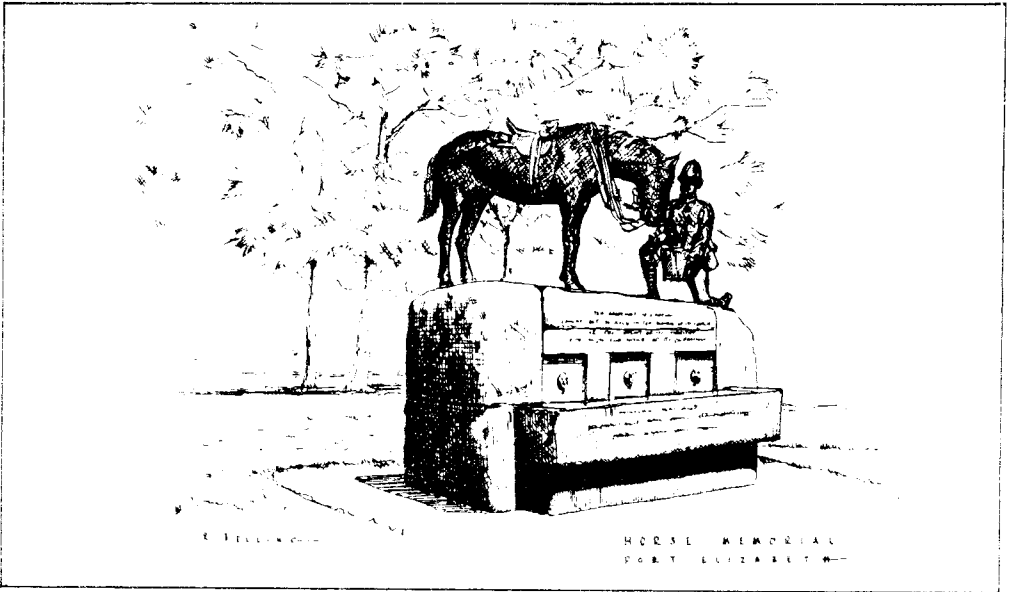




# Q S X P E



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

P.O. BOX 10402  
LINTON GRANGE  
6015

No 186

## 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 NOVEMBER, 1986, AT 8.15P.M.

THERE WILL BE A TALK ON BAR-CODING, HOW IT WORKS, WHAT IT MEANS AND HOW IT IS USED IN COMMERCE. THERE WILL ALSO BE A VIDEO ON THE SUBJECT AND THE PHASE 11 ENGINEER RESPONSIBLE FOR THE COMPUTER INSTALLATION AT PICK AND PAY WILL ALSO BE THERE TO TELL US HIS INVOLVEMENT. BRING YOUR WIVES ALONG TOO - THEY USUALLY DO THE SHOPPING.

### 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 ZS2MH	338607
<u>SPECIAL EVENTS AND 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>TECHNICAL EDITORS:</u>	DICK HARDIE ZS2DH	303841
	OWEN WHEELER ZS2HZ	381310
<u>G.D.B.:</u>	BEAVAN GWILT ZS2RL	306968
<u>LIBRARIAN:</u>	COLIN ASHWELL ZS2AO	312471

### BULLETIN ROSTER



	<u>40 METRES</u>	<u>2 M.</u>	<u>80 M.</u>
16 NOV	ZS2RL TOP DOWN	ZS2AB	ZS2DD
23 NOV	ZS2AB BOTTOM UP	ZS2HZ	ZS2DD
30 NOV	ZS2DD MIDDLE DOWN	ZS2RL	ZS2AB
7 DEC	ZS2OB MIDDLE UP	ZS2HZ	ZS2DD
14 DEC	ZS2MH TOP DOWN	ZS2DH	ZS2RL

### 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	145,35
VHF BEACON	144,910MHZ

WE LIKE BEING YOUR BRANCH

THIS AND THAT      THIS AND THAT

WELCOME TO KEVIN EASTWOOD ZS2KE WHO HAS REJOINED THE BRANCH AFTER HIS RETURN FROM THE U.K. HE AND VANESSA HAVE SETTLED IN UUTENHAGE IN THEIR OWN HOUSE AND KEVIN WILL BE ABLE TO GET ANTENNAS AND OPERATE WITHOUT THE PROBLEMS OF A BOARDING HOUSE. KEVIN IS LOOKING FOR A GOOD HF RIG. (SEE ELSEWHERE FOR DETAILS.)

CONDOLENCES ON BEHALF OF THE MEMBERS OF THE BRANCH WE OFFER SINCERE CONDOLENCES TO RON HERMAN ZS2R HIS WIFE RUTH AND FAMILY ON THE PASSING OF HIS BROTHER IN ISRAEL. OUR THOUGHTS ARE WITH YOU ALL.

CONGRATULATIONS TO TREVOR SCARR ZS2AE ON HIS PROMOTION TO DISTRIBUTION ENGINEER IN THE ELECTRICITY DEPARTMENT OF THE P.E. MUNICIPALITY. HOPE YOUR WORK LOAD IS ALL LIGHT TREVOR!

TO RON LEVEY ZS2Q AND XYL DAPH ON THE ENGAGEMENT OF THEIR DAUGHTER RECENTLY.

CHILDRENS CHRISTMAS PARTY

THIS WILL BE HELD ON THE FIRST SUNDAY OF DECEMBER AT 3P.M. ANYONE WHO WISHES TO ATTEND (AND IT DOESN'T HAVE TO BE ANYONE WITH KIDS - YOU CAN COME ALONG JUST FOR A CUP OF TEA AND CAKE AND A CHAT) PLEASE LET OWEN ZS2HZ KNOW SO THAT CATERING ARRANGEMENTS CAN BE MADE. HE WILL GIVE YOU FULL DETAILS OF VENUE AND GIFTS.

THANKS TO ALL THOSE WHO ASSISTED IN ANY WAY WITH COMMS. AT THE VW ALGOA BAY MOTOR RALLY, THE JAMBOREE OF THE AIR AND THE ALGOA FLYING CLUB OPEN DAY WHICH ALL FELL OVER THE WEEKEND OF 18/19 OCTOBER. AS YOU CAN SEE, SEVERAL MEMBERS HAD A BUSY TIME. SPECIAL THANKS TO OWEN AND BEAVAN WHO DID MOST OF THE ORGANISING.

FIELD DAY BY THE TIME OF READING THIS MAGAZINE, THE FIELD DAY EVENT WILL HAVE BEEN HELD ALREADY AND THE BRANCH ONCE AGAIN SET UP CAMP - LITERALLY THIS TIME, USING TENTS - ON THE FARM "SALEM" NEAR THE LAKE FARM. HOPEFULLY, WITH BETTER BAND CONDITIONS PREVAILING, WE WILL DO BETTER THAN THE FOURTH WE CAME LAST YEAR. THANKS TO ALL THOSE WHO ASSISTED.

