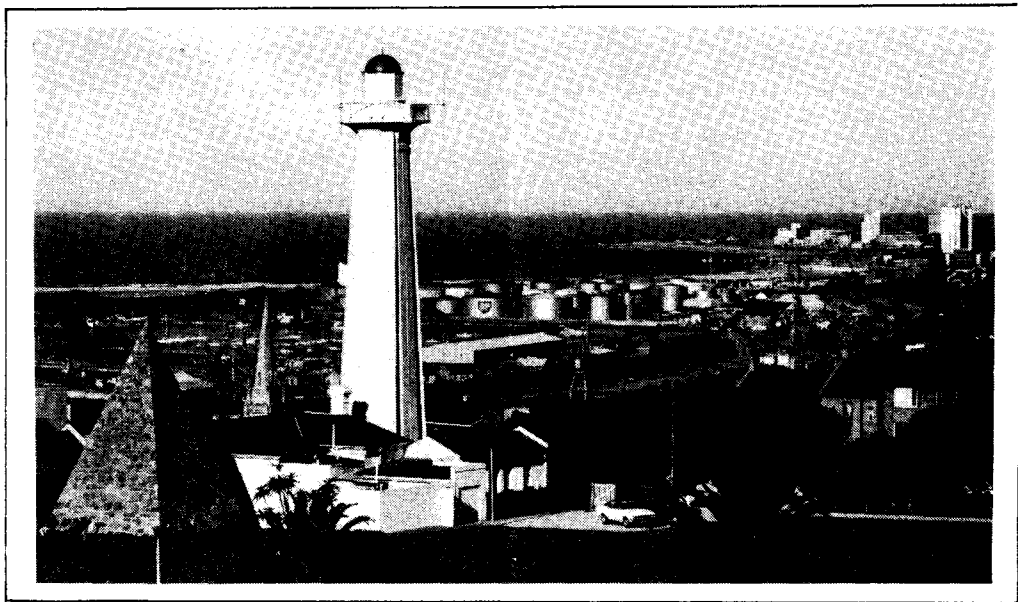
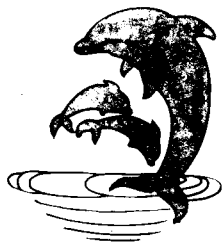




Q S X  
P E



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

P.O. BOX 462,  
PORT ELIZABETH  
6000

P.O. BOX 10402  
LINTON GRANGE  
6015

9 OCT 1986

PORT ELIZABETH BRANCH  
NOTICE OF MONTHLY MEETINGS

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 17TH OCTOBER, 1986 AT 8.15P.M.

THERE WILL BE A GUEST SPEAKER AT THE MEETING. HE WILL TALK ON THE FASCINATING AND SOMETIMES LITTLE-KNOWN ASPECTS OF SHARKS.

COMMITTEE

<u>CHAIRMAN:</u>	BRIAN WELER ZS2AB	303498
<u>VICE CHAIRMAN:</u>	LIONEL COOMBE-DAVIS ZS2DD	321770
<u>SECRETARY:</u>	MARGE WELER ZS2OB	303498
<u>TREASURER:</u>	LYNN CROTHALL ZS2HM	338607
<u>SPECIAL EVENTS AND SOCIAL ACTIVITIES:</u>	OWEN WHEELER ZS2HZ	381310
<u>AWARDS:</u>	BILL HODGES ZS2-157	512580
<u>EDITOR Q&amp;X-PE:</u>	MARGE WELER ZS2OB	303498
<u>TECHNICAL EDITORS:</u>	DICK HARDIE ZS2DH	303841
	OWEN WHEELER ZS2HZ	381310
<u>G.D.B.:</u>	BEAVAN GHILT ZS2RL	306968
<u>LIBRARIAN:</u>	COLIN ASHWELL ZS2AO	312471

BULLETIN ROSTER



12 OCT	LYNN ZS2HM	MIDDLE UP
19 OCT	MARGE ZS2OB	TOP DOWN
26 OCT	BILL ZS2157	BOTTOM UP
2 NOV	DICK ZS2DH	MIDDLE DOWN
9 NOV	OWEN ZS2HZ	MIDDLE UP

SUNDAY BULLETINS

HF 145.000 - 7090 HZ (LOWER SIDEBAND)  
145.100 - 16400 HZ (LOWER SIDEBAND)  
145.150, 145.700 AND 145.750 HZ

BRANCH FREQUENCIES

P.E. REPEATER	145,00/60
GRAHAMSTOWN	145,15/75
LADY'S SLIPPER	145,10/70
COCKSCOMB	145,00/60
RITY MAILBOX	145,35
THE BEACON	144,910MHZ

WE LIKE BEING YOUR BRANCH

RITY MAILBOX: DUE TO THE CONSIDERABLE PAUSE IN USAGE OF THIS SYSTEM ON THE GRAHAMSTOWN REPEATER, IT HAS BEEN DECIDED TO RETURN TO 145,10/70 THE PRIMARY FREQUENCY, BUT THE UNIT WILL BE AVAILABLE IN DAILY SUNDAY REPEATER ON SUNDAYS AS BEFORE.

