

the Repeater



Twin Cities Repeater Club

Auxiliary

AUGUST — HAPPY FLYERS MEETING AUGUST 22 — 1980



FIELD DAY '80

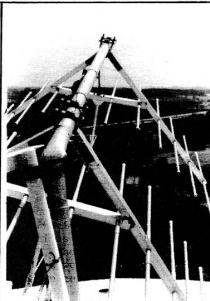
TCRC, RCES, HAPPY FLYERS, FIELD DAY

This years Field Day effort resulted in a rough score of more than twice that of the previous year. With CW OSOs totaling 241 and a phone count of 678 our total before bonus points are added is 2320, last year it was around 1100. We had 19 official logged in operators, they were: KBØBU, WAØTJT, WBØTOR, NØBIH, KBØNU, KØGVS, WDØHTE, KBØMC, KØLCO, WDØCIT, WBØIKS, WBØVNH, NØBIS, NØBNH, KBØGO, WAØUET, NØALK, NØAME, and KAØBKK. If you were there and I left you out please let me know.

The club would like to express a special thanks to all the wives, (by who's grace we were all allowed to be there), for their help in set up and clean up, and to Terry (Ben's son) for his help as a go-fer.

Next year F.D. will be the 27th and 28th of June and is tentatively planned for the same place, Neill Park, in Burnsville. See you then _____

More pictures on page 9.



THE STORM

Strait line winds recorded at over 100 MPH hit the Cities the night of July 15. Although no tornadoes were observed or officially reported, the damage closely resembled their destructive force. The picture above is the TCRC's repeater antennas, while the individuals boys were not damaged the 4 in. mast was bent 90°. Other antenna systems, houses, trees, and power poles were not nearly so lucky. Hems known to have lost towers include; Ron KBØBU, (see picture page 8), Ken KBØNU, Rich NØALK, Dick KAØBKK, cont. pg. 3

the Repeater

VOL. 4 ISSUE 1

'The Repeater' is published 8-12 times yearly by the Twin Cities Repeater Club Auxiliary, as the official organ for the Twin Cities Repeater Club, and Squadron 24 of the Happy Flyers. This newsletter is sent to all regular and associate members, student members will receive at least the annual statement edition. The TCRC and Auxiliary are set up under ARRL guide lines with a constitution and by laws. Meetings are tentatively the 4th Friday of July, October, January and April. Each year during the July meeting, the club elects four new officers with the past officers going to the board of directors. The May and/or June issue will carry a list of candidates, and will also contain the annual financial report. Full membership in the TCRC is \$10.00 yearly, \$5.00 for associate, and \$.50 or more for student. The Club owns or is in the process of buying the repeaters it sponsors.

NEWSLETTER STAFF:

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Keith D. Kaiser WA0TJT
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Twin Cities Repeater Club (TCRC)
P.O. Box 19225, Mpls. Mn. 55419.

NEWS OF OTHER CLUBS & SERVICE GROUPS

NORTH STAR HIGHBANDERS: VHF/Public Service meets 3rd Friday of each month at 3524 Hennipen Ave So. Meeting starts at 7:30PM Refreshments served.

ST. PAUL RADIO CLUB: Meets the 1st Friday of each month, Sept. thru May at the St. Paul Red Cross Bldg. Meeting starts at 7:30PM Refreshments after.

3M RADIO CLUB: Meets the 3rd Thursday of each month, meetings begin at 5:15PM.

RADIO AMATEUR TELETYPE SOCIETY (RATS): Meets the 2nd Monday of each month, 7:30PM at the Courage Center, located in Golden Valley.

ST. CROIX VALLEY REPEATER ASSN: Meets the 3rd Tuesday of each month at 7:30PM at the Dibbo's Hotel in Hudson, Wisconsin.

MPLS. RADIO CLUB: Meets the 3rd Friday of the month, at the Dunwoody Technical Institute. Radio & Theory classes are taught there. For further information contact; W0BE "Bob" 339-1193.

MINNESOTA VALLEY HAMMERS: Meet the 2nd Friday of each month from 7 to 9:30PM at the House of Prayer Lutheran Church, 76th and Chicago Ave. So. Richfield.

