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PAARA

GRAPHS



PALO ALTO
AMATEUR
RADIO ASSN.

MENLO PARK C.D. RADIO CLUB, K6YQT

MARCH 1978

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VOLUME 22 NUMBER 3

PAARAGraphs is the official organ of the PALO ALTO AMATEUR RADIO
ASSOCIATION AND THE MENLO PARK CIVIL DEFENSE RADIO CLUB

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Membership in PAARA is a mere \$4 per calendar year, which includes a subscription to this fine periodical. PAARAGraphs alone may be had for a trifling \$1. Send cash, check, or money order to:

PAARA P. O. Box 911 Menlo Park, California 94025

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The MARCH MEETING OF PAARA will be on the first Friday,
March 3rd. Time is 7:30 PM at the Menlo Park Recreation
Center. Refreshments and an amplified RAFFLE are part
of the sked.

The speaker will be Terry Eaton exWA3OYF, President of International Communications Management, Inc., S.F., who is also the director of the MBA program in telecommunications management in Golden Gate University. Mr. Eaton will discuss the "Telecommunications Revolution & the State of the Art of Telecommunications for Today & the Next 5 Years for Personal & Business Use".(Look out Ma Bell).

+ +

PAARA's Board of Directors will meet at 7:30 PM on Wed. March 8th at the mycological marvel parked at SRI.

LOG SOME TIME ON ONE OF PAARA's NETS!

2 meter AM: 145.24 MHz, Mondays, 8:15 PM.
2 meter FM: 147.45 MHz, Mondays, 8:30 PM.
15/20 meter SSB: 21.393 or 14.245 MHz on alternate
Saturdays at 9 AM (to W1AEC).

D O N T F O R G E T !!! === We return to PAARA Standard Time this month. Meetings are now and forever(sic) on the first Friday of the month: March 3, April 7, May 5, etc.

The 28 January SET, coordinated by Steve K6FS with the Red Cross County Disaster Chairman Jim Fitzgerald and Bill Broocks, Red Cross Committee Chairman for S.C. County involved the following ARO's: K6: FS,MPN,SEM,TNY & YT; W6: AIN,BFH,DU, DVB & YPM; WA6OFN; WB6: JFH,QPV,RAF,RZW & STW; and VE3FZK. Bob K6SEM carried the ball as CONTROL.

Three mobiles and the PAARA home station were startled during the SET exercise by what seemed a record long-distance 2 meter FM contact: W1AF of the Harvard Wireless Society came in on 147.45 MHz simplex! Rick was running W1AF at Boston and sent message No.1: "All's cold but well here in snowy Mass." This wasn't via satellite or duct or meteor scatter--but routine rebroadcast via W6NIR of the PAARA HF Saturday net at 21.393. It was startling----for a minute or two!

In the future, a NOVICE who obtains the license thru the efforts of a PAARA member will be entitled to a years paid membership in PAARA.

THE METER-KILOGRAM-SECOND (MKS) PRACTICAL SYSTEM OF UNITS.

For many practical purposes, not only in electricity but in mechanics and other branches of physics as well, the centimeter and the gram prove to be inconveniently small units, and hence it is often advantageous to employ a system of units in which the meter, the kilogram and the second are chosen as the primary units. Now it will be recalled that in the CGS system, the unit of force is defined by Newton's second law of motion and is 1 g.cm.sec.^{-2} , commonly known as the dyne. In the MKS system of units, the unit of force is similarly defined and therefore is 1 kg.m.sec.^{-2} , which is called the newton. It will be seen that 1 newton is equivalent to 10^5 dynes, or approximately 102 gwt. The unit of work or energy in the MKS system is 1 newton-meter, which is equivalent to 10^7 ergs and therefore is the joule; and the MKS unit of power is $1 \text{ newton}\cdot\text{m.sec.}^{-1}$, or the watt. The main thing to remember here is that Newton was English!