## THIS AND THAT

SILENT KEY IT IS INDEED WITH DEEP REGRET THAT WE HAVE TO ANNOUNCE THE PASSING OF VI CRUICKSHANKS ZS2BR WHO WAS A LIFE MEMBER OF THE BRANCH. VI WAS THE SECOND YL TO OBTAIN A LICENCE IN SOUTH AFRICA AND THIS WAS BEFORE THE SECOND WORLD WAR. VI WAS VERY ACTIVE ON THE BANDS AND WAS ALSO A VERY KEEN SUPPORTER OF THE SOUTH AFRICAN WOMEN'S RADIO CLUB, BEING THE DIV. 2 CORRESPONDENT FOR THAT CLUB'S MAGAZINE. VI USED TO TEACH MORSE CODE TO MEMBERS OF THE ARMED FORCES WHO WERE STATIONED IN FORT ELIZABETH. SHE WAS ALSO INSTRUMENTAL IN KEEPING THE BRANCH ALIVE DURING THE WAR YEARS WHEN ALL AMATEUR RADIO ACTIVITY WAS CLOSED DOWN. MEMBERS USED TO MEET REGULARLY AT HER HOME. ALTHOUGH HER HUSBAND, AB, WAS NOT A HAM HE WAS VERY SUPPORTIVE AND HELPED HER WITH ANTENNAS AND EQUIPMENT. BESIDES AMATEUR RADIO, VI'S OTHER GREAT LOVE WAS ANIMALS AND SHE DID STERLING WORK FOR MANY YEARS ON THE EXECUTIVE OF THE S.P.C.A. VI SUFFERED A STROKE A FEW YEARS AGO BUT SHE MADE A REMARKABLE RECOVERY. SHE PASSED AWAY AT THE AGE OF 83 AFTER A SHORT ILLNESS. TO HER DAUGHTER JOAN AND FAMILY AND ALL HER HAM FRIENDS, WE EXPRESS SINCERE CONDOLENCES.

CONGRATULATIONS: TO PEET ZS2BX AND XYL HANNA ON THE BIRTH OF THEIR SON IZAK PETRUS VII. PETRUS IS THE FIRST SON TO BE BORN IN THE SNEEUBERG AREA AFTER 56 DAUGHTERS AND THERE HAS BEEN GREAT REJOICING. IN THE VAN PETERDEN FAMILY, OF THE SEVEN IZAK PETRUS', ONLY PEET ZS2BX WAS NOT BORN IN AUGUST. AS PEET HIMSELF SAID "THAT'S WHAT YOU CALL FAMILY PLANNING!"

TO LANGLEY ZS2LW WHO RECEIVED A 15 W.P.M. CERTIFICATE IN THE LAST CODE PROFICIENCY TEST. WELL DONE LANGLEY.

TO OWEN ZS2HZ WHO CAME 6TH IN THE ORP CW CONTEST. WELL DONE OWEN, KEEP UP THE GOOD WORK.

TO RUD VOORTMAN, ZS2CA WHO HAS BEEN ELECTED SECRETARY OF HAMNET IN THE PORT ELIZABETH AREA.

MOVING HOUSE LYNN ZS2MM HAS MOVED FROM HER FLAT IN CENTRAL TO A HOUSE IN THE SUBURBS, WHICH IS GOING TO GIVE HER MUCH MORE ROOM FOR ANTENNAS. GOOD DX'ING AND OPERATING, LYNN.

MIKE ZS2MJ AND JUNE ZS2JJ WILL BE MOVING FROM FORT BEAUFORT IN THE NEAR FUTURE AND SETTLING DOWN IN FORT ELIZABETH. WELCOME MIKE AND JUNE, IT WILL BE REALLY NICE HAVING YOU NEAR AND WE HOPE TO SEE LOTS OF YOU BOTH AT MEETINGS AND SOCIAL GATHERINGS.

THANKS THE MOST GRATEFUL THANKS OF THE BRANCH ARE EXTENDED TO PEET ZS2BX AND FAMILY WHO TRAVELLED DOWN FROM NIEU BETHESDA TO HELP US OUT WITH THE SPIT BRAAI. PEET AND HIS BROTHER DID THE COOKING AND CARVING AND PROVIDED THE SHEEP AS WELL. A GOOD TIME WAS HAD BY ALL.

## DATES TO REMEMBER

18/19TH OCTOBER	JAMBOREE OF THE AIR - GILSANDS.
19TH OCTOBER	OPEN DAY, ALGOA FLYING CLUB, FORT ELIZABETH AIRPORT.
19TH OCTOBER	VOLKSWAGEN/ALGOA RALLY.
6TH NOVEMBER	POSTMASTER GENERAL'S EXAM.
15TH NOVEMBER	C.A.R.L. FIELD DAY "SALEM" LAKESIDE.

THIS PAGE HAS BEEN SPONSORED BY KATGA PARK PHARMACY, A SHIPPING CENTRE, LABEGA. PHONE 30-2322.  
STOCKISTS OF COTY, REVLON, OLD SPICE AND HOMEOPATHIC REMEDIES. PHOTOGRAPH SUPPLIES AND TOILETRIES. FREE DELIVERIES.

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 15TH AUGUST, 1986.

PRESENT: 32 MEMBERS AND VISITORS.

APOLOGIES: ZSs2DT, MG, R AND PR.

THE CHAIRMAN WELCOMED ALL TO THE MEETING, THE LAST FOR THE CURRENT YEAR. A SPECIAL WELCOME WAS EXTENDED TO WINNIE BROWNE, GARTH ZS2HB AND RIA LAKS, MARLENE ASHWELL ZR2ED, JOHN ZS2RG AND MARGE AND MARK AND GAVIN.

MINUTES: THE MINUTES OF THE MEETING HELD 18TH JULY, 1986, HAVING BEEN PUBLISHED AND CIRCULATED IN QSX-PE WERE TAKEN AS READ; PROPOSED BY LYNN ZS2MM AND SECONDED BY WOLF ZS2WG.

ARISING: (1) FAVOURABLE COMMENTS WERE PASSED REGARDING THE NEW LOOK QSX-PE.

