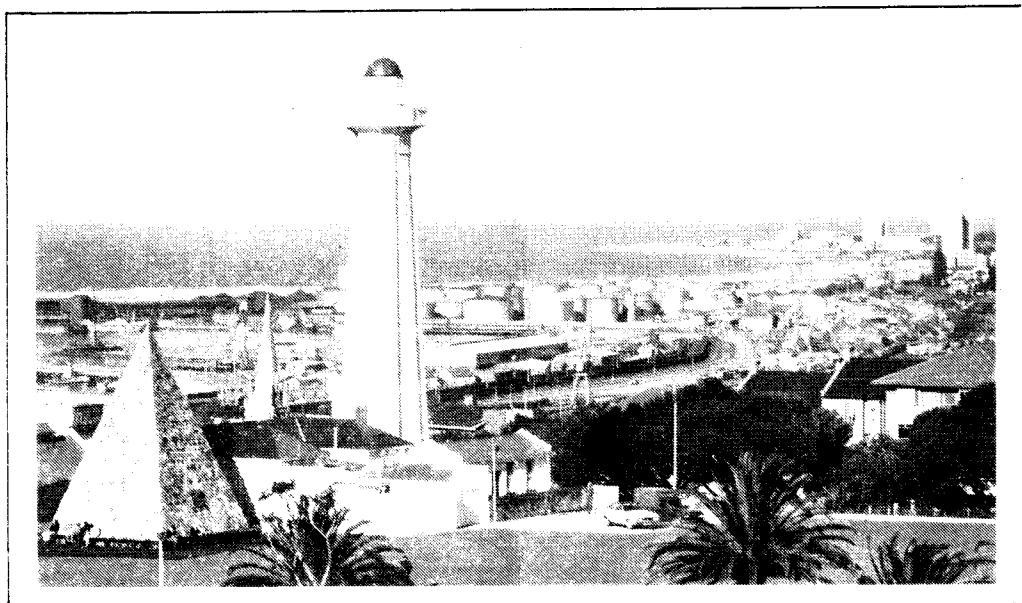
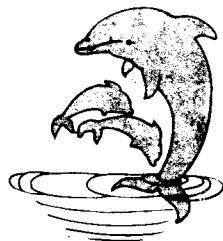


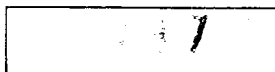


Q S X  
P E



THIS NEWSLETTER IS PUBLISHED BY THE  
PORT ELIZABETH BRANCH OF THE SOUTH  
AFRICAN RADIO LEAGUE.

P.O. BOX 10402  
LINTON GRANGE  
6015



# PORT ELIZABETH BRANCH

## NOTICE OF MONTHLY MEETING

MEMBERS ARE REMINDED THAT THE MONTHLY GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE, WILL BE HELD AT ST. MARTIN'S CHURCH, GREAT WEST WAY, KABEGA, ON FRIDAY, 21ST AUGUST, 1987 AT 8.15P.M.

### COMMITTEE

<u>CHAIRMAN:</u>	BRIAN WELLER ZS2AB	303498
<u>VICE CHAIRMAN:</u>	LIONEL COOMBE-DAVIS ZS2DD	321770
<u>SECRETARY:</u>	MARGE WELLER ZS2OB	303498
<u>TREASURER:</u>	LYNN CROTHALL ZS2MM	354671
<u>SPECIAL EVENTS AND</u>	BEAVAN GHILT ZS2RL	306968
<u>SOCIAL ACTIVITIES:</u>	OWEN WHEELER ZS2HZ	381310
<u>AWARDS:</u>	BILL HODGES ZS2-157	512580
<u>EDITOR QSX-PE:</u>	MARGE WELLER ZS2OB	303498
<u>MEMBERS:</u>	DICK SCHONBORN ZS2RS	322111

LIBRARIAN COLIN ASHWELL ZS2AO 312471

### BULLETIN ROSTER



	40 M	2 M	80 M
23 AUG.	ZS2AB TOP DOWN	ZS2HZ	ZS2DD
30 AUG.	ZS2DD BOTTOM UP	ZS2RL	ZS2AB
6 SEPT	ZS2OB TOP DOWN	ZR2AAN	ZS2DD
13 SEPT	ZS2MM BOTTOM UP	ZS2DD	ZS2RL
20 SEPT	ZS2HZ TOP DOWN	ZS2MM	ZS2AB



### SUNDAY BULLETINS

HF 40M - 7098KHZ (LOWER SIDEBAND)  
80M - 3640KHZ (LOWER SIDEBAND)  
VHF 145,700 AND 145,75MHZ

BRANCH FREQUENCIES  
P.E. REPEATER 145,05/65  
GRAHAMSTOWN 145,15/75  
LADY'S SLIPPER 145,10/70  
COCKSCOMB 145,00/60  
RTTY MAILBOX 145,15/75  
VHF BEACON 144,910MHZ

WE LIKE BEING YOUR BRANCH

## NOTICE OF ANNUAL GENERAL MEETING.

NOTICE IS HEREBY GIVEN THAT THE ANNUAL GENERAL MEETING OF THE PORT ELIZABETH BRANCH WILL TAKE PLACE ON SATURDAY 19TH SEPTEMBER 1987 AT 2.30P.M. AND WILL BE FOLLOWED BY A SPIT BRAAI AND SOCIAL GATHERING. FURTHER DETAILS OF VENUE WILL BE GIVEN ON BULLETINS AND IN QSX-PE NEXT MONTH. KEEP THIS SPECIAL DATE OPEN IN YOUR CALENDAR.

WELCOME: TO THE FOLLOWING NEW MEMBERS: MAGDA KUS, COR DE WIT ZS2CG AND NEVILLE ROEBERT ZS2NR WHO ALL JOINED THE BRANCH RECENTLY. WE WISH YOU A LONG AND HAPPY ASSOCIATION WITH THE LEAGUE AND THE BRANCH.