Changes or additions to this list should be submitted in writing to Keith WA0TJT, 13700 Thomas Ave. So. Burnsville, Mn. 55337.

EDITORS NOTE:

The question has come up who 'M.E.' is? M.E. is me Keith D. Kaiser WA0TJT, the Managing Editor of 'the Repeater'.

A WORD OF WARNING

Harry Miller

One amateur rather carelessly announced his location at one of the shopping malls while talking over the local 2-meter repeater, much to his sorrow. He had also announced that he would be back in his car after doing a few hours shopping. Of course, some thieves also did some shopping in his absence, and when the unlucky ham returned to his vehicle, he found that all ham-radio equipment and the stereo-tape-deck had been removed. Obviously, there is widespread use of scanning receivers which often manage to copy more than one station at a time. As a result, the burglary rings can now not only be alerted to approaching police, but can also pick out new targets. Many radio distributors state that callbook sales are on the rise, but the sales aren't all made to hams; it is easy for the monitoring groups to find your basement and radio shack when vacation time is due and you discuss it on the air. Be careful what you say!

ELECTRONIC

SURPLUS

Pete W0WZK Geno KDF6419
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TCRC ELECTION MEETING

1. By now all should have heard the new call on the repeater WØBU/R. Ivan Frantz WØBU, assumed the duties of trustee on the expiration of the WRØANB license August 8. At this time the question of future trustees and calls is under discussion in the TCRC Board meetings. Two current proposals include one which would call for a constitutional amendment creating a new position on the Board for the job of trustee, the other calls for the duty to fall to the Vice-President. Feedback on these or others you may have can be sent to me or and Board member, more details will be provided as they are received.

2. Due to a foul up at the Post Office our box was closed July 1. Mail in the box at that time was returned to the sender, and all should by now have received it. The problem with the box has now been corrected, but it was not discovered in time for the election of officers. Because of this the election for President and Vice-President have been postponed till this issue. Enclosed you should find a ballot, this should be marked with the candidate of your choice and then mailed to: TCRC P.O. Box 19225, Mpls. Mn. 55419. Be sure your name and return address is on the envelope only. They must be post marked within 15 days to be valid, if you have any questions please contact me at 890-0594 (Keith). Because the positions of Secretary and Treasure were uncontested Ken Fortman and Charlie Mills were instaled in these positions by a show of hands at the meeting. These two will act as the election judges, and will be responsible for reporting the results.

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TEAM

3. Other items discussed at the meeting include the damage done to the antenna bay at the repeater site (see story page 1), and procedures, should we lose our repeater in other emergency situations. The next quarterly meeting will be held on Oct. 28 the place will be determined at a later date. 73! Keith

Cont. From pg. 1 and Sam WØHTE. Their were 2 fatalities in the Twin Cities, however experts are quick to point out that it could have been much worse. Storm damage in Burnsville alone amounted to more than \$8 million, with Bloomington and Apple Valley reporting similar figures. The Ramsey County Emergency Services net was activated about 7:30PM Tuesday night by Gregg Marx, and Ben Bohach, throughout the night they coordinated weather and damage reports, supplying local TV and Radio stations with the information needed by the public. Even when our 31/91 machine went down, Ham Radio still provided the only communications using Handi Talkies and emergency power, when all commercial phone and power lines were disrupted. If you were there that night, congradulations on a job well done.



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73's ... WARD JENSEN WFTL ... DEL SCHLUMBERGER KJDE/
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BOB BONNER KEDD

THE ULTIMATE MOUSE TRAP by: WAØTJT

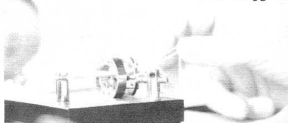
The problem of building the "better mouse trap" easily dates back to the Stone Age. Ever since the first Neanderthal 'Fat Broad' jumped on her rock chair and screamed mouse, man has labored over this most perplexing problem. The first crude attempts at eliminating this most annoying pest, amounted to no more than Neanderthal 'Dan' pelting rocks at the things. Its usefulness was soon proved to be quite ineffective, and thence began one of mans longest pursuits, the quest for the "perfect mouse trap".