DONATION THE BRANCH MADE A DONATION TOWARDS THE 'OPERATION HUNGER FUND' AND EVEN IF WE DON'T WIN THE R: 000 000 FIRST PRIZE, WE KNOW WE HAVE MADE A CONTRIBUTION TO A GOOD CAUSE.

MOTIONS FOR 1987 A.G.M.

ANY MOTIONS FOR CONSIDERATION AT THE 1987 AGM WHICH WILL BE HELD IN KEMPTON PARK MUST BE RECEIVED IN WRITING, COMPLYING WITH THE RULES OF THE CONSTITUTION ON OR BEFORE 30TH NOVEMBER, 1986 AT HQ IN CAPE TOWN. MOTIVATION FOR COUNCIL NOMINATIONS FOR VACANCIES WHICH WILL ARISE MUST ALSO BE RECEIVED BY THE SAME DATE.

IF ANY MEMBER HAS A MOTION WHICH THEY THINK SHOULD BE SUBMITTED BY THE BRANCH, PLEASE LET US HAVE THIS AT THE NEXT BRANCH MEETING - BUT, PLEASE NO SCRAPING THE BOTTOM OF THE BARREL!

RAFFLE DON'T FORGET THE TAPE RECORDER WHICH IS BEING RAFFLED FOR BRANCH FUNDS AT THE NEXT MEETING. TICKETS COST R2, AND PROVIDED 30 OR MORE TICKETS ARE SOLD AT THE MEETING, THE DRAW WILL TAKE PLACE AT TEA TIME.

MINUTES OF THE GENERAL MEETING OF THE FORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE HELD AT ST. MARTIN'S CHURCH, KABEGA PARK, PORT ELIZABETH ON FRIDAY 17TH OCTOBER, 1986.

PRESENT: 30 MEMBERS AND VISITORS.

APOLOGIES: ZS2MG, DT, LW, MC, RM, ZR2L.

THE CHAIRMAN WELCOMED ALL TO THE FIRST MEETING OF THE NEW BRANCH YEAR AND EXTENDED A SPECIAL WELCOME TO JOHNNY ZS2DD AND RON ZS2R.

MINUTES: THE MINUTES OF THE MEETING HELD 15TH AUGUST, 1986, HAVING BEEN PUBLISHED AND CIRCULATED IN QSX-FE WERE TAKEN AS READ, PROPOSED BY DICK ZS2DH AND SECONDED BY VIV ZS2VM.

ARISING: -

CORRES: THE FOLLOWING WERE TABLED:

- (1) LETTER RE JOTA.
- (2) PERMISSION FROM P.M.G. TO OPERATE RALLY STATIONS.
- (3) SEVERAL BRANCH NEWSLETTERS.

FINANCE: (1) THE TS820 BOUGHT BY THE BRANCH FROM THE ESTATE OF THE LATE ZS2FA HAD BEEN PAID FOR.

(2) SEVERAL LATE SUBS HAD BEEN RECEIVED AND FORWARDED TO HQ.

GENERAL: (1) THE GUEST SPEAKER HAD BEEN UNFORTUNATELY DELAYED DUE TO AN ILLNESS IN THE FAMILY, BUT IT WAS HOPED HE WOULD ARRIVE IN TIME.

(2) THANKS WERE EXTENDED TO ALL THOSE WHO HAD HELPED WITH THE ARRANGEMENTS FOR THE A.G.M.

(3) THE TOWN REPEATER HAD BEEN MOVED TO ITS NEW SITE ON THE BUILDING IN MOUNT ROAD AND THANKS WERE EXTENDED TO DICK ZS2RS FOR HIS EFFORTS. BY ALL ACCOUNTS THE COVERAGE FROM THE REPEATER WAS VERY GOOD. WILLIE ZS2OW SAID THAT IT COULD BE HEARD IN KOMGHA.

(4) BRIAN SAID THAT HE HAD BROUGHT BACK SOME NEW EQUIPMENT FROM LAPE TOWN TO REPLACE BOTH THE TOWN AND GRAHAMSTOWN REPEATERS WHICH WERE TOO OLD BUT HAD RENDERED STERLING SERVICE AND IT WAS TIME TO CONSIGN THEM TO THE JUNK HEAP.

(5) THE BEACON TRANSMITTER WAS NOW RUNNING AND WAS READY TO MOUNT INTO ITS BOX. ITS OUTPUT WAS 5 WATTS AND A NEW CRYSTAL HAD BEEN USED. THE ANTENNA WAS STILL ON THE SITE. A NEW POWER SUPPLY WOULD BE PROVIDED.

(6) APOLOGIES WERE MADE FOR THE POOR PRINT QUALITY OF QSX-FE. APPARENTLY THE PRINTERS HAD A PROBLEM THIS MONTH.

(7) AN ARTICLE ON REG SHAMLEY'S ANTENNA HAD APPEARED IN THE LOCAL NEWSPAPER AND IT SEEMED THE BEAM WAS CAUSING PROBLEMS WITH THE NEIGHBOURS. THE MAIN CAUSE FOR COMPLAINT SEEMED TO BE NOISE GENERATED BY THE WIND. THE ANTENNA COMPLIED WITH ALL MUNICIPAL SPECIFICATIONS. BASIL ZS2PG HAD APPROACHED THE NEIGHBOURS AND WOULD SEE REG WHEN HE RETURNED FROM OVERSEAS. ALTHOUGH HE WAS NOT A MEMBER OF THIS BRANCH WE WERE PUTTING OURSELVES OUT TO HELP. BASIL HAD PREVIOUSLY INTERVENED WITH THE P.E.M. WHEN BLANKET REGULATIONS HAD BEEN COMPILED WHEN TV AND CB ANTENNAS WERE FIRST ERECTED.

(8) THE P.M.G. EXAMS WERE DUE TO BE WRITTEN ON 6TH NOVEMBER AND BRIAN WISHED GOOD LUCK TO ANYONE WHO WOULD BE WRITING.

(9) OWEN ZS2HZ WAS VERY BUSY ARRANGING THE THREE EVENTS FOR THE WEEKEND 18/19 OCTOBER, NAMELY THE CAR RALLY, J.O.T.A AND THE AIR EXPO. HE HAD RECEIVED SEVERAL NEGATIVE AND INDEFINITE COMMENTS BUT THERE WAS SUFFICIENT HELP TO COVER ALL THREE EVENTS. MANY THANKS ALSO TO BEAVAN ZS2RL FOR HIS HELP WITH THE EARLY ARRANGEMENTS.

