.

from the May '93 North Jersey DX Association "NJDXA Newsletter"—Ron Levy, K2AIO, Editor

GPS In Place

by Joe, N2SYJ

Eighteen of the 24 planned GPS satellites are in orbit and operational application of this worldwide navigation system is just beginning.

The satellites orbit 11,000 miles up. Using onboard atomic clocks, they emit signals encoded with information on the satellite's position and the time each signal was sent. By precisely measuring the time a signal takes to reach earth, the receiver calculates its distance from the satellite.

When the receiver locks onto signals from at least three satellites, it can solve for a two-dimensional latitude-longitude fix. When a receiver acquires four or more satellites, it can even find its altitude. Receivers can also calculate speed and range over ground, course over ground, range and bearing to waypoints, and more. Accuracy of civilian systems is within 100 meters 95 percent of the time.

GPS does have shortcomings, the primary one being "selective availability" (SA). The Defense Department developed GPS for military purposes, so the government retains the right to control accuracy.

The satellites "lie" to civilian users about their positions—for security reasons. But this can be defeated by a "differential" GPS receiver, which can reduce position uncertainty to as little as five meters.

A differential GPS unit receives correcting signals from a reference site on land. A reference station uses the same satellite signals, but its position is known, so it compares its real location with the satellite's answer and broadcasts the corrections to differential GPS receivers.

from the June '93 Temple ARC (TX) "TARC Bulletin"—WA5EQQ, Editor

Exit McLuhan!

by Keith E. Barze, W4TXK

Once Technology turns to tedium,
The message no longer concerns

the medium.

from the July '93 Amateur Radio News Service "ARNS Bulletin"—AF6S Editor

The Case of the Four-Rotator Pileup

by Jack Fleming, WAØRJY, QCAO Semi-Technical Editor

(from the June 1992 Quarter Century Appliance Operators (QCAO) Newsletter, *Cold Solder—Hot Love*)

During my recent contact with my twenty-third DXCC country (Hawaii), I discovered something amazing—the ease with which other stations broke the pile. The band sounded quiet here, so their signals must have been bouncing right over my QTH. I figured they were using a new and unfamiliar technique of pile-up cracking.

I remembered the eighth QCAO Commandment, “If the lights aren’t on, check the wall plug. If it’s plugged in, the rig has gone bad and it’s time to buy a new one.”

But the lights *were* on.

To foil the problem of the Hawaiian language barrier, I said my call verrrrry sloowlyyy, with standard phonetics and crisp diction, ... but still no comeback. The KH6 often tuned right from under my call to another frequency!

While triple checking my rotator control to be sure the beam heading was correct, I had a brain storm. Maybe I was making the beginning duck-hunter’s mistake: not leading the quarry!

With the earth spinning so fast, it seems likely that some lead angle is needed. And as I idly spun my globe, another thought occurred: the earth spins faster near the equator than near the poles. So to compensate, the lead angle will have to be larger for targets near the equator.

I cranked the yagi to miss Hawaii by about 10 degrees to the east—the direction of earth’s spin—and when the KH6 called “QRZ?” I was all over him. I cupped my ear to the crackling speaker, and ... incredible! It didn’t work!

I thought maybe I wasn’t leading him enough, so I tried 20 degrees east of Hawaii. Again no luck. This continued with me tracking him down after each contact (even though he kept changing his accent and disguising his voice!). I kept moving the yagi farther east too, but nothing worked.

I tried “trailing” Hawaii by 10 degrees, thinking some sort of “reverse propagation” like Bob Brown is always talking about in

his technical articles (never could make heads or tails of those). But still no luck.

Obviously I didn’t have propagation to the area—probably some sort of sunspot problem. I swung the yagi back to Memphis, where I always park it in honor of “The King,” and emitted a quick “WAØRJY QRT” to satisfy the FCC.

The KH6 came right back and we made a “Good Contact”! He said I had a loud signal in Hawaii.

Now I was really perplexed; why had I not been able to contact him before?

That’s when I realized my yagi was still turning! It had wrapped the coax around the tower several times!

While up on the tower trying to get the rat’s nest untangled with just one hand (and trying to remember where I had left my climbing belt after using it to hold one end of the hammock last summer) I realized

what had happened: the yagi was turning! In duck hunting, you keep the gun swinging as you point just ahead of the bird. As I swung the yagi across Hawaii towards Tennessee it gave me the right “lead” to contact the DX station.

So now swinging the yagi is my standard pileup-cracking procedure. While I call I swing the antenna in the direction of the earth’s rotation. If the call is not successful, I rotate back in the opposite direction in readiness for my next call.