More recently the problem has reached a new complexity, 20th Century technology, and mans ingenuity have led to what some call the "ultimate" mouse trap. A complete description of its construction and complex operation is far beyond this writer, I will merely attempt to render in understandable English, how the thing works.

The machine itself is housed in a concrete bunker approximately 5X5X8 feet. The only way in, for the mice, is under the service door, which also allows the technicians in to repair the machine, and clean out the dead mice. The machine itself sits in one corner of the bunker, it has no moving parts, and herein lies its secret. Within the cabinet which holds the machine are hundred of 'edibles' called wires, the wires are all connected to other forms of

bait, ment to attract the mice. Now the idea, as I understand it, is for the mice to bite into one of these wires, which are connected to a high voltage source, and by so doing electrocute themselves. On its initial test during the summer of '79 no mice were observed to have entered the bunker, which rendered the test inconclusive. However the Spring of '80 proved a better test period. During May and June several mice were known to be making a home in the bunker, and falling for the bait. Now the really interesting thing about this trap is that while waiting for a mouse, it doubles as an Amateur Radio 2 meter repeater. It signals when a mouse has been caught by going inoperative as a repeater. Anyway to get back to the Spring of '80 tests, early in June at least one mouse took the bait, chewed thru a wire, making the repeater go down. The technicians scrambled to the site, eager to see how well the "ultimate" mouse trap had worked, they were very disappointed.

Cont. pg. 10



AMATEUR RADIO ASSOCIATION OF BLOOMINGTON
LITTLE HOUSE ON THE PRAIRIE
DX-PODITION

May 3, 1980 6 A.M. four members leave for Walnut Grove to check out the site. Gene KAØPØW, Sam WDØFFO, Art KAØCBF, and Tom KAØALI. Arriving at our destination we set out to observe, measure and inspect the area. What luck, plenty of free commercial power to use, a pavilion for shelter and plenty of trees to string up dipoles, doublets, and long wires. And best of all indoor plumbing for those leisure moments of of taking a break! Best take some pictures so the rest of the club can get a look at the site, so send Sam WDØFFO out to a grassy knoll to snap a few, but all of a sudden no Sam! We look around and find he has fallen into a gopher hole. Except for a limp everything is ok, so set out to find the local pub for a pitcher of suds before heading back.

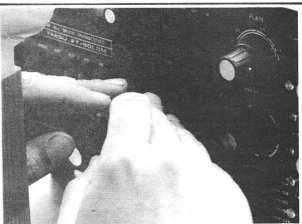
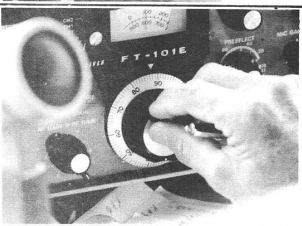
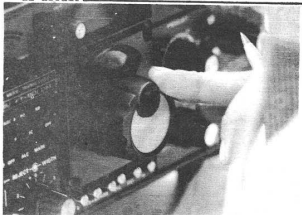
Friday evening May 16, Bob WDØGOL operation manager and about 10 members leave for Walnut Grove to start setting up operations. Antennas were strung into trees, radios were set up, tents erected, and campers parked. All ready for a night of fun and frolic before the big day.

Saturday May 17, 1400 Zulu rest of the club arrives and operations begin. CQ CQ CQ DE WDØGOL, Little House on the Prairie. 20 meter phone is going great, 15, 40, and 75 meters doing ok. CW on 10 meters is the pits. Other CW operations going ok? Nothing but a light rain, but why is the temperature falling? And now the wind has increased from the North East. It is now raining harder and getting colder. Temperature now down to 40 degrees. What a mess! Quick send someone into town to get some plastic sheeting so as to block off the North side of the pavilion. Hurry up, my feet are cold, lips are turning blue, fingers are getting numb, how about some relief over here.