ELECTRON POLITICS. One of the most useful principles in electrical design of the transfer of power, whether it be DC, AC, or RF power, says that the maximum power is transferred from a source (battery, generator, transmitter, etc.) to a load (resistance, motor, antenna, etc.) when the impedances of the source and load are the same. In the simple(?) case of a battery connected in series with a resistor, the maximum power will be transferred where the internal resistance of the battery is equal to the load resistance.

This principle is usually stated without proof in textbooks and forms the basis for various questions on FCC exams.

The proof of this principle for the case of a battery, of voltage E and internal resistance r , connected to an external resistive load R may be demonstrated with the aid of some simple calculus. The power dissipated by the load is $P=I^2 R$. The current flowing around the circuit is given by $I = E/(R+r)$. Thus, $P = E^2 R / (R+r)^2$. To find the maximum power as R is varied we set the rate of change of P with respect to R (dP/dR) equal to zero.

$$\text{Now, } dP/dR = E^2 ((R+r)^{-2} - 2R(R+r)^{-3}).$$

$$\text{Set } dP/dR = 0, \\ \text{then } (R+r)^{-2} = 2R(R+r)^{-3},$$

$$\text{so } R+r = 2R$$

$$\text{and } R = r \quad (\text{max.})$$

Thus, the maximum power is transferred when the load R equals the source r .

An interesting question arises when considering an antenna radiating RF power into space. Namely, what is the impedance of space? If anyone is interested, perhaps we shall pursue this.

LIST OF MEMBERS

The following call signs represent the treasurer's (WB6LML) list of paid members of PAARA. If you are not on list and wish to be included in the roster to be published in April please contact treasurer on or before next meeting (3 March).

K6: AL,EHS,FS,GT,LVJ,MPN,OL,OYN,RB,SEM,TNY and YT.

N6: RY.

W6: AIN,AKR,AQL,ARA,BFH,CFZ,CUN,DEF,DU,DVB,EM,GNX,HBH,ISQ,KJI, LIJ,NIR,PFC,QBX,QBY,QXP,RVS,TFT,UCE,UOK,VYC and YPM.

WA6: BQY,ENC,EQA,GVP,IJP,JFN,LIJ,LVN,OFN,OPA,SOI,ROM,RVS,SZX and YSY.

WB6: CVW,GVP,JFH,JST,LML,LVP,OOO,QPV,RAF,RDZ,RHU,RNO,SDE,STW and WXU.

WD6: AAS and BGV.

WØ: SH. VE3: FZK. NCS: E.Camp,W.Harper,W.McElhinney,L.Sebring,
* * * and S.Swenson. * * *

Paul Thekan WA6IJP writes from Redwood City that he is a volunteer fireman, a student pilot, a night-school student, a Jeep restorer, and is studying for his Advanced ticket. He hopes "to become active in club activities again and not just be a PAARAsite!". More power to you Paul!

Former member Earl Hickman WA6LUI has a 2-meter FM rig for sale. Equipment includes 1) Wilson WE 224 with xtals for 147.45/.45 and at 146-.22/.82,.10/.70,.13/.73,.25/.85,.52/.52,.16/.76, and .04/.64; 2) mobile mount; 3) home brew AC/DC supply w/ voltmeter; 4) Hussler 5/8 wavelength antenna with detachable trunk-lid mount and cable. Price is \$200 (firm) for this \$300 value. QTH is 1152 State Farm Dr., Santa Rosa, Ca.95401, (707)526-1180.

PLEASE REPORT COA (change of address) promptly to PAARA, P.O. Box 911, Menlo Park, Cal.94025. The pony express charges us if you aint there anymore at the rate of \$0.25/copy! QRD?

ARRL Director for the Pacific Division is now William J. Stevens W6ZM, 2074 Foxworthy Ave., San Jose, CA 95124. Vice Director is Robert C. Smithwick W6JZU, 516 Remington Dr., Sunnyvale, CA 94087. Our local(Santa Clara Valley) ARRL Section Communications Manager (SCM) is James A. Maxwell W6CF, P.O.Box 473, Redwood Estates, CA 95044.

