Potomac Valley Radio Club
NEWSLETTER

December 1992

RETIRING OFFICERS FOR 1992

ACTING PRESIDENT - ND3A ROB SHAPIRO (703) 204-2771
SECRETARY - AA4XU BEN SHAVER (703) 534-4740
TREASURER - K1DQV ROGER MINER (301) 421-9848

OFFICERS-ELECT FOR 1993

PRESIDENT - K3NA ERIC SCACE (301) 293-2448
VICE PRESIDENT - WR3E BERNIE McCLENNY (301) 531-5423
SECRETARY - KE3Q RICH BOYD (301) 464 8014
TREASURER - ND3A ROB SHAPIRO (703) 204-2771

The Potomac Valley Radio Club, a Contest Club established in 1947, meets on the second Monday in each month from September through May. Regular business meetings alternate between Northern Virginia and Temple Hills, MD. For directions to the next meeting see below, or call any Club officer.

PVRC CHARTER MEMBERS: W3GRF, W3IKN, W4AAV (SK), W4KFC (SK), W4KFT, NØFFZ, W4LUE, W7YS, VP2VI (WØDX). Charter members are not required to pay dues. Dues for local area members $10 per year; for out-of-area members $5 per year. Dues include subscription to the *NEWSLETTER*.

VHF Repeater (K3WX): Output 147.00 MHz., Input 146.40 MHz
UHF Repeater (K3WX): Output 443.15 MHz., Input 448.15 MHz

Packet Cluster Contest/DX System:

145.51 MHz. Connect to WØYVA
145.57 MHz. Connect to N2FB
145.59 MHz. Connect to W3LPL
145.63 MNz. Connect to K3NA
145.77 MHz. Connect to N4SR

Next Meeting:

Date: 11 January 1993
Place: Tysons Pimmit Library
7584 Leesburg Pike
Falls Church, VA
Time: 7:30 PM EST

Check the packet cluster or the repeater for last minute changes, if any.

DIRECTIONS to the Falls Church Meeting: Take the Capital Beltway to Exit 10. Take Route 7 (Leesburg Pike) toward Falls Church. The Library will be on your left approximately 1.7 miles inside the Beltway, past George Marshall High School, but before Peach Orchard Road.

Newsletter Editor: Fred Laun, K3ZO (301) 899-1235
Production and Circulation Manager: Howard Leake, W6AXX (410) 465-7008
Club Historian: Lawrence Fadner, W3GN (301) 725-1624
News deadline: the 20th of each month.

Scores... Scores... Scores...

By Bernie McClenny, WR3E

SWEEPSTAKES CW 1992

CALL	CLASS	QSO	SECT	SCORE
K3DI	Q	235	72	33,840
K3TM	Q	640	75	96,000
K3ZO	B	1149	76	174,648
K4FPF	A	410	77	63,140
KE3Q	B	1224	77	188,496
KT3Y	A	656	75	98,400
N3AM	A	363	74	53,724
N3II	B	270	76	41,040
N4KW	A	145	57	16,530
N4MM	B	129	44	11,352
N4ZR	A	805	77	123,970
W3CPB	A	203	63	25,578
W3GG	B	300	77	46,200
W3GNQ (KF3P)	B	973	76	147,896
W3HVQ	B	641	75	96,150
WD3P	A	532	75	79,800
WD4IEH	A	364	73	53,144
WI3A	A	265	71	37,630
WR3E	Q	129	57	14,706

SWEEPSTAKES SSB 1992

K3IXD		372	72	53,568
K3ZO	B	1692	77	260,568
K4FPF		260	77	40,040
KE3Q	B	1608	77	247,632
KZ3H		77	77	11,858
N4ZR		117	44	10,296
NV3V		299	75	44,850
W3CPB	A	115	45	10,350
W3GG		77	77	11,858
W3GNQ	M/S	1390	77	214,060
W3YY		350	77	53,900
WD3I		100	37	7,400
WD4IEH		110	49	10,780
W3LPL (K1DQV)		1500	77	

Scores continued on next page.