Art KAØCBF has now got a high SWR, what can be wrong? OOPS there goes his tuner up in smoke. "Dont't give up the ship" lower the dipole, it must be a soggy center connector. Repairs are made and back on the air. Gordy WBØZSA is snapping pictures like crazy, vic WDØBBF is munching peanuts and trying to hold a QSO but Ron KAØAYN is drowning him out on the other radio. And so on it went thru the night and into the next morning with everybody taking turns except Ken WDØBUZ who got no relief.

Sunday morning May 18, 1400 Zulu, time to

shut down, pack up and head for home. Running noses, watery eyes, chills, and over 500 contacts in their log books the club set out for home. Now comes the easy part of answering QSL cards and sending out certificates. Last comment to be heard and approved was let's do it again next year, in fact let's make in an annual affair.



NAME THAT TUNE.....

On Saturday and Sunday July 26 and 27 I was lucky enough to be able to attend the 26th National ARRL Convention held in Seattle Washington. The weather was beautiful, the mountain was quiet, and the Red Lion Motor Hotel was packed. There were tall hams, short hams, skinny hams, plump hams, old hams, young hams, he hams, she hams, hams from all over the world, and they all had handy talkies. The slogan "World Friendship Thru Amateur Radio" was practiced thruout the convention.

Perched on the 13th floor in the penthouse was the convention station K7RS operating on all bands and sending out QSLs (very nice looking) for each contact made during the convention. During the two and a half hours I operated the station I met many hams (both in person and on the air) that I have chatted with the past few years. The QRM was a little tough with radios on all bands, people roming around the room talking, and the airport right across the highway with the sliding doors open, but when I left four log books had been filled.

The convention was packed with activities, something for everybody. Some of the highlights were for the ladies tours to China Town, discover scenic Seattle, Pacific Northwest Arts and Crafts Fair, and much more. For the guys there were 53 different seminars and forums, a DX breakfast, the Saturday night banquet, and several tours. Most of my time was spent visiting the booths of the many exhibitors plus the ARRL booth. The exhibitors pulled out all stops in showing off all the new gear coming out, even proto-types in some cases. Harry Daniels spent much time in the ARRL booth shaking hands and answering questions.

Prizes were numerous but my luck played its usual role and I came back empty handed. The grand prize was a 1980 Volkswagon Diesel Rabbit for one year plus an Icom IC 720. Icom also gave away 20 2-meter H.T.s plus donated all the equipment for the operating station. Just about every exhibitor donated a prize and any of them could have been a Grand Prize at one of our local ham fests.

All in all the convention lived up to its slogan and a good time was had by all. Next year it will be in Orlando

Florida, so start planning early.

Next Issue: After leaving the convention I visited Mt. St. Helens, (whats left of it). Hopefully my pictures will be good enough to print.

73! Ron

FM & REPEATERS by PAUL THOMPSON W0R0WJ

Q: What does the modulation acceptance specification on a FM receiver mean?

A: Typically for commercial quality receivers designed for 30KHZ channel spacing this is in the range of + and - 7 to + and - 8KHZ. It means that a signal with the amount listed, typically + and - 7.5KHZ, 1000HZ sine wave modulation, must be 6db stronger than a signal with + and - 3.5KHZ 1000HZ sine wave modulation to produce 12db SINAD. So it should be obvious that over deviation is not a good thing. Under deviation also is not good because it also requires a much stronger signal strength to produce 12db SINAD. To us since voice audio does not have as high an average level as a pure sine wave we should set our TX modulation to + and - 5KHZ absolute maximum peak deviation, not more and not less, then talk into the mike loud enough to keep the average level near + and - 3.5KHZ this will produce the easiest to copy signal. Only receivers of inferior design, misaligned, defective components, or off frequency, more than 1.5KHZ error between TX and RX, will squelch block on + and - 5KHZ deviation peaks. So try to keep your TX on frequency + or - 750HZ and if the RX on the other end is also within + or - 750HZ, no problems with squelch blocking will result with commercial quality equipment. Please note, only guaranteed specifications are of value. Typical specifications likely indicate poor design and or poor quality control. Never expect any product to conform to a typical specs, if it does you are just plain lucky, if it doesn't work you're stuck with it.



