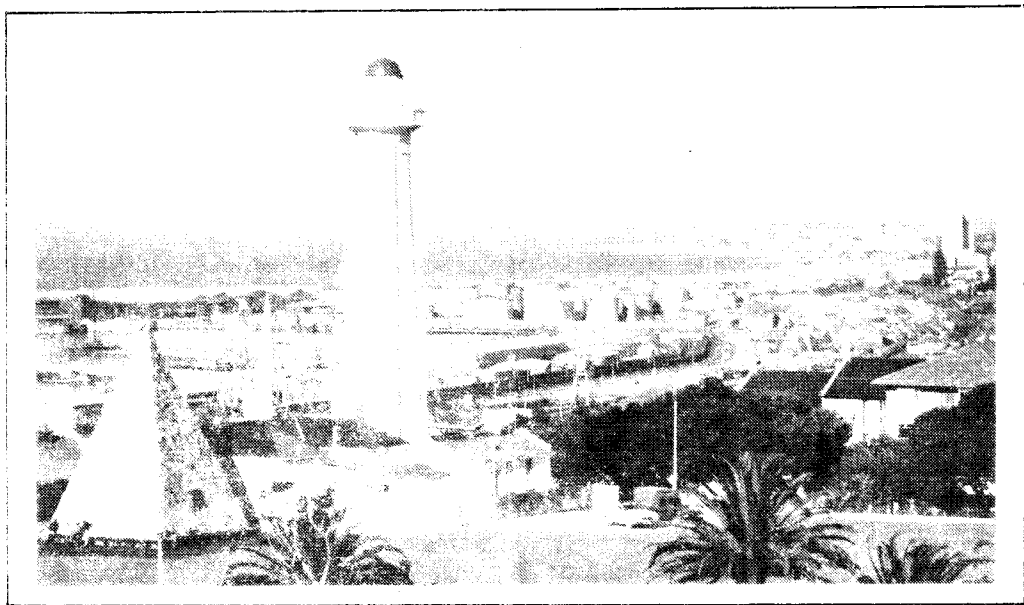


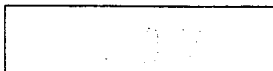


Q S X P E



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, 15TH MAY, 1987 AT 8.15P.M.

MIKE BOSCH ZS2FM WILL BE PRESENTED WITH THE AMATEUR OF THE YEAR AWARD WHICH IS PRESENTED ANNUALLY BY THE AMATEUR RADIO DEVELOPMENT TRUST.

WE WILL ALSO HOPEFULLY HAVE A GUEST SPEAKER.

COMMITTEE

<u>CHAIRMAN:</u>	BRIAN WELER ZS2AB	303498
<u>VICE CHAIRMAN:</u>	TONEL COOMBE-DAVIS ZS2DD	321770
<u>SECRETARY:</u>	MARGE WELER ZS2OB	303498
<u>TREASURER:</u>	LYNN CROTHALL ZS2HM	354671
<u>SPECIAL EVENTS AND</u>	BEAVAN GWILT ZS2RL	306968
<u>SOCIAL ACTIVITIES:</u>	OWEN WHEELER ZS2HZ	381310
<u>AWARDS:</u>	BILL HODGES ZS2-157	512580
<u>EDITOR QSX-PE:</u>	MARGE WELER ZS2OB	303498
<u>MEMBERS:</u>	DICK SCHONBORN ZS2RS	322111

<u>LIBRARIAN</u>	COLIN ASHWELL ZS2AO	312471
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BULLETIN ROSTER



	40 METRES	2 M	80 M
31 MAY	ZS2HZ TOP DOWN	ZS2AB	ZS2RL
7 JUNE	ZS2157 BOTTOM UP	ZS2RL	ZS2DD
14 JUNE	ZS2RS MIDDLE DOWN	ZS2HZ	ZS2AB
21 JUNE	ZS2RL MIDDLE UP	ZS2MM	ZS2DD

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

CONGRATULATIONS: TO MIKE BOSCH ZS2FM ON BEING CHOSEN AS THE AMATEUR OF THE YEAR. THIS AWARD IS MADE ANNUALLY BY THE AMATEUR RADIO DEVELOPMENT TRUST AND CONSISTS OF A CERTIFICATE AND CHEQUE. MIKE HAS EARNED THIS AWARD BY VIRTUE OF HIS UNTIRING EFFORTS AT EXPERIMENTING WITH AND PROMOTING THE USE OF VHF BANDS PARTICULARLY 6 METERS AND HIS NEWS BULLETINS REGULARLY HEARD ON VARIOUS FREQUENCIES. WELL DONE, MIKE. THIS AWARD WILL BE PRESENTED TO MIKE AT THE NEXT BRANCH MEETING.

CONGRATULATIONS: ALSO TO THE BRANCH ON THE BOOK PRIZE WE WERE AWARDED AT THE LEAGUE A.G.M. FOR PHOTOGRAPHIC INPUT TO RADIO ZS. MANY THANKS TO CLIVE ZS2RT WHO HAS BEEN NOMINATED OFFICIAL BRANCH PHOTOGRAPHER.

WHITE HOUSE VISITOR: WE WERE VERY SORRY TO HEAR THAT JOHN ZS2RG HAD TO HAVE AN OPERATION FOR A CATARACT RECENTLY. WE HOPE THAT ALL WENT WELL AND THAT YOU WILL BE SOON TAKING A ROSY LOOK AT LIFE, JOHN.

THANKS: ARE EXTENDED TO THOSE WHO SPENT A GOOD DEAL OF SATURDAY PROVIDING COMMS. FOR THE NAVEX HELD IN THE GRAHAMSTOWN AREA. THEY WERE LYNN ZS2MM, OWEN ZS2HZ, TREVOR ZS2AE, ALAN ZS2Z, CLIVE ZS2RT, COLIN ZS2AG, DUDLEY ZS2AW AND BEAVAN ZS2RL, ALSO TO BRIAN ZS2AB WHO PROVIDED BACK-UP HF COMMS FROM HOME.

