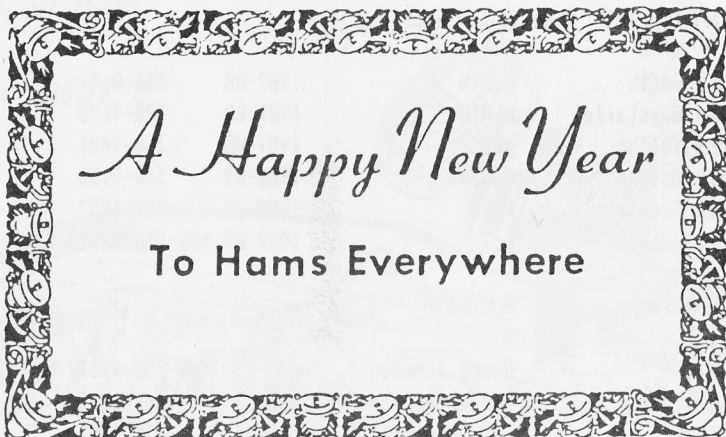
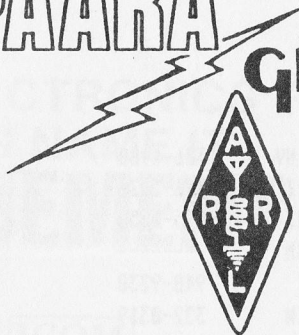


# PAARA

# Graphs

JANUARY 1988



THE OFFICIAL NEWSLETTER  
OF THE PALO ALTO AMATEUR  
RADIO ASSOCIATION  
AND  
THE MENLO PARK C.D. AMATEUR RADIO CLUB

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Mailing	Bill McElhinney	KA6LZI	325-9808

## PAARA POLICIES

Membership in PAARA is \$6.00 per calendar year which includes a subscription to PAARAgaphs. Make payment to the Palo Alto Amateur Radio Association, P.O. Box 911, Menlo Park, CA 94026

## Club Net 147.45 MHz Mondays 8:30 PM

Meet monthly at the Menlo Park Recreation Center at 7:30 PM, on the first Friday of each Month.

Send PAARAGRAPHS correspondence to

Chuck Johnson, Editor  
3309 Mt. Logan Drive  
San Jose, CA 95127

# BULLETIN

JANUARY 1988

## From the Editor's Desk:

Another round of Holiday Wishes to everybody! Happy 1988 to one and all! Please note here that the FIRST '88 MEETING IS ON FRIDAY JANUARY 8TH. Many thanks to those who so kindly supplied items for this issue. Have a good January & See you next month. 73 de Your Editor.

## Speaker of the Month:

KEN MANDERS WB6CNI — from Ampex Corporation.



Topic: "Digital to Analog & Analog to Digital Conversion & Magnetic Recording" -

Including such sub-topics as: Equalization, Compensation for lack of d.c. response on tapes & other related matters pertaining to audio and video recording.

Ken will show the similarities in problems existing between recording and voice communications, and their remedies. Recording and communications problems are very similar. Also to be discussed are error correction and optimal receiver design.



Don't miss this important technical discussion for radio communication on Friday, January 8th, at 7:30 PM.



AS USUAL== DINNER WITH THE SPEAKER AT SU HONG'S RESTAURANT, on El Camino, Menlo Park at 6:15 PM, before the meeting on Friday the 8th!

--PAARA QST data de Andy VE3PZK, Program Chairman.



## PRESIDENT'S CORNER



PAARA Christmas Dinner  
14 Dec '87

While we are all in the psychological mood to resolve to do better in the future, let's each consider what we can bring to the PAARA experience in 1988. Next time you find yourself being a couch potato think about how satisfying it would be to write a few lines of ham prose to the editor. Perhaps in the form of some unpublished scientific article or relate some recent operational experience (not the hospital type!) Or you could get yourself mentally prepared to volunteer as a team captain for field day etc. In any case, there are all sorts of opportunities in front of us this year and I hope you are all planning to take advantage of them.

The Christmas dinner was once again a lot of fun with a few seldom seen faces in attendance, (all total I think it was 31). Your officers are dedicated to a New Year of effort so please let us know how we may serve you (and vice versa!). Happy New Year to you all.

de WA6LNV

PSA Flight 1771 And Amateur Radio

A PSA stewardess not involved in the fatal crash of Flight 1771 wanted to tell her parents in Posada Concepcion, Mulege, Baja, Mexico that she was safe and sound.