Syzygy

Low Sieck, K4NE

If you pronounced it sizz'-ih-ge, with the "sizz" like in sizzle, the "i" as in "in" and the "ge" as in "geometry," you have it correct. The "ultimate" syzygy is beginning this year and will become maximum in the period 1982 to 1984. It is expected to have a great effect, not only on radio propagation, but also on our environment. Syzygy means a phenomenon in which the planets of the solar system come into alignment or "conjunction." If the earth is on one side of the sun and the planet or planets on the other side, we have a minor syzygy called "opposition." But approximately every 180 years all of the planets in our solar system get in line, with the sun at one end and the planet Pluto on the other. This means the total gravitational "pull" of all the planets will be on the sun, and on Pluto. The result is expected to be tremendous solar eruptions, flares, tides, sunspots and subsequent magnetic storms, ionization and anomalous propagation!

What is probably more important, especially to inhabitants of Florida and California and most coastal states, what tremendous tides might we expect? More volcanic eruptions? More earthquakes, tidal waves? History does not record much for the period 1797-1806, which we can blame on the most recent syzygy, except to note the tides were exceptional and there were many active volcanoes and tidal waves. For some strange (?) reason history doesn't mention anything about radio propagation anomalies! But old mother Earth came through that one okay and there is no reason for alarm now. Of course we did not

have many tall buildings or towers then! The factor which will reduce the effect on Earth, and mitigate the force of the syzygy, is our position in the lineup of the planets. Our world will be in a sort of tug-of-war. On one side of us will be the sun, Mercury and Venus. On the other side will be Mars, Jupiter, Saturn, Uranus, Neptune and Pluto. So we might be stretched a bit, but there is little likelihood we will be pulled out of orbit, which would greatly affect our climate! Most of you know the planets of our solar system are all in the same plane around the sun. This plane is known as the "ecliptic" and is inclined at an angle of about 23½° to the celestial equator. But only once every 180 years do all our planets fall into line on this plane. If they didn't we wouldn't have a major syzygy.

Between now and 1982 we will probably be hearing a lot more about syzygy. It's a subject truly "out of the world!"

Numbers of licensees

The total number of FCC Amateur Radio licensees number 372,958 as of 31 May, 1980. The breakdown follows:

Novices	67,897
Technicians	69,451
Generals	123,238
Advanceds	87,287
Extras	25,085 □

A salesman returned home one night to find the whole house in a mess. Astounded, he asked his wife: "What on earth happened?"

"Well," she said, "you're always wondering what I do all day. Now you know. Today I didn't do it."

BALLOT

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DESIDERATA

GO PLACIDLY AMID THE NOISE AND HASTE, AND REMEMBER WHAT PEACE THERE MAY BE IN SILENCE. AS FAR AS POSSIBLE WITHOUT SURRENDER BE ON GOOD TERMS WITH ALL PERSONS.

SPEAK YOUR TRUTH QUIETLY AND CLEARLY, AND LISTEN TO OTHERS, EVEN THE DULL AND IGNORANT, THEY, TOO, HAVE THEIR STORY.

AVOID LOUD AND AGGRESSIVE PERSONS, THEY ARE A VEXATION TO THE SPIRIT.

IF YOU COMPARE YOURSELF WITH OTHERS, YOU MAY BECOME VAIN AND BITTER, FOR ALWAYS THERE WILL BE GREATER AND LESSER PERSONS THAN YOURSELF.

ENJOY YOUR ACHIEVEMENTS AS WELL AS YOUR PLANS. KEEP INTERESTED IN YOUR OWN CAREER, HOWEVER HUMBLE; IT IS A REAL POSSESSION IN THE CHANGING FORTUNES OF TIME.

EXERCISE CAUTION IN YOUR BUSINESS AFFAIRS, FOR THE WORLD IS FULL OF TRICKERY. BUT LET THIS NOT BLIND YOU TO WHAT VIRTUE THERE IS; MANY PERSONS STRIVE FOR HIGH IDEALS; AND EVERYWHERE LIFE IS FULL OF HEROISM.