## SUBSCRIPTIONS

ARE NOW OVERDUE. MANY OF THE MEMBERS HAVE ALREADY PAID, BUT THERE ARE A FEW OUTSTANDING. IF YOU ARE RENEWING SUBS, PLEASE LET THE BRANCH TREASURER HAVE THESE AS SOON AS POSSIBLE, TOGETHER WITH THE RENEWAL NOTICE WHICH WAS SENT TO YOU WITH YOUR JUNE RADIO ZS. EVEN IF YOU ARE NOT RENEWING SUBS, PLEASE RETURN THE FORM STATING THIS. MANY THANKS TO ALL THOSE WHO RENEWED SO PROMPTLY - WE THANK YOU ALL FOR YOUR VALUED MEMBERSHIP.

CONGRATULATIONS: TO JOHN MASTERS ZS2AAN WHO FULFILLED THE 200 CW CONTACTS REQUIREMENT FOR PHONE OPERATION IN ONE MONTH AND NOW HAS PERMISSION TO OPERATE PHONE. WELL DONE.

TO BILL HODGES WHO HAS THE CALL OF ZR2AAN AND HAS BEEN HEARD OPERATING ON 2 METRES RECENTLY, INCLUDING HIS FIRST OPERATION WHICH TOOK PLACE AT THE MOTOR RALLY. GOOD LUCK WITH THE CW, BILL.

THANKS: FROM THE COMMUNICATIONS ORGANISER AND THE RALLY ORGANISERS TO ALL THOSE WHO DID SUCH STERLING WORK WITH THE COMMS FOR THE RECENT ALGOA/VW RALLY. COMMENTS PASSED WERE:

ALAN VAN NIEKERK, A.A. OBSERVER FOR S.A. MOTORSPORT CONTROL: "BEST COMMS BY HAMS HE HAS SEEN IN THE PAST THREE YEARS."

DAVE MCGREGOR SENIOR OFFICIAL OF S.A. MOTORSPORT CONTROL: "MAGIC....THE BEST EVENT HE HAS SEEN THIS YEAR..."

BERNIE MARRINER, CLERK OF THE COURSE: "IMPRESSED BY RADIO DISCIPLINE....MOST PROFESSIONAL."

LEAGUE CONTESTS: THE BRANCH WILL BE GOING ALL OUT FOR THE BRANCH PARTICIPATION AWARD THIS YEAR, SO GET OUT YOUR WORKING BOOTS AND GET SET TO GO. THE PHONE CONTEST IS ON 30TH AUGUST AND CW 27TH SEPTEMBER. LET'S MAKE A REALLY GOOD EFFORT.

WANTED: DUDLEY ZS2AW IS LOOKING FOR A PAIR OF LIGHT-WEIGHT PHONES SIMILAR TO KENWOOD H56 OR YAESU YH77 AND ALSO AN OLD FASHIONED MECHANICAL BUG KEY AND WOULD LIKE TO BORROW A COPY OF QST DATED FEBRUARY 1965. CONTACT DUDLEY FORSYTH AT 10 CROMWELL ST. GRAHAMSTOWN, 6140.

WHY A MAN NEEDS A WIFE IS A MYSTERY. WHY A WOMAN NEEDS TWO HUSBANDS IS A BIGMYSTERY.

RADIO AMATEURS SHOULD BE SEEN AND HEARD.

DON'T LOOK FOR TROUBLE IN THE TX WHEN TIRED AND SLEEPY.

THANKS TO DUDLEY ZS2AW FOR THE LAST TWO.

MINUTES OF THE GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE HELD AT ST. MARTIN'S CHURCH, KABEGA PARK PORT ELIZABETH ON FRIDAY 17TH JULY, 1987.

PRESENT: 35 MEMBERS AND VISITORS.  
APOLOGIES: ZS2s AE, TJ, CZ, RB, LW, NR, RG, MG, JS.

THE CHAIRMAN WELCOMED ALL TO THE MEETING, ESPECIALLY THE ALGOA BRANCH VISITORS, ZS2G, ZS2C, ZS2S, ALSO TO OUR NEW MEMBER COR ZS2CG, MICHAEL AND MAGDA RUS, ALSO NEW MEMBERS AND THEIR FATHER TUD, AND JOE KUHR A SHORTWAVE LISTENER.

MINUTES: THE MINUTES OF THE MEETING HELD 17TH JUNE, 1987, HAVING BEEN PUBLISHED AND CIRCULATED IN OSX-PE WERE TAKEN AS READ, PROPOSED BY ZS2MC AND SECONDED BY ZR2AAN.

ARISING: BRIAN INFORMED MEMBERS THAT THE IDEA OF THE ADVERTS IN RADIO ZS HAD BEEN ABANDONED, BECAUSE THERE WAS JUST TOO MUCH AND IT WOULD REQUIRE ADVERTS FOR ABOUT A YEAR. INSTEAD, A LIST OF AVAILABLE COMPONENTS WOULD BE SENT TO ALL BRANCHES.

FINANCE: LYNN ZS2MM REPORTED THAT 42 SUBS HAD ALREADY BEEN RECEIVED.

GENERAL: (1)COLIN ZS2AD MENTIONED THAT IF WE WERE GOING TO USE SLOW SCAN TV AT JOTA, WE SHOULD MAKE ARRANGEMENTS NOW AND ADVISE HEADQUARTERS TO PUBLISH THE FACT ON BULLETIN SO THAT OTHER STATIONS IN ZS COULD MAKE PREPARATIONS AS WELL.

(2)BRIAN SAID THAT IT WAS HIS PLEASURE TO CALL FORWARD MIKE BOSCH ZS2FM AT THIS STAGE TO PRESENT TO HIM HIS AWARD AS "RADIO AMATEUR OF THE YEAR". MIKE HAD APPEARED ON TV, ALGOA RADIO AND IN RADIO ZS AND OSX-PE. THE LETTER OF RECOGNITION FROM THE AMATEUR RADIO DEVELOPMENT TRUST WAS READ STATING HIS ACHIEVEMENTS OVER THE YEARS.

(3)A CUTTING FROM THE NEWSPAPER BROUGHT BY DICK ZS2RS WAS READ REGARDING ACHIEVEMENTS MADE BY TWO DIV. 6 AMATEURS.

AT THIS STAGE TEA WAS TAKEN.