(10) THE MAILBOX WAS NOW BACK ON THE SIMPLEX FREQUENCY AS IT APPEARED THAT THE INITIAL ENTHUSIASM FROM THE GRAHAMSTOWN DISTRICT HAD DIED DOWN AND THE P.E. HAMS WERE NOT MAKING USE OF THE FACILITY. IT WOULD BE

RETURNED TO GRAHAMSTOWN REPEATER ON SUNDAYS.

(11) THE GENERAL CONSENSUS OF OPINION WAS THAT THE CHRISTMAS PARTY BE HELD AFTER CHRISTMAS AND POSSIBLY TAKE THE FORM OF A TRAVELLING SUPPER. MARGE UNDERTOOK TO FIND OUT THE COST OF HIRING A BUS.

(12) IT WAS HOPED TO HAVE THE CHILDREN'S PARTY AT BUTTERFIELD ROAD AGAIN.

AT THIS STAGE, BEAVAN GAVE FINAL DETAILS OF THE POSITIONS OF THE CONTROL POINTS FOR THE RALLY STATIONS.

THEREAFTER THE MEETING WAS CLOSED AND TEA WAS TAKEN. THE GUEST SPEAKER WAYNE, THEN GAVE A MOST INTERESTING AND INFORMATIVE TALK ON SHARKS.

SGD:	SCD:
B.A. WELLER ZS2AB	M.T. WELLER ZS20B
CHAIRMAN	SECRETARY

### EXTRACT FROM LETTER FROM S.A.R.L. HEADQUARTERS RE INSURANCE.

PERSONAL MEMBERSHIP: EQUIPMENT (INCLUDING ANTENNAS AND ANTENNA STRUCTURES)  
AND PUBLIC LIABILITY.

THIS MATTER HAS BEEN TAKEN UP VERY THOROUGHLY WITH THE SARL HQ INSURERS. BRIEFLY, THE SARL CANNOT EXERCISE ANY CONTROL OVER MEMBERS' PERSONAL EQUIPMENT AND THIS INCLUDES ANTENNAS AND ANTENNA STRUCTURES. AND, AS HQ THEMSELVES HAVE NO CONTROL OVER SUCH EQUIPMENT AND CANNOT SUFFER ANY LOSS, WHATEVER THE CAUSE, AND AS THEY HAVE NO INSURABLE INTEREST IN SUCH EQUIPMENT ETC., THE SARL HQ CANNOT INSURE ANY MEMBER AGAINST ANY LOSS THEY MAY INCUR.

THE COUNCIL OF THE SARL REQUESTS THAT BRANCHES BRING THIS FACT TO THE ATTENTION OF ALL THE HQ MEMBERS AND THAT THEY ADVISE THEM TO APPROACH THEIR OWN PROPERTY INSURERS FOR ADEQUATE COVER. THE ABOVE COMMENTS ARE APPLICABLE TO THE REQUIREMENT FOR PUBLIC LIABILITY INSURANCE COVER AS WELL.

WITH THE ESCALATING COSTS OF EQUIPMENT IT IS ADVISABLE THAT MEMBERS PERIODICALLY ASSESS THE VALUE (REPLACEMENT) OF THEIR EQUIPMENT AND HAVE THEIR PROPERTY INSURANCE POLICIES ADJUSTED ACCORDINGLY.

SGD. VIL NUCC (SIDY) - LEAGUE SECRETARY.

#### FOR SALE

TEN-TEC MODEL 405 BROADBAND SOLID STATE HF LINEAR AMP. 80 - 10 METRES, 12V D.C. OPERATION, VOX OR PTT SWITCHING. BUILT-IN POWER/SWR METERS. 1 WATT DRIVE, 50 WATT OUTPUT, WITH MANUAL AND CIRCUITS. R200. CONTACT ZS2AB PHONE 303498.

KENWOOD HF MOBILE ANTENNA 80 - 10 METRES, COMPLETE WITH BUMPER MOUNT, ETC. CONTACT BEAVAN ZS2RL PHONE 306968.

VERY SMALL A.C. GENERATOR WITH PETROL ENGINE 250 VAC/DC 250-300HZ. SUITABLE FOR DRILLS, PORTABLE TV'S ETC. R400. CONTACT ALAN ZR2BL FOR DETAILS.

#### WANTED

GOOD USED HF RIG TO GET BACK ON THE AIR AGAIN. CONTACT KEVIN ZS2KE ON UITENHAGE 0422-61842.

2M LINEAR AMP, SUITABLE FOR MOBILE USE. CONTACT ATTIE BARNARD ZR2DY, 041-611318.

MOSLEY TA33 SENIOR TRI-BAND BEAM IN GOOD CONDITION. PHONE DUDLEY ZS2AW ON 0461-23985 OR WRITE 10 CROMWELL ST. GRAHAMSTOWN, 6140.

## JUNK BOX INGENUITY: HOW TO BUY, USE AND RECYCLE SURPLUS ELECTRONIC PARTS.

DON'T THROW AWAY RESISTORS AND CAPACITORS - COOK THEM.

AT ONE TIME, A WELL-STOCKED JUNK-BOX WAS A HAM'S PRIDE AND JOY. PARTS SCAVENGED FROM DISCARDED TELEVISIONS, RADIOS AND RECORD PLAYERS COULD BE USED TO BUILD ANYTHING FROM TEST EQUIPMENT TO TRANSCEIVERS. USING VACUUM TUBES, 1/2 WATT 10 AND 20 PERCENT RESISTORS, CERAMIC DISK AND DIPPED MYLAR CAPACITORS, ALMOST ANY CIRCUIT COULD BE BUILT FOR USE UP THROUGH 450MHZ.

TODAY'S JUNK BOXES ARE DIFFERENT; CHANCES ARE THEY CONTAIN ODD PARTS FROM SCAVENGED SURPLUS BOARDS OR PARTS BOUGHT BY MAIL OR AS ASSORTMENTS AT HAMFESTS. THEY CONTAIN VARIOUS TYPES OF SEMICONDUCTORS, 5 PERCENT TOLERANCE RESISTORS, ELECTROLYTIC AND TANTALUM CAPACITORS, AS WELL AS THE OLD STAND-BY CERAMIC DISKS.

DESPITE THE DIFFERENCES IN CONTENT, ALL JUNK BOXES ARE ALIKE IN ONE REGARD; BY DEFINITION, THEY ARE WHERE PARTS ARE STORED FOR LONG PERIODS UNTIL USED. STORAGE TAKES A TOLL ON ELECTRONIC COMPONENTS, ALTHOUGH MUCH OF IT IS REVERSIBLE; BEFORE EXAMINING THIS, LET'S CONSIDER THE PARTS THEMSELVES.