CONGRATULATIONS: TO BASIL ZS2PG AND HIS FLYING PARTNER WHO CAME THIRD IN THE ABOVE RALLY AND WE BELIEVE THAT BASIL WILL BE REPRESENTING EASTERN PROVINCE IN A NATIONAL RALLY TO BE HELD SHORTLY. WELL DONE BASIL.

REPEATERS: THE EVER-WILLING GROUP OF MOUNTAIN GOATS IN THE GUISE OF TREVOR ZS2AE AND BAND OF ASSORTED HAMS WERE UP AT THE COCKSCOMB ON SATURDAY. ALTHOUGH SOME ATTENTION WAS GIVEN TO THE REPEATER, THERE IS STILL A SLIGHT PROBLEM. BUT NEVER FEAR.....IT AND ALL THE OTHER REPEATERS WILL BE SOON 100% AFTER THEIR MINISTRATIONS.

FOR SALE: 1 MICROWAVE MODULES 28 MHZ PREAMP. MODEL MMA 28. R50.
1 HEATHKIT SB610 MONITOR SCOPE - WHAT OFFERS?
1 OHIO CHALLENGER IP COMPUTER WITH 32K CMOS RAM EXPANSION AND MONITOR. R400.00.
PLEASE CONTACT DICK ZS2RS.

FOR SALE: QSL STICKERS AT 50 EACH ARE AVAILABLE FROM LYNN ZS2MM AT MEETINGS. THERE ARE ALSO SOME LOG BOOKS AND A VEW GREAT CIRCLE MAPS LEFT.

GOLDEN JUBILEE AWARD: THIS AWARD IS BEING OFFERED BY THE A.R.R.L. TO COMMEMORATE THE 50TH ANNIVERSARY OF THE D.X.C.C. AWARD. TO ACHIEVE IT, ONE MUST WORK ONE HUNDRED COUNTRIES DURING 1987. CONTACTS MAY CONSIST OF ANY COMBINATION OF BANDS OR MODES (NO 10 MHZ). NO QSL CARDS ARE REQUIRED, BUT THE AWARD MUST BE APPLIED FOR ON THE OFFICIAL APPLICATION FORM. IF YOU WOULD LIKE FURTHER DETAILS, CONTACT MARGE ZS2OB WHO HAS COPIES OF THE OFFICIAL APPLICATION FORM TOGETHER WITH ALL THE RULES. THERE IS A LOT OF DX AROUND AT THE MOMENT AND IT IS QUITE EASY TO NOTCH THE 100 COUNTRIES FAIRLY QUICKLY. THIS AWARD IS SEPARATE FROM THE NORMAL DXCC AWARD.

NEAT AND TIDY: THE SERRATED PLASTIC TIES SUPPLIED WITH DISPOSABLE PLASTIC BAGS ARE USEFUL AROUND THE SHACK AND MOBILE INSTALLATION TO HOLD THE VARIOUS CABLES TOGETHER. UNLIKE THE COMMERCIAL VERSION, THEY MAY BE UNFASTENED WHEN A WIRE MUST BE ADDED OR REMOVED. W1FNR FROM 'HINTS AND KINKS'.

MINUTES OF GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE HELD AT ST. MARTIN'S CHURCH, FORT ELIZABETH ON FRIDAY 24TH APRIL, 1987

PRESENT: 27 MEMBERS AND VISITORS.
APOLOGIES: ZS2MG, ZS2RB, ZS2RG, ZR2L, ZR2AAA AND ZS5AAD.

THE CHAIRMAN WELCOMED ALL TO THE MEETING, ESPECIALLY THE LADIES, TO MIKE BOSCH ZS2FM, ANDREW ZS2G AND ROB SALMON.

MINUTES: THE MINUTES OF THE MEETING OF 20TH MARCH, 1987 HAVING BEEN PRINTED AND CIRCULATED IN QSX-PE WERE TAKEN AS READ, PROPOSED BY ZS2RS AND SECONDED BY ZS2HZ.

ARISING: (1)NO REPLY HAD YET BEEN RECEIVED FROM THE P.M.G. IN RESPONSE TO OUR LETTER RE MOBILE LICENCES. BARRY ZS2DT SAID THAT HE HAD WRITTEN DIRECTLY TO TRANSKEI FOR PERMISSION TO OPERATE.

(2)WITH REGARD TO THE NEW TOWN REPEATER, OWEN HAD TESTED THE UNIT AND MIV WAS BUILDING THE POWER SUPPLY. THIS UNIT WOULD BE HOUSED IN A SUITABLE CABINET. TREVOR ZS2AE SAID THAT IT WOULD PROBABLY BE READY IN 2 AND A HALF WEEKS. HE GAVE A REPORT BACK ON THE MEETING OF THE REPEATER WORKING GROUP. THE TOWN REPEATER HAD PRIORITY. THE POWER SUPPLY AND ANTENNA OF THE LADIES SLIPPER REPEATER WOULD RECEIVE ATTENTION. OWEN SUGGESTED THAT THE NEW UNIT FOR THE GRAHAMSTOWN REPEATER BE RUN FROM A LOCAL QTH ON TEST, BUT THE PROBLEM WOULD BE THE ANTENNA SPACING NEEDED. TREVOR WOULD REPORT BACK FURTHER WHEN NECESSARY.

FINANCE: IT WAS REPORTED THAT ALL THE BRANCH'S ACCOUNTS EXCEPT THE FIXED DEPOSITS AT THE U.B.S. HAD BEEN CLOSED AND TRANSFERRED TO THE ALLIED. THE FIXED DEPOSITS WERE R2078 AND R816 WAS IN THE SPECIAL SAVINGS. AT THE LEAGUE A.G.M. THE MOTION REGARDING THE PAYMENT OF THE DELEGATE'S TRAVELLING EXPENSES HAD BEEN PASSED AND THEREFORE EACH BRANCH WOULD PAY ITS OWN WAY. IT WOULD MEAN THAT PROBABLY SMALLER BRANCHES WOULD APPOINT PROXIES.

CORRES: (1)PERMISSION FOR COMMS. AT NAVEX.
(2)LETTER FROM AUDREY BURRELL.

