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## WHATEVER HAPPENED TO VERA?

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**Abstract:** The road to technological progress is littered with unsuccessful prototypes and their inventors. In British television there is perhaps no better example than John Logie Baird, universally recognised as the successful inventor of the technology, but not of the successful business model. Another, lesser known, casualty is the Vision Electronic Recording Apparatus (VERA), developed within the BBC Design Unit between 1952 and 1958. VERA had the potential to change the production and working practices of British television, in ways yet to be imagined or apparent, but just as it reached completion it was superceded by an American import.

This article, based entirely on secondary sources, seeks to illuminate and narrativise some of the threads in the hidden, or certainly largely unexplored, history of video in British television, to identify a pathway for further development of this research, notably at the BBC Written Archive at Caversham.

The start date of 1955 recognises the ending of the BBC's television monopoly and the changes and shifts that the BBC had to adjust to as broadcasting became a duopolistic and unionised industry. The end date reflects a point where the quality of 'non-broadcast' video technology reached the standard that had previously been set as the broadcast minimum by the broadcasting unions.

**Keywords:** British Television, Video Technology, Working Practices, Unionised Production Facilities

In April 1958 the BBC current affairs programme *Panorama* (BBC1, 1953–present) transmitted a ['live' demonstration of the Visual Electronic Recording Apparatus \(VERA\)](#) that had been developed in the BBC Design Unit by Dr Peter Axon and his team over the previous six years.

VERA was a visual tape recorder, housed in three separate but connected casings, the largest of which was the size of an upright piano, with two vertically mounted spools of half-inch magnetic tape on to which 15 minutes of 405-line black and white image could be recorded, to be viewed on the integrated monitor a quarter of a second later. The monitor fitted into the second casing and the third held the mechanisms that connected the record and replay functions. The tape was threaded between three heads that helically scanned the tape that ran at 200 inches per second.

When VERA started, there was little understanding of the way that video would change the working practices of television. Even with the limited vision of the full potential of tape technology, there were a number of advantages for

the BBC. Up until that point television was live, with the exception of the national events that were important enough to be filmed by Outside Broadcast Units (OBs). If a programme was repeated, it was re-performed and television studios were only in use during the still-limited transmission times. Content could be performed in the studio for later transmission, or the live transmission could be recorded for a repeat transmission. Recording allowed experimental productions to be recorded and checked before broadcast; ideas and techniques could be tried and tested, allowing for greater innovation and creativity. Furthermore, tape is both reusable and does not incur processing costs. Rather than following the trajectory of earlier recording technologies of photography, sound recording and film, where the function and business model emerged as a response to the dominant use, VERA was developed to improve the efficacy of BBC television studios.

The development of VERA began in 1952 predating the 1954 Television Act, which finalised the introduction of the duopoly. While the BBC held the monopoly, it was their responsibility to develop whatever technologies it required to deliver its service and fulfil the universal remit. Yet once the duopoly was introduced, the BBC had to adjust their working practices as broadcasting became unionised, whereas previously BBC staff belonged to the internal staff organisation. Staff who worked for the new commercial franchises had largely migrated from the various strands of the British film industry and were already members of the Association of Cinematographic Technicians (ACT).

Another adjustment was the introduction of the UK to the emerging international market where a cultural and linguistic affinity with the United States existed. As well as franchises importing American content and licensing American formats, production conventions, formats and technologies dominant in the US market quickly arrived in the UK, including a 'visual tape recorder.' Made by AMPEX, the dominant manufacturer in music recording, the VR1000 was launched in 1956 and was awarded an Emmy the following year for services to the American television industry. The VR1000 was a more compact unit, with the monitor, recorder and spools housed in one unit. It used 2-inch tape, which was read by the quadruplex (quad) system at a speed of 15 inches per second, providing a more stable recording function than the helical scan system of VERA with a tape speed of 200 feet per second. The technology of the two machines was very similar – the difference was that the AMPEX used rotating heads to read the information on the tape as it passed over them, enabling a slower tape speed than VERA, with its static heads over which the tape ran at high speed.

In June 1958, two months after the *Panorama* demonstration of VERA, Associated-Rediffusion, the commercial license holder for London, demonstrated their new VR1000 machine at an industry showcase at Television House. The next week Associated Rediffusion used the VR1000 in an edition of the current affairs programme *This Week* and it was apparent that VERA's days were numbered; however [the BBC continued to develop VERA](#) as a bargaining tool, so it would be offered some of the first AMPEX machines produced in unstated exchange for abandoning further work on a potential rival.