BE YOURSELF, ESPECIALLY, DO NOT FEIGN AFFECTION. NEITHER BE CYNICAL ABOUT LOVE; FOR IN THE FACE OF ARIDITY AND DISENCHANTMENT IT IS PERENNIAL AS THE GRASS.

TAKE KINDLY THE COUNSEL OF THE YEARS, GRACEFULLY SURRENDERING THE THINGS OF YOUTH. NURTURE STRENGTH OF SPIRIT TO SHIELD YOU IN SUDDEN MISFORTUNE. BUT DO NOT DISTRESS YOURSELF WITH IMAGININGS. MANY FEARS ARE

BORN OF FATIGUE AND LONELINESS.

BEYOND A WHOLESOME DISCIPLINE, BE GENTLE WITH YOURSELF.

YOU ARE A CHILD OF THE UNIVERSE, NO LESS THAN THE TREES AND THE STARS; YOU HAVE A RIGHT TO BE HERE. AND WHETHER OR NOT IT IS CLEAR TO YOU, NO DOUBT THE UNIVERSE IS UNFOLDING AS IT SHOULD.

THEREFORE BE AT PEACE WITH GOD, WHATEVER YOU CONCEIVE HIM TO BE, AND SHATEVER YOUR LABORS AND ASPIRATIONS, IN THE NOISY CONFUSION OF LIFE, KEEP PEACE WITH YOUR SOUL.

WITH ALL ITS SHAM, DRUDGERY AND BROKEN DREAMS, IT IS STILL A BEAUTIFUL WORLD. BE CAREFUL. STRIVE TO BE HAPPY.

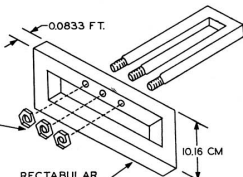
MAX EHRMANN



GUESS WHAT HAPPENED?



AMBIHELICAL
HEXNUT



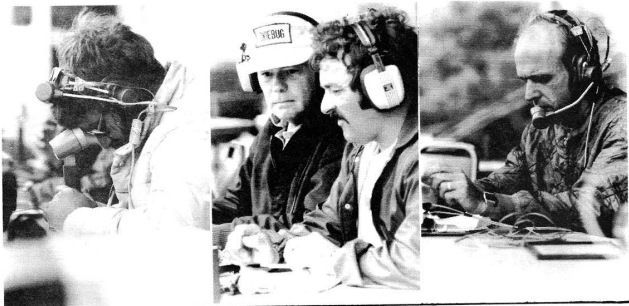
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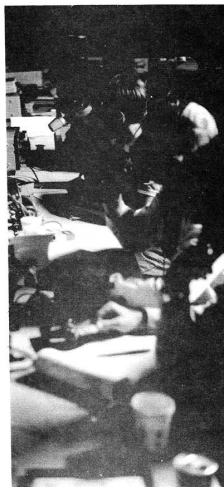
DON'T complain if you,
don't VOTE!



"I'll go over in a couple of days
and see how the beam held up..."



Ken K~~B~~NU, Charlie N~~O~~ELH, Dick K~~A~~BEKK, and Ron K~~B~~BU early on Sunday morning. It had gotten quite cool and the wind was gusting to 35 MPH.



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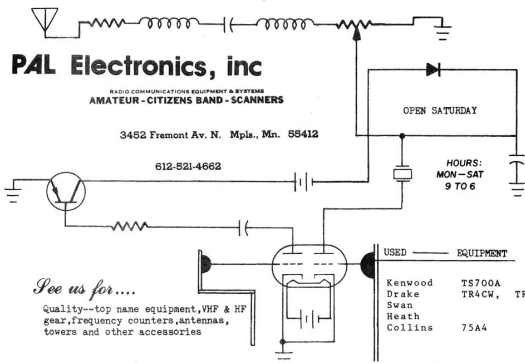
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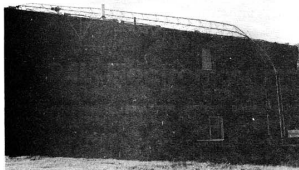
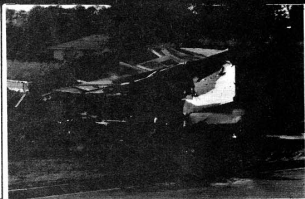
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The house in the top picture is across the street from Ron KEBU, the bottom picture is of Ron's house, his tower.