(2) AS YET NO WRITTEN COMMENTS HAD BEEN RECEIVED REGARDING THE USE OF EQUIPMENT AT HOBBIES FAIRS, ETC, I.E. THAT THE OWNERS OF THE EQUIPMENT PROVIDED FOR USE SHOULD SET IT UP AND INSTRUCT THE OPERATORS PRIOR TO USE.

CORRES: (1) QUESTIONNAIRE RE HOBBIES FAIR.

(2) THE CHAIRMAN MENTIONED THE BRANCH'S NEW BOX NUMBER 10402 AT LINTON GRANGE, 6015 AND ASKED MEMBERS TO USE THAT IN PREFERENCE TO THE OLD NUMBER AND TO PASS IT ON.

FINANCE: (1) THE BRANCH SHARE OF SUBS IS R1845. SOME SUBS WERE STILL OUTSTANDING AND REMINDERS HAD BEEN SENT OUT IN QSX. THERE WERE ALWAYS SOME LATE PAYERS.

GENERAL (1) THANKS WERE EXTENDED TO BUCK ZS2RM FOR THE BULLETIN ON JAS-1. THIS WAS NOW LAUNCHED AND IN ORBIT AND HAD BEEN RENAMED FUJI AND THE BEACON COULD BE HEARD ON 435,795 MHZ. THANKS ALSO TO BARRY ZS2DT FOR HIS CONTINUED INPUT OF THE WIAW BULLETINS INTO THE MAILBOX.

(2) AFTER THE BUSINESS OF THE MEETING, THERE WOULD BE A SLIDE SHOW OF TRISTAN DE CUNHA. IT HAD TAKEN 2 YEARS FOR THE SLIDES AND RECORDED COMMENTARY TO ARRIVE IN PORT ELIZABETH. DICK ZS2RS HAD SUPPLIED THE FILM, MITCH ZS2DK HAD SENT IT TO HIS HAM FRIEND WHO HAD TAKEN THE PICTURES AND RECORDED THE COMMENTARY. THANKS TO CLIVE ZS2RT FOR THE USE OF THE SLIDE PROJECTOR AND DICK ZS2RS FOR THE RECORDER.

(3) THE A.G.M. OF THE BRANCH IS TO BE HELD ON SATURDAY 20TH SEPTEMBER AT THE SCOUT HALL, 10TH AVENUE, WALMER AND ONCE AGAIN THERE WILL BE A SPIT BRAAI AFTER THE MEETING. THANKS WERE EXTENDED IN ADVANCE TO DICK ZS2RS WHO HAD OFFERED TO DO ALL THE ORGANISATION AND ALSO TO THOSE WHO HAD VOLUNTEERED THEIR HELP.

(4) MEMBERS WERE ASKED TO GIVE SERIOUS CONSIDERATION TO THE MATTER OF THE COMMITTEE. IT WAS FELT THAT IT WOULD BE GOOD TO HAVE NEW BLOOD AND NEW IDEAS, BUT IT WAS NOT FEASIBLE TO REPLACE THE WHOLE COMMITTEE. IT WAS FELT THAT IF THERE WERE ENOUGH TO SERVE, THE COMMITTEE COULD BE INCREASED TO 8 ONCE AGAIN IN ORDER TO SPREAD THE WORK LOAD.

(5) BRIAN SAID THAT THE MAILBOX WAS ONCE AGAIN BACK INSIDE THE HOUSE SO THAT WE HAD EASIER ACCESS TO THE COMPUTER AS THE WORD PROCESSOR AND PRINTER WERE BEING USED FOR QSX-PE AN BRANCH CORRESPONDENCE. THE MAILBOX WAS NOW SEMI-PERMANENTLY ON GRAHAMSTOWN REPEATER FREQUENCY AND THERE HAD BEEN A LOT OF ACTIVITY RECENTLY WITH MORE TESTING AND EXPERIMENTING.

(6) WITH REGARD TO THE TOWN REPEATER, THERE WERE A FEW PROBLEMS TO BE ironed out WITH THE ANTENNAS. PERMISSION HAD BEEN RECEIVED FROM THE S.A. POLICE TO INSTALL IT IN THE NEW PREMISES BUT THERE WAS STILL SOME WORK TO DO. THE SITE WAS VERY FAVOURABLE AND THE REPEATER WOULD BE VERY ACTIVE. ONCE COCKSCOMB AND GRAHAMSTOWN REPEATERS WERE

WORKING WELL, THERE WOULD HARDLY BE ANY NECESSITY TO RETAIN THE LADIES SLIPPER REPEATER AND THIS MIGHT BE REMOVED. VIV ZS2VM ASKED IF IT MIGHT NOT BE USED AS A LINK TO CAPE TOWN. THIS WOULD HAVE TO BE DISCUSSED LATER.

(7)COLIN ZS2AO SAID THAT THERE WAS STILL INTERFERENCE ON LADIES SLIPPER AND MEMBERS WERE ASKED TO MONITOR THIS AND PERHAPS GET RECORDINGS SO THAT THESE COULD BE PASSED ON TO THE NECESSARY AUTHORITIES.

(8)DICK ZS2RS REPORTED ON PROGRESS FOR THE A.G.M. PREPARATIONS AND SAID THAT FOUR OR FIVE PEOPLE WOULD BE NEEDED TO TEND THE FIRE. THE FOLLOWING OFFERED THEIR SERVICES: ZSs2RL, DH, MF, BK, VM, WG AND 157.

(9)BILL ZS2157 WAS THANKED FOR THE EATS FOR THE MEETING.

THERE BEING NO FURTHER BUSINESS, THE MEETING WAS CLOSED AND TEA WAS TAKEN. THEREAFTER THE SLIDESHOW AND COMMENTARY OF TRISTAN DA CUNHA WAS SHOWN AND THIS WAS WELL RECEIVED BY THE MEMBERS. THANKS TO THOSE CONCERNED.