GENERAL: (1)CONGRATULATIONS WERE EXTENDED TO MIKE BOSCH ZS2FM WHO HAD BEEN NOMINATED THE AMATEUR OF THE YEAR BY THE AMATEUR RADIO DEVELOPMENT TRUST. HIS AWARD WOULD BE PRESENTED AT THE NEXT BRANCH MEETING.

(2)THE BRANCH HAD BEEN PRESENTED WITH A BOOK PRIZE FOR PHOTOGRAPHIC COPY SENT TO RADIO ZS. CLIVE ZS2RT WAS THANKED FOR HIS EFFORTS AND WAS APPOINTED OFFICIAL BRANCH PHOTOGRAPHER.

(3)BILL ZS2BY WAS THANKED FOR HIS DONATION OF BOOKS FOR THE LIBRARY.

(4)THE LEAGUE WAS OFFERING 14 MONTHS MEMBERSHIP FOR A YEAR'S FEES FOR ANYONE JOINING AT THIS STAGE. THE ENTRANCE FEE REMAINS THE SAME.

AT THIS STAGE, BRIAN REPORTED ON THE OUTCOME OF THE A.G.M.

MOTIONS 1, 2, 7, 9, 14, 17, 18, 19 CARRIED.

MOTIONS 4, 5, 6, 10, 11, 12, 13, WITHDRAWN.

AT THIS STAGE, TEA WAS TAKEN.

MOTIONS 15 AND 20 LOST.

MOTION 3 AMENDED TO READ "PER QUARTER" AND NOT "PER MONTH". CARRIED.

MOTION 8 AMENDED TO READ "A TOTAL OF 50 HONORARY LIFE MEMBERS, WITH NOT MORE THAN 5 BEING DESIGNATED PER YEAR".

MOTION 16. THE R.S.G.B. MANUAL WHICH HAD BEEN ACCEPTED BY THE P.M.G. WOULD BE TRANSLATED BY THE PRETORIA BRANCH.

THE NAVEX TO BE HELD ON 2ND MAY WAS DISCUSSED. THIS WOULD BE POSTPONED TO 3RD IF THE WEATHER WAS NOT GOOD. 3 STATIONS FROM GRAHAMSTOWN WOULD MAN THREE POINTS AND THREE FROM P.E. WERE REQUIRED. THE VOLUNTEERS WERE ZS2HZ, ZS2MM, ZS2RL AND ZS2AO. A BRIEFING WOULD BE HELD AT THE FLYING CLUB ON 30TH APRIL. VHF WITH HF BACK-UP WOULD BE USED.

BRIAN REPORTED ON THE LINKING OF OUR REPEATERS WITH THE SOUTHERN CAPE REPEATERS. A MEETING HAD BEEN HELD AFTER THE A.G.M. WITH ZS1BR, ZS1RO, ZS2U AND HIMSELF. THE KAREEDOUW REPEATER WAS ON TEST BUT NOT ON SITE. A COMMITMENT FROM ZS2U WAS THAT IT WOULD BE INSTALLED ON SITE BY THE END OF MAY AND A FEASIBILITY STUDY WOULD BE UNDERTAKEN BY THE END OF SEPTEMBER FOR LINKING TO CAPE TOWN. P.E. BRANCH HAD BEEN COMMITTED TO A FEASIBILITY STUDY BY THE SAME DATE TO LINK A P.E. REPEATER TO GEORGE. VARIOUS SITES WERE DISCUSSED AND THE REPEATER WORKING GROUP UNDERTOOK TO MAKE ARRANGEMENTS FOR TESTS AND WRITE TO ZS1IC.

AT THIS STAGE BEAVAN ZS2RL TOOK THE FLOOR AND GAVE DETAILS OF THE VW ALGOA MOTOR SPORTS CAR RALLY TO BE HELD IN JULY. THERE WOULD BE 22 STAGES AND IT WAS HOPED TO HAVE COMMS FROM EACH. THIS MEANT THAT THE OPERATORS FROM THE FIRST STAGES COULD MOVE ON TO THE LATER STAGES. IT WAS HOPED THAT THE FINAL CONTROL COULD HAVE THE RESULTS WITHIN HALF AN HOUR OF THE FINISH OF THE RALLY. THE FOLLOWING VOLUNTEERED: ZS2AD, AE, RT, BK, MM, DT, RS, AB, OB, RL, G, HZ, VM, WG, AND POSSIBLY ZS2MG AND MC.

GUS ZS2MC PROPOSED A VOTE OF THANKS TO BRIAN AND MARGE FOR CARRYING THE P.E. BRANCH FLAG AT THE A.G.M. THIS WAS CARRIED UNANIMOUSLY.

THERE BEING NO FURTHER BUSINESS, THE MEETING WAS CLOSED.
SGD: B.A. WELLER ZS2AS CHAIRMAN
SGD: M.T. WELLER ZS2OB SECRETARY.

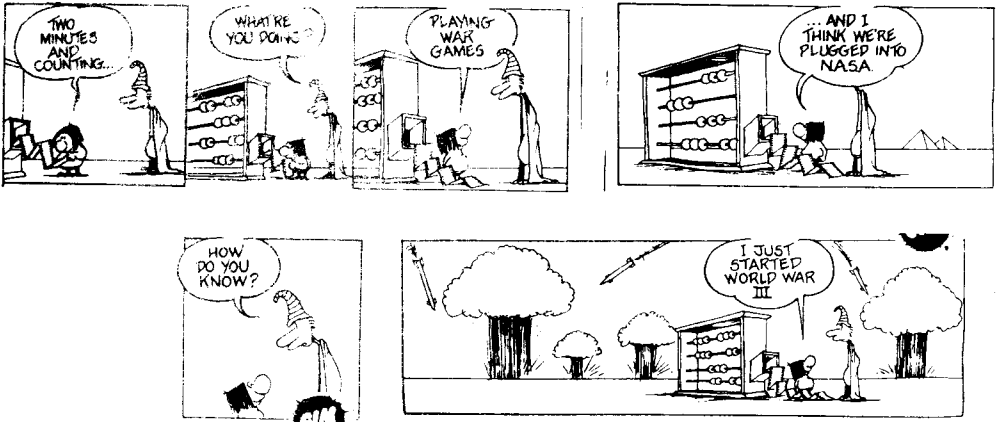


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PORT ELIZABETH'S OWN RIVAL TO
MARCONI.