(4)BEAVAN THEN TOOK THE FLOOR AND MENTIONED THAT ANOTHER OPERATOR WAS NEEDED TO REPLACE ZS2LW AND VIC ZS2SZ OFFERED HIS SERVICES. ALL THE OPERATORS WERE THEN THOROUGHLY BRIEFED AND GIVEN MAPS AND DETAILS OF THEIR SITES AND OPERATING PROCEDURES FOR THE MOTOR RALLY. ALL CLAIMS FOR MILEAGE COVERED WERE TO BE GIVEN TO LYNN ZS2MM.

THERE BEING NO FURTHER BUSINESS THE MEETING WAS CLOSED.

SGD: H.A. WELLER ZS2AB CHAIRMAN  
SGD: M.T. WELLER ZS2OB SECRETARY

LICENCE TO OPERATE IN TRANSKEI AND Ciskei.

PERMISSION TO OPERATE IN TRANSKEI OR Ciskei MUST BE OBTAINED FROM THE FOLLOWING ADDRESSES:

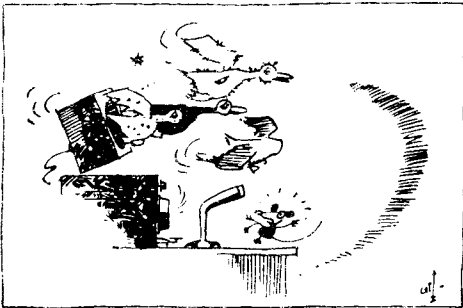
TRANSKEI: DEPARTMENT OF POST AND TELECOMMUNICATIONS  
PRIVATE BAG X5001  
UMTATA, TRANSKEI.

Ciskei: DEPARTMENT OF POST AND TELECOMMUNICATIONS  
PRIVATE BAG 0025  
BISHU, Ciskei.

IN BOTH CASES, A PHOTOCOPY OF YOUR CURRENT LICENCE IS REQUIRED, OTHERWISE VERIFICATION WILL HAVE TO BE OBTAINED FROM PRETORIA, RESULTING IN UNNECESSARY DELAYS.

THE EARLIEST RECOLLECTIONS. 1924. THE EAVES-DROPPING ON TRANSATLANTIC TELEPHONE CONVERSATIONS. THE COMING OF THE SPEECH INVERTER. THE END OF THE EAVESDROPPING. THE LONG LAPSE OF TIME. THE APPEARANCE OF SIDE BAND ON HAM FREQUENCIES. THE ARTICLES IN QST. THE MILD INTEREST. NORGAARD'S DEMONSTRATIONS AT HANFESTS. THE APPEARANCE OF MORE STATIONS ON THE AIR. THE UNNATURAL SOUND OF THE THING. THE DIFFICULTY IN TUNING IT IN. THE ACQUIRING OF KNOWLEDGE. THE MODICUM OF STUDY. THE FOOLING AROUND. THE IRRITATIONS. THE GREATER EASE OF TUNING IT IN. THE LOUSY FIGS. THE DRIFTING V.F.O.'S. THE DRIFTING B.F.O.'S. THE THUMBS DOWN.

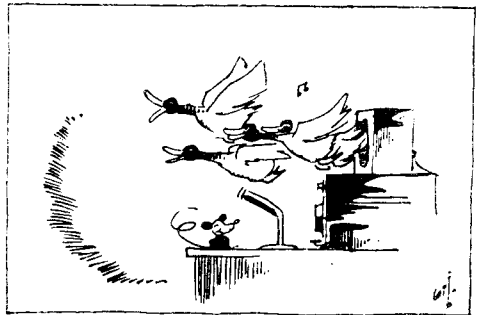
THE OLD TIMERS TAKING IT UP. THE YOUNG SQUIRTS MESSING AROUND WITH IT. THE ENCROACHMENT ON LONG-USED SPOTS IN THE BAND. THE HOLD-IT-THAN-THOU'S. THE MOVING DOWN OF SPOTS. THE FURTHER ENCROACHMENT. THE MOVING DOWN OF 10 KCS. THE ACTUAL APPEARANCE OF THE STUFF IN "SACRED" PARTS OF THE BAND. THE RECOGNITION OF WELL-KNOWN VOICES. THE SPRINKLING OF EXCELLENT SIDE-BAND STATIONS. THE REAL NINE GUYS. THE STINKERS. THE COMPATIBLES AND THE INCOMPATIBLES. THE NEUTRAL ATTITUDE.



THE DIEHARDS. THE NEVER-DIES. THE DELICATE INFERENCES. THE POLITE INNUENDOS. THE NOT-SO-POLITE INNUENDOS. THE HORSELAUGHS. THE DISNEY-ISMS. THE OPEN INSULTS. THE BITTER FEUDS. THE FACE-TO-FACTS ARGUMENTS. THE CALM ARBITERS.

THE PROVEN WORTH OF THE STUFF. THE DELIBERATE INTERFERENCES. THE MOUNTING DISGUST. THE CHANGING TO

ANOTHER BAND. THE RETURN TO THE ORIGINAL BAND. THE CHANGING FACE OF THE BAND. THE REALIZATION OF PROGRESS. THE SENSATION OF SLIPPING A LITTLE. THE BORROWED EXCITER. THE LASH-UP. THE CRAZY PATTERNS ON THE SCOPE. THE TIMID BAREFOOT TRY-OUT. THE IMMEDIATE RESPONSE. THE CONSIDERABLE THRILL. THE MAKING OF NEW ACQUAINTANCES. THE RENEWING OF OLD FRIENDSHIPS. THE NEW VOCABULARY. THE ADAPTATION TO NEW PROCEDURES. THE DESIRE FOR MORE POWER. THE ATTEMPT TO GET IT. THE BOW TIE FROM THE EXCITER. THE FLATTENED BOW TIE FROM THE LASH-UP "LINEAR". THE CONTINUING CONTACTS ON A.M. THE RIBBING FROM OLD FRIENDS. THE LINGERING DOUBTS. THE RELUCTANT RETURN OF THE LOANED EQUIPMENT. THE GLOATING OF THE "I-TOLD-YOU-SO'S".