SGD:  
B.A. WELLER ZS2AB  
CHAIRMAN

SGD:  
M.T. WELLER ZS2OB  
SECRETARY

## CAR RADIO ALARM

### P.C. BOARD AND PARTS LAYOUTS.

A FULL-SIZE COPY MAY BE OBTAINED FROM BRIAN ZS2AB.

#### RESISTORS:

R1 = 10 OHM

R2;R3 =100K

R4 = 1K

R5 = 10K

#### CAPACITORS:

C1 = 10uf;16V ELECTROLYTIC

C2 = 100 n;MKT

C3 - 100uf;25V ELECTROLYTIC

#### SEMICONDUCTORS:

D1;D2;D4 = 1N4001

D3 = 1N4148

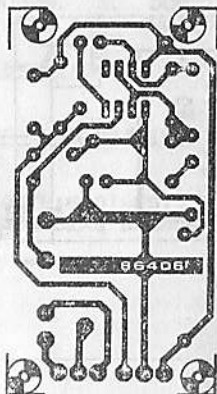
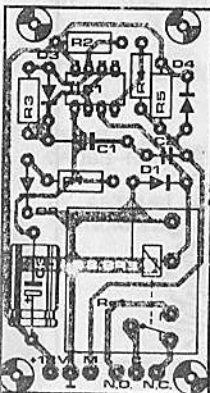
IC1 = 555

#### MISCELLANEOUS:

Re1 - 12V COIL;SINGLE CHANGEOVER

SUITABLE PLASTIC ENCLOSURE.

P.C.B. 86406.



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"RULES OF THE RIDICULOUS"

ISAAC NEWTON GAVE THE WORLD THE PRINCIPLE OF GRAVITY, EINSTEIN THE THEORY OF RELATIVITY. AND THEN THERE WAS OUR FRIEND MURPHY.....

BALANCE'S LAW OF RELATIVITY:HOW LONG A MINUTE IS DEPENDS ON WHICH SIDE OF THE BATHROOM DOOR YOU ARE.

COHEN'S SECOND LAW:PEOPLE ARE DIVIDED INTO TWO GROUPS - THE RIGHTEOUS AND THE UNRIGHTEOUS - AND THE RIGHTEOUS DO THE DIVIDING.

DREW'S LAW OF HIGHWAY BIOLOGY:THE FIRST INSECT TO HIT A CLEAN WINDSCREEN LANDS DIRECTLY IN FRONT OF YOUR EYES.

EMERSON'S OBSERVATION:IN EVERY WORK OF GENIUS WE RECOGNISE OUR REJECTED THOUGHTS.

LORD FALKLAND'S RULE:WHEN IT IS NOT NECESSARY TO MAKE A DECISION, IT IS NECESSARY NOT TO MAKE A DECISION.

FINABLE'S EIGHTH RULE:TEAMWORK IS ESSENTIAL. IT ALLOWS YOU TO PUT THE BLAME ON SOMEONE ELSE.

GAULTIERI'S LAW OF INERTIA:WHERE THERE IS A WILL, THERE IS A WON'T.

HELLRUNG'S LAW:IF YOU WAIT, IT WILL GO AWAY. SHAVELSON'S EXTENSION:..HAVING DONE IT'S DAMAGE..GRELBE'S ADDITION:..IF IT WAS BAD, IT'LL BE BACK.

HERBLOCK'S LAW:IF IT'S GOOD, THEY DISCONTINUE IT.

HERTZBERG'S FIRST LAW OF WING WALKING:NEVER LET GO OF WHAT YOU'VE GOT UNTIL YOU'VE GOT HOLD OF SOMETHING ELSE.

KIEKEGAARD'S OBSERVATION:LIFE CAN ONLY BE UNDERSTOOD BACKWARDS, BUT IT HAS TO BE LIVED FORWARDS.

KOVAC'S CONUNDRUM:WHEN YOU DIAL A WRONG NUMBER, YOU NEVER GET AN ENGAGED TONE.

OLIVIER'S LAW:EXPERIENCE IS SOMETHING YOU DON'T GET UNTIL JUST AFTER YOU NEED IT.

PARDO'S POSTULATES:1. ANYTHING GOOD IN LIFE IS EITHER ILLEGAL, IMMORAL OR FATTENING. 2. THE THREE FAITHFUL THINGS IN LIFE ARE MONEY, A DOG AND AN OLD WOMAN. 3. DON'T CARE IF YOU'RE RICH OR NOT, AS LONG AS YOU CAN LIVE COMFORTABLY AND HAVE EVERYTHING YOU WANT.

SIMON'S LAW OF DESTINY:GLORY MAY BE FLEETING, BUT OBSCURITY IS FOR EVER.

WEINER'S LAW OF LIBRARIES:THERE ARE NO ANSWERS, JUST CROSS-REFERENCES.

BY ARTHUR BLOCK - READER'S DIGEST, DECEMBER, 1985.  
ACKNOWLEDGEMENTS TO WOLKBERG BRANCH NEWSLETTER.

## SMART MODEMS BRING CHEAPER COMMUNICATION.

MODEMS THE GADGETS WHICH LET MICRO COMPUTERS COMMUNICATE OVER A TELEPHONE LINE, ARE GETTING SMARTER. THE LATEST MODELS TRANSMIT INFORMATION FOUR OR EIGHT TIMES FASTER THAN EXISTING MODEMS. THE RESULT IS THAT TRANSMITTING DATA OVER TELEPHONE LINES, WHICH IS CHARGED BY THE MINUTE, IS BECOMING CHEAPER.