The number of rotators burned out seems to indicate how “rare” a DX station is. The recent Clipperton DXpedition had a “three-rotator pileup,” for instance, and Spratley took four rotators. I lost another four on the recent 9DØRR DXpedition, and never even got through.

really from the April ‘93 Western Washington DX Club “Totem Tabloid”—WAØRJY Editor

EVs Enter Adolescence, But Where is the Press?

by Paul Brasch

With the running of the third annual Solar and Electric 500 at Phoenix, Arizona this March 5-7 came the end of childhood for electric vehicles and the beginning of adolescence—the final stage to adulthood, full recognition, and acceptance. Why do I say this? At this year’s race there were 70 entries, speeds broke 100 miles per hour, the main EVent was two full hours in duration, and the United States Auto Club became involved.

USAC sets the rules and standards for big “professional” races across the country, so their involvement means recognition that what we in the EV community are doing is real racing. It’s not kids’ stuff any more.

In addition I keep hearing of new businesses planning to offer conversions or

planning designed-from-the-ground-up electric cars and trucks. New motors and controllers are in the works, and there is much new battery design activity, both real and not so real.

All this is being done by small and/or independent companies, with the exception of Motorola, GE and Goodyear. Goodyear is the only long-time race sponsor supporting electrics. Where are the big-company teams? They are traveling around the country telling state governments, “electric cars will be slow and expensive.”

The mainstream press constantly prints misinformation about EVs—especially the auto magazines except for honest, courageous AutoWeek. Even the electronic and electrical publications do this. If

contin ued on page 11

Bartender's Guide

by George Lanning, KB6LE

- Absolut Zero Absolut vodka over liquid nitrogen
- Alexander the Grrreat gin, creme de cacao, and cream over corn flakes
- American in Paris Kentucky bourbon and champagne
- Black Sabbath Kahlua and Mogen David wine
- Blind Faith wood alcohol and sacramental wine
- Blood Clot vodka, tomato juice, and Jell-O
- Bloody Awful vodka and ketchup
- Blue Moon corn whiskey and Aqua Velva
- Coleman Cooler white wine, soda, fried chicken crumbs, and sand
- Fuzzy Naval Base peach schnapps, orange juice, and ammonia
- George Bush George Dickel bourbon and Busch beer
- Gorhachev vodka with a splash of port wine
- Honeydew the Dishes Midori and Dawn
- Marie Antoinette bourbon, cake mix, and flat beer
- Martinizer gin, vermouth, and carbon tetrachloride
- Mary Poppins vodka, tomato juice, and a spoonful of sugar, decorated with a paper umbrella
- Mexican Hairless tequila and Minoxidil
- Oil of Ole Mazola and Sangria
- Peter, Paul and Mary potassium nitrate, Paul Masson wine, and Snappy Tom
- Phillips Screwdriver vodka, orange juice, and milk of magnesia
- Port in a Storm red wine and rainwater
- Ouack Doctor cold duck and Dr. Pepper
- Rum with a View Bacardi and Visine
- Rum-Pole of the Bailey Bacardi rum, Popov vodka, and Bailey's Irish Cream
- Sake-to-me rice wine, punch, and nitrous oxide
- Scotch Tapeworm Dewar's and mescal
- Shipwreck Cutty Sark on the rocks
- Shirley MacLaine sugar, carbonated water, ginger, syrup, pomegranate (i.e. ginger ale and grenadine in a previous life)
- Short Wave Ripple in a shot glass
- Sinead O'Connor Irish whiskey and Nair
- Skid Roe muscatel and caviar
- Sour Kraut Schnapps and lemon juice
- Sundae Driver vodka, orange juice, and ice cream
- Tequila Mockingbird Jose Cuervo and birdseed
- Three Men and a Baby Jim Beam, Jack Daniel's, Johnny Walker, and Enfamil
- Three Mile Island vodka, gin, rum, tequila, and plutonium

from the June '93 Olympia (Washington) ARS "Watts News"—KB6LE Editor

Logical English

by Samuel Clemens (Mark Twain)

Here is my plan to gradually improve and simplify English language spelling:

In Year 1 that useless letter "c" would be dropped, to be replaced either by "k" or "s," and likewise "x" would no longer be part of the alphabet. The only case in which "c" would be retained would be in the "ch" formation, which will be dealt with later.

Year 2 might reform "w" spelling, so that "which" and "one" would take the same konsonant, while Year 3 might well abolish "y," replacing it with "i" and Year 4 might fix the "g/j" anomaly once and for all.

Generally, then, the improvement would continue year by year with Year 5 doing away with useless double konsonants, and Years 6-12 modifying vowels and the remaining voiced and unvoiced konsonants. By Year 15 or so, it would finally be possible to make use of the redundant letters "c," "y," and "x"—but now just a memory in the minds of our old dodderers—those who still speak "ch," "sh," and "th" respectfully.

Finally, then, after some 20 years or so of gradual reform, we would have a logical, coherent spelling in use throughout the English-speaking world.

contributed by N2OQN to the November '92 Olympia (WA) ARS "Watts News"—George Lanning, KB6LE Editor

High Antenna

by Anne Click, KB5RHA

Tom Griffy, WA5YAN, had wacky 20-meter SWR readings on his tribander. When he climbed up to check it, he found a suspicious looking trap, so he called some ham friends to help take the antenna down.