HE INVENTED RADIO IN 1897.

TAKEN FROM "PRETORIA NEWS, NOVEMBER 25, 1949.

BY ERIC ROSENTHAL.

EDWARD ALFRED JENNINGS CARRIED OUT SUCCESSFUL EXPERIMENTS IN RADIO-TELEGRAPHY AT THE END OF 1897 AND, BUT FOR THE UNSYMPATHETIC ATTITUDE OF THE THEN AUTHORITIES, WOULD HAVE BECOME A FIGURE OF INTERNATIONAL FAME. THE RESULTS HE OBTAINED WERE ACHIEVED INDEPENDENTLY OF ANY OVERSEAS SCIENTIST, AND THE THEN RECORD DISTANCE WAS ULTIMATELY COVERED.

"BY BIRTH," MR. JENNINGS, WHO IS NOW 76, TOLD ME, "I AM A LONDONER, AND I STARTED MY CAREER AS AN INSTRUMENT-MAKER WITH THE FIRM WHICH PROVIDED TELEGRAPHIC APPARATUS FOR THE NORTH BRITISH RAILWAY COMPANY AND OTHER WELL-KNOWN CONCERNS."

MR. JENNINGS'S FIRST DIRECT CONTACT WITH OTHER BRANCHES OF TELEGRAPHY CAME WHEN HE JOINED THE GOVERNMENT INSTRUMENT FACTORY AT HOLLOWAY, AND WORKED UNDER SIR WILLIAM PREECE, CHIEF ENGINEER OF THE POST OFFICE (THE LATTER ALSO DID SOME RADIO EXPERIMENTS, BUT OF THESE JENNINGS THEN KNEW NOTHING).

ABOUT THIS TIME, MR. BEN DUFF, THE POSTMASTER-GENERAL OF CAPE COLONY, WAS RECRUITING STAFF AND YOUNG JENNINGS, WHO WAS THEN 22, ALONG WITH A COLLEAGUE NAMED HOBBS SIGNED ON.

PORT ELIZABETH.

"WE CAME OUT IN THE OLD 'ARAB', HE TOLD ME, "AND I HAD MY HEADQUARTERS FOR TWO AND A HALF YEARS IN CAPE TOWN. THEN I WAS TRANSFERRED TO PORT ELIZABETH AND HERE I WAS FATED TO MAKE MY DISCOVERY. I WAS ALWAYS INTERESTED IN WHAT WE WOULD NOW CALL GADGETS AND NOVELTIES BUT THERE WERE FEW TECHNICAL JOURNALS AVAILABLE FOR THE STAFF.

PORT ELIZABETH HAD THE OLDEST TELEPHONE EXCHANGE IN SOUTH AFRICA, STARTED IN 1862. BUT IN 1896, WHEN I ARRIVED THERE WERE ONLY 200 LINES ALTOGETHER. MY CHIEF JOB WAS TO HELP REPAIR THE VERY PRIMITIVE INSTRUMENTS THEN INSTALLED. THESE CONSISTED OF A WOODEN DIAPHRAGM OPERATING A MICROPHONE WITH CARBON GRANULES. WHEN YOU WANTED TO RING YOU PRESSED A BUTTON TILL SOMETHING HAPPENED".

HE SMILED AND CONTINUED: "AN IMPORTANT IMPROVEMENT TOOK PLACE IN 1897, WHEN THE FAMOUS SWEDISH FIRM OF ERICSEN SOLD TO THE POST OFFICE A NEW TYPE OF WALL SET, ALSO OPERATED WITH A PRESS BUTTON, BUT WITH ITS MICROPHONE BUILT AFTER THE MODERN FASHION INTO THE HANDSET AND REPLACING THE WOODEN DISC".

SO SMALL, HOWEVER, WAS THE TELEPHONE TRAFFIC AT PORT ELIZABETH THAT MANY SUBSCRIBERS DID NOT USE THEIR INSTRUMENTS FOR DAYS AT A TIME. THE RESULT WAS THAT THE GRANULES OF CARBON WHICH WERE SUPPOSED TO MOVE BY ELECTRIC VIBRATIONS SET UP BY THE HUMAN VOICE, GOT 'PACKED' TOGETHER AND GAVE POOR RESULTS.

THINGS GREW SO BAD THAT THE POST OFFICE INSTRUCTED THE PEOPLE TO HAMMER THE TELEPHONE RECEIVER ON THE TABLE IF THEY COULD NOT HEAR PROPERLY - AN INJUNCTION WHICH RAPIDLY HAD TO BE WITHDRAWN BECAUSE IRATE SUBSCRIBERS SMASHED TOO MANY INSTRUMENTS.

THIS STATE OF AFFAIRS LED MR. JENNINGS TO MAKE HIS HISTORIC INVENTION.

IN GLASS TUBE.

"I DECIDED," HE SAID, "TO TRY OUT SOMETHING TO REPLACE THE PRIMITIVE CARBON GRANULES IN THE MICROPHONE, SOMETHING THAT WOULD NOT PACK TOGETHER. SO INSTEAD OF CARBON I TRIED BRASS FILINGS, COPPER FILINGS AND SILVER. THE LATTER I FILED OFF AN OLD WATCHCHAIN OF MINE, AND TO SEE WHETHER THEY WOULD GET STUCK TOGETHER OWING TO DAMP OR DISUSE, I MADE THE MICROPHONE IN A GLASS TUBE. THIS WAS ABOUT HALF AN INCH IN DIAMETER AND MY ORIGINAL IDEA WAS THAT YOU SHOULD GIVE IT A SLIGHT TURN EVERY TIME YOU USED THE PHONE. LIKE MANY THEORIES, HOWEVER, IT DID NOT WORK."