The BBC took delivery of their first VR1000 in August 1958, just two months after Associated Rediffusion, and made a trailer for an adaptation of *A Tale of Two Cities* that screened on 1 October 1958.<sup>1</sup>

The AMPEX machine was a deal breaker in 1959, as the BBC negotiated with comedian Tony Hancock for further series of the popular *Hancock's Half Hour* (BBC1 1956–1961). This notoriously 'difficult' performer had previously used the American sitcom production practice of 'discontinuous recording' (on film) to record his show in segments to relieve the pressure of live broadcasts.<sup>2</sup> Hancock refused to sign a new contract unless his show could be produced on tape. The BBC agreed, but restricted this 'experimental' production to *Hancock's Half Hour*, because in addition 'to engineering issues, there were trade union issues affecting the programme-making techniques ...'<sup>3</sup>

These were long-standing issues between the BBC and the performer unions of Equity and the Musicians Union, but not yet with the broadcasting union and staff organisation. A history of sometimes strained relationships and, from

<sup>1</sup> Asa Briggs, *The History of Broadcasting in the United Kingdom. Volume V: Competition 1955–1974*, Oxford University Press, 1995, p. 213.

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.*, p.213, fn16.

the unions' viewpoint, existing agreements that were no longer sustainable as they did not reflect the market rate that commercial licencees were prepared to pay for performances and copyrights. When Granada (ITV Licencee for the north west of England) committed to 'tele-record' all of their output in their franchise application,<sup>4</sup> they negotiated a 'blanket agreement' with the performers' union where payment for a performance included a repeat fee. That this single payment was higher than what the BBC paid for two performances meant that even established BBC names were willing to at least talk to the competition. The Corporation's negotiating power was substantially reduced as performers, as well as viewers, could now switch to 'the other side.'

Perhaps the first artist to exploit this was Tony Hancock, an early BBC 'valuable property', whose negotiations regarding the production techniques of his show also saw his fee for performing an episode of *Hancock's Half Hour* increase from £500 for a one-off performance to £1750 for a performance and a repeat, so keen was the Corporation to retain his services (although it was likely that this would be his last series for the BBC).<sup>5</sup> The inclusion of a repeat fee benefitted commercial franchises that sold productions to others in the ITV network, whereas the public-service basis of the BBC precluded commercial activity and, with only one channel, the Corporation had less need of recorded programmes.

As well as issues with the performers' unions, the Corporation was also affected by the unionisation of broadcasting, with many BBC television personnel belonging to the Association of Broadcast Staff (ABS), formerly the BBC staff association, and to the ACT, even though the BBC did not recognise the latter. In turn, the ABS was not recognised as a television union by the ACT because its membership included those in radio.<sup>6</sup>

The BBC was concerned too about their production values, working practices and the conventions they had established being easily transferred to their competitors who paid higher wages. One technique deployed by the BBC was to re-employ recently retired or departed producers and directors ('the creatives') on short-term contracts to ensure that they would be unavailable to work for the franchises. Those BBC personnel who might be tempted by the higher salaries and the creative possibilities offered by the franchises had to pay into the ACT as well as the ABS as they would not be employed by the commercial companies without an existing membership of the ACT.<sup>7</sup>

Now back to the studio, where VR1000s were used in two distinctive modes of practise in content production. The first saw innovative drama producers utilising the technology in more complex studio productions that were enhanced by the scene and costume changes enabled by discontinuous recording. The second strand saw the technology used for schools, news, sports and current affairs programming, the everyday genres that, importantly for the BBC in particular, did not involve unionised performers other than presenters. Both strands of production helped to integrate the technology into the structure of studio production and into the viewer's experience of television.

Incredible as it may seem now, the VR1000s did not have a rewind or delete function, so the entire tape had to be bulk erased on a different machine. The tape was reusable, but they were expensive; subsequently there were only a few in circulation. Footage recorded on a VR1000 needed for future use was likely to be telerecorded so that the tape could be deleted and reused, increasing rather than decreasing production costs. With no rewind function the VR1000s demanded a 'cumbersome procedure' to be undertaken each time something needed to be replayed.<sup>8</sup> This was clearly problematic in live programme production such as sports coverage: for example, to replay a goal recorded on to VR1000 from a live feed the video tape operator had to:

... carefully lift both spools, and interchange them. After re-lacing, he ran the machine forward and used the wall clock to time the reversed tape back to the required starting point.<sup>9</sup>

<sup>4</sup> John Wyver, 'An Outline Sketch' in eds. Buscombe, E., *Granada: The First 25 Years*, BFI, 1981.

<sup>5</sup> Briggs, 1995, p. 214.

<sup>6</sup> Tom Burns, *The BBC: Public Institution and Private World.*, Macmillan Press, 1977, p. 274.

<sup>7</sup> *Ibid.*, p. 276.

<sup>8</sup> John Nash, *12 Years of Video Tape* BBC Engineering 81 (2), p. 18–21, 1970, p. 19.