THE AVERAGE HAM ALWAYS SEEMS TO BE LOOKING TO BUY NEW, PRIME, MIL-SPEC PARTS AT HAMFEST PRICES. UNFORTUNATELY SUCH PARTS ARE NOT USUALLY AVAILABLE TO THE SMALL BUYER AT ANY PRICE, ALTHOUGH SOME MANUFACTURERS WILL SELL DIRECTLY TO INDIVIDUALS. AS A RESULT WE CAN BUY BLISTER-PACKED PARTS BY MAIL FROM ANY NUMBER OF SUPPLIERS AND WHILE NEARLY ALL OF THESE DEALERS ARE REPUTABLE, THE PARTS YOU GET MAY NOT ALWAYS BE EXACTLY WHAT YOU ORIGINALLY HAD IN MIND.

### WHAT IS "SURPLUS"?

CONSIDER FOR EXAMPLE THE ORIGIN OF PARTS TERMED "SURPLUS". SOMETIMES A COMPANY ACCIDENTALLY OVER-PURCHASES SOME NEW PARTS AND INSTEAD OF PAYING A RESTOCKING CHARGE, ELECTS TO SELL THEM TO A SURPLUS AGENT; THESE ARE THE PARTS YOU WANT. SOMETIMES A MANUFACTURER DISCOVERS THAT A PART FROM ONE COMPANY -OFTEN A SEMICONDUCTOR - WORKS IN THEIR CIRCUIT, WHILE ANOTHER COMPANY'S EQUIVALENT DOESN'T. IF NO OTHER USE FOR THEM CAN BE FOUND, THEY WILL EITHER BE THROWN AWAY OR SOLD AS SURPLUS. (SINCE THE FAULT LIES WITHIN THE IDIOSYNCRACY OF THE DESIGN, THE PARTS ARE USUALLY NOT RETURNABLE.) THESE MAY ALSO BE GOOD PARTS. AN IMPORTANT POINT TO REMEMBER IS THAT MOST LARGE BUYERS OF PARTS HAVE SUFFICIENTLY AMICABLE RELATIONS WITH THEIR SUPPLIERS TO RETURN GOOD PARTS FOR CREDIT. THERE'S ANOTHER END OF THIS SPECTRUM: FROM TIME TO TIME A MANUFACTURER BUYS PARTS THAT DON'T MEET SPECIFICATIONS, BUT CAN'T BE RETURNED FOR SOME REASON. A COMPONENT MANUFACTURER, FOR EXAMPLE, MAY PRODUCE A RUN OF PRODUCTS THAT IS NOT IN "SPEC". WHILE THESE ARE MOST FREQUENTLY DISCARDED (ALTHOUGH GARBAGE CANS ARE SOMETIMES RAIDED) THEY MAY BE SOLD TO THE SURPLUS MARKET. IT HAS EVEN HAPPENED THAT MANUFACTURING RUNS OF SEMICONDUCTORS HAVE BEEN STOLEN BEFORE TESTING AND CULLING OF REJECTS CAN BE COMPLETED; OBVIOUSLY, YOU DON'T WANT THESE PARTS.

THE SURPLUS BOARDS ON THE MARKET ARE OF A FEW BASIC TYPES;

- \* THOSE THAT HAVE LIVED OUT THEIR EXPECTED LIFE AND ARE NOW EXPERIENCING A HIGH FAILURE RATE
- \* BOARDS MADE OBSOLETE BY A CHANGE IN DESIGN
- \* SERIOUSLY DAMAGED AND THEREFORE NON-REPAIRABLE BOARDS (DAMAGE CAN INCLUDE DEGRADATION OF CRITICAL AREAS, SUCH AS GOLD FINGERS; SUBMERSION IN A SOLDER WAVE; CUTS FROM A MASS LEAD TRIMMER; OR OTHER ACTIONS RENDERING THE BOARD ELECTRICALLY UNFIXABLE),
- \* BOARDS SIMPLY OVERBUILT BY A COMPANY; NOW AND THEN A MANUFACTURER WILL SELL BOARDS FROM INVENTORY TO RAISE SOME CASH.

WHILE SURPLUS BOARDS SHOULD NOT BE EXPECTED TO PERFORM THEIR ORIGINAL DESIGN FUNCTION, CHANCES ARE THAT MOST OF THE COMPONENTS ON ALL BUT THE FIRST TYPE LISTED ARE USABLE. EVEN THE UNFIXABLE BOARDS RARELY HAVE MORE THAN A FEW BAD

COMPONENTS. IN GENERAL THEN THERE'S NO TELLING WHERE "GRAB-BAG" PARTS COME FROM. THEY MIGHT BE OLD OR NEW, MERELY EXTRAS, OR GENUINE JUNK. GIVEN THE DIVERSITY OF PARTS FROM SO MANY VARIED SOURCES, IT'S NO WONDER THAT WE OCCASIONALLY BUILD A PROJECT AND FIND THAT IT'S A BAD COMPONENT THAT KEEPS IT FROM WORKING. TAKE A CLUE FROM INDUSTRY THEN AND TEST YOUR PARTS BEFORE USING THEM. FOR ICs THIS MAY BE IMPRACTICAL, BUT FOR MANY TYPES OF TRANSISTORS, DIODES AND, OF COURSE, RESISTORS, CAPACITORS AND COILS, IT IS ENTIRELY REASONABLE.

#### ARE THEY OUT OF SPEC?

CHANCES ARE THAT IF YOU TOOK OUT A DVM AND TESTED EVERY ONE OF YOUR 1% 5% CARBON COMPOSITION RESISTORS, YOU'D FIND PLENTY OF THEM OUT OF TOLERANCE. IN PARTICULAR, THEY'D ALL BE ON THE HIGH SIDE OF THEIR MARKED VALUE, PERHAPS AS MUCH AS 7 TO 10% ABOVE IT. DON'T THROW THEM OUT. THE REASON FOR THESE HIGH VALUES IS SOMETHING I ALLUDED TO EARLIER: IMPROPER STORAGE. CARBON COMPOSITION RESISTORS ARE ESSENTIALLY CARBON AND IMPURITIES MIXED INTO A BINDER AND MOULDED INTO SHAPE. THE RESULTANT MIXTURE IS HYGROSCOPIC - THAT IS, IT ABSORBS MOISTURE, WHICH RAISES THE RESISTANCE VALUE. THIS PHENOMENON IS ENTIRELY REVERSIBLE, IF THE PARTS HAVE NOT BEEN OVER A FLOW SOLDER (OR THROUGH ANY OTHER HIGH TEMPERATURE OPERATION) WHILE LOADED WITH MOISTURE. THE IMPORTANCE OF THIS CONSIDERATION DEPENDS ON THE INTENDED USE. WITH THE EXCEPTION OF PRECISE RC TIMING CIRCUITS, DIGITAL CIRCUITS ARE QUITE FORGIVING OF RESISTOR VALUES. ANALOGUE CIRCUITS CAN BE FUSSIER, ESPECIALLY THOSE (SUCH AS AUDIO FILTERS) REQUIRING BALANCED PARTS OR MATCHED VALUES. MOST OTHER CIRCUITS ARE LESS PARTICULAR IN DESIGNING HOME-BREW CIRCUITS, YOU FREQUENTLY MAKE UP FOR THESE PARTS BY VARIOUS MEANS, MAKING THE ACTUAL VALUE, EVEN IF IT IS "WRONG", THE DESIGN VALUE.