A MODEM, OTHERWISE KNOWN AS A MODULATOR-DEMODULATOR, MUST BE USED FOR TELEPHONE COMMUNICATION BETWEEN COMPUTERS, BECAUSE CONVENTIONAL TELEPHONE LINES CANNOT COPE WITH THE DIGITAL TEXT AND DATA PULSES THAT A COMPUTER PUTS OUT. THE EXISTING TELEPHONE NETWORK WAS DESIGNED TO CARRY SPEECH AS ANALOGUE WAVES. A SIMPLE MODEM, WHICH CAN BE BOUGHT CHEAPLY, CONVERTS PULSES TO WAVES BY A TECHNIQUE KNOWN AS FREQUENCY SHIFT KEYING. A DIGITAL "ZERO" PULSE IS REPRESENTED BY ONE AUDIBLE TONE FREQUENCY AND A DIGITAL "ONE" PULSE BY ANOTHER FREQUENCY.

TWO PAIRS OF THESE TONES MUST BE USED, BECAUSE TELEPHONE LINES CARRY BOTH HALVES OF A CONVERSATION AT THE SAME TIME. WHILE THE BRAIN CAN UNTANGLE THE TWO HALVES OF A CONVERSATION, A COMPUTER AND A MODEM CANNOT. SO THE MODEM AT ONE END OF THE LINE USES A DIFFERENT PAIR OF TONES FROM THE MODEM AT THE OTHER END. EACH MODEM RECOGNISES ONLY THE INCOMING TONES AND IGNORES ITS OWN.

A MODEM RELYING ON FREQUENCY SHIFT KEYING CAN CONVEY RELIABLY 300 SIGNAL CHANGES A SECOND, EACH WAY. THIS IS REFERRED TO AS 300 BAUD. EACH SIGNAL CHANGE CONVEYS 1 BIT OF INFORMATION. USUALLY 10 BITS ARE NEEDED FOR EACH TEXT CHARACTER. SO A 300-BAUD MODEM BASED ON FREQUENCY SHIFT KEYING CAN SEND AND RECEIVE 300 BITS OR AROUND 30 TEXT CHARACTERS A SECOND. RACAL, A COMPANY WHICH MAKES MODEMS, HAS DONE AN INTERESTING CALCULATION. A 300-BAUD MODEM, WARNS RACAL, WOULD TAKE 23 HOURS TO SEND THE NOVEL "MOBY DICK" BY TELEPHONE.

A NEW GENERATION OF MODEMS USED TECHNIQUES CALLED PHASE AND AMPLITUDE MODULATION TO CONVEY MORE THAN ONE DIGITAL BIT WITH EACH SIGNAL CHANGE. INSTEAD OF SIMPLE SWITCHING BETWEEN FREQUENCIES TO DENOTE DIGITAL "ONES" AND "ZEROS", THE MODEM ALTERS THE PHASE RELATIONSHIP OF THE FREQUENCIES, SO THAT THEY MOVE IN AND OUT OF STEP WITH EACH OTHER, OR THE MODEM VARIES THE AMPLITUDE OF THE FREQUENCIES, OR JUGGLES A COMBINATION OF PHASE AND AMPLITUDE MODULATION.

BRITISH TELECOM HAS ALREADY TRANSMITTED DATA AT 9600 BITS/SECOND WITH MODEMS THAT SWITCH EACH OF THE FREQUENCY SIGNALS THROUGH 16 DIFFERENT STATES OF PHASE AND AMPLITUDE. SO FAR, THE TECHNOLOGY FOR 9600 BITS/SECOND TRANSMISSION WORKS ONLY OVER SHORT TELEPHONE LINES OF GOOD QUALITY. HOWEVER, BRITISH ELECTRONIC MAIL SERVICES ARE SOON EXPECTED TO OFFER TRANSMISSION AT 2400 BITS/SECOND. AT THAT RATE, "MOBY DICK" COULD BE TRANSMITTED IN LESS THAN THREE HOURS. IMPROVEMENTS IN MODEM DESIGN, WITH WEAK SIGNALS AMPLIFIED AS NECESSARY, MAKE THE TECHNOLOGY WORKABLE ON ANY TELEPHONE LINES WHICH DO NOT RELY ON OLD FASHIONED, MECHANICAL EXCHANGES.

MODEMS ARE DIFFICULT TO USE, BECAUSE DIFFERENT NETWORKS OPERATE AT DIFFERENT TRANSMISSION SPEEDS, WITH THE DATA TRANSMITTED IN DIFFERENT SIZED BLOCKS, AND WITH DIFFERENT COMBINATIONS OF EXTRA BITS ADDED TO THE BLOCKS TO LET THE COMPUTERS KNOW WHERE INDIVIDUAL CHARACTERS START AND STOP. THE MODEM MUST ALSO BE ABLE TO DIAL A TELEPHONE NUMBER FOR CONNECTION WITH A REMOTE MODEM, START TRANSMITTING TONES ONLY WHEN CONNECTION HAS BEEN MADE, AND ANSWER INCOMING CALLS IN A SIMILAR MANNER BUT WITH DIFFERENT TONES. THE COMPUTER OPERATOR, OR THE SOFTWARE RUNNING THE COMPUTER, MUST GENERATE COMMANDS TO CONTROL THE MODEM, FOR INSTANCE TO START DIALLING, RE-DIAL OR DISCONNECT THE LINE. UNTIL RECENTLY THERE WAS TOTAL CONFUSION, BECAUSE DIFFERENT MODEMS AND DIFFERENT PROGRAMS REQUIRED DIFFERENT COMMANDS.