NOW AN EXTRAORDINARY CHANCE LED UP TO A STARTLING PHENOMENON. MR. JENNINGS HAD PLACED HIS EXPERIMENTAL TELEPHONE WITH WHAT HE CALLED THE "SILVER MICROPHONE" (I.E. WITH SILVER PARTICLES INSTEAD OF THE CARBON) IN A BIG ROOM OF THE HOUSE IN SHERLOCK STREET ON THE HILL.

"WE HAD AN ELECTRIC BELL AT THE FRONT DOOR," HE RELATES, "AND TO MY GREAT SURPRISE I NOTICED THAT EVERY TIME SOMEONE PRESSED THE FRONT-DOOR BELL MY GLASS TUBE, WHICH LAY IN A BACK ROOM, WOULD GIVE A LOUD CRACKLE. WHEN I LOOKED CLOSELY I FOUND THAT THE SILVER FILINGS HAD JOINED TOGETHER AND IT REQUIRED A GENTLE TAP TO LOOSEN THEM AGAIN."

THE PHENOMENON WAS A COMPLETE PUZZLE AND IT WAS ALWAYS REPEATED WHENEVER THE BELL RANG. WHAT HAD REALLY HAPPENED WAS THAT HE HAD STUMBLED UPON THE SAME DEVICE KNOWN AS THE 'CO-MERER' WHICH WAS ALSO USED FOR THE EARLIEST FORM OF RADIO RECEIVERS BY MARCONI.

"MY MYSTIFICATION BECAME GREATER WHEN I DISCOVERED THAT A SIMILAR BUT MUCH LOUDER CRACKLE WAS PRODUCED AT CERTAIN TIMES FROM A GREATER DISTANCE. ELECTRIC TRAMS HAD JUST BEEN INTRODUCED TO PORT ELIZABETH TO REPLACE THE HORSE-DRIVEN CARS, AND THE HOUSE IN SHERLOCK STREET WAS NOT FAR FROM THE NORTH END BRIDGE."

COLOSSAL SPARK.

ABOUT 100 YARDS FROM WHERE THE TELEPHONE WAS KEPT THERE WAS A CROSS-OVER IN THE OVERHEAD Trolley WIRES (AT ST. PAUL'S CHURCH.)

"WHENEVER THE TRAMS CROSSED THAT WIRE," SAID MR. JENNINGS, "I GOT A COLOSSAL ELECTRIC SPARK AND THIS COULD BE HEARD RIGHT DOWN THE ROAD. I TOOK A GALVANOMETER AND SAW ITS NEEDLE SWING HEAVILY ON ONE SIDE AS THE TRAMS WENT BY. THERE WAS NO QUESTION OF ANY PHYSICAL EFFORT. I DECIDED TO CALL IN EXPERT ADVICE."

MR. HAMMERLEY HEENAN, CHIEF HARBOUR ENGINEER, MR. CHUBB MEREDITH, DIRECTOR OF THE GREY INSTITUTE AND HIMSELF A SCIENCE TEACHER, PROFESSOR (AFTERWARDS, SIR) GEORGE GORY, WHO THEN WAS STILL A CHEMIST, NOT AN HISTORIAN, AND MAJOR TAMPLON, THE MEMBER OF PARLIAMENT FOR GRAHAMSTOWN, ALL CAME TO THE HOUSE IN SHERLOCK STREET AND WERE ALL EQUALLY PUZZLED.

FINALLY, MR. HAMMERLEY HEENAN, WHO WAS THE ONLY TECHNICAL MAN, JOKINGLY PUT FORWARD THE VIEW THAT "IT MUST BE A MESSAGE FROM MARS." THE WHOLE OF PORT ELIZABETH CAME TO SEE THESE HAPPENINGS, BUT AS YET THERE WAS NO NEWS AS TO ANYTHING HAPPENING OVERSEAS ON SIMILAR LINES.

MEANWHILE, MR. JENNINGS HAD AN ASSISTANT WHO WAS PROVING INCREASINGLY HELPFUL. THIS WAS HIS WIFE, THEN A YOUNG GIRL. "I REMEMBER SO WELL," SHE TOLD ME, "HOLDING WIRES FOR HIM AND SCREWING THINGS, AND SO ON." MR. JENNINGS ADDED, WITH A SMILE, "SHE WAS INVALUABLE."

FOR SEVERAL MONTHS THE POST OFFICE OFFICIAL WORKED ON AN IMPROVED APPARATUS, NAMELY THE RUHMKORFF COIL. THIS PRODUCED EVEN BIGGER AND LOUDER SPARKS, MEASURING BETWEEN ONE AND FOUR INCHES.

A MORE AMBITIOUS ATTEMPT TOOK PLACE WITH THE ASSISTANCE OF A COLLEAGUE BETWEEN THE HOUSE IN SHERLOCK STREET AND COOPER'S KLOOF - A DISTANCE OF HALF A MILE. THE FRIEND JAMES MURRAY OF THE TELEGRAPH DEPARTMENT, HAD SOME WIRE-NETTING SUSPENDED ON A FLAG STAFF AND EVERY TIME THE SIGNAL CAME THROUGH HE RAN UP A FLAG.

FOR THE BENEFIT OF THE TOWNSMEN A DEMONSTRATION WAS GIVEN IN THE TOWN HALL AT PORT ELIZABETH. THE DEVICE CONSISTED OF TWO SOLID BRASS BALLS, THREE INCHES IN DIAMETER, BETWEEN WHICH HUNG THE AERIAL IN THE SHAPE OF ANOTHER BALL THREE-QUARTERS OF AN INCH IN DIAMETER, SUSPENDED FROM THE END OF A WIRE.

ONE OF THE LARGER BALLS WAS EARTHED AND THE OTHER WAS JOINED TO THE SPARK COIL. BY MEANS OF AN ORDINARY TELEGRAPH KEY A TORRENT OF SPARKS WAS SENT ACROSS THE GAP AND THE AWE-STROCK VISITORS COULD SATISFY THEMSELVES THAT THERE WAS "POSITIVELY NO DECEPTION." MR. HENSULL, THE POSTMASTER OF PORT ELIZABETH, WAS MOST HELPFUL IN THE WORK AND THE INTEREST GREW ALL THE MORE WHEN REPORTS CAME THROUGH SOME MONTHS LATER THAT MARCONI WAS DOING EXACTLY SIMILAR WORK ACROSS SALISBURY PLAIN.