News Breviaries

W3GRF now home from the hospital.

W3FU and W4QAW taken to the hospital.

The Tommy Rockford Books

A Review by Don Daso, WZ3Q

Browsing through the school library back in 1962, I came across a slim volume with what seemed at the time to be a terrific title—*SOS At Midnight.* I opened it and began to read, delighted to find it was about radio. I'd discovered what could be found on the big Zenith by turning a switch marked "BAND" and listening carefully while setting the dial to an area labeled "AMATEUR."

Recently, I was telling someone who is not a ham about this book which was written by Walker Tompkins, K6ATX. (I had also read the two sequels which followed: *CQ Ghost Ship* and *DX Brings Danger.*) In this conversation, I mentioned that the books were probably a bit dated, but still provided a good introduction to our hobby for a general audience, young people especially. Even more recently, I found myself reading the back cover of *Midnight* while standing in a local radio emporium. There are now six Tompkins titles, all featuring hero Tommy Rockford, who also goes by the call K6ATX. And updated? A package for $25? Let's see what young people get for an introduction.

In addition to the three already mentioned books, there are *Death Valley QTH, Grand Canyon QSO,* and *Murder By QRM.* I read these three first, (it takes about an hour for each). Then I read the earlier ones just to see how they had changed.

Tommy Rockford hasn't changed much. He's still the bright, eager California kid whose curiosity gets him into trouble. Tommy has only "aged" two or three years in the 30 years he's been entertaining us. He was a high school senior in *Midnight* and he's a college student in *QRM.* His life and activity revolve around ham radio. He shares the same values and youthful enthusiasm we accepted from *Tom Swift* or *The Radio Boys.* Maybe those beliefs are out of fashion currently, but the information presented about our hobby is solid and wide ranging. Nearly every facet of hamming is presented, or integrated into these stories.

The writing sometimes gets thin. You feel the strain as Tompkins tries to stretch a plot line or manipulate dialogue around a ham radio twist or turn. Yet, you keep going because you like Tommy that much.

And those updates? For earlier readers, the stories have shifted with the times. Tommy was apparently one of Heath's bigger customers. Now, instead of the venerable DX-100 (central to *Midnight*), the radio of choice has become Heath's last—the HW-5400 transceiver. Two-meter FM has replaced Gonset boxes and so on, but nothing that is central to their story lines has been changed. You'll enjoy these titles. Maybe some of your younger friends or relatives will, too. □

CQ WW CW 1992

CALL	CLASS	QSO	CTRY	ZONES	SCORE
K3ZO	SO	3024	157	421	5,033,224
W4RX					3,750,000
K8OQL		747	122	295	865,275
W3HVQ		968			969,760
W3AZ		599	115	278	666,135
VO2WL (K3TM)					1,500,000
W3GN		586	95	220	581,175
N4MM		382	96	210	333,846
AA4XU		357	63	151	222,132
N4KRP/C6A		1430	88	176	851,400
N8II	SO/LP				2,300,000
K7SV		1018	135	345	1,323,360
W3UJ		823	105	301	992,670
W3CPB		207	67	123	102,980
AA4KD		198	59	110	89,570
WD3P		107	56	79	37,665
N3JT	10M	237	22	75	66,736
WB6VGI		100	26	49	22,225
N4MO	15M	863	33	106	345,693
W4BQF	40M	932	22	76	267,344
KT3Y	80M	694	25	86	199,000
K07V		299	20	69	72,980
WR3E	SOA	1923	171	585	4,158,756
N3II		885	136	418	1,377,244
K3SA		528	98	265	555,753
N3AM		550	100	242	541,728
W3IUU		495	108	262	519,850
NV3V		244	76	153	163,237
N4RA		196	66	140	111,000
W3YY		203	40	70	
K4FPF		530	100	274	551,650
K3DI+WD4IEH	M/S	1949	150	457	3,364,740
W3GG+WD3I	M/S	1293	140	446	2,159,410
W3LPL+K1DQV KA1GD ND3A N3GB K3NA KF3P WZ3Q K3RA N3RR K3SO WR3Z KE9A					
	M/M	6482	196	738	17,400,000