When they disassembled the trap, they found what looked like a small wasp's nest inside. But on closer examination, it turned out to be a marijuana cigarette!

Tom speculates an assembly worker stashed it there when a supervisor approached. No, Tom did not smoke his trap!

from the Jan. '93 Austin (TX) ARC newsletter "AARC Over"

CW Fantasy

by Eric Lagerstrom, KN6FR

Is Morse Code just a requirement for access to the HF bands, or is there something more to those dits and dahs? The reactions of children suggest the code may contain considerable fantasy and wonder.

I spent most of a recent weekend at the K6LY club station, enjoying the CW weekend of the ARRL International DX Contest. Each day my ten- and nine-year-old sons, and four-year-old daughter came to spend a few hours watching, listening and practicing Morse on a Heathkit keyer.

Christine, the four-year-old, bubbles with curiosity. She waited her turn. Then, with earphones perched on her head, sat down to "practice Morse code" for over three hours—about 300 times the attention span of the average adult. She showed not the slightest dip in her intensity.

I can't say to what degree the kids are learning the code, but it certainly has a great attraction for them. When I look into their eyes I see their wonder and fantasy with this language old Sam Morse invented. I also see myself reflected, and recognize I share the same wonder and fantasy.

from the April '93 Naval Postgraduate School ARC "Scuttlebutt"—AA6EG, KC6LKV, and KC3RL Co-Editors

Persistence

Everyone has superstitions. One of mine keeps me from turning back whenever I start something—until the thing intended is completed. —Ulysses S. Grant

EVs

from page 9

everyone annoyed by a false story wrote a few paragraphs describing their outrage and supplying corrections to the offending publications, the news media might realize people won't stand for distortions any longer, and begin to dig up and print the facts. Then the public might start to hear the truth and consider the alternatives they really do have.

from the April '93 Electric Auto Assn. "Current Events"—Paul Brasch Editor (for membership info, call 800/537-2882)

Fast Satellite Packet

by Gerd Schrick, WB8IFM

9600-baud packet is eight times faster than your present 1200-baud packet. It sounds like noise, but it fills a computer screen instantly. Such speed makes transmitting quality pictures (including color) feasible, taking less than 30 seconds per frame.

Ironically, the countries that were first with 1200-baud packet (like the U.S.) are the ones holding out against fast packet. But a worldwide system has operated for about a year with truly amazing results, and is attracting more attention all the time.

I'm talking about the 9600-baud packet BBS, performed by the UK-built UO-22 satellite. The beauty of this mailbox is that it zips by your house (and everybody else's) six times a day and is accessible for 10 to 20 minutes during each pass. This makes it easy to deliver and pick up messages within hours on a worldwide basis.

The terrestrial BBS system can't possibly compete. Messages to Europe take from one week to three weeks. (Airmail takes four or five days.) Satellite operation is similar to terrestrial, yet different in some ways.

To access the satellite, you'll need some hardware. As in other amateur satellite modes, you use different bands for transmit and receive. The downlink/receive frequency of UO-22 is in the 70-cm band; the uplink/transmit frequency is on 2 meters.

The mode is FM, but the receive bandwidth must be wider than for audio. While most rigs have sufficient RF bandwidth, the audio bandwidth needs tweaking (changing a low-pass-filter capacitor).

If you use directional antennas, they must track the satellite as it passes. Computer programs are available, as are "trackboxes" that provide outputs to control rotators.

Another consideration is Doppler shift, but the trackbox provides Doppler shift correction to the receiver.

With good omnidirectional antennas, you might bypass the tracking problem, and extra-wide filters can avoid the need for Doppler correction. Without gain antennas, though, you may need more uplink power (a

150-W amplifier) and a low-noise preamplifier mounted at the antenna.

Where to find more information? AMSAT publishes a *Packsat Beginner's Guide* that contains everything you need to know about 9600-baud packet satellite communications.

Another 9600-baud bird, the KO-23, just went on line, so you now have two satellites to choose from.

from the March '93 Dayton ARA "RF Carrier"—Jim Nies, WX8F, and Dave Morris, N8EEK, Co-editors

An Editor's Lament

The typographical error is a
slippery thing, and sly;
You can hunt it 'til you're dizzy,
but it somehow will get by.
Until the plates are off the presses,
it's strange how still it keeps;
It shrinks down into a corner
and it never stirs or peeps.
That typographical error,
too small for human eyes,
Till the ink is on the paper, when it
grows to mountainous size,
The editor stares in horror,
then grabs his hair and moans,
The copy reader drops her head
upon her hands and groans.
The remainder of the issue may be
clean as clean can be,
But that typographical error is
the thing they all will see.

—author unknown

from the June '93 Mount Baker ARC (Bellingham, Wash.) "The Ground Wave"—KB7TW, W7EKM, and KB7UG Co-Editors

DXer

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FIRST CLASS



August 1993