



## New facilities at BBC training centre

Trainee engineers and technical staff will benefit from new facilities at Wood Norton. Two new dormitory blocks, which have recently been opened by past Directors of Engineering, Sir Francis McLean and Sir James Redmond, bring to an end a seven year plan to modernise and update the residential facilities at the training centre. The new "McLean" and "Redmond" dormitories feature large conference and meeting rooms as well as 160 single-study bedrooms. They replace old wooden huts built to house wartime broadcasting staff, and post-war temporary dormitory buildings. The centre can now accommodate up to 300 students in single room studies.

Welcoming the past Directors of Engineering and other guests to the opening ceremony, Bryce McCrirrick, (DE), spoke of the valuable part that Engineering Training Department, (ETD) played in the training of broadcast engineers; not only



Sir Francis McLean, watched by Bryce McCrirrick (DE), unveils a plaque on the new dormitory.

for the BBC, but foreign broadcasters as well, since the courses run at Evesham were recognised worldwide. He paid tribute to the ETD staff for maintaining the high standard of training whilst the modernisation programme was in progress, and to the architects and civil engineers, for the fine buildings they had designed.

In response, Sir Francis McLean told the story that once, on an overseas visit, a foreign head of engineering, hearing that Sir Francis was from the BBC, asked if he knew Harry Henderson. Such was, and still is, the reputation of the ETD abroad!

Sir James Redmond, who was accompanied by Lady Redmond, recalled how he and a few other senior BBC engineering managers had spent a "pleasant" weekend hearing about digital techniques many years ago. He feared that he would probably fail his "c" course if he had to sit it today - a sentiment echoed by many of the engineers present!

After lunch the guests and visitors were treated to a tour of the ETD facilities.



The McLean and Redmond dormitories at Wood Norton.

# LETTER TO THE EDITOR

Dear Sir

Regarding the article in Eng Inf 23, I was the SCPD Project Leader responsible for the installation of the line-store convertors at Television Centre. Unfortunately, due to the passage of time and several office moves, I no longer have records of the installation. However, a couple of telephone calls to my colleagues have allowed me to piece together an approximation of what happened.

In 1964/5 Network Control 1 and Sub-Control were refurbished with equipment and circuits suitable for working 405 and 625. (This refurbishment immediately followed the construction and service of NC2 and BBC2). In 1966 it was decided that refurbishment of studios, etc, to be dual standard should cease and that all picture origination should be at 625-line standard. To achieve this a 625 to 405 convertor was put in the output of N1 but could be overplugged to the output of Sub-Control. If a 405-line source was faded up, the convertor was bypassed to avoid the dreaded double conversion. At this time, the 405 to 625 convertor was only used to allow 405 sources to be transmitted on BBC2.

Subsequently, about 1969, when BBC1 UHF transmissions commenced, the transmitter sites were provided with 625 to 405 convertors and the BBC1 output from Television Centre was at 625-line standard. By this time, most sources were capable of originating 625 and it was mainly only archive material that suffered the double conversion. The line store convertors used for this purpose were made by Design Department, and were, in fact, the precursor of the DD field store convertor.

Research Department also made a bigger and better line store convertor but, if my memory is correct, it was only used to clean up the signal coming from the RD analogue field store convertor.

Both types of field store convertors were installed in Television Centre for use with transmissions from the Olympic Games in 1968. I remember this well because despite much forward planning, both equipments (several bays each) arrived at Television Centre on the same day.

Page 2 - Eng Inf Spring 1986

Another anecdote regarding 625 origination. After installation of the 625 405-line store convertor with 625/405 detectors on each of the sources to the Network mixer and a 'cue router' to provide the control signal for the convertor bypass switch, we forgot to allow for the fade-to-black. The equipment had been in service for a few days before the problem was diagnosed and, of course, immediately solved.

Eric Taylor

Senior Planning Engineer, SCPD

## Transmitters Opened

The following transmitters have opened or changed since January:

### UHF Television

Bangor	Co Down
Brading	1.0.W.
Crosby Ravensworth	Cumbria
Elham	Kent
Lyminge	Kent
Mountfield	E Sussex
Rhondda B	Mid Glamorgan
Rosedale Abbey	N Yorks
Steyning	W Sussex
Tintern	Glos
Trecastle	Powys

### VHF Radio : New

Keelylang Hill	Orkney
Aberdare	Mid Glamorgan

### VHF Radio Re-engineered

Barnstaple	Devon
Tacolneston	Norfolk

### Local Radio Frequencies changed

R Derby	Sutton Coldfield
R Humberside	High Hunsley
R Northants	Geddington
	Moulton Park
R Sheffield	Holme Moss

Copies of the booklet "Radio and Television stations 1986" may be obtained by ringing EID on LBH 5040, or by writing to Room 713, HWH.

# Computer Keeps Track of 2000 Broadcast Services

From the balmy Scilly Isles to the wind-swept Orkney Islands, Transmitter Department is responsible for keeping the BBC's transmitting stations running. The stations range from half-watt uhf transmitters serving small villages, to the half-megawatt, short-wave transmitters used for the External Services. There are over a thousand transmitting sites, with about two thousand transmitters in use.