IN THE LATE 1970S A SMALL COMPANY CALLED HAYES MICROCOMPUTER PRODUCTS OF ATLANTA, GEORGIA, BEGAN SELLING MODEMS WHICH ALL RESPONDED TO THE SAME SIMPLE SET OF COMMANDS, BEGINNING WITH THE LETTERS "AT". THESE LETTERS CALL THE MODEM TO ATTENTION AND THEY BECAME KNOWN AS THE HAYES PROTOCOL. BECAUSE THE SYSTEM WORKED, AND THERE WAS NOTHING TO COMPETE WITH IT, ALL BUT THE CHEAPEST AND MOST SIMPLE MODEMS NOW CLAIM HAYES COMPATIBILITY. "WE DIDN'T SET OUT TO PERSUADE THE MARKET" SAYS DENIS HAYES. "THE MARKET WANTED A STANDARD AND WE HAD ONE." IT IS HARD NOW TO SELL ANY MODEM UNLESS IT IS COMPATIBLE WITH THE HAYES STANDARD. THE COMPANY HAS A PATENT ON THE COMMAND CODING, AND PLANS TO ENFORCE BOTH THE CODING AND THE COMPANY TRADEMARK AGAINST COMPANIES WHICH CONFUSE THE MARKET BY FALSELY CLAIMING COMPATIBILITY.

THE TREND TOWARDS HIGHER TRANSMISSION SPEEDS HAS THE HAPPY SIDE-EFFECT OF SOLVING ANOTHER COMPATIBILITY PROBLEM WHICH HAS PREVENTED DIRECT COMMUNICATION BETWEEN EUROPE AND THE USA.

THE INTERNATIONAL TELEGRAPH AND TELEPHONE CONSULTATIVE COMMITTEE (CCITT) CHOSE A SET OF TONES FOR 300-BAUD TRANSMISSION WHICH WOULD NOT INTERFERE WITH ELECTRONIC SWITCHES IN MODERN TELEPHONE EXCHANGES. BELL TELEPHONE HAD ALREADY CHOSEN A DIFFERENT SET OF TONES. SO A MODEM WHICH FOLLOWS THE CCITT STANDARD FOR 300-BAUD OPERATION WILL NOT COMMUNICATE WITH A 300-BAUD MODEM WHICH ADHERES TO THE BELL STANDARD FOR THE SAME RATE.

FORTUNATELY THE CCITT STANDARDS FOR TRANSMISSION AT 1200, 2400 AND 9600 BITS/SECOND HAVE BEEN ADOPTED BY THE US. THE ONLY DIFFERENCE IS THAT IN EUROPE THE MODEM MUST PRODUCE A CONSTANT GUARD TONE AT 1800 HERTZ. THIS GUARD PROTECTS TELEPHONE EXCHANGES FROM POTENTIALLY CONFUSING TONES WHICH MIGHT FLUCTUATE. THE U.S. DID NOT ADOPT THE GUARD TONE. THIS SLIGHT DIFFERENCE PREVENTS MANUFACTURERS FROM CLAIMING THAT A MODEM APPROVED FOR EUROPE IS WHOLLY COMPATIBLE WITH THE NORTH AMERICAN COMMUNICATIONS SYSTEMS, AND VICE VERSA. HOWEVER, IN PRACTICE, A EUROPEAN MODEM OPERATING AT 1200 OR 2400 BITS/SECOND CAN CALL UP A MAIL SERVICE, COMPUTER DATABASE OR PRIVATELY OWNED MODEM IN THE U.S. AND COMMUNICATE AS IF THE SYSTEMS MATCHED EXACTLY. FOR THE FIRST TIME THERE IS TRANS-ATLANTIC COMPATIBILITY.

PARADOXICALLY JUST AS MODEM TECHNOLOGY MATURES, IT FACES REDUNDANCY. TELEPHONE COMPANIES AROUND THE WORLD ARE NOW CONVERTING TO ALL DIGITAL TECHNOLOGY. THE INTEGRATED SERVICES DIGITAL NETWORK WILL NOT NEED MODEMS BECAUSE THE NEW LINES AND EXCHANGES WILL CARRY SPEECH AS DIGITAL PULSES INSTEAD OF ANALOGUE WAVES. IT IS EXPECTED THAT THE MARKET FOR MODEMS WILL RISE UNTIL 1990 AND THEN FLATTEN OUT. HAYES HAS RECENTLY LAUNCHED "TRANSET", A REMARKABLE GADGET THE SIZE OF A CIGAR BOX WHICH CONTAINS COMPUTER MEMORY AND INTELLIGENCE PROGRAMMED TO RECEIVE, STORE, PRINT AND TRANSMIT MESSAGES BY ELECTRONIC MAIL WHILE UNATTENDED.

FROM "THE NEW SCIENTIST" JULY 1986.  
ACKNOWLEDGEMENTS TO DURBAN BRANCH NEWSLETTER.