THE PROGRESS IN THE ART. THE APPEARANCE OF MODEST "BLACK BOXES". THE DISCUSSIONS OF COMMERCIAL RIGS OVER THE AIR. THE TROUBLES FROM TOO RAPID DEVELOPMENT. THE UPS AND DOWNS IN THE TRADE. THE CAREFUL WATCHING OF TRENDS. THE APPEARANCE OF NEW RIGS ON THE MARKET. THE LAPSE OF TIME. THE INESCAPABLE CONCLUSION. THE LOOK AT THE CHEQUE BOOK. THE UNEXPECTED EXPENSES. THE ENFORCED DELAY. THE APPEARANCE OF A NEW PACKAGE. THE GLOWING REPORTS. THE CONTINUING GLOWING REPORTS.

THE PLACING OF THE ORDER. THE CASH ON THE BARREL HEAD. THE EARLY DELIVERY. THE PEACHY LITTLE WIRELESS SENDER. THE CLACKING ANTENNA RELAY. THE SOUNDPROOF BOX. THE NOISY FAN. THE RESILIENT MOUNTING. THE COAX FITTINGS AND JUNGLE OF CABLE. THE RELUCTANCE TO GIVE UP THE HALF-GALLON A.M. RIG. THE MAKING OF MORE NEW FRIENDS. THE SWELL NEW GUYS. THE GENUINE WELCOME. THE COMPLIMENTS. THE ABSENCE OF WISECRACKS.

THE SLIPPING OF SOME DIEHARDS. THE APPEARANCE OF SAME ON SIDE BAND. THE PULLING IN OF NECKS. THE TWO-GRAND JOBS. THE HOMEMADE JOBS. THE NOT-SO-LINEARS. THE POWER GLUTTONS. THE TIMID ONES. THE CHRONIC YACKERS. THE SAMENESS OF VOICES. THE LEARNING TO DISTINGUISH. THE CAREFUL TUNING. THE PASSING OF THE ARMCHAIR. THE BETTER STABILITIES. THE RETURN TO THE ARMCHAIR. THE ENJOYMENT OF SIDEBAND. THE ENJOYMENT OF A.M. THE SATISFACTION OF HAVING GOOD RIGS.

BY: R.B. BOURNE. WIANA.  
(MANY THANKS TO DUDLEY ZS2AW FOR THIS ARTICLE.)



## A Traveler's 2-Meter GP Antenna

TRY THIS LOW-COST KNOCK-DOWN PORTABLE GROUND PLANE ANTENNA FOR 2 METERS.

IT IS COMPACT AND OFFERS BETTER PERFORMANCE THAN A "RUBBER DUCKIE" CAN.

I'M SURE YOU'VE BEEN AS FRUSTRATED AS I HAVE DURING TRIPS AWAY FROM HOME WITH A 2-METER HAND-HELD TRANSCEIVER, BUT WITHOUT AN ANTENNA THAT WOULD PERMIT ACCESS TO THOSE ELUSIVE, SLIGHTLY DISTANT REPEATERS. A FREQUENT CAUSE OF REPEATER INACCESSIBILITY IS INEFFICIENT ANTENNA PERFORMANCE, SUCH AS WE MAY EXPECT FROM THE RUBBER DUCKIE THAT HAS BECOME A STANDARD FIXTURE FOR HAND-HELDS. UNFORTUNATELY, THE GROUND SYSTEM FOR SUCH A RADIATOR IS ONLY THE ELECTRONICS INSIDE THE TRANSCEIVER CASE. ALSO, THE RUBBER DUCKIE IS A PHYSICALLY SHORT 1/4-WAVELENGTH ANTENNA THAT IS HELICALLY WOUND. ALTHOUGH THIS SHORT ANTENNA IS ENTIRELY PRACTICAL AND DESIRABLE FOR MOST HAND-HELD USE, IT HAD SERIOUS DRAWBACKS. THIS IS ESPECIALLY TRUE WHEN THE OPERATOR (USING THE SHORT ANTENNA AND LOW POWER - GENERALLY 1 TO 5 WATTS) IS LOCATED TOO FAR FROM A REPEATER.

WHAT MIGHT WE DO TO IMPROVE THE RANGE OF OUR HAND-HELD TRANSCEIVERS? THE FIRST THOUGHT THAT COMES TO MIND MAY SUGGEST THE USE OF A PORTABLE 3 OR 5 ELEMENT YAGI ANTENNA WITH A MAST. THIS WOULD BE GREAT, PROVIDED WE WERE CAMPING OR VISITING AT A FRIENDS RESIDENCE. BUT WHAT ABOUT MOTELS, HOTELS AND OTHER RESTRICTIVE ENVIRONMENTS? A YAGI ANTENNA WOULD BE RATHER IMPRACTICAL AND IT WOULD BE CUMBERSOME TO CARRY WITH US.

### SOME SOLUTIONS.

A NUMBER OF ALTERNATIVES TO THE RUBBER DUCKIE EXIST. FOR EXAMPLE, WE MIGHT CONSTRUCT A SIMPLE HALF-WAVELENGTH DIPOLE ANTENNA AND SUSPEND IT VERTICALLY AT THE PORTABLE SITE (MOTEL ROOM, FOR INSTANCE). ANOTHER APPROACH WOULD BE TO USE A J-POLE ANTENNA. BUT, WHAT ABOUT A GROUND-PLANE TYPE OF ANTENNA...SOMETHING THAT CAN BE DISMANTLED AFTER USE AND PACKED INTO A SMALL CONTAINER? SUCH AN ANTENNA CAN BE BUILT WITH A BASE UNIT TO PERMIT THE SYSTEM TO BE PLACED ON A DRESSER OR TABLE, NEAR A WINDOW. THIS ARTICLE DESCRIBES A PRACTICAL, COMPACT 2-METER GROUND-PLANE ANTENNA.