A friend of a friend telephoned me with the message: "Safe and Sound, Love Jackie." I checked into the Manana Net 1030L to 1130 on 14.342 MHz which serves sailors in the Pacific (mainly in the vicinity of Baja, Mexico). I transmitted the msg via WB7BBG in Oregon and YL XE2HPJ in Mexico.

De Jerry WA6LIJ

**ANNOUNCING**  
**FEB '88 - MEETING - IS - ON -**  
**FRIDAY, FEBRUARY 5TH !!!**



MONTHLY DIRECTOR'S REPORT  
de Rod Stafford, KB6ZV  
Director, Pacific Division

The new year always seems a time for looking back over the past year at the events that took place and to assess where things are going in the coming year.

The past year has been a good one for amateur radio in the Pacific Division. The number of affiliated clubs increased and the number of League members increased. Things seem to be running pretty smoothly within the Division.

A number of very well-run amateur radio events took place during the year including the DX Convention in Visalia in April, the Fresno Hamfest in May and the Pacific Division Convention in early October. The 1987 DX Convention was the first time that event was an ARRL sanctioned event and the 1988 event looks like it is shaping up to be even better. The Fresno Hamfest in the last couple of years is making a comeback, due in no small part to the officers, directors and members of the Fresno ARC. Pacificon '87 was a great success. Attendance exceeded last year's by 50% and from the comments by those in attendance, everyone thoroughly enjoyed themselves. The convention was sponsored by the Santa Clara County ARA. SCCARA and the convention committee are to be congratulated for their efforts.

FCC matters and actions drew a lot of attention in 1987 within the Division. One of the most important pronouncements from the FCC was the Novice Enhancement Order early in the year. This will no doubt have far reaching effects on the growth of amateur radio for many years to come. The growth figures already indicate the new Novice privileges have had an impact on the number of new amateurs entering the service. Another important development turned into one of the most hotly contested matters before the FCC. The fight to retain the bottom 40% of the 220 MHz band is not over yet and the battle is still going on. The League rose to the task and I for one am proud of the League's response and effort to save this important segment of one of our amateur bands. The FCC decision on the 220 MHz matter is due during the first quarter of 1988. The release of PRB-3, the Special Call Sign Coordinator proposal, is an opportunity for the ARRL (if it is given the go-ahead by the FCC) to provide a service to the amateur community that doesn't exist now.

The outlook for the Pacific Division in 1988 is very promising. There are some goals that I have set and hope to see accomplished in the upcoming year. 1) Increasing League membership within the Division. I think this can be accomplished by letting people know what the ARRL is doing on their behalf and the services that the League provides to amateurs. 2) Establishing closer ties between the ARRL affiliated clubs and the ARRL Field Organization. 3) Attracting newcomers to amateur radio. 4) Increasing the ARRL/VEC participation within the Pacific Division in the amateur testing process.

I look forward to representing the Division in the upcoming year and working to achieve these goals. Good luck to all of you in 1988 and may it be a prosperous year in all your endeavors.

[REC'D. 12-28-87 Ed.]

# ANNOUNCING

## NEW OFFICER SLATE

As can be noted on the second page of this month's PAARAGRAPHS, the club has held elections and has installed a new slate of managerial personnel.

Elections were held at the Dec. 4th meeting and resulted in election or re-election by acclamation of:

GERALD TUCKER for President (Incumbent)  
WA6LNV

ANDY KORSAK for Vice President (Incumbent)  
VE3FZK

BILL KING for Secretary (Incumbent)  
N6CHI

LILY ANNE HILLIS for Treasurer  
N6PGM

DUSTY DOSTER for Board Member (1988-89)  
K6MPN

STEVE STUNTZ for Board Member (1988-89)  
K6FS

and

CHUCK JOHNSON for Board Member (1988-89)  
n.c.

The new officers were installed at the PAARA Christmas Dinner December 14th. 73's to all the outgoing and incoming officials, and to WA6LIJ Jerry Starkey's Nominations Committee! -ED.