BY THIS TIME MR. JENNINGS MOVED HIS APPARATUS AND RECEIVING SET BY HORSE AND CART TO THE LIGHTHOUSE AT CAPE RECEIFE AND ERECTED HIS TRANSMITTER IN THE LIGHTHOUSE ON THE DONKIN RESERVE, OVERLOOKING THE TOWN. THAT WAS IN JULY 1899. HE NOW ATTAINED THE RECORD DISTANCE OF EIGHT MILES. THERE WAS NO MORE ANY QUESTION OF SECRET WIRES SUCH AS THE WRITER OF ONE SCURRILOUS NEWSPAPER ARTICLE HAD SUGGESTED.

"ALL THAT THE LIGHTHOUSE-KEEPER USED AS AN AERIAL WAS A STRIP OF WIRE-NETTING ABOUT A FOOT WIDE", SAID MR. JENNINGS. "IT WORKED SO WELL THAT IT WAS JOINED ON TO A MORSE TAPE MACHINE PRINTER.

I SENT THIS TAPE TO MR. J.P. EDWARDS, CHIEF ENGINEER OF THE CAPE TOWN POST OFFICE WHO WAS VERY IMPRESSED AND HE SUGGESTED TO SIR SOMERSET FRENCH, THE POSTMASTER GENERAL, THAT SOME FUNDS BE ALLOCATED TO HELP ME IN MY FURTHER RESEARCH."

BACKING UP THIS APPEAL, MAJOR TAMPLIN, THE M.L.A. STOOD UP IN PARLIAMENT AND MADE A SIMILAR REQUEST. MR. JOHN X. MERRIMAN, THE RESPONSIBLE MINISTER, GAVE AN ANSWER WHICH REMAINS CLASSIC IN ITS STUPIDITY.

"LIFE," HE SAID, "IS TOO TROUBLESOME WITH ORDINARY TELEGRAMS. WITH WIRELESS TELEGRAPHY IT WILL BE UNBEARABLE".

EVEN THEN MR. JENNINGS HAD ONE MORE CHANCE TO TRY OUT HIS WORK. CAPTAIN ARMSTRONG, OF THE UNION LINER GASCON, WHOSE SHIP WAS LAYING AT ANCHOR THREE MILES OUT IN ALGOA BAY, ALLOWED MR. JENNINGS TO REPEAT HIS EXPERIMENT ON BOARD SHIP. THE RESULTS WERE AS EXCELLENT AS ON LAND.

"WHAT THEN?" IS ASKED. "NOTHING MORE HAPPENED," SAID MR. JENNINGS, WITH A SMILE. "I JUST LEFT IT. I WENT ON WITH MY CAREER IN THE POST OFFICE, REMAINING THERE UNTIL 1914 IN PORT ELIZABETH AND THEN GOING ON TO JOHANNESBURG. I RETIRED IN 1923."

"DO YOU TAKE ANY INTEREST IN RADIO TODAY?" I QUERIED. "I SOMETIMES LISTEN TO IT," HE SAID, "BUT THAT IS ALL".

MR. JENNINGS ATTRIBUTES HIS SUCCESS TO "THE REMARKABLE EFFICIENCY OF THE SPARK COIL EMPLOYED. HE RECALLS THAT THE MAKING OF THE COIL WAS A JOB CALLING FOR ALMOST ORIENTAL PATIENCE AS WELL AS GOOD EYESIGHT AND TOOK ABOUT SIX MONTHS. THE COIL WAS OVER A FOOT IN LENGTH AND ABOUT HALF THAT IN DIAMETER; IT CONTAINED OVER SEVEN MILES OF COPPER WIRE AS FINE AS THE BRISTLES OF A HAIR-BRUSH AND WAS WOUND IN 72 SECTIONS OR DISKS ABOUT 1/6TH OF AN INCH THICK, EACH SEPARATED BY A DISK OF THIN VULCOMBE - ALL THIS ON A TREADLE LATHE.

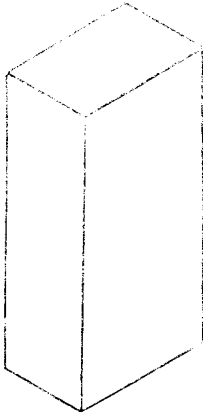
TNX TO BILL ZS2BY FOR THIS ARTICLE.

NEW PRODUCT REVIEW

With the use of high performance computer equipment increasing in the legal profession (witness LA LAW, general office), it was felt that a new IC device marketed by AMD Inc. under the type number Am95XIV might be useful in possible upgrades of these systems. The device is a FLOATING-POINT ROMAN NUMERAL ARITHMETIC PROCESSOR UNIT and a rundown of its specifications and operation is given below:

DISTINCTIVE CHARACTERISTICS:

- * XII Digit precision
- * Latin mnemonics for commands
- * No divide-by-zero errors
- * Square roots dimensioned in CUBITS
- * Single VV power supply
- * XVI-bit viaduct interface
- * Soft vertical scrolling available
- * Abacus-to-Roman Conversions
- * Fast divide-and-conquer routine
- * MOS/LSIV Technology
- * MIL-STD-SPQR

MONOLITHIC BLOCK DIAGRAM

(STANDARD Non-in-line (NIL) Package)

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Ancient Micro Devices Inc.

FUNCTIONAL DESCRIPTION:

The Am95XIV Floating Point Roman Numeral Arithmetic Processor Unit is a complex monolithic MOS/LSIV device designed to provide high-performance floating-point arithmetic functions using Roman Numeral formats. In typical systems this device replaces at least VL scribes working in III shifts.

The FPRNAPU offers several interface options. Standard output is programmable for either clay tablets or for papyrus rolls with automatic vertical scrolling. Optionally available is a direct interface to a heavy-duty impact printer for inscribing marble documents. Three-column outputs may be Doric, Ionic or Corinthian. The input interface is for a standard floppy-disc.