Keeping records about such an operation can be very difficult, and a new Burroughs computer system has recently been bought to help with this. The computer is being brought into use with the help of Engineering Computer Services staff, who evaluated many different makers' products before the Burroughs was chosen. The new system consists of an XE520 "mini" computer with 37 Hbyte Winchester disc storage, and three B26 work-stations networked together.

Commercially available software was purchased to cut the time taken to get the system into use. The main software is a database management system which keeps track of the information held in the computer. Using ready-made software has great advantages; for example, the system is largely self-documented, making later changes easier. Programming is easier because it is possible to focus on the end-use rather than the fine details of coding.

Other software available includes the "Multiplan" spreadsheet with graphics capability, and a versatile word processor. An extended Pascal compiler is also available for specialised programs. The spreadsheet has already proved useful for financial and manpower planning.

Besides the word processing and spreadsheet use, three main applications are being developed. These are a full database of BBC transmitting stations, a service message database, and an equipment fault analysis system.

The main database will hold site and equipment information for each transmitting station. Site information includes fixed data, like National Grid Reference

and telephone numbers; equipment data includes type of transmitters, programme sources, mast height, etc. Typical queries which could be answered by the system include finding sites with masts above a particular height, and giving a list of all stations where a particular equipment type is used.

The service message system will take over from the present Hewlett Packard computer which receives messages about service loss and degradation at BBC stations. These come in on the Message Switching System (MSS), from Monitoring and Information Centres (MICs), and from External Services transmitting stations at home and abroad. Problems with stations can be identified by analysing historical data held in a database containing service messages going back over several years. For example, the need to install standby generating plant at a station can be shown by looking at the record of mains failure over a period.

The third main application, and the most ambitious, is to build up a similar database for transmitter equipment faults. Information on faults is obtained from maintenance staff and put onto discs using BBC micros at the team bases. These discs are then sent to HQ for entry into the Burroughs computer. This system will provide automatic alarms if equipment is unreliable so that changes can be made to improve reliability. The overall aim is to provide better service to the public at lower cost to the BBC.

BBC micros at team bases are also used to return information on how often transmitting stations are visited for maintenance. This data is held on the central database and is used to generate the Comparative Work Points for each maintenance team. This is an important tool for ensuring efficient use of staff in the department.

**Peter Lee**  
**Transmitter Department**

\* \* \* \* \*

# Masterful

## .Acorns

Acorn Computers Ltd have recently released the new Master Series BBC micro-computer, which will replace the Model B, already out of production, and the Model B+, which is being phased out. There are five models in the new series, ranging in price from £399 to £1,600, with 10% discount when ordered through the BBC Club.

### Master 128

The standard micro is The Master 128 (£499), based on 65C12 processor with a total of 128K of RAM; 64K in sideways and 64K standard, including 20K shadow; 50 bytes of ROM are stored in a battery backed clock. The machine comes fitted with the 1770 disc filing system (DFS), the machine operating system (MOS), with extended graphics, Basic 4.0, View 3.0, Viewsheet, Edit (a screen editor) and an ADFS all contained in a single 128K ROM.

### Econet Terminal

The Master Econet Terminal (ET1 (£399) is similar to the 128, but without some of the interfaces, such as the DFS. The machine is fitted with an Advanced Network Filing System instead, and this can be used to link the computer to the older Model B or Model B+ machines without difficulty. It is possible to upgrade the ET with a DFS, but Acorn will not be supporting this.

### Co-Processor

For an extra £125 the Master 128 can be fitted internally with a second processor (now called a co-processor) based on a fast 4MHz 65C102 processor and called the Master Turbo. Z80 second processors can still be used externally, connected via the familiar tube connector.

Page .. - Eng Inf Spring 1986

### Master 512

Next in the range is The Master 512, with half a megabyte of memory, and 16-bit 80186 processor. The machine comes complete with a range of software, such as DOS+, or the GEM collection from Digital Research. Acorn do not claim IBM PC compatibility, though it should be capable of running programs such as Wordstar that do not rely on IBM hardware.

### Master Scientific

Top of the range is The Master Scientific upgrade, again with half a megabyte of memory, and a 32-bit 32016 processor. This allows languages such Fortran 77, ISO Pascal and C to be used. Programs developed on the Scientific will run unchanged on a mainframe in most cases.

### Other Features

The machine physically resembles the familiar cream and black Model B and B+, but has an extended keyboard making it wider. Acorn have included a full numeric key-pad complete with arithmetic function and return keys to accommodate this, the arrowed edit keys have been re-configured. The 128 comes with two ROM cartridge sockets (similar to the Electron), with each cartridge supporting two 16K ROMs. Internally, there is space for three more ROMs, two at 32k and one at 16K. The LEDs have been moved to the top of the keyboard and the cassette motor indication removed. The loudspeaker now appears in the centre of a raised cover, and the function strip has been re-designed to be angled. It is just the right length for those strips of key identification, (no more wrong keys pressed because the function strip moved!)

The whole of the cover has been raised, to accommodate the co-processor, though the overall height is similar to earlier models. This has been achieved by altering the size of the rubber feet, which, at the same time, prevents objects such as pencils from disappearing into the 'black-hole' underneath!

The power supply unit and disc-drive connectors are placed in the same position as the earlier models. To the underside of the case, and to the rear, are extensive air-vents, and the machine does not get quite so hot! The rear connectors have been re-arranged, though the uhf output still appears on a nasty phono socket. The interface connectors under-