The Club is in dire need of a CCRC representative. This is mainly an advisory function requiring a meeting once a month in SSF. If you can do this for PAARA or need further info, contact Erv Rasmussen W6YPM, former rep.

FCC Enforcement Action. The information reproduced below was recently received from Mr. S. Marti-Volkoff, Engineer in Charge of the San Francisco District Office of the FCC. Mr. Marti-Volkoff also notes in an excerpt from his letter: " -----

It was through the cooperation of numerous Amateur Radio Operators that this office was able to obtain probative evidence of the violation and successfully conclude the investigation. As your organization is aware, the Commission has always looked to the Amateur Radio community to, in effect, regulate itself. On those occasions when an individual persists in violating the rules, criminal sanctions may be required."

On Friday, January 13, 1978, activities of a San Jose, California unlicensed 2-meter operator, Albert F. Merrill, were terminated by an inspection party of FCC enforcement engineers.

For several months, this person assumed the "on-the-air" identity of John Merrill, N1JM/WA1IZV, and had convinced local users of the 147.63/.03 MHz repeater that he was on temporary duty in California. The real John Merrill, of Dover, New Hampshire, began to receive QSL cards and other correspondence as a result of the activities of the San Jose "bootlegger", and within a short time, these activities came to the attention of the FCC's San Francisco District Office. The San Jose Merrill even tried to get a copy of the New Hampshire Merrill's amateur license sent to him, in order to lend greater credence to his story, but the FCC's Gettysburg processing unit forwarded all replies to the actual John Merrill.

On the day of the inspection, Albert Merrill was actually observed in operation both at his home and in his auto, and direction-finding techniques were used to locate and confirm both operations for evidentiary purposes. The inspection was performed by Assistant Engineer in Charge Philip M. Kane and Investigative Specialist Engineer David Doon, supported by Mr. S. Marti-Volkoff, Engineer in Charge of the San Francisco District Office, and monitoring observers of the FCC's Livermore monitoring facility. At the time of the inspection, Mr. Merrill's station was secured from operation, and its activities terminated. Unlicensed operation of a radio transmitter is a violation of Section 301 of the Communications Act of 1934, as amended, and criminal conviction in Federal Court carries a maximum penalty of \$10,000 fine and one year imprisonment. Referral of this case to the U.S. Department of Justice for prosecution is pending.

NOVICE es NO-SIDEBAND NEWS

The ARRL headquarters station, W1AW, fills the air with the code practice and bulletins shown in their schedule below. Locally (SSF), code practice at 5-30 wpm is provided by W6QIE, daily at 8:00 P.M. PST, except Monday, on a carrier in the 80-meter band undulating at 3.590 million cycles per second (Mhz).

Get ur speed up for FIELD DAY, coming in June!

W1AW OPERATING SCHEDULE

IN A COMMUNICATIONS EMERGENCY monitor W1AW for special bulletins as follows (times in UTC):
Phone, on the hour. *RTTY*, 15 minutes past the hour. *CW*, on the half hour.