Mouse trap from pg. 4

It seems the mouse had only chewed thru a 12 volt line in the receiver box, not a high power line, needless to say he got away.

It was unanimously decided, that after more than a years building and testing, it made an excellent 2 meter repeater, but as a mouse trap it had a lot to be desired. Well back to the drawing board.

ED.NOTE: I understand that the technicians not knowing where to go from there, decided to try a new fangled way of getting rid of mice called DECON, they were very skeptical as to its worth, stating that something so simple could not possibly work!

M.E

Happy Flyers

THANKS TO OUR FLIERS

"THERE IS NO LIMIT TO WHAT YOU CAN DO - IF YOU DON'T CARE WHO GETS THE CREDIT"



NEXT MEETING: August 22, Viking Village Smorgasbord, 2920-27th Ave. So., Mpls. 6:00PM Dinner, 7:30PM Business meeting and program, which will feature the Happy Flyers slide/sound presentation on Radio Direction Finding.

By this meeting the E.A.A. convention/fly in at Oshkosh, Wisc., will be history. Bring photos, etc., from 1980 or previous years to share with the rest of our group. There was not time enough this year to complete details for a Happy Flyers program at Oshkosh. We hope that by planning now for 1981 it will be accomplished. The E.A.A. convention is usually the 1st week of August. Further plans will be noted here as Oshkosh is of major flying

interest.

EVENTS OF INTEREST:

- Aug. 17-30; World Aerobatics '80, Oshkosh
 - Aug. 25-Sept. 1; Antique Aircraft Assoc. Fly-in, Blakesburg, Iowa.
 - Sept. 5; St. Paul Radio Club Meeting, Red Cross Bldg.
 - Sept. 7; Lions Club Flight Breakfast, New Ulm, Minn.
 - Sept. 18, 3M Amateur Radio Club meeting, Moose Lodge, 1285 Geneva (E. side of Century Blvd.
 - Sept. 26-28; ARRL Dakota Div. Convention, Fargo/Moorhead, N.D.
 - Oct. 1-5; E.A.A. 2nd National Fall Fly-In, Tullahoma, Tenn.
 - Oct. 9-12; Confederate Air Force Airsho-80, Harlington, Texas
 - Oct. 18,19; ARRL S.E.T., Simulated Emerg.
 - Oct. 24; T.C.R.C. meeting
- For interesting aviation features watch "World of Aviation" now in its 28th year, WCCO-TV, Sundays 10:30 AM. The Minnesota Division of Aeronatics Film catalog has been received and is being checked for films for future meetings. Your comments on desirable films or other projects would be appreciated.

Mert, WJ8BO

While we're growing up, a lot of us spend a good deal of time worrying about what the world thinks of us. By the time we reach 50, we realize the world really wasn't paying that much attention.

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Covers 144-148 MHz; has 10 kHz steps, 3 watt output, 4 memories plus program-memorize offset, priority channel, memory scan and auto scan, keyboard encoded frequency entry, 2 tone relay from keypad, keyboard lock, 6SS splits can be programmed from keyboard, automatic battery saver feature for LCD display, and a rubber tex antenna

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	TA-33/1	3 el. beam	10-20 mtr.
	TA-36	6 el. beam	10-20 mtr.
	CL-33	3 el. beam	10-20 mtr.
	CL-36	6 el. beam	10-20 mtr.
Wilson	SY-1	System One Tribander	
	SY-2	System Two Tribander	
	DB-34	20-15 Duobander	
	DB-43	15-10 Duobander	
	DB-33	15-10 Duobander	
	M-34D	3 el. on 40 mtrs	
	M-52D	5 el. on 20 mtrs	
	M-42D	4 el. on 20 mtrs	
	M-32D	3 el. on 20 mtrs	
	M-155	5 el. on 15 mtrs	
	M-154	4 el. on 15 mtrs	
	M-153	3 el. on 15 mtrs	
Rotors	Wilson TB-50	Thrust Bearing	
	Wilson WR-500		
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ZERO BIAS

This column is devoted to the listings of: Area conventions, Hamfests, Swapfests, Picnics, Garage Sales, Auctions, as a calendar of events open to all clubs, and members.