<sup>9</sup> *Ibid.*, p. 18.

Even with these constraints, the two VR1000s housed at BBC's Lime Grove studios were in constant demand and when the purpose-built Television Centre opened in June 1960 it was equipped with two dedicated video studios and a Video-Tape Unit housed in the basement. Another four AMPEX machines arrived and were modified in order to be accepted as a synchronous source by the studio mixer. This extended the possibilities of sound and vision combinations, and opened up a range of possibilities for programme-making. News, schools programming and sports coverage were transformed, particularly after the arrival of the mobile (but not portable) VR1000s in 1961.

Granada, the north-west franchise holder, had already tempted Norman Swallow and Denis Mitchell, two of the BBC's most creative documentary producers, to defect and the pair were prompted to make a series of television documentaries on mobile VR1000s which utilised some of the conventions developed in outside broadcast productions. The cameraman [sic] was attached to a mobile control room via a long lead as indoor locations, particularly domestic environments, were still too small (or technology was still too large), to comfortably hold a film crew and the subjects. *A Wedding on Saturday* (Swallow/Mitchell Granada Television for ITV tx: 1/4/1964) told the behind-the-scenes story of a Yorkshire mining community preparing for and celebrating a wedding. This programme reinvigorated some of the techniques from the British Documentary Movement, (and radio documentary) of thirty years earlier, noticeably the use of 'ordinary people' or social actors in dramatising the everyday. The first programme in the series, recorded completely on 2-inch tape, *The Entertainers* (Mitchell /McGrath Granada Television for ITV tx: 25/3/1964), set in a working men's club, had its transmission delayed because of a brief shot of a stripper's nipple. Recommendations for change made by the Independent Television Authority were not taken up and the programme passed through on the second attempt with no changes.<sup>10</sup>

This 2-inch production mode might have continued but the commercial franchises found that staffing agreements with the ACT made this production context economically unviable and members were unwilling to negotiate due of vehement opposition to video as an originating technology. Recording an event in an uncontrolled environment was more time-consuming than in a recording studio but particularly so when union members took the opportunity to trigger generous overtime and unsociable hours allowances.<sup>11</sup>

At the BBC innovation was apparent in conveying contemporary social realist drama from studio sets, and this might have contributed to Mitchell and Swallow's defection to Granada. The BBC had to pay higher fees to include repeats, which were more likely now that the BBC had launched their second channel. Conversely though, if a programme was likely to be repeated it was more likely to be shot on film for reasons of quality.

The miniaturisation of 16mm film equipment – the 'midget' kits, a silent 16mm camera and a compact sound recorder, usually a Nagra – could be operated by two people rather than the standard eight-person crew. The broadcast unions of ACT and ABS joined forces to restrict the use of the technology, thereby diminishing the economic savings. As a compromise, Electronic News Gathering (ENG) cameras were developed that used improved helical scan systems that operated on half-inch, three-quarter-inch and one-inch tape formats for news and current affairs filming; ENGs offered temporal and economic savings, even though the crew size remained large and the image had to be converted before transmission. Use of two-inch video was limited to studio production and outside of news production, location shooting continued to use a standard crew and incurred expensive 16mm processing costs.

A number of electronics companies started to develop recording kits aimed at the non-broadcast market, for demonstration and educational uses. The SONY Portapak was the first to launch in 1967, using a 1-inch tape on the helical scan system, which did not meet the British broadcast standard except on rare occasions when some happenstance footage appeared in news broadcasts. However, in the US the Portapak was quickly adopted as an originating format by many of the smaller, local rather than regional commercial channels. The technology was also adopted by counter-cultural groups who produced content for the public broadcast service community channels. Much of this content questions the construction of traditional representations by showcasing alternative techniques (like

<sup>10</sup> There is some confusion over the transmission date of *The Entertainers*; according to the BFI, the film was shown in 1964, but the BFI Dossier Number 9 *Granada The First 25 Years* suggests that exposed nipple delayed transmission until 1965.

<sup>11</sup> Briggs, 1995, p. 426.

hand-held camera), topics and opinions. Artists and activists chose to exploit this new medium to represent concepts or issues, such as the construction of television and, encountered the same ethical considerations that had confronted independent film-makers ten years earlier.

In the British system there were other issues in addition to the union response. Upcoming producers were enthused by the possibilities offered by this technology, in terms of proximity to the subject, 'real time' and the use of factual locations and 'ordinary people' and a wider range of content and locations. Although these qualities were seen as advantages by the university-educated 'creatives' in the BBC, they were not recognised as such by either the unionised work force or those in the BBC who had (or thought they had) a role to play as guardians of society's morals.