ARRL 160 METER 1992

CALL	CLASS	QSO	SECT	DX	SCORE
K3ZO	HI	1022	71	7	161,308
W3AZ	HI	392	56	4	47,760
W3GN	HI	715	63	6	99,912
K8OQL	HI	677	63		85,869
WD3P	LO	378	47	1	31,432
WR3E	LO	302	57	1	35,813

Marathon: Contest Software for the Mac

Reviewed by David Hubbard, WD4IEH

Before the current contest season began, I found myself faced with a dilemma. I wanted to enter the world of computer contest logging. Having used CT during several multi-single efforts from K3DI, it seemed the obvious choice. Unfortunately, my XYL and I already owned a Macintosh (which was great for everything except contest logging) so I couldn't justify buying a PC solely for contest operation. Fortunately, Kevin Krueger, NØIOS, has stepped forward with a contest program for the Mac called *Marathon*. I bought a copy and gave it a test drive during the November CW Sweepstates.

The current release of Marathon supports ten contests including CQ WW, ARRL DX, and the ARRL November Sweepstakes. *Marathon* has the standard features that contesters have come to expect in even the most basic logging programs (*e.g.*, real-time dupe checking and check-partial). In addition, NØIOS has included a CW interface, a packet radio interface for connection to the DXCluster, a computer-to-rig interface, and a maintainable country and prefix list for DX contests.

There are some neat things the operator can do with *Marathon*. Since the program is built around the Macintosh GUI (Graphical User Interface), most of the pop-up windows are scrollable and sizable to the way you want them. This means that if you don't like the log window at the bottom of the screen, you're free to grab it with the mouse and drag it to where you want it. You can also pull up most windows at the same time and "stack" them on the screen in any order. This was particularly useful in the Sweepstakes when I wanted to leave the multiplier checklist on the screen. Since *Marathon's* packet window is scrollable (it holds over 8,000 characters) you can review DX spots that have been pushed off the screen. This could be especially useful when DX spots are coming in a tidal wave during a contest. Once you select a spot, a keystroke moves the DX station's call into the log entry window. Frequency and mode can also be grabbed from the packet window when the computer-to-rig interface is active.

The 48-page user's manual provides complete instructions for updating *Marathon's* country/prefix list. Beam headings and distances are calculated automatically once you supply your Maidenhead grid locator. Finally, for those of you (myself included) who think the operating table is crowded enough without a mouse to deal with, *Marathon* allows the operator to perform nearly all functions with the mouse OR keystrokes.

There are a few rough edges. The *Marathon* CW interface will not directly key the rig. The user must supply an ASCII-to-CW interface (*e.g.*, AEA Morse Man or PK-232). Also, unlike CT, *Marathon* does not filter needed multipliers from the packet window into an announce window. While this wasn't an issue in the Sweepstakes it would be a problem for a serious packet-assisted entry in a DX contest. There is also no facility for doing a super-check partial look-up.

Is this program as good as CT? In my opinion, "not quite." However, I like this program a lot. Macintosh users finally have a full-featured contest logging program that provides nearly all of the features we've come to expect from CT. If you're a Macintosh owner, *Marathon* is well worth considering. □

THE SECRETARY'S PAGE

By Ben Shaver, AA4XU

...COMPUTER DOWN AT K3ZO: According to Fred, "The computer at K3ZO went QRT." So, the Secretary was pressed into service getting this issue of the *Newsletter* put together. Thanks to Publisher Howard Leake, W6AXX, we anticipate timely delivery to the Members. Missing from this month's issue is Fred's popular column devoted to PVRC people and places, "Musings of the Editor." All of us look forward to Fred's resuming the Editorship of the Newsletter as soon as the K3ZO computer is resuscitated. Hurry back Fred!