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WORLD'S WEATHER

SIEMENS COMPUTERS PLAY A VITAL ROLE IN THE CONTROL OF THE SATELLITE METEOSAT FROM WHICH SATV OBTAINS ITS WEATHER PICTURES AND IN THE PROCESSING OF INFORMATION FROM THE SPACECRAFT. METEOSAT IS ONE OF FIVE WEATHER SATELLITES POSITIONED OVER THE EQUATOR AT INTERVALS OF ABOUT 70 DEGREES OF LONGITUDE TO FORM A CO-ORDINATED SYSTEM RECORDING AND COMMUNICATING THE WORLD'S METEOROLOGICAL CONDITIONS. IT WAS LAUNCHED BY THE EUROPEAN SPACE AGENCY ON JUNE 19, 1981 AND IS MAINTAINED ON A GEOSTATIONARY ORBIT OF 36 000 KM AT 0 DEGREES LONGITUDE ON THE GREENWICH MERIDIAN. THE METEOSAT GROUND COMPUTER SYSTEM (MGCS) 40 KM FROM DARMSTADT IN WEST GERMANY IS A LARGE SIEMENS COMPUTER SYSTEM USED FOR THE PROCESSING OF THE DATA RECEIVED FROM THE SATELLITE, FOR THE CONTROL OF THE SATELLITE FUNCTIONS AND ITS NAVIGATION. THE SIEMENS CONFIGURATION CONSISTS OF TWO CENTRAL PROCESSORS EACH WITH 8MB OF MAIN MEMORY, FOUR DISK CONTROLLERS WITH SIX DUAL DISK DRIVES OF 317 MB EACH AND A READ/WRITE SPEED OF 1,2MB A SECOND. DUAL TAPE CONTROL UNITS ARE CONFIGURED WITH 6 X 1,2MB TAPE DRIVES. THE TWO SYSTEMS ARE CONFIGURED SO THAT THEY NORMALLY WORK IN A LOOSELY COUPLED MODE WITH ONE OF THE SYSTEMS DEDICATED TO THE EXTRACTION OF METEOROLOGICAL PARAMETERS AND THE OTHER TO ALL REMAINING FUNCTIONS. HOWEVER, EITHER ONE OF THE SYSTEMS CAN SUPPORT ALL FUNCTIONS ON ITS OWN.

REAL TIME

THE IMAGE DATA FLOWING FROM THE SATELLITE ENTERS THE CONFIGURATION AT ONE OR BOTH OF THE FRONT-END PROCESSORS AND THESE WORK IN PARALLEL TO GIVE FULL REDUNDANCY FOR THE IMAGE ACCEPTANCE AND CONDITIONING TASK. THE IMAGE DATA IS PROCESSED IN REAL-TIME MODE AT THE FULL RATE OF 100 LINES OF IMAGES PER MINUTE AND THEN ACCUMULATED ON THE DISKS FOR FURTHER USE. A ROLLING STORE OF SIX IMAGES IS MAINTAINED WITH THE OLDEST BEING ARCHIVED BEFORE THE DISK IS RE-USED. THE IMAGE DATA FLOWING TO THE FRONT-END PROCESSORS IS WRITTEN AWAY TO MAGNETIC TAPES AS IT ARRIVES. IN THIS MANNER, 48 TAPES OF RAW DATA ARE CREATED AND RETAINED FOR A PERIOD WHICH IS LONG ENOUGH TO ESTABLISH THAT NORMAL PROCESSING, PLUS THE SUBSEQUENT ARCHIVING, HAS BEEN ATTAINED. SHOULD A FAILURE BE RECORDED, THEN THE APPROPRIATE RAW IMAGE DATA TAPES MAY BE PLAYED BACK INTO THE SYSTEM TO ENSURE A SATISFACTORY RESULT.

S330 MINIS

IMAGE CONDITIONING IS ACCOMPLISHED IN ONE OF TWO REDUNDANT FRONT-END PROCESSORS WHICH ARE BASED ON SIEMENS S330 MINI COMPUTERS SUPPORTED BY AN ARRAY PROCESSOR AND THE SOFTWARE REMOVES POSSIBLE DEFECTS FROM RAW IMAGE DATA:

- # OPTICAL ERRORS CAUSED BY THE RADIOMETRE OPTICS
  - # CALIBRATION ERRORS DUE TO THE AGEING RESPONSE OF THE DETECTORS AND THE SLIGHTLY UNMATCHED RESPONSE OF THE TWO VISIBLE DETECTORS
  - # ERRORS CAUSED BY THE ELECTRONIC FILTERS
  - # LINE START ERRORS DUE TO IRREGULARITIES IN THE LINE MECHANISM
  - INACCURACIES IN THE DETERMINATION OF SPIN SPEED
  - # REGISTRATION ERRORS CAUSED BY THE DIFFERING FIELD OF VIEW OF THE SENSORS.
- IMAGE REFERENCING IS UTILISED TO LOCATE THE IMAGE IN TERMS OF THE EARTH'S CO-ORDINATES. THIS IS NECESSITATED BY THE FACT THAT THE SATELLITE IS NOT 100% STATIONARY IN RELATION TO THE EARTH AND THAT IN ADDITION MINUTE CHANGES TO THE LATITUDE OF 36 000 KMS OCCUR WHICH CAUSE CHANGES IN THE ACTUAL VIEW OF THE EARTH.

THE SIEMENS COMPUTERS AT THE OPERATIONS CENTRE (ESOC) HEADQUARTERS IN DARMSTADT MAKE PROVISION FOR THE EXTRACTION OF ROUTINE METEOROLOGICAL PARAMETERS ON A REGULAR BASIS. THE SYSTEM IS LINKED TO INTERACTIVE DISPLAY MONITORS TO ALLOW FOR THE COMPLETE MONITORING OF THE COMPUTER PRODUCTS WITH FACILITIES TO DELETE ANY SUSPECT VALUES. THE INTERACTIVE SYSTEM MAY ALSO BE USED TO EXTRACT ADDITIONAL INFORMATION FROM THE BASIC IMAGE DATA AND AS A TOOL FOR THE QUALITY CONTROL OF THE IMAGE DATA. FIVE OF THE COMPUTER PRODUCTS ARE BASED ON A COMPLETELY INTEGRATED APPROACH INVOLVING THE SYSTEMATIC PROCESSING OF DEFINED SEGMENTS OF PICTURE ELEMENTS SO THAT AREAS OF ABOUT 200EMS ARE PROCESSED SEPARATELY. THE FIVE PRODUCTS ARE:

- \* CLOUD MOTION VECTORS
- \* SEA SURFACE TEMPERATURES
- \* CLOUD ANALYSIS
- \* UPPER TROPOSPHERIC HUMIDITY
- \* CLIMATE DATA SET.