### GROUND PLANE DETAILS.

FIG. 1 IS A PICTORIAL VIEW OF THE ANTENNA I DEVELOPED FOR MY USE WITH A 2-METER HANDHELD. THE DRAWING SHOWS THE ASSEMBLED UNIT. A WOODEN BASE IS USED TO SUPPORT THE UPPER PART OF THE ANTENNA. A 6-INCH SECTION OF 7/8 OD PVC PIPE (3/4 INCH ID) SERVES AS THE VERTICAL SUPPORT COLUMN FOR THE RADIALS AND RADIATOR. A 7/8 INCH ID COPPER PLUMBING CAP FITS OVER THE PVC TUBING TO SERVE AS A MOUNTING FIXTURE FOR THE ANTENNA ELEMENTS. AN IMPEDANCE MATCHING LOOP CONNECTS BETWEEN ONE RADIAL AND THE BOTTOM OF THE

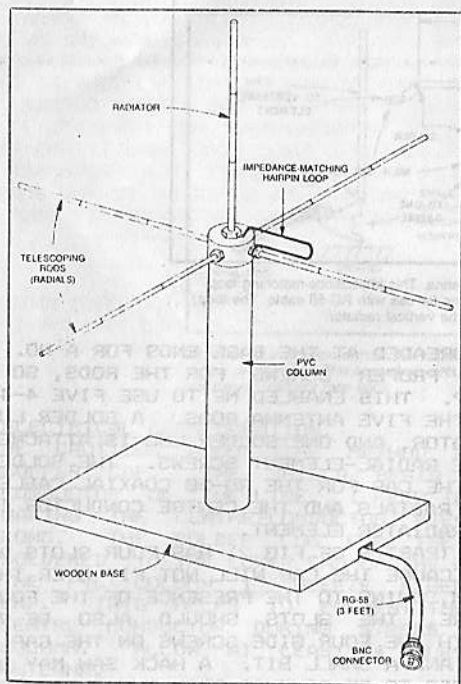


Fig 1—Pictorial drawing of the assembled portable 2-meter ground-plane antenna. The elements may be collapsed and removed from the vertical support member for storage. The impedance-matching loop at the top may also be removed easily, and the vertical column can be pulled from the wooden base. These features permit packing the antenna in a small container when carrying it afield.

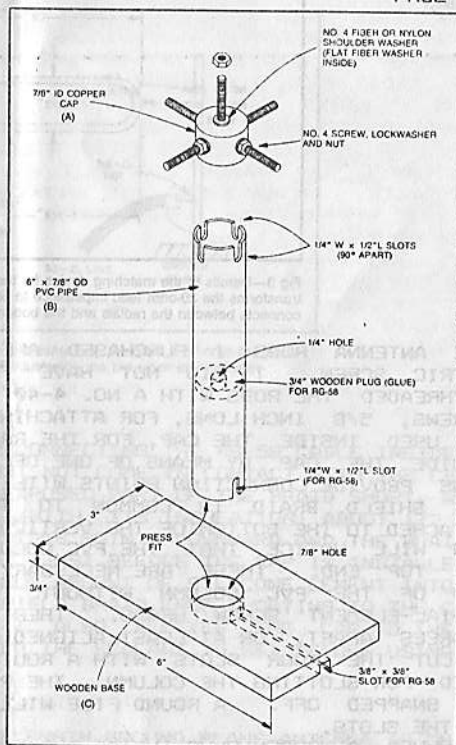


Fig 2—Break-down view of the ground-plane antenna. Ordinary materials are used to construct this unit. All of the components are easy to obtain.

RADIATOR ELEMENT (MORE ON THIS LATER.) A SHORT LENGTH OF 50-OHM COAXIAL CABLE EXITS FROM THE BASE OF THE ANTENNA FOR CONNECTION TO THE HAND-HELD.

THE ANTENNA ELEMENTS UNSCREW FROM THE COPPER CAP, THE IMPEDANCE-MATCHING LOOP IS TAKEN OFF, AND THE PVC COLUMN PULLS OUT OF THE WOODEN CASE. THIS PERMITS THE USER TO PACK THE ANTENNA INTO A SMALL BAG OR BOX FOR STORAGE UNTIL IT IS USED ANOTHER TIME. THE ANTENNA ELEMENTS ARE MADE FROM TELESCOPING RODS THAT ARE AVAILABLE AS REPLACEMENT PARTS FOR PORTABLE RADIOS AND TV SETS. MY RODS ARE 4 AND 3/4 INCHES LONG WHEN COLLAPSED. THEY EXTEND TO 20 INCHES. LONGER RODS ARE ALSO AVAILABLE AS SURPLUS.

#### CONSTRUCTION DATA.

ORDINARY TOOLS MAY BE USED FOR MAKING THIS ANTENNA. A BREAK-DOWN VIEW OF THE SUPPORTING STRUCTURE IS SHOWN IN FIG. 2. PERHAPS THE MOST DIFFICULT PART OF THE JOB IS DRILLING THE SIDE HOLES IN THE COPPER CAP (ITEM A OF FIG. 2). THE NO. 4 HOLES (FOUR EACH) SHOULD BE 90 DEGREES APART FOR BEST APPEARANCE, BUT IT'S NOT A CRITICAL SPACING FOR GOOD PERFORMANCE. LAY OUT THE HOLE POSITIONS BY MARKING THE SPOTS WITH A LAUNDRY PEN. CENTRE PUNCH THE CAP WHERE EACH HOLE WILL BE DRILLED. THIS WILL MAKE IT EASIER TO DRILL INTO THE CURVED SURFACE OF THE CAP. THE TOP-CENTRE HOLE WILL BE EASY TO DRILL. IT SHOULD BE LARGER THAN THE FOUR RADIAL-ELEMENT HOLES TO ACCOMMODATE A NO. 4 INSULATING WASHER WITH A SHOULDER. THE RADIATOR ELEMENT MUST BE INSULATED FROM THE CAP, BUT THE FOUR RADIAL ELEMENTS ARE COMMON TO THE CAP. A FLAT FIBRE WASHER IS NEEDED OVER THE TOP HOLE INSIDE THE CAP TO MATE WITH THE SHOULDER WASHER THAT IS INSTALLED FROM THE TOP OF THE CAP.