...ABOUT THE 1993 SECRETARY: Rich Boyd, KE3Q, brings expertise to the office of PVRC Secretary from his profession, which is the verbatim transcription of oral argument. Not only is he one of the Club's champion radio contesters (his specialties are Sweepstakes and Sprints), he is a champion high-speed typist and has certified at astonishing speeds in excess of 120 words per minute. Rich, I am proud to hand over the Secretary's Quill (keyboard) to you. May your Inkwell (hard disk) never run dry.

...FOR PURPOSE OF RECORD: PVRC Minutes not previously published are appended here.

MINUTES - 9 DECEMBER 1992

The meeting of the Potomac Valley Radio Club was called to order by Acting President ND3A at the Andrews Air Force Base Officers Club on the occasion of the annual PVRC Christmas Banquet.

- Members:

AA4XU	K1DQV	K3DI	K3IXD	K3NA	K3WX	K3ZO
K6ETM	KC3AG	KE3Q	KZ3H	ND3A	NH6T	W3AZ
W3CPB	W3EKT	W3GN	W3GNQ	W3HVQ	W3XE	W4HM
W6AXX	WI2T	WR3Z	WZ3Q			

- Guests: W4HMK Richard Hiner, Amy Boyd, Jeannette Bruns, Kathy Daso, Dolly Headrick, Lee Honea, Germana Miner, Margaret Sherrick, Judy Steeble, Lauri Stevens, Martha Wilder
- The Menu offered a choice of Center Cut Filet Mignon, or Stuffed Filet of Flounder Diable,

DINNER AND PROGRAM

After dinner, Acting President ND3A introduced Richard Hiner, W4HMK, Director of the Navy Broadcasting Service. Dick related humorous experiences in his career in broadcasting. These included programs featuring Eleanor Roosevelt, Phil Donahue when he was an announcer at a Dayton, OH radio station, Julia Child's first broadcast, and a behind-the-scenes account of Queen Elizabeth's visit to the Ford Whitehouse at which the band played "The Lady Is A Tramp" for the Queen's first dance. At the present time, the Navy Broadcasting Service is engaged in a program to bring American TV to the armed forces around the world. TV viewing may be possible for submerged US submarines in the future. A submarine would surface for only a few seconds once a day to receive a burst of digital data from a satellite that would provide an entire day's viewing while submerged.

ND3A introduced Don Daso, WZ3Q. Don related many humorous examples of errors in the movies, illustrated by videos. Within the same scene, actors' clothing would change color; food would appear and disappear from the dining table; and Sheriff Gary Cooper's star badge would appear and disappear from his vest.

President-Elect K3NA recognized the 1992 Officers: Acting President KD3A, Secretary AA4XU, Treasurer K1DQV, Historian W3GN, Keeper of Scores WR3E, *PVRC Newsletter* Editor K3ZO and Publisher W6AXX.

AWARD PRESENTATION

President Elect K3NA related that there is a long-standing PVRC tradition that the Gavel Award for ARRL DX Contests is given to that member who scores highest in that contest in the Single Operator category, and who has not previously received a Gavel. The Gavel for the 1985 contest was recently received, and was presented to Fred Laun, K3ZO, who scored over 2 million points in the 1985 contest.

MINUTES - 9 NOVEMBER 1992 - ELECTIONS

The meeting of the Potomac Valley Radio Club was called to order by Acting President ND3A at the Church of the Nativity, Temple Hills, MD.

- Members: AA4KD AA4XU K1DQV K3IXD K3NA K3ZO K4FPF KA3WPD KE3Q KH2F N3II ND3A NR4L W3AZ W3CPB W3EKT W3HVQ W3LPL W6AXX WD3P WD3Q WD4IEH WI3A WR3E WR3L WR3Z WZ3Q
- Guest: KA3ZPA (2nd meeting attended)

Secretary AA4XU read the minutes, which were accepted as read.