PENNYWISE - npf - ELECTRONICS ASSOCIATES

Specials: Cable ties, black 5" 25/25 cents, 55/50 cents, 115/\$1.
COAX - Belden 8214 (RG8 foam), 25' or more at .30 per foot.
Amphenol (sealed packages) connectors - PL-259 at .72,
SO-239 at .63.
UG88 at .93 UG1094 at .75 UG175 at .25
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Crystals, \$3.75 for HT's, etc., \$2.75 for scanners (for most frequencies), 1/4W, 1/2W, 1W, 2W and other resistors.
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Coax - cable - connectors - and other parts. **LARSEN -**
AT DISCOUNT PRICES **MOBILE**
For our temporary South Minneapolis location, call 822-3200. **ANTENNAS**

'CIRCUS ELEPHANTS AND LIMITATION'

An elephant, with his trunk, can easily pick up a one ton load. Have you ever visited a circus and watched those huge creatures standing quietly while tied to a small wooden stake?

While still young and weak, and elephant is tied by a heavy chain to an immovable iron stake. No matter how hard he tries, he cannot break the chain nor move the stake. Then no matter how large and strong the elephant becomes, he continues to believe he cannot move as long as he can see the stake in the ground beside him.

Many intelligent adult humans are like the circus elephant. They are restrained in thoughts, actions and results. They never move out any further than the extent of their own self-imposed limitations.

If this is happening to you and to your life...Resolve now to uproot the stakes that hold you...Break the chains of hindering habit...BECOME THE MAN YOU KNOW YOU CAN BECOME AND SHOULD BECOME!

T.C.R.C. Membership Application

Name _____
Call _____ Phone _____
Address _____
City _____ State _____
Zip _____ Class of Lic. _____

Are you available for emergency communications of assistance? _____

Send application to: Twin Cities Repeater Club, (T.C.R.C.) P.O. Box 19225, Mpls. Mn. 55419.

ICRC WANT ADS

Free to members; non-members please enclose \$1.00 printing assistance fee. Try to keep to 25 words maximum plus NAME, CALL & PHONE To place an ad contact Keith, WA0TJT at 890-0584 after 6:00 PM.

FOR SALE:

T.C.R.C. arm patches (see front page) are available by contacting Keith WA0TJT at 890-0584, or on 31/91, cost \$3.00 each, all profits go to the club

FOR SALE:

ASR32 TTY unit buildt in terminal unit with CW i.d. and autostart.
call 435-7762 Ron KB0BU

HELP WANTED:

I still need help in writing and reporting for 'the Repeater'. I would really like to see someone volunteer to write a monthly column, on computers, RTTY, and anything else you can think of. If you can help please, please let me know, call me at 890-0584, or on 31/91, or write me a letter, I don't care just help me.--Keith--

A note to our advertisers:

I would like to have all new art work and layouts for future issues of 'the Repeater' If you have a moment please drop me a line or call me with your ideas.

Keith D. Kaiser WA0TJT
Managing Editor
13700 Thomas Ave. So.
Burnsville, Mn. 55337
My home phone after 6:00PM is 890-0584.

"The trouble with some self-made men is that they worship their creator".

----Anonymous

"Be careful about reading health books. You might die of a misprint"

----Mark Twain

A 31/91 SYSTEM NOTE:

All licensed amateurs are welcome to use the repeater system and autopatch, the ONLY 2 system rules are: FCC part 97, and common sense and courtesy. Many people support 31/91 Twin Cities Repeater Club because it is TRULY OPEN, so enjoy its benefits, but please, don't abuse it.

TCRC & Aux.

---ONE LAST THOUGHT---

The access code for the autopatch is 4 to 5 seconds of *, then drop your carrier to check for the dial tone, dial your number and when thru clear with 3 to 4 seconds of #. If for some reason you can't clear the patch, just drop your carrier, the activity timer will drop it after 45 to 50 seconds.