IF YOU CAN'T LOCATE A SHOULDER AND FLAT INSULATING-WASHER SET, YOU MAY DRILL A 1/2 INCH HOLE IN THE TOP OF THE CAP, THEN GLUE A PIECE OF UNCLAD PC BOARD OR PLASTIC INSIDE THE CAP TO COVER THE 1/2 INCH HOLE. THIS ALTERNATIVE INSULATOR MAY THEN BE DRILLED FOR A NO. 4 SCREW.

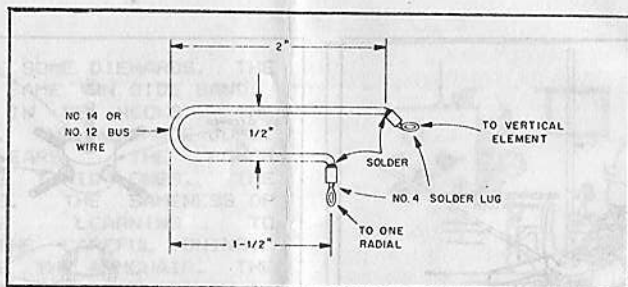


Fig 3—Details of the matching device for the antenna. This impedance-matching loop transforms the 30-ohm feed impedance to 50 ohms for use with RG-58 cable. The loop connects between the radials and the bottom of the vertical radiator.

THE ANTENNA RODS I PURCHASED ARE THREADED AT THE BASE ENDS FOR A NO. 3 METRIC SCREW. I DID NOT HAVE THE PROPER SCREWS FOR THE RODS, SO I RETHREADED THE RODS WITH A NO. 4-40 TAP. THIS ENABLED ME TO USE FIVE 4-40 SCREWS, 5/8 INCH LONG, FOR ATTACHING THE FIVE ANTENNA RODS. A SOLDER LUG IS USED INSIDE THE CAP, FOR THE RADIATOR, AND ONE SOLDER LUG IS ATTACHED INSIDE THE CAP BY MEANS OF ONE OF THE RADIAL-ELEMENT SCREWS. THE SOLDER LUGS PROVIDE CONNECTION POINTS WITHIN THE CAP FOR THE RG-58 COAXIAL CABLE. THE SHIELD BRAID IS COMMON TO THE RADIALS AND THE CENTRE CONDUCTOR IS ATTACHED TO THE BOTTOM OF THE VERTICAL-RADIATOR ELEMENT. YOU WILL NOTICE THAT THE PVC COLUMN (PART B OF FIG 2) HAS FOUR SLOTS AT THE TOP END. THESE ARE NECESSARY BECAUSE THE CAP WILL NOT FIT OVER THE END OF THE PVC COLUMN WITHOUT THEM, OWING TO THE PRESENCE OF THE FOUR RADIAL-ELEMENT SCREW HEADS. THEREFORE, THE SLOTS SHOULD ALSO BE 90 DEGREES APART, OR AT LEAST ALIGNED WITH THE FOUR SIDE SCREWS ON THE CAP. I CUT THE FOUR SLOTS WITH A ROUTER AND A SMALL BIT. A HACK SAW MAY BE USED FOR SLOTTING THE COLUMN. THE PIECES TO BE REMOVED FROM THE SLOTS CAN BE SNAPPED OFF. A ROUND FILE WILL BE USEFUL IN ROUNDING OFF THE BOTTOMS OF THE SLOTS.

I GLUED A WOODEN PLUG INSIDE THE PVC COLUMN ABOUT MIDWAY THROUGH THE PIPE (DASHED LINES IN FIG 2.) THIS PLUG HAS A 1/4 INCH CENTRE HOLE THROUGH WHICH THE RG-58 CABLE IS PASSED. THE PLUG FUNCTIONS AS A STRAIN-RELIEF DEVICE TO MINIMIZE TWISTING OF THE CABLE WITHIN THE CAP SECTION. A FIFTH SLOT IS LOCATED AT THE BOTTOM OF THE PVC COLUMN. IT ALLOWS THE RG-58 TO LIE IN THE RECTANGULAR SLOT IN THE WOODEN BASE (PART C OF FIG 2) OF THE ANTENNA. WITHOUT THE PVC SLOT, AND THAT IN THE BASE C, THE CABLE WOULD PREVENT THE BASE FROM RESTING FLAT ON THE TABLE.

I CUT THE SLOT ON THE UNDERSIDE OF THE WOODEN BASE BY MEANS OF MY ROUTER. THIS JOB CAN BE ACCOMPLISHED ALSO BY USING A WOOD GOUGE OR CHISEL. THE SIDES OF THE SLOT CAN BE CUT WITH A HACKSAW BLADE TO EASE THE CHORE. THE CENTRE HOLE IN THE BASE SHOULD BE SMALL ENOUGH TO ALLOW A SNUG FIT BETWEEN THE PVC COLUMN AND THE BASE.

PART OF THIS EFFORT CAN BE DELETED IF YOU WISH TO INSTALL A BNC FEMALE JACK ON THE SIDE OF THE PVC COLUMN. A MODEL I DEVELOPED IN 1984 WAS STRUCTURED IN THAT MANNER. THIS WOULD ELIMINATE HAVING THE CABLE PASS THROUGH THE WOODEN BASE AND ALONG THE RECTANGULAR SLOT. A CONNECTING CABLE COULD THEN BE USED BETWEEN THE ANTENNA AND THE HAND-HELD, THEREBY ELIMINATING THE PERMANENTLY ATTACHED RG-58 LINE.

THE WOODEN BASE DOES NOT HAVE SUFFICIENT WEIGHT TO KEEP THE ASSEMBLED ANTENNA UPRIGHT WHEN THERE IS STRESS ON THE COAXIAL CABLE. MY BASE HAS THREE 5/16 X 2 1/4 INCH HOLES DRILLED Laterally THROUGH THE NONGROOVED END OF THE BASE. TWO SIMILAR CHANNEL HOLES ARE LOCATED ON THE GROOVED END OF THE BASE PLATE. THE FIVE HOLES ARE FILLED WITH LEAD TO INCREASE THE WEIGHT OF THE ANTENNA BASE. I USED A PROPANE TORCH TO MELT SOME LARGE FISHING SINKERS IN A SMALL TIN CAN. THE CAN WAS BENT AT ONE POINT TO FORM A POURING LIP. THE LEAD WAS POURED INTO THE ANTENNA-BASE HOLES. THIS CORRECTED THE "TIPSY" PROBLEM. ALTERNATIVELY, YOU MAY CHOOSE TO HOLD THE ANTENNA BASE IN PLACE ON A TABLE OR DESK WITH A C CLAMP.