Treasurer K1DQV gave the Treasurer's Report, which was accepted as read.

ELECTIONS

Election of Officers. The Report of the Nominating Committee was presented by WR3E, who thanked those who had worked on the slate of proposed Officers, and who developed a 7-point Campaign Platform proposing new directions for the Club in 1993. K3NA, W3LPL, K3ZO, KE3Q, ND3A, W6AXX, worked with WR3E on the slate and Campaign Platform. The Nominating Committee recommended the following candidates for office:

K3NA	Eric Scace	President
WR3E	Bernie McClenny	Vice-President
ND3A	Rob Shapiro	Treasurer
KE3Q	Rich Boyd	Secretary

Acting President ND3A asked for additional nominations from the floor. There being none, the matter was put to a vote by secret ballot. Twenty-five ballots were cast. The above four candidates and their Campaign Platform were accepted by unanimous vote. K3NA requested that the Campaign Platform be included in the Minutes. (*Vide Infra)*

Packet report (W3LPL). The N4SR node is being replaced with a new node in Quantico, Virginia. Purchase of new gear for the new node has depleted the emergency funds used for maintenance of the cluster. Renewals for 1993 membership year are needed to put the cluster back on a firm financial footing for the new year.

Annual Christmas Banquet. W6AXX will make a special mailing for tickets for the December 9 Banquet.

Program. The Members shared their contest experiences and scores for the CQ Worldwide SSB contest, and the CW Sweepstates.

December PVRC Meeting. Annual Christmas Banquet, The Officers Club, Andrews Air Force Base, December 9. Cash Bar 7:00 PM, Dinner 8:00 PM.

CAMPAIGN PLATFORM

The above listed candidates feel that PVRC must now move in some new directions. Seven specific club activities for 1993 have been chosen, based on feasibility and maximum impact.

1) EVERY club member will be asked to contribute some time on at least one of the following projects. Contributions will be publicized in the PVRC Newsletter. *Rationale*: It is unrealistic to expect that a dynamic, active club will result from the efforts of just a few people. Many hands will make light work.

2) The club will enter ALL contests with a club competition category. *Rationale*: This is intended to be a contesting club. Everyone learns by contesting.

3) The PVRC Famous Contesters College (FCC) will be founded, with the purpose of teaching both new and current members how to contest better than ever. *Rationale*: We learn faster by sharing, and new members learn fastest from all of us who already are members.

4) A new member recruiting program will seek out potential new members interested in contesting together and in contesting better. *Rationale*: By growing our membership selectively, the club becomes stronger.

5) Recognition will be given to all members, new and old, for their achievements in specific contests, and in learning about contesting better. *Rationale*: Recognizing the accomplishments of each of us is both good incentive to contest and to learn, and it's fun!

6) A member station assistance program will be established. Any member can ask for help in making station improvements. Each member receiving help will be expected to assist on three subsequent projects for other members. *Rationale*: Successful contesting requires good hardware and software. We learn safe, effective station design and construction by doing it together.

7) Develop a system in order to get all PVRC'ers on packet who are interested. *Rationale*: By having every member of PVRC on packet, club members can send information concerning club activities at a much faster and reliable rate.

MINUTES - 12 OCTOBER 1992

The meeting of the Potomac Valley Radio Club was called to order by Acting President ND3A at the Tysons-Pimmet Library, Tysons Corner, VA.

■ Members:	AA4XU	K3NA	K3ZO	E3Q	KK4WQ	KM4YY
	N3AM	N4KW	ND3A	W3LPL	W4RW	W4RX
	W6AXX	WD3Q	WI2T	WZ3Q		
■ Guests:	AA4KD*	K3IXD*	KN4ZT	KO4EI	(* elected member at this meeting)	

Secretary AA4XU read the minutes, which were accepted as read.