The exponent field of the floating-point format takes advantage of a new compact structure called Quad Extended Decimal (Q.E.D.). The mantissa uses the ad-hoc rounding standard (I.E., IEEE). Overflow errors caused by Vesuvius functions are automatically processed by the Pompeii algorithm. Allowed rise and fall times are quite long; see Gibbon for details.

All parts undergo burn-in at our new Nero facility. Hannibal handles all environmental and stress tests in the field. Infant mortality is limited to the first-born of each process batch. All parts tested to MIL-STD-SPQR except those shipped to Gaul.

The internal VIII-bit Modus Operandi register is used to select operating mode options and to enter Latin commands. For use as a slave processor, automatic chaining operations may be specified. The internal state of the FPRNAPU is reported in the Status Quo register.

Parts are available off-the-shelf. Et Tu Electronics has agreed to take a stab at second-sourcing of this product. Users should beware since parts will not be available until mid-March. For further technical information, call AMD any time, except during July and August, using toll-free number:

REMOTE CONTROL IN ASTRONOMY

by Dr Paul Murdin, Royal Greenwich Observatory

Light from quasars and galaxies in distant regions carries messages about the beginnings of the universe. But perceiving it is difficult unless telescopes are sited on mountain tops to avoid interference from scattered artificial light. Astronomers have taken the first steps in operating such telescopes from data centres and remote control rooms instead of travelling the world to distant mountains. This is not just a matter of economy: it brings advantages of efficiency and new opportunities.

ASTRONOMERS WHO STUDY RADIATIONS WHICH CANNOT PENETRATE THE EARTH'S ATMOSPHERE ARE USED TO OPERATING THEIR TELESCOPES REMOTELY. THEY HAVE HAD TO, FOR SUCH TELESCOPES HAVE BEEN CARRIED ON BOARD SATELLITES ORBITING THE EARTH. THE INTERNATIONAL ULTRAVIOLET EXPLORER (IUE) OPERATED BY THE EUROPEAN SPACE AGENCY TRACKING STATION FROM MADRID, THE EUROPEAN X-RAY ASTRONOMY SATELLITE OPERATED FROM DARMSTADT, GERMANY AND THE INFRA RED ASTRONOMY SATELLITE WITH ITS GROUND STATION IN THE RUTHERFORD APPLETON LABORATORY AT CHILTON, NEAR OXFORD, ARE ALL SATELLITES IN WHICH UK ASTRONOMERS HAVE PLAYED AN ACTIVE PART AND TO WHICH REMOTE OBSERVING TECHNIQUES HAVE BEEN APPLIED.

IT IS NOT SO CLEAR WHY A TELESCOPE ON THE GROUND HAS TO BE REMOTELY OPERATED. UNTIL RECENTLY, MOST TELESCOPES HAVE BEEN NEAR THE ASTRONOMER'S BASES AND COULD BE OPERATED BY THE ASTRONOMERS TRAVELLING TO THEM. BUT OVER THE LAST 20 YEARS ASTRONOMERS HAVE SOUGHT OUT PLACES ON DISTANT MOUNTAINS AS SITES FOR THEIR TELESCOPES, AND THAT IS WHY WE HAVE BEGUN TO APPLY SPACE TECHNIQUES TO GROUND-BASED EQUIPMENT.

WHY ARE WE PUTTING OBSERVATORIES ON MOUNTAINS, IN DISTANT COUNTRIES AND IN RELATIVELY INACCESSIBLE PLACES?

QUASARS AND GALAXIES WHICH FORMED IN DISTANT REGIONS SOON AFTER THE ORIGIN OF THE UNIVERSE EMIT LIGHT WHICH CARRIES MESSAGES ABOUT CONDITIONS IN THE SO-CALLED BIG BANG. THE LIGHT TRAVELS TO US OVER TIMES OF THE ORDER OF 10^{10} YEARS, OVER DISTANCES OF SOME 10^{25} KM. IT IS CONSIDERABLY DILUTED BY TRAVELING THIS DISTANCE (UNDERSTATEMENT!) SO, TO GAIN INFORMATION ABOUT THE CONDITIONS IN AND AFTER THE BIG BANG, ASTRONOMERS HAVE TO STUDY FAINT OBJECTS. THEIR LIGHT IS PERCEIVED AGAINST A 'NOISE' OF BACKGROUND LIGHT FROM CONTAMINATING SOURCES SUCH AS ARTIFICIAL LIGHT SCATTERED BY DUST AND THEIR IMAGES ARE BLURRED BY PASSAGE THROUGH THE EARTH'S ATMOSPHERE. IN THIS DIFFICULT STUDY, MAXIMUM INFORMATION CAN BE GAINED ONLY IF THE FAINT SOURCES CAN BE SEEN WITH THE HIGHEST CONTRAST, AS THE SHARPEST IMAGES AGAINST THE DARKEST SKY. THESE ARE THE REASONS WHY ASTRONOMERS HAVE BUILT TELESCOPES IN THE CLEAR AIR ON MOUNTAIN TOPS, FAR FROM POPULATION CENTRES THAT EMIT LIGHT AND GIVE OFF SMOKE. BRITISH ASTRONOMERS HAVE ACCESS TO TELESCOPES IN AUSTRALIA, HAWAII AND, MOST RECENTLY, THE CANARY ISLANDS, FAR FROM THE OVERCROWDED INDUSTRIALIZED AREAS OF EUROPE.

RELATIVE COSTS.