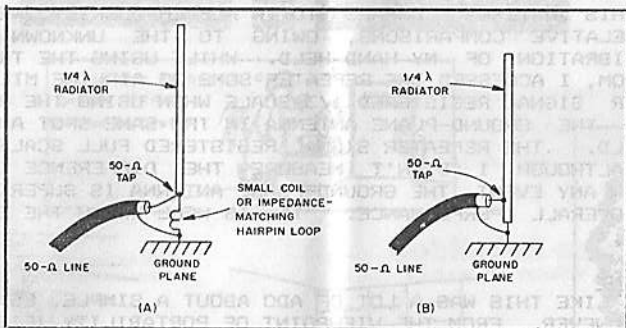


Fig 4—Representation of how the impedance-matching loop provides a 50-ohm tap point on the antenna (A). The equivalent circuit at B illustrates the tap point on a quarter-wavelength radiator (see text).

#### ELECTRICAL CONSIDERATION.

BE CAUTIOUS ABOUT THE METHOD FOR CONNECTING THE RG-58 CABLE INSIDE THE COPPER CAP. THE SHIELD BRAID MUST NOT COME IN CONTACT WITH THE CENTRE CONDUCTOR OF THE LINE. I KEEP THE EXPOSED PART OF THE BRAID SHORT, WHILE MAKING THE CENTRE-CONDUCTOR PIECE (WITH ITS INSULATION) ABOUT 1/2 INCH LONG. THE SOLDER LUG FOR THE RADIALS POINTS DOWNWARD AND THE BRAID IS SOLDERED TO THE LOWER END OF THE LUG. JUST BEFORE THE CAP IS INSTALLED ON THE PVC COLUMN I SQUEEZE A GENEROUS AMOUNT OF SILICONE CEMENT INTO THE CAP. THIS HELPS TO PREVENT THE SHIELD BRAID FROM SHORTING TO THE CABLE CENTRE CONDUCTOR DURING STRESS. IT ALSO AFFIXES THE CAP TO THE PVC COLUMN. ALLOW AT LEAST 24 HOURS FOR THE SEALANT TO SET BEFORE USING THE ANTENNA.

#### IMPEDANCE MATCHING LOOP.

THE FEED IMPEDANCE OF A QUARTER-WAVELENGTH GROUND PLANE ANTENNA IS ON THE ORDER OF 30 OHMS. FOR THE PURPOSE OF MATCHING THE ANTENNA TO A 50-OHM LINE, IT IS NECESSARY TO EMPLOY SOME TYPE OF MATCHING DEVICE. THE U-SHAPED HAIRPIN LOOP SEEN IN FIG. 3 ELEVATED THE IMPEDANCE FROM 30 TO 50 OHMS FOR MATCHING THE SYSTEM TO THE RG-58 LINE. ONE END OF THE LOOP IS ATTACHED OUTSIDE THE CAP, UNDER ONE RADIAL. THE REMAINING END OF THE LOOP IS CONNECTED OUTSIDE THE CAP, TO THE BOTTOM OF THE VERTICAL RADIATOR. A SOLDER LUG IS USED AT EACH END OF THE LOOP FOR CONVENIENCE OF ATTACHMENT. IN EFFECT, THE LOOP PROVIDES THE ELECTRICAL EQUIVALENT OF A FEED LINE BEING TAPPED UP ON THE LOW-IMPEDANCE END OF THE VERTICAL ELEMENT. THEREFORE, THE VERTICAL ELEMENT IS COMMON TO THE RADIALS WHEN USING THE LOOP. FIG 4 SHOWS THE RELATIONSHIP BETWEEN THE TWO METHODS DESCRIBED.

SMALLER LOOPS OR SHORT STRAPS MAY BE MADE FOR USE ON 220 AND 432 MHZ. I HAVE NOT WORKED OUT THE DIMENSIONS, BUT WITH THE AID OF AN SWR INDICATOR IT SHOULD BE AN EASY MATTER TO DEVELOP THE DIMENSIONS EXPERIMENTALLY. FORTUNATELY, THE ANTENNA RODS I PURCHASED COLLAPSE SUFFICIENTLY FOR USE ON THE TWO HIGHER AMATEUR BANDS. YOU MAY WANT TO KEEP THIS IN MIND WHEN YOU OBTAIN YOUR RODS. IF YOU ARE A 6-METER ENTHUSIAST, THERE IS NO REASON WHY THIS DESIGN CANNOT BE USED FOR THAT BAND BY PROVIDING LONGER RODS AND A LARGER LOOP. I SUGGEST THAT A HEAVY METAL BASE BE USED FOR 6-METRE ANTENNAS. THIS WILL KEEP THE ANTENNA FROM TIPPING OVER WHEN THE LONGER ELEMENTS ARE EXTENDED.

#### ADJUSTMENT AND USE.

I EXTEND THE RADIALS OF MY ANTENNA TO 20 INCHES. NEXT, I USE AN SWR BRIDGE TO SET THE LENGTH OF THE VERTICAL RADIATOR FOR AN SWR OF 1. A SMALL METAL FILE MAY BE USED TO NICK THE RADIATOR ROD SO THAT YOU CAN SET IT FOR THE CORRECT LENGTH LATER ON. I FOUND THAT I HAD TO LENGTHEN MY VERTICAL ELEMENT BY APPROXIMATELY 2 INCHES TO PROVIDE AN ADEQUATE RANGE OF ADJUSTMENT. THIS I DID BY FORCE-FITTING AND CRIMPING THE TIP OF ANOTHER ROD TO THE EXISTING VERTICAL RADIATOR.