OLD BUSINESS

Initiative to increase Club contest participation. ND3A reported the following goals for the CQ WW contests:

Phone	37 million	(32 million last year)
CW	35 million	(30 million last year)

Ways to increase contest participation. In discussion: (1) For those who would like to participate, but who do not have competitive stations of their own, the following multi-single stations may have operating positions available: KE3Q, K3DI, W3GG. (2) Packet node Sysops will add a sign-on announcement soliciting operating positions and operators to fill them. (3) K3ZO renewed his offer to put any member's handwritten log on his computer to generate a printed and duped log ready for mailing. (4) KM4YY found the PVRC's *Contest Cookbook* to be very useful when he began operating contests, and urges the Club to maintain this publication for new contesters coming into the Club. (5) W4RX said that in the early days of the Club, help was available to members from other members in erecting and repairing antennas. Such a group effort might enable a station to enter a contest that would be off the air, otherwise. Several members expressed interest in reviving this PVRC tradition. (6) KE3Q suggests making presentations to other non-contest clubs in an effort to attract potential new contesters. Speakers are always in short supply for radio club meetings, and area clubs welcome a PVRC presentation. (7) KM4YY offered to continue his sponsorship of an Award plaque for new members operating with wire antennas. (8) WZ3Q is putting together a presentation made up of slides of members' antennas and operating positions. This presentation could be used as recruiting medium.

Packet report (W3LPL). Over the past weekend, the first amateur radio packet microwave link was established on 1296 Mhz. The Frankford Radio Club cluster will remain connected during the CQ WW contests this year.

N3RR resignation. N3RR, 1992 President of the PVRC, is no longer able to perform the duties of his office due to professional responsibilities. His letter of resignation was regretfully accepted.

NEW BUSINESS

Election of New Members. Ed Steeble, K3IXD (sponsored by W3LPL) and Clair Allen, AA4KD (sponsored by ND3A) were elected Members and welcomed into the Club.

Annual Christmas Banquet. W3GRF has enabled us to hold the Annual Holiday Banquet again this year at the Officers Club of the Andrews Airforce Base. A reservation has been made with the Catering Department for Wednesday, December 9, 1992. Cash Bar at 7:00 PM. Dinner at 8:00 PM. W6AXX, publisher of the PVRC Newsletter, will make a special mailing giving Banquet ticket details.

Program. ND3A demonstrated the new digital audio version of the CT computer program.

November PVRC Meeting. The next meeting of the PVRC will be held on November 9, 1992 at the Church of the Nativity, Temple Hills, MD at 7:30 PM.

Over-The-Hill Division of the Potomac Valley Radio Club

2 December 1992. Sheraton Hotel Restaurant, New Carrollton, MD. Andy Anderson, W3XE, was Host.

Attending:	AA4XU	K3WX	K3ZO	KC3AG	W3AZ
	W3CPB	W3GN	W3NL	W3UJ	W3XE
	W6AXX				

14 October 1992. Tom Westons Restaurant, Annandale, VA. Bill Grenfell, W4GF, was Host.

Attending:	AA4I	AA4XU	K3WX	K3ZO	K6ETM
	KC3AG	W3AZ	W3GN	W3XE	W4DM
	W4GF	W4NND	W6AXX		

THE PVRC STORY

Don Daso, WZ3Q

The concept of a radio club specializing in contest and DX operating activities began in the Washington area shortly after World War II. Resuming activity after the War, hams at the Pentagon's Army Signal Center organized during the summer of 1947 at the home of W4KFT in the Aurora Hills area of Arlington. The club called itself the "Aurora Hills Radio Club," but the current name was provided by W9NWX (now W0DX) within a few weeks.

The Potomac Valley Radio Club has a long tradition of club competition success in contests, both domestic and DX. PVRC members dominated ARRL Sweepstakes and DX contesting throughout the 1950's. Considering that club membership totaled around 40 members during that era, this record of performance speaks well of members' station design and operator skills. Today, PVRC members maintain this emphasis on operator skills, with a continuing record of many contest victories and high scores. Keeping our tradition of "once a PVRC member, always a member," the club literally has members world-wide. Past and present members have operated from every continent, and there are active "members" from every US call area. Each June, there is an on-the-air "reunion" that brings out the

contest spirit, and an opportunity to renew old friendships, and work some choice DX.