THE DECISION WHETHER TO TAKE THE TELESCOPE'S CONTROL AND OPERATION SYSTEM TO THE USER, OR THE USER TO THE TELESCOPE, DEPENDS UPON THE RELATIVE COST OF TRAVEL AND THAT OF COMMUNICATIONS. THE UK TRAVEL BUDGET FOR ASTRONOMY IS OVER ONE MILLION POUNDS PER YEAR AND, AS FUEL BECOMES MORE EXPENSIVE RELATIVE TO THE COSTS OF COMMUNICATIONS BAND WIDTH, THE REMOTE OPERATION OF

A TELESCOPE BECOMES MORE COST-EFFECTIVE. REMOTE OPERATION CAN ALSO OFFER CERTAIN ADVANTAGES TO THE ASTRONOMER. IF THE OBSERVATORY IS VERY FAR ABOVE SEA LEVEL IT MIGHT BE ADVANTAGEOUS TO OVERCOME THE ASTRONOMER'S INEFFICIENCY IN WORKING AT AN ALTITUDE WHERE OXYGEN DEPRIVATION CAN SPOIL JUDGEMENT. ONE ASTRONOMER REPORTING ON HIS EXPERIENCE AT MAUNA KEA IN HAWAII AT 4200 METRES IS QUOTED AS SAYING "I CONFUSED THE CO-ORDINATES AND POINTED THE TELESCOPE TO THE WRONG PLACE TO TAKE MY PICTURE, BUT THAT DIDN'T MATTER BECAUSE HALFWAY THROUGH DEVELOPING THE PHOTOGRAPH IN THE FIXER I REALISED I HAD THE DARKROOM LIGHTS ON".

THE SIMPLEST OBSERVATIONS TO MAKE REMOTELY ARE THOSE WHICH ARE REPETITIVE AND WHICH GENERATE SIMPLE MEASUREMENTS. THE CARLSBERG AUTOMATIC MERIDIAN CIRCLE (CAMC) ON LA PALMA IN THE CANARY ISLANDS MAKES OBSERVATIONS OF THIS KIND. THE INSTRUMENT, JOINTLY BUILT BY THE COPENHAGEN UNIVERSITY OBSERVATORY AND THE ROYAL GREENWICH OBSERVATORY, IS A TELESCOPE WHICH ROTATES AROUND ONLY ONE AXIS, IN A NORTH-SOUTH PLANE. ITS PURPOSE IS TO TIME STARS AS THEY TRANSIT THROUGH THE PLANE, AND TO MEASURE THEIR ANGLE OF ELEVATION ABOVE THE HORIZON. EFFECTIVELY THIS MEASURES THE POSITIONS OF THE STARS, AND INDEED THE PLANETS, INCLUDING THE ONE ON WHICH THE TELESCOPE IS MOUNTED. CONSTRUCTION OF A CONSISTENT MODEL OF THE INTER-RELATIONS OF THE STAR POSITIONS, AND THEIR CHANGE FROM DECADE TO DECADE, YIELDS INFORMATION ABOUT THE MOTION OF THE EARTH AND THE DYNAMICS OF THE SOLAR SYSTEM AND OUR GALAXY OF STARS. TRADITIONALLY, TRANSIT MEASUREMENTS HAVE BEEN MADE BY NOTING THE TIME A STAR IS SEEN BY EYE TO PASS BEHIND A VERTICAL CROSS HAIR AND MEASURING ITS POSITION ALONG THE HAIR. IN THE NEW TECHNIQUE USED BY THE CAMC, THE STAR IS IMAGED ON TO A V-SHAPED MASK WHICH IS SCANNED BACK AND FORTH. STARLIGHT PASSING THROUGH THE MASK IS READ BY A PHOTO-MULTIPLIER; THE PHASE INFORMATION IN ITS OUTPUT YIELDS THE POSITION OF THE STAR ALONG THE V. THE TELESCOPE IS AUTOMATICALLY OPERATED BY TWO MINI-COMPUTERS WHICH SELECT STARS FROM A PRIORITY LIST HELD ON A DISC, POSITION THE TELESCOPE TO CATCH THE SELECTED STAR FOR TRANSIT, MAKE THE MEASUREMENTS AND REDUCE THE DATA. THEY MONITOR THE ATMOSPHERIC CONDITIONS AND COVER THE TELESCOPE WHENEVER IT RAINS; THEY CHECK FOR CLOUD AND MALFUNCTIONS, AND THEY MAKE CALIBRATION MEASUREMENTS ON A SCHEDULE. THE EFFICIENCY OF THE TELESCOPE IS SUCH THAT IT MEASURES THE POSITION OF 1000 STARS PER NIGHT TO AN ACCURACY OF 0.2 ARC SEC (EQUIVALENT TO MEASURING THE DIAMETER OF A COIN 22MM, AT A DISTANCE OF NEARLY 20KM). IT CONSTRUCTS IN ONE YEAR A COMPLETE CATALOGUE OF STAR POSITIONS WHICH WOULD FORMERLY HAVE TAKEN A DECADE TO REDUCE. THE CAMC OPERATES REMOTELY IN THE SENSE THAT, AFTER IT IS PRIMED AT NIGHT, THE TELESCOPE WORKS WITHOUT INTERVENTION; IN FACT THE ASTRONOMER OPERATING IT SLEEPS SOME DISTANCE AWAY FROM IT. NEXT STEP IN ITS OPERATION WILL BE TO GAIN ACCESS TO ITS PROGRAMME PRIORITIES AND TO THE REDUCED DATA FROM THE U.K.

THE LONGEST LINK YET ACHIEVED IN REMOTE-CONTROL GROUND-BASED ASTRONOMY IS BETWEEN THE ROYAL OBSERVATORY, EDINBURGH AND THE UK INFRA RED TELESCOPE (UKIRT) ON HAWAII. DATA STREAMS TRAVEL BY MICROWAVE LINK FROM THE TELESCOPE AT 4200 METRES TO THE SEA-LEVEL BASE AT HILO AND THEN VIA A CHAIN OF PACKET SWITCHED NETWORKS ACROSS THE OCEAN TO SCOTLAND. THIS SYSTEM, USING THE RELATIVELY LOW DATA RATES OF INFRARED ASTRONOMY BASED ON POINT-BY-POINT ACCUMULATION OF DATA, INSTEAD OF ACCUMULATION OF IMAGES, HAS BEEN SUCCESSFULLY USED FOR A COUPLE OF YEARS. THE CAMC AND UKIRT GENERATE DATA AT LOW RATES.

(TO BE CONTINUED.)

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