IF YOU NEED TO REVERSE THE PROBLEM - I.E. LOWER THE VALUES - HEAT THE PARTS TO ABOUT 200 DEGREES F (93.3 DEGREES C) FOR A PERIOD OF TIME APPROPRIATE TO THE SIZE OF THE PART: 25 HOURS FOR 1/8 WATT, 50 HOURS FOR 1/4 WATT, 75 HOURS FOR 1/2 WATT, 120 HOURS FOR 1 WATT AND LARGER. IF RUNNING YOUR OVEN AT 200 DEGREES FOR 120 HOURS OR MORE IS INCONVENIENT OR TOO EXPENSIVE, YOU CAN CONSTRUCT A PLYWOOD BOX, LINE IT WITH FIREPROOF INSULATION, AND ADD A LIGHT BULB OR TWO FOR TEMPERATURE CONTROL. SOME EXPERIMENTING IS NECESSARY FOR A CONTROLLED TEMPERATURE, BUT I'VE SEEN SIMILAR BOXES USED BY SMALL COMPANIES FOR MANY PURPOSES.

IF YOU CAN'T CONTROL THE TEMPERATURE ACCURATELY, ERR ON THE SIDE OF THE TOO COOL RATHER THAN TOO HOT; WATERLOGGED PARTS HEATED BEYOND THE BOILING POINT OF WATER WILL EXPLODE LIKE POPCORN. USING LOWER TEMPERATURES WILL NECESSITATE LEAVING THE PARTS IN LONGER; JUST HOW LONG CAN BE DETERMINED BY REMOVING PARTS FROM TIME TO TIME AND CHECKING VALUES.

#### HANDLING CAPACITORS

MANUFACTURERS OF CERAMIC CAPACITORS ALSO RECOMMEND A HEAT SOAK OF A DAY OR TWO AT 200 DEGREES F PRIOR TO CRITICAL VALUE MEASUREMENT, ALTHOUGH I'VE NEVER SEEN A PROBLEM WITH THIS IN INDUSTRY. ONE MANUFACTURER RECOMMENDS HEAT SOAKING AT 125 DEGREES C FOR 4 HOURS OR 150 DEGREES C FOR 1/2 HOUR. THIS "DE-AGES" THE PART TO ITS ORIGINAL VALUE AND EFFECTIVELY BEGINS ITS LIFE ANEW. ELECTROLYTIC CAPACITORS DEFORM WITH TIME AS A RESULT OF A BREAKDOWN OF THE DIELECTRIC LAYER, AND SHOULD BE REFORMED BEFORE USE. THIS IS DONE BY APPLYING THE RATED VOLTAGE TO THE PART FOR 30 MINUTES THROUGH A CURRENT-LIMITING RESISTOR; 1K OHM IS ADEQUATE FOR UP TO 100 VDC CAPACITORS. LET THE PART "REST" FOR A DAY AT ROOM TEMPERATURE.

THE SMALL ALUMINIUM ELECTROLYTIC CAPACITORS POPULAR TODAY MAY NOT BE MUCH OF A BARGAIN IF GARNERED FROM SURPLUS BOARDS. THERE ARE TWO REASONS FOR THIS; FIRST, THEY HAVE A RATED LIFE OF ONLY 3 TO 5 YEARS, IF RUN CONSTANTLY; SECOND, CLEANING THESE CAPACITORS IN HOT VAPOUR DEGREASERS WILL CAUSE PREMATURE FAILURE IF THE PARTS ARE NOT SEALED WITH EPOXY OVER THE RUBBER SEAL PLUG ON THE CAP. OF COURSE, BECAUSE YOU NEVER KNOW HOW USED PARTS WERE HANDLED, YOU'LL HAVE TO

DECIDE WHETHER TO USE THEM OR NOT. TANTALUM, SILVER MICA, POLYFILM AND MOST OTHER CAPACITORS TEND TO BE MORE STABLE IN STORAGE IF THEIR HERMETICITY IS GOOD. IN GENERAL, IF A CAPACITOR IS SO DAMAGED THAT THE PLATES ARE VISIBLE, IT SHOULD BE THROWN OUT. MINOR CHIPS AND CRACKS MAY NOT MATTER; OBVIOUSLY NO ELECTROLYTIC SHOULD BE USED IF ITS CASE IS PUNCTURED OR BADLY DENTED.

#### ACTIVE DEVICES REQUIRE SPECIAL HANDLING

TRANSISTORS, DIODES AND ICs IN EPOXY PACKAGES ARE QUITE RUGGED, BUT ONLY IF THE SEALS ARE GOOD. BEWARE OF CERAMIC OR GLASS PACKAGES WHICH CAN HAVE HAIRLINE CRACKS. ENOUGH HAS BEEN WRITTEN ABOUT STATIC DAMAGE THAT ALL HAMS SHOULD BE AWARE OF IT. BUT LESS WIDELY KNOWN IS ELECTRICAL OVERSTRESS (EOS) DUE TO A STATIC FIELD, RATHER THAN A DISCHARGE. THIS CAUSES OPERATION TO DEGRADE GRADUALLY, RESULTING IN "FLAKY" OPERATION (SUBTLE TIMING ERRORS THAT OCCUR INTERMITTENTLY, SOME "SOFT" RAM FAILURES, AND SO ON) UNTIL THE SYSTEM DEGRADES TO FAILURE. THE ONLY SOLUTION TO THIS PROBLEM IS PREVENTION; WITH PARTS BOUGHT FROM ANYONE OTHER THAN THE MANUFACTURER, THERE CAN BE NO GUARANTEE THAT ELECTRICAL OVERSTRESS HAS NOT OCCURRED.

BY THE WAY, DON'T THINK THAT THIS PROBLEM IS ONLY FOUND IN CMOS OR MOSFETS. ALL SEMI-CONDUCTOR FAMILIES, INCLUDING BIPOLAR, HAVE BEEN SHOWN TO BE DEGRADABLE BY LOW-LEVEL FIELDS OF LESS THAN 1000 VOLTS. (ACTUALLY ONCE YOU'VE READ SOME OF THE LITERATURE AVAILABLE ON THIS TOPIC, YOU BEGIN TO NOT WANT TO HANDLE SEMICONDUCTORS UNLESS YOU'VE STRAPPED YOURSELF TO A CONDUCTIVE TABLE TOP WITH NO. 2 BATTERY CABLES.)