The broadcast unions in Britain held the technology at arms-length, and it remained impossible to get video content broadcast, as artist David Hall discovered when he accepted a commission from the Scottish Arts Council to produce ten short video pieces to be broadcast on STV during the 1971 Edinburgh Festival of Television. Crucial to this work, *10 TV Interruptions* (Hall 1971), was that the videos were broadcast unannounced into the continuous stream of regular programming, disrupting the 'flow' of television. Even though the work was commissioned, Hall met with resistance from the union who were determined to maintain a distinction between professional and 'amateur' or non-unionised practice. As Hall describes:

*My TV Interruptions were on film (not video) – the reason for this was because STV would not accept non-broadcast standard video recordings at the time and the union would not accept a non-union director using their studios. I therefore had to produce the work outside on an acceptable format, i.e. 16mm film. However, the intention was very much that they were TV works.<sup>12</sup>*

In 1972 Hall established the Hornsey Light and Sound Workshop, a joint venture between BBC2 and Hornsey Art College, to produce broadcast-quality content outside the unionised production centres of the television studios.<sup>13</sup> The series *Disco 2000* intended to showcase experimental video work but was cancelled after the first programme incurred the wrath of the moral campaigner Mary Whitehouse and the Clean Up Television campaign, who took offence at the representation of a clenched fist that was used as a symbol by the black power movement and the northern soul subculture.<sup>14</sup>

In the same year, British artist/activist John 'Hoppy' Hopkins was asked to produce a video item for the BBC2 programme *Late Night Line-Up*. The original footage was never broadcast; it was shown to the police and its content prompted a raid on the offices of the production company TVX. *Late Night Line-Up* transmitted the footage of the incompetent police raid, rather than the commissioned piece. It generated substantial criticism within and outside the BBC, both of the programme and of producer Rowan Ayres' editorial policy and intention. This and other controversies led to *Late Night Line-Up* being taken off air, although Ayres continued to prompt discussions about forms of 'access' and participatory television and on rare occasions such footage was screened. For instance, a 1973 edition of *Nationwide* (BBC1, 1969–83) featured video footage from a group campaigning about housing and squatting.

In the same year BBC2 launched *Open Door* (BBC2, 1973–82), an experimental series produced by Rowan Ayres, which allowed carefully vetted groups of members of the public with a shared interest to make a television programme. The restriction on the use of video meant that participants were restricted to studio discussion formats unless they were willing or able to pay to shoot location footage on 16mm. *Open Door* continued and the production context of explicitly incorporating 'ordinary people' – non-unionised performers – was formalised in the Community Programmes Unit, which was also responsible for the development of new and experimental techniques, format and content alongside the representation of minority interests.

<sup>12</sup> David Hall, 'Early Video Art' in Knight, J. *Diverse Practices*, University of Luton Press, 1996, p. 43.

<sup>13</sup> Mick Hartney (1996), 'InT/Ventions: some instances of confrontation with British broadcasting' in Knight, J. *Diverse Practices*, University of Luton Press, 1996, p. 28.

<sup>14</sup> *Ibid.*, p. 30.

The announcement of a delay into the next broadcasting enquiry, to be chaired by Annan, prompted the launch of various campaigns to lobby the enquiry and make a claim for broadcasting to represent a wider range of people and experiences and contexts than it then did. Some suggested this should be achieved through a more effective public service system that allowed for programmes to be made by independent producers; ITV supported a system that offered the commercial franchises a national channel; and other interested parties supported ending the liberalisation of television content. This debate largely took place in the print media as the various campaigns used the letters pages of broadsheet (quality) newspapers to draw attention to their aims. In response to these claims, broadcasters began to develop series and formats to suggest that television was already democratising. By the end of 1975, in the run up to the Annan Committee report, most of the licencees had developed participatory formats, generally feedback programmes where audience members responded to content or in some cases to regional concerns.

In British television the affordances of video were still outweighed by the constraints but this was unlikely to continue as the technology emerged to support television production. In the face of such difficulties, the innovative techniques and production contexts offered by video developed in the emergent independent and alternative, artistic and activist impulses of the counter-cultural movement, to represent the 'outsider' and thereby challenged the hegemonic representations offered by television itself.

As is often the case, an exploration tends to throw up more questions than answers, opening further avenues of investigation and research areas into video technology in British broadcasting, but to answer the question posed by the title of this article, the demonstration on *Panorama* was the only time VERA was used in television production. It is of course ironic that it is a *telerecording* that survived, and all that remains of VERA is a few knobs and spools at the National Media Museum in Bradford.

## Biography

Jo Henderson is an early career academic, currently completing revisions to her PhD Documents of Ordinarity - Authority, Participation and the Performance of Identity in the BBC Video Nation Project. She teaches broadcast media at the University of West London and is a long term sessional media studies lecturer at Canterbury Christ Church.