| PST | UTC(Z) | Mon. | Tues. | Wed. | Thurs. | Fri. | Sat. | Sun. |
|-----------|--------|-------------------|-------------------|-----------------------------|------------------------------|-------------------|-------------------|-------------------|
| 6 A.M. | 1400 | Slow ¹ | Fast ² | Slow ¹ | Fast ² | Slow ¹ | | |
| 7 | 1500 | | | CW Bulletins ³ | | | | |
| 8 | 1600 | | | RTTY Bulletins ⁴ | | | | |
| 1 P.M. | 2100 | Fast ² | Slow ¹ | Fast ² | Slow ¹ | Fast ² | Slow ¹ | Slow ¹ |
| 2 | 2200 | | | | CW Bulletins ³ | | | |
| 3 | 2300 | | | | RTTY Bulletins ⁴ | | | |
| 4 | 0000 | Slow ¹ | Fast ² | Slow ¹ | Fast ² | Slow ¹ | Fast ² | Fast ² |
| 5 | 0100 | | | | CW Bulletins ³ | | | |
| 6 | 0200 | | | | RTTY Bulletins ⁴ | | | |
| 6:30 | 0230 | | | | Phone Bulletins ⁵ | | | |
| 7 | 0300 | Fast ² | Slow ¹ | Fast ² | Slow ¹ | Fast ² | Slow ¹ | Slow ¹ |
| 8 | 0400 | | | | CW Bulletins ³ | | | |
| 9 | 0500 | | | | RTTY Bulletins ⁴ | | | |
| 9:30 P.M. | 0530 | | | | Phone Bulletins ⁵ | | | |

¹ Slow code practice on cw bulletin frequencies, 8 minutes each session; 5, 5, 7½, 7½, 10, 13, 15 wpm.

² Fast code practice on cw bulletin frequencies, 8 minutes each session, 35, 30, 25, 20, 15, 13, 10 wpm.

³ Cw bulletins, 18 wpm, on: 1.835 3.58 7.08 14.08 21.08 28.08 50.08 147.555 MHz.

⁴ RTTY bulletins 60 wpm/170 Hz shift, on: 3.625 7.095 14.095 21.095 28.095 147.555 MHz.

⁵ Phone bulletins on: 1.835 3.99 7.29 14.29 21.39 28.59 50.19 147.555 MHz.

* * * * *

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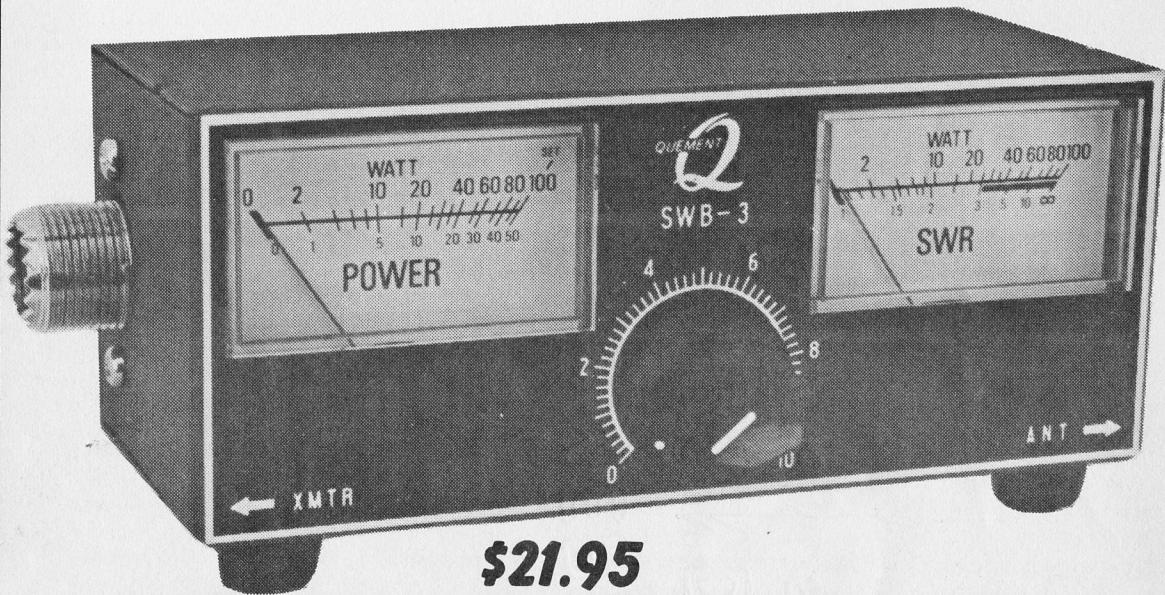
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