Each year, the club has an annual joint meeting with the Frankford Radio Club, a contest club in the Philadelphia area. Alternating locations yearly, these get-togethers are a unique way to meet some of the "competition" and share stories and ideas. Each year, the club has an annual "Fowlfest" summer picnic, which is a chance for families to get together. Regular meetings run from September to May. Meeting locations in the metropolitan area alternate monthly between Maryland and northern Virginia.

This briefly outlines the history and activities of the PVRC. If you have never tried a contest, give one a go. It is a unique and special way to accomplish several things at once:

- ✓ Increase your code speed
- ✓ Improve your operating skills
- ✓ Work some new DX
- ✓ Determine how well your station plays
- ✓ Have some fun!

PVRC meets monthly. Join us for some genuine ham radio enthusiasm...and continue the tradition. Vy 73!

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Doraville, 1 mi.
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Curtis, WB4KZL, Mgr.
Exit 54, I-95, South to US 1

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Jim, K3QIO, Mgr.
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Built-in VOX, 41 Mem.
DTMF paging, CTCSS built-in

FT-411
2M HT
Standard 2.5W; 49 Mem
2m/140 to 174 MHz
EXTENDED RECEIVE

YAESU

FT-990

NEW!

100W HF Gen Cov Transceiver
DDS, QSK • 500Hz CW Filter included
CALL FOR LOW PRICE

KENWOOD

TS-950SDX

RM-1 Included

NEW!

(Shown with optional SM-230 & SW-2100)
NEW 150W MOSFET Finals • Voice Keyer Optional
NEW DSP on RX + TX • **NEW** CW Memory Keyer
NEW CW Filter in Sub-Band Receiver
NEW RM-1 Included • **NEW** S Meter for Sub-Band
General Coverage RX • Built-In AC Supply

KENWOOD

HANDHELDS

TH-28A
2M/2.5W DTSS
240 Mem. w/optional mem. unit
UHF RX

TH-48A
440/1.5W DTSS
240 Mem. w/optional mem. unit
2 MTR RX

NEW!

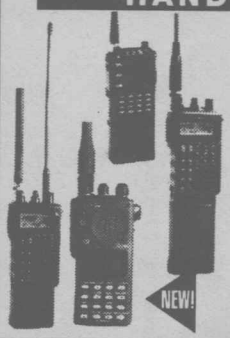
TH-225A
2 MTRS/5W

TH-315A
220MHz/2.5 W

CALL FOR GREAT PRICES

ICOM

HANDHELDS

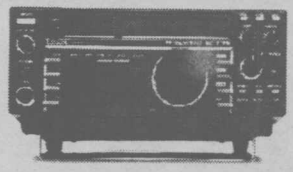


NEW!

IC-2GAT
2 Meter HT • 7 Watt
IC-4GAT
440 MHz • 5 Watt
IC-W2A
Deluxe Duo-Band
Wide RX Band HT
IC-P2AT, 2 Meter
IC-P3AT, 220 MHz
IC-P4AT, 440 MHz
IC-24AT, Duo Band
IC-2SRA, 2M + Wide Rx

ICOM

IC-735



100W 12 volt • 12 channel memory
General Coverage • IF Notch & QSK
CALL FOR LOW PRICE

Editor
Fred Laun, K3ZO
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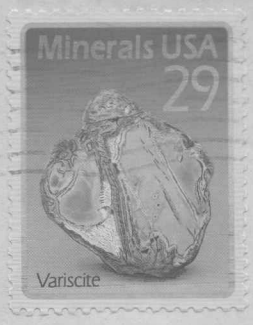
Temple Hills MD 20757-0097



F I R S T C L A S S

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