HOW DOES THIS ANTENNA COMPARE TO A RUBBER DUCKIE? WELL, MY REPORT IS BASED ON RELATIVE COMPARISONS, OWING TO THE UNKNOWN CHARACTER OF THE 3-METER CALIBRATION OF MY HAND-HELD. WHILE USING THE TRANSCEIVER INSIDE MY RADIO ROOM, I ACCESSED THE REPEATER SOME 30 AIRLINE MILES FROM THE QTH. THE REPEATER SIGNAL REGISTERED 1/3 SCALE WHEN USING THE RUBBER DUCKIE. I THEN PLACED THE GROUND-PLANE ANTENNA IN THE SAME SPOT AND ATTACHED IT TO THE HAND-HELD. THE REPEATER SIGNAL REGISTERED FULL SCALE AND IT WAS FULL QUIETING. ALTHOUGH I DIDN'T MEASURE THE DIFFERENCE IN PERFORMANCE IN DECIBELS, IN ANY EVENT, THE GROUND-PLANE ANTENNA IS SUPERIOR TO THE RUBBER DUCKIE IN OVERALL PERFORMANCE. IT IS WELL WORTH THE EFFORT IT TOOK TO CONSTRUCT IT.

#### IN CONCLUSION.

IT MAY SEEM LIKE THIS WAS A LOT OF ADD ABOUT A SIMPLE, ESTABLISHED ANTENNA CONCEPT. HOWEVER, FROM THE VIEWPOINT OF PORTABILITY (FIG 5) AND IMPROVED OPERATION AFIELD, THE STORY IS WORTH TELLING. I AM SURE THAN MANY OF YOU CAN THINK OF BETTER WAYS TO FABRICATE AN ANTENNA OF THIS KIND. I CHOSE THE DESIGN SHOWN HERE BECAUSE ALL OF THE MATERIALS ARE AVAILABLE LOCALLY AT HARDWARE AND LUMBER STORES. THE ANTENNA RODS ARE AVAILABLE FROM RADIO AND TV STORES. A VARIETY OF MOUNTING STYLES ARE AVAILABLE, SUCH AS RODS THAT HAVE FLAT ENDS WITH A SCREW HOLE. OTHERS HAVE A SMALL THREADED NUT ON ONE END. THIS OPENS THE DOOR TO A HOST OF CONSTRUCTION TECHNIQUES FOR THIS ANTENNA. HOWEVER YOUR END PRODUCT LOOKS, I'M SURE YOU WILL BE GLAD YOU CONSTRUCTED A PORTABLE GP ANTENNA.

BY DOUG DEMAW W1FB. QST MAY 1987.

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#### MORSE OR REMORSE.

FOR THOSE WHO ARE BATTLING TO MAKE IT THROUGH THE CW TEST, TAKE HEART AND BE ENCOURAGED BY THE FOLLOWING TRUE STORY.

AT THE BEGINNING OF THE OCCUPATION OF FRANCE DURING WORLD WAR II, THE FRENCH FLEET ELECTED TO MOVE TO A NEW BASE IN NORTH AFRICA. NEEDLESS TO SAY, THE MOVE HAPPENED RATHER SUDDENLY AND THE FLEET FOUND ITSELF WITHOUT LAND BASED PERSONNEL, INCLUDING MORSE OPERATORS. A LOT WERE NEEDED IN A HURRY AS A 24 HOUR WATCH ON SEVERAL FREQUENCIES WAS NEEDED.

THE ONLY OPTION OPEN TO THE ADMIRAL WAS TO EMPLOY SOME OF THE LOCAL INHABITANTS, DIRECTLY FROM THE BEDOUINS TENTS, SO TO SPEAK. AS ONE MAY IMAGINE, THE STANDARD OF EDUCATION AT THAT TIME COULD NOT HAVE BEEN VERY HIGH.

THE NEW RECRUITS WERE GIVEN A BRIEF EXPLANATION OF WHAT WAS REQUIRED OF THEM, STUCK BEHIND SOME TYPEWRITERS, TOLD THAT WHENEVER THEY HEARD DI-DAH, TO PRESS THE KEY MARKED "A", ETC. BELIEVE IT OR NOT, WITHIN FOUR WEEKS THE FRENCH NAVY HAD A FULL COMPLEMENT OF CW MONITORS. (THANKS TO C.Q. NEWSLETTER).

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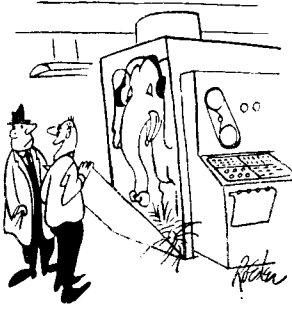
#### FLASH IN THE PAN

WHEN STORM CLOUDS GATHER OVER THE WHITEHILL POLICE STATION IN SOUTHERN ENGLAND, THE TOILET BECOMES OUT OF BOUNDS. THE REASON IS A BADLY EARTHED COMMUNICATIONS MAST WHICH COULD CAUSE SEVERE ELECTRIC SHOCKS WHERE THEY'RE LEAST EXPECTED.

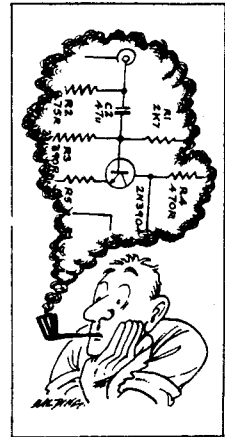
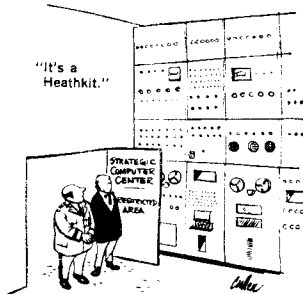
"IF THE AERIAL IS STRUCK BY LIGHTNING, THERE IS A RISK OF FLASHBACK" STATION SUPERINTENDENT PETER WALL SAID. "IT'S A QUESTION OF BEING ABSOLUTELY SAFE. BUT OF COURSE THE STAFF HAS GREETED THIS WITH GREAT HILARITY." THE MEN'S TOILET IN THE STATION IS NEXT TO THE RADIO ROOM WHERE THE ANTENNA WIRE ENDS. ENGINEERS ARE WRESTLING WITH THE PROBLEM.

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