IF YOU'VE MEASURED PARTS AND FOUND THEM TO BE WELL OUT OF SPEC, IT MAY PAY TO CONSIDER THE ACCURACY OF YOUR MEASURING DEVICE. YOUR METER (DVM, CAP METER, LCR BRIDGE OR OTHER INSTRUMENT) ALSO HAS ACCURACY TOLERANCES, AND THEY CAN OVERLAP WITH THE PART BEING MEASURED. IF YOUR METER IS RATED +/-3%, FOR EXAMPLE AND IS RUNNING AT THE HIGH END OF ITS TOLERANCE, ANY PARTS THAT ARE ONLY 2% HIGHER THAN THEIR RATED VALUE WILL APPEAR TO BE 5% ABOVE AND THEREBY POSSIBLY OUT OF SPEC. IT'S NO WONDER THAT CALIBRATION IS SO HIGHLY STRESSED IN HIGH QUALITY OPERATIONS!

YET ANOTHER FACTOR IS TEST METHOD. CONSIDER A COMMON CASE: THAT HYPOTHETICAL DVM YOU'RE USING PROBABLY APPLIES ABOUT 1 TO 1.5 VOLTS TO A RESISTOR DURING OHM MEASUREMENT, AND READS THE CURRENT FLOWING IN THE CIRCUIT. WITH LOW VALUE PARTS, SUCH AS THOSE OF 10K OR LESS, THIS IS FINE; ASSUMING 1.5 VOLTS, THE CURRENT BEING MEASURED IS 150 MICROAMPS. WITH PARTS OVER 100K, SAY 1 MEGOHM, THE CURRENT IS 1.5 MICROAMPS; THIS IS SOMEWHAT HARDER TO MEASURE ACCURATELY, ESPECIALLY THE DETECTION OF SMALL DIFFERENCES IN CURRENT. THIS IS ONE REASON WHY EXACTING SPECIFICATIONS FOR RESISTOR TESTS CALL OUT HIGHER VOLTAGES FOR MEASURING LARGER VALUE RESISTORS.

ALTHOUGH THIS ARTICLE MIGHT SEEM TO EMPHASIZE PROBLEMS - FIRST TELLING YOU TO MEASURE YOUR PARTS, THEN URGING YOU TO DOUBT YOUR RESULTS - THAT'S NOT AT ALL MY POINT; WHAT I'M SUGGESTING IS THAT IN ORDER TO BUY PARTS INTELLIGENTLY, IT HELPS TO KNOW WHERE THEY CAME FROM AND WHAT TO DO WITH THEM WHEN PROBLEMS ARISE.

IT SEEMS STRANGE TO ME THAT HOMEBREWING SHOULD BE ON THE DECLINE TODAY; THIS SHOULD BE A "GOLDEN AGE" OF HOMEBREWING IF THERE EVER WAS ONE! WHY? JUST LOOK AT WHAT'S AVAILABLE! ICs THAT PERFORM ALL MANNER OF DIGITAL AND ANALOGUE FUNCTIONS ARE AT OUR DISPOSAL, AND MOST ARE QUITE CHEAP. USING REASONABLE PARTS COUNTS, WE CAN BUILD CIRCUITS CAPABLE OF PERFORMANCE THAT WAS NO MORE THAN THE STUFF OF DREAMS IN THE 1950s AND 1960s; IN THE 50s, WHO WOULD HAVE DREAMED OF A THREE-TERMINAL VOLTAGE REGULATOR! WE CAN EVEN BUILD THINGS MORE CHEAPLY TODAY THAN WE COULD THEN; JUST LOOK AT OLD ISSUES OF THE SEVERAL AMATEUR RADIO MAGAZINES, AND YOU'LL FIND THAT THE DOLLAR PRICES OF GEAR ARE ESSENTIALLY THE SAME NOW AS THEY WERE IN THE MID-1960s; TAKING INFLATION INTO ACCOUNT, PRICES HAVE COME DOWN CONSIDERABLY, WHILE PERFORMANCE HAS GONE UP.

KEEP A WELL-STOCKED JUNK-BOX, KNOW WHAT'S IN IT, AND DO YOUR PART IN RESTORING THE GOLDEN AGE OF HOMEBREWED GEAR!

BY THE LUMP: K01 W04EHS (HAM RADIO 1984)

BE CAUTIOUS WITH THESE CHARACTERS (MAY NOT WORK) IF YOU HAVE A LIMITED CHARACTER SET. THE PARTS ARE NOT SEALED WITH EPOXY OVER THE RUBBER SEAL PLUS ON THE CAP. OF COURSE, BECAUSE YOU NEVER KNOW HOW USED PARTS WERE HANDLED, YOU'LL HAVE TO



## NOTES FROM THE PAST

COMMENTS ON THE WORLD OF RADIO ORIGINALLY WRITTEN 25 YEARS AGO.

THIS VETERAN CAN RECALL THE DAYS IN THE EARLY 1920'S WHEN MAINS ELECTRICITY WAS NOT WIDELY AVAILABLE. WHEN IT DID ARRIVE IT WAS BY MEANS OF RATHER UNSIGHTLY WOODEN POLES AND OVERHEAD WIRES.

ANOTHER OLD TIMER, ET, HAS WRITTEN: 'SINCE LAST YEAR I HAVE RETIRED DOWN HERE IN REMOTE NORTH CORNWALL WHERE WE ARE STILL WITHOUT ELECTRICITY SUPPLY. IT'S ALMOST LIKE THE GOOD OLD DAYS, EXCEPT THAT MODERN DRY BATTERIES ARE REASONABLY RELIABLE AND PRESENT-DAY VALVES ARE SO ECONOMICAL IN THEIR CURRENT DEMANDS.'

NINETY-FIVE PER CENT OF THE REAL OLD TIMERS WILL WELL REMEMBER BEING WITHOUT MAINS. THEY WERE STILL A GREAT RARITY IN PRIVATE HOUSES AT THE CONCLUSION OF WORLD WAR 1 - AND FOR A GOOD FEW YEARS AFTER.

WE HAD ONLY BRIGHT EMITTERS TAKING 4 OR 6 VOLTS AT NOT LESS THAN ONE AMP APIECE, AND YOU CAN GUESS WHAT THEY DID TO THE CLUMSY AND CRUDE ACCUMULATORS OF THAT PERIOD. IT WAS NOT THE CHIEF WORRY THAT THEY LASTED ONLY ONE EVENING OR SO BETWEEN CHARGING.

### FEW AND FAR

THE WORST PROBLEM WAS HAULING THEM TO THE NEAREST CHARGING STATION, AND THESE WERE FEW AND FAR BETWEEN.

SOME OF THE MORE ENTERPRISING MOTOR GARAGES HAD A 'CHARGING BOARD', AND IT MADE A REAL HOLE IN MY LIMITED POCKET-MONEY - WHICH I FOUND EQUALLY AS HURTFUL AS HAVING TO HAUL THE DARN THINGS BACKWARDS AND FORWARDS.