THE FIRST FOUR PRODUCTS ARE REFORMATTED INTO DIGITAL MESSAGES IN STANDARD FORMAT AND THEN DISTRIBUTED VIA THE GLOBAL TELECOMMUNICATIONS SYSTEM (GTS) TO THE WORLD METEOROLOGICAL COMMUNITY. THE CLIMATE DATA SET IS NOT DISTRIBUTED IN THIS REAL-TIME MANNER, BUT IS ARCHIVED AND IS AVAILABLE ON A MAGNETIC TAPE.

#### CLOUDS

A SIXTH PRODUCT IS THE SYSTEMS DERIVATION OF CLOUD TOP HEIGHTS. THIS PRODUCT IS SEPARATE AS IT IS PROCESSED IN AREAS OF ABOUT 20KMS BY 20KMS AND IT IS THEN SET UP IN MAP FORMAT AND RE-TRANSMITTED TO THE METEOROLOGICAL COMMUNITY VIA METEOSAT ITSELF IN A MAP OF EIGHT GREY SCALES WHICH ARE USED AS A DIRECT INDICATION OF THE CLOUD TOP HEIGHTS. A SEQUENCE OF IMAGES IS USED TO DETERMINE THE MOTION OF CLOUDS FROM ONE IMAGE TO THE NEXT AND HENCE TO DEDUCE THE APPARENT WIND SPEED AND DIRECTION. THIS PRODUCT IS DERIVED ON A 12-HOUR CYCLE WITH THE MAIN DETERMINATIONS AT MIDNIGHT AND MIDDAY.

EVERY DAY, VARIOUS TV CHANNELS AROUND THE WORLD - INCLUDING SATV - USE PARTS OF THE OVERALL CLOUD IMAGE OF THE EARTH TO GIVE THEIR VIEWERS AN IDEA OF THE AMOUNT AND DISTRIBUTION OF CLOUD COVER. THE SECTIONS OF THE OVERALL PICTURES ARE PRODUCED WITH THE AID OF A MAINFRAME COMPUTER AND PRESENTED ON VISUAL DISPLAY SCREENS. TO ENHANCE THE CONTRAST FOR VIEWERS, THE "FALSE COLOUR PRINCIPLE" IS ADOPTED. THIS CHOICE OF COLOURS OFFERS A WIDE RANGE OF POSSIBILITIES BUT NORMALLY BLUE SHADES ARE USED FOR SEA AREAS, CLOUDS ARE WHITISH YELLOW AND LAND MASSES IN BROWNS AND GREENS. BY USING THE COMPUTER, OUTLINES OF LAND MASSES CAN BE SUPERIMPOSED ON THE IMAGES SO THAT EVEN WHEN THERE IS A LOT OF CLOUD IT IS STILL POSSIBLE TO RELATE IT TO THE COASTLINE BENEATH.

THE SATELLITE SPINS AROUND ITS OWN AXIS AT 100 REVOLUTIONS PER MINUTE. DURING EACH REVOLUTION THE ON-BOARD RADIOMETRE (ON BOARD CAMERA DEVICE) SCANS THE EARTH ON AN EAST-TO-WEST BAND WHICH IS 5KMS WIDE AND TAKES 2 500 IMAGES WITH EACH REPRESENTING A 5KM X 5KM SQUARE PICTURE OF A PORTION OF THE EARTH'S SURFACE. DURING THE BALANCE OF EACH REVOLUTION, IT THEN RADIOS THIS RASTER OF 2 500 PICTURE ELEMENTS TO THE GROUND RECEIVING CENTRE NEAR DARMSTADT FROM WHERE IT IS TRANSMITTED BY LAND TO THE ESOC IN DARMSTADT.

#### ENTIRE GLOBE

ON COMPLETION OF EACH REVOLUTION, THE RADIOMETRE IS REFOCUSSED TO THE NEXT 5KM WIDE BAND, NORTH OF THE PREVIOUS BAND AND THE PROCESS STARTS ALL OVER AGAIN. IT TAKES 2 500 SUCH BANDS, WITH THE RADIOMETRE MOVING THROUGH AN 18 DEGREE ANGLE, TO COVER THE ENTIRE GLOBE FROM SOUTH POLE TO NORTH POLE AT 100 REVOLUTIONS PER MINUTE.

WITH ACKNOWLEDGEMENTS TO "COMPUTING" AUGUST 1986.

ON A LONG OVERDUE VISIT TO THE DENTAL CLINIC, I WAS USHERED INTO THE CHAIR AND THE DENTIST BEGAN DRILLING. I AM A RADIO OPERATOR, AND MUCH TO MY SURPRISE, I DETECTED A PATTERN IN HIS DRILLING.

PAYING CLOSER ATTENTION, I WAS ASTOUNDED TO READ, IN PERFECT MORSE CODE: Y-O-U S-H-O-U-L-D H-A-V-E S-E-E-N Y-O-U-R D-E-N-T-I-S-T L-O-N-G B-E-F-O-R-E T-H-I-S. SEEING MY EXPRESSION, THE DENTIST STOPPED DRILLING AND EXPLAINED SHEEPISHLY, "YOU SEE, AMATEUR RADIO IS MY HOBBY, AND THIS WORK GIVES ME AN OPPORTUNITY TO PRACTICE MY SENDING."

HOW ABOUT IT, SAM?

THANKS TO CLIVE ZS2RT FOR THIS GEN.



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