# ABC'S OF RTTY 4 \*

RTTY DATA	Loop Cur.	Paper Tape	Digital State	ITL Volts	RS232 Volts	ML188 Volts	AMTOR State
Mark	On	Hole	1	>+3.5	<-5.0	+6.0	B
Space	Off	No Hole	0	<+0.7	>+5.0	-6.0	Y

Table 1 - Comparison of various RTTY signal standards.

RTTY Data	Audio Tone Frequencies (Hz)					
	High Tones	Low Tones	Marine Tones	"103 Modem" (Orig)	"ANSWER" (ANSWER)	"202 Modem" (HDX)
Mark	2125	1275	1615	1270	2225	1200
SPACE	2295	1445	1785	1070	2025	2200

Table 2 - Common RTTY demodulator tone frequencies.

## Signal Polarity.

Teleprinters operate with signals that may have only two conditions, ON or OFF, a "binary digital" code. In early land-line teleprinter systems the two states were represented by current flow in the signal wire. The signal line was called the "RTTY loop", so the "ON" current is called the "Loop Current". Because of early strip-pen recorders used for landline telegraph, the current-on condition is called the "MARK" condition; the current-off condition is called "SPACE". Thus the terms MARK, SPACE, and LOOP all date back to early land-line telegraph and teleprinter systems. In modern computer terms we would more likely call the mark state a logical "1" and the space state a logical "0". This signal polarity is further confused by various other commercial standards. Some of these standards are shown in Table 1.

When audio tones are used in radio and telephone line circuits, the representation of mark and space states is expanded as shown in table 2. Other tones, frequency shifts and reverse polarity may also be used by commercial RTTY stations.

## Data Codes.

RTTY is sent on a wire-line or radio circuit by using a combination of these mark-space pulses. A single pulse can represent two states - either "ON" or "OFF" (mark or space). To send all 26 letters, 10 numbers, and some control and punctuation symbols, we need just more than one pulse or "BIT". The number of binary bits required to send a character varies with the code used. If two bits are used, a total of 4 combinations exist; 8 combinations for 3 bits, 16 for 4 bits and 32 for 5 bits. The number of combinations or states available increases by a multiple of two for each bit added to a binary code. Each bit is independent of the other and represents either an on or off state. Therefore, the possible combinations for each on or off state rise exponentially with the number of bits. This usually is diagrammed in a truth table. On and off are two possible states, adding two bits equals  $2^2$ , or 4 combinations, and adding 3 bits equals  $2^3$ , or 8 combinations, and so on.---to be continued---

\*Prepared & Written

By Harry Wijtman AE6M, Part 4 of 12.



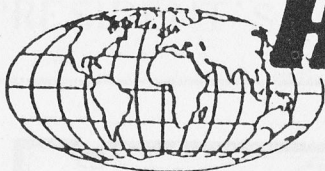
BOOK    REVIEW

A very useful introduction to ham radio is provided in HOW TO BE A HAM, by W. Edmund Hood W2FEZ.

The technical and philosophical aspects of the hobby are presented in a readable and concise manner by a seasoned ham who is sensitive to the varied status of newcomers to amateur radio. This in addition to a huge appendix of Question-and-Answer material.

This book is subject to revision in keeping with changes in the regulatory environment, and the best part of it is its sense of focus. Ham radio spreads out in so many directions and it is helpful to have a guide to sort it all out. This our author does in HOW TO BE A HAM - available through your ham bookseller or from TAB BOOKS INC., P.O. Box 40, Blue Ridge Summit, PA, 17214. [\$12.95 net.] -Ed.

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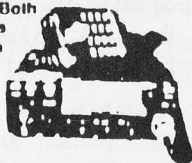
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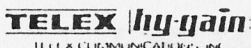
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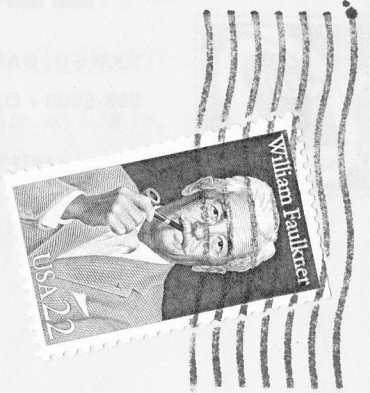
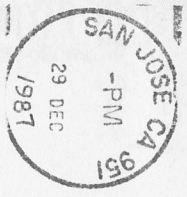


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