RADIO ENTHUSIASTS WERE EASILY IDENTIFIABLE BY THE ACID BURNS ON THEIR JACKETS AND, INDEED, WHEN ONE WENT TO VISIT FRIENDS ONE INVARIABLY LOOKED AROUND TO SEE HOW MANY MORE HOLES HAD BEEN BURNED IN THEIR LIVING-ROOM CARPET.

DISTRACTED HOUSEWIVES SPENT MUCH TIME AND INGENUITY SEARCHING OUT MATCHING RUGS, ETC, TO COVER THE GAPING SCARS.

FOR MYSELF, I HAD TO HAUL MY BATTERIES NEARLY A MILE TO GET THEM RECHARGED AND, ALTHOUGH STILL ONLY A SCHOOLBOY, THE WASTE OF TIME AND ENERGY IRKED ME SORELY. THE AVOIDANCE OF TIRESOME JOBS ALWAYS STIMULATES MY IMAGINATION, SO I INVENTED WHAT WAS MANY YEARS LATER TO RE-APPEAR AS THE WHEELED SHOPPING-STICK. THIS CONSISTED OF A STOUT WALKING CANE, TWO 6IN PRAM WHEELS AND A BOX PLATFORM DESIGNED TO KEEP THE BATTERY UPRIGHT WHEN HELD AT THE TRANSIT ANGLE. PERHAPS IN THOSE MORE LEISURELY DAYS MOST GROCERIES, ETC, WERE DELIVERED. ANYWAY, NOBODY COPIED MY 'INVENTION' FOR SHOPPING PURPOSES.

HOWEVER, TWENTY-FIVE YEARS LATER, WHEN I CAME BACK FROM WORLD WAR 2 AND EVERYONE HAD TO FETCH AND CARRY, I FOUND HALF THE HOUSEWIVES IN THE COUNTRY BUSILY TRIPPING EACH OTHER UP WITH THEIR WHEELED SHOPPING-STICKS.

### DOWN OUR WAY

EVENTUALLY THE ELECTRIC MAINS CAME RIGHT TO THE END OF THE ROAD IN THE SELECT SOUTH LONDON SUBURB IN WHICH WE THEN LIVED. IT WAS THE REAL STUFF, TOO. 200 VOLTS AC. ADJACENT DISTRICTS WHICH HAD BEEN WIRED SOME YEARS EARLIER WERE OF SUPPOSEDLY 'SAFE' VOLTAGES OF 35 OR 50 VOLTS DC OR SOME OTHER QUEER FIGURE.

I WAS SO EXCITED THAT I SHOT ROUND TO THE ELECTRIC COMPANY'S OFFICE WITHOUT EVEN ASKING MY PARENT'S PERMISSION. OH, YES, THEY WOULD BRING IT TO OUR FRONT DOOR FOR A MERE 35 POUNDS, AFTER WHICH WE WOULD HAVE TO GET AN APPROVED CONTRACTOR TO WIRE THE HOUSE. I USED ALL MY SCHOOLBOY ELOQUENCE ON DAD AND MUM TO TAKE ADVANTAGE OF THIS MODERN BLESSING. I EVEN ARGUED THAT WE SHOULD NOT WAIT FOR THE NEIGHBOURS TO HAVE IT FIRST. LET THE JONES'S KEEP UP WITH US! WHETHER THAT ARGUMENT CARRIED ANY WEIGHT I DON'T KNOW, BUT AT LAST DAD DECIDED TO HAVE IT LAID ON TO THE GROUND FLOOR ONLY 'TO START WITH'.

WHILE NO ONE HAD YET SERIOUSLY CONSIDERED MAINS-OPERATED SETS I HAD LONG SINCE DREAMED OF BATTERY CHARGING; AND TO MY JOY, IN ADDITION TO HAVING IT INSTALLED ON THE GROUND FLOOR, WE ALSO HAD A LIGHTING POINT PUT IN OUR RATHER LARGE CELLAR. THERE WERE, OF COURSE, NO METAL RECTIFIERS AVAILABLE AT THAT TIME AND AS THE MAINS WERE AC, I GOT BUSY COLLECTING JAM JARS, CHEMICALS AND BITS OF METAL TO TRY MY HAND AT CHEMICAL CHARGING. I COULDN'T FIND OUT MUCH ABOUT IT, AND IT SEEMED THAT NOBODY ELSE KNEW MUCH EITHER, BUT SUCH MINOR

CONSIDERATIONS DID NOT DETER ME.

I HAD EVERYTHING TWO OR THREE DAYS LATER IN READINESS, AND THE BIG MOMENT TO SWITCH ON ARRIVED. NO EXPLOSIONS - JUST A FEW GENTLE BUBBLES, AND OFF I WENT TO SCHOOL.

NOW, I HAD NEVER KNOWN MOTHER TO GO IN THAT CELLAR BEFORE, BUT FOR SOME EXTRAORDINARY REASON SHE DECIDED TO GO DOWN THERE THAT VERY MORNING. SHE WAS HORROR-STRIKEN AT THE SIGHT OF MY JAM JARS BUBBLING AWAY MERRILY. INDEED, ACCORDING TO HER VERSION THEY WERE BOILING AND SEETHING LIKE A WITCH'S CAULDRON, AND SHE WAS CONVINCED THE HOUSE WOULD BE GOING SKY-HIGH AT ANY MOMENT.

SHE RUSHED OFF TO FETCH DAD, AND BY THE TIME SHE GOT THERE SHE ALSO CLAIMED SHE SAW SPARKS DANCING UP AND DOWN THE WIRES. SO CONVINCING WAS HER STORY THAT APPARENTLY HE DARED NOT GO TOO NEAR IT, AND FINALLY CONTENTED HIMSELF WITH SWITCHING OFF THE MAINS.

OF COURSE THERE WAS A TERRIBLE ROW AND I WAS FORBIDDEN TO CARRY OUT ANY MORE EXPERIMENTS WITH CHEMICAL CHARGING, HENCE I HAVE HAD LESS EXPERIENCE OF THIS THAN ANY OTHER BRANCH OLD-TIME RADIO ACTIVITY. I MIGHT ADD THAT I SPENT SEVERAL MORE YEARS TRUNDLING MY WHEELED STICK BACKWARDS AND FORWARDS - A MOST HUMILIATING EXPERIENCE FOR A BRIGHT, PROUD YOUTH WHOSE FAMILY ACTUALLY HAD THEIR OWN ELECTRICITY SUPPLY RIGHT TO THE HOUSE!

### AMATEUR ACT

I COMPOSED THIS EPIGRAM OUT OF SHEER FRUSTRATION  
WITH THE "HOLIER THAN THOU" DIRECTORS OF THE S.A.B.C.

THE FREQUENCY CHANGE ON RADIO  
MAKES ME A MOST UNPLEASANT OU  
THAT GIANT LEAP MADE FOR MANKIND  
HAS GONE BACKWARDS TO MY MIND.  
ON SHORTWAVE BACK IN DAYS OF YORE  
ONE COULD STILL HEAR THE RUGBY SCORE  
OR HUM TO STRAINS OF BEETHOVEN  
THOUGH SOMETIMES SOUNDS WERE RATHER THIN.  
AMATEURS ARE NOW IN THE SWIM  
WITH S.A.B.C.'S NEW FM  
THERE'S STATIC, CRACKLE AND PASSING CARS  
CONVINCE THEM THEY'VE CONTACTED MARS.  
TO MAKE MY LIFE A LITTLE WORSE  
I NOW DIG DEEPER IN MY PURSE  
TO VIEW THAT GHASTLY YANKEE TRASH  
THAT FILLS YOUNG MINDS WITH BLOOD AND ASH.

D.W. REES. WESTONARIA.

SUBMITTED BY DICK ZS2DH.



**Instant Printing**

9 ST. PATRICK'S ROAD  
PORT ELIZABETH  
6001



TELEPHONE 22614

**FOR ALL YOUR COMMERCIAL PRINTING REQUIREMENTS**

**TRY US FOR YOUR QSL CARDS!**

## TRY THIS GARDEN

FIRST PLANT FOUR ROWS OF 'PEAS':  
PRESENCE, PERSISTENCE, PROMPTNESS AND PREPAREDNESS.

NEXT TO THESE PUT IN THREE ROWS OF 'SQUASH':

SQUASH GOSSIP,  
SQUASH CRITICISM,  
SQUASH INDIFFERENCE.

THEN FIVE ROWS OF 'LETTUCE':

LET US BE FAITHFUL TO DUTY.  
LET US BE LOYAL AND UNSELFISH.  
LET US BE TRUE TO OUR OBLIGATIONS.  
LET US OBEY RULES AND REGULATIONS/  
LET US HELP ONE ANOTHER.

AND FINALLY, NOW GARDEN IS COMPLETE WITH 'TURNIPS':

TURN UP FOR MEETINGS.  
TURN UP WITH A SMILE.  
TURN UP WITH NEW IDEAS.

TURN UP WITH DETERMINATION TO MAKE EVERYTHING WORTHWHILE.

THANKS TO LYNN ZS2MM.

## YOU, TOO, CAN HAVE YOUR OWN SPACE CAPSULE.

A HOUSTON-BASED PRIVATE ROCKET COMPANY HAS ANNOUNCED IT HAS BEEN GIVEN PERMISSION BY THE GOVERNMENT FOR THE ULTIMATE OFFER FOR ANY SPACE JUNKY: BECOMING A PIECE OF SPACE JUNK THEMSELVES.

THERE IS ONE TINY CATCH, HOWEVER. THEY'LL FIRST HAVE TO DIE! SPACE SERVICES OF AMERICA SAID IT HAS BEEN GRANTED PERMISSION TO LAUNCH ORBITING MAUSOLEUMS WHICH WILL ENABLE SOME 10 000 PEOPLE TO HAVE THEIR CREMATED REMAINS LAUNCHED INTO ORBIT AND REMAIN THERE FOR THE NEXT 43 MILLION YEARS.

SPACE SERVICES HAS BEEN GIVEN PERMISSION FOR THE FIRST TWO LAUNCHES FROM A NASA LAUNCH SITE AT WALLOPE ISLAND IN VIRGINIA. THE FIRST LAUNCH COULD COME AS EARLY AS NEXT YEAR. FOR A YET UNDISCLOSED AMOUNT, SPACE SERVICES RUN BY A FORMER ASTRONAUT, DONALD SLAYTON, WILL STUFF YOUR REMAINS INTO A LIPSTICK TUBE-SIZE CONTAINER AND INSERT IT IN ONE OF 10 000 SLOTS ABOARD THE ORBITING MAUSOLEUM. THOSE INFAMOUS BODY-SNATCHERS, BURKE AND HARE, WOULD HAVE HATED THE IDEA. (PROBABLY THE CLOSEST SOME PEOPLE WILL EVER GET TO HEAVEN!)

## AND TALKING ABOUT HEAVEN!

SIGN SEEN ON A CHURCH BULLETIN BOARD

WHEN YOU WERE BORN, YOUR PARENTS BROUGHT YOU HERE.  
WHEN YOU GOT MARRIED, YOUR PARTNER BROUGHT YOU HERE.  
WHEN YOU DIE, YOU FRIENDS WILL BRING YOU HERE.  
HOW ABOUT COMING ON YOUR OWN ACCORD SOMETIME?

---

SUPPORT  
OUR  
ADVERTISERS

---

---

SUPPORT  
OUR  
ADVERTISERS

---

---

SUPPORT  
OUR  
ADVERTISERS

---



# PETERSEN & SMITHIES

## THE Engine Builders

Specialists in Veteran car engines.

3 HANCOCK STREET, NORTH END

☎ 041-543669/0

ASK FOR LEO SMITHIES

## HENROSE PRODUCTS (P) LTD.

MANUFACTURERS OF PLASTIC BAGS  
PRODUCERS OF FRUIT JUICES  
"ORANG-U-TANG"  
AND "LEKKA LIKS" FROZEN SUCKERS

VERVAARDIGERS VAN PLASTIEKSAKKE  
VERVAARDIGERS VAN VRUGTE SAPPE  
"ORANG-U-TANG" EN  
"LEKKA LIKS" VERVRIESTE YSBLOKKE

TEL. 546470

5-7 EDGAR LANE

NORTH END

PORT ELIZABETH, 8001

# Computer Park

Rink Street, Port Elizabeth

Phone (041) 52-1634

*We Guarantee Success*

**E.P. MUFFLERS**

YOUR **Mr. Xhout**

EXHAUST FITTING AND PIPE BENDING SPECIALISTS.

ALSO:  
TOWBARS  
BATTERIES  
SHOCK  
ABSORBERS

MILD STEEL  
FULLY  
GUARANTEED

STAINLESS  
STEEL  
LIFETIME  
GUARANTEE

**54-5420**

29 EMBASSY STREET, NORTH END, P.E.

# WEIGHT WATCHERS®

OUR "QUICK START"  
PROGRAMME TAKES  
THE "WAIT" OUT  
OF LOSING WEIGHT.

CHECK YOUR PHONE  
DIRECTORY OR  
PHONE 041-304597

## Express Number plates & 'SIGNS'

### THE FLEKTI-PLATE

tel 04 2834 / 04 1501 / 54 1652

23a De Vries St

PO Box 2477

Port Elizabeth

North End 6025