

Four Sound Effects That Made TV History

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The BBC's Radiophonic Workshop, a pioneering force in sound effects, would have been 50 this month. Ten years after it was disbanded, what remains of its former glory? Deep in the bowels of BBC Maida Vale studios, behind a door marked B11, is all that's left of an institution in British television history. A green lampshade, an immersion tank and half a guitar lie forlornly on a shelf, above a couple of old synthesisers in a room full of electrical bric-a-brac. These are the sad remnants of the BBC Radiophonic Workshop, set up 50 years ago to create innovative sound effects and incidental music for radio and television.

The corporation initially only offered its founders a six-month contract, because it feared any longer in the throes of such creative and experimental exercises might make them ill. Using reel-to-reel tape machines, early heroines such as Daphne Oram and Delia Derbyshire recorded everyday or strange sounds and then manipulated these by speeding up, slowing down or cutting the tape with razor blades and piecing it back together. The sound of the Tardis was one sound engineer's front-door key scraped across the bass strings on a broken piano.

Other impromptu props included a lampshade, champagne corks and assorted cutlery. Ten years ago the workshop was disbanded due to costs but its reputation as a Heath Robinson-style, pioneering force in sound is as strong as ever, acknowledged by ambient DJs like Aphex Twin. Although much of its equipment has long been sold off, every sound and musical theme it created has been preserved. To mark its 50 years, there are plans for a CD box-set.

Here Dick Mills and Mark Ayres, who both worked there, use the surviving equipment to revive four sounds from the past.

GREEN LAMPSHADE

This was a stroke of genius from Delia Derbyshire, who died in 2001 and famously created the Dr Who theme tune from Ron Grainer's score. She would hit the tatty-looking aluminium lampshade to create a sound with a natural, pure frequency. After recording it on tape, she would play with it to make the desired sound effect. For a documentary on the Tuareg people of the Sahara desert, she took the ringing part of the lampshade sound, faded it up and then reconstructed it using the workshop's 12 oscillators to give a

whooshing sound, allied to her own voice. "So the camels rode off into the sunset with my voice in their hooves and a green lampshade on their backs," she once said.

The green lampshade has since gained near-mythical status and Peter Howell, who succeeded Derbyshire in the early 1970s and reworked the Dr Who theme tune, can see why. "It's a useful thing to cling on to because everyone knows what a lampshade is because it symbolises the use of domestic objects to produce sounds." The workshop fascinates his music students today because of all the kit, he says, and its influence is still clearly seen - an advert for a VW Golf that uses only sounds of the car, for example.

"The sampling era we're now in is the next generation of the same principle."

DALEK VOICE

The sound that sent youngsters, and many adults, cowering behind sofas was co-created by Mills, a sound engineer who joined the workshop in its first year and left 35 years later. "We tried to give the impression that whenever a Dalek spoke, it wasn't speaking like we do, it was accessing words from a memory bank, so they all sound the same - dispassionate, mechanical and retrievable."

He used a centre-tap transformer plugged into the microphone of an actor standing at the side of the set, and the threat in the voice was all in the performance. Sometimes the tape got played at the wrong speed and the voice came out slightly differently, but the arrival of the EMS VCS3 synthesiser in the late 60s did not signal the end for this tried and tested method. In other ways, however, the synthesisers changed the way the workshop operated and - despite some resistance by individuals - offered a bigger choice.

"Synthesisers provided a wide open palate of colours and sounds to play with, but you still had to choose what you wanted to do and learn the discipline of this new technological form," says Mills. "So on the one hand, it was easy but you still had the original difficulty of thinking of the idea in the first place."

SCI-FI DOOR OPENING

Sci-fi fans will recognise the "swooshing" door from programmes such as Doctor Who and Blake's 7, plus in the odd hotel scene in other programmes. The suitcase synthesiser was a portable version of the VCS3, useful for jobs out of the studio.

Recalling the early days and influences, Mills says: "We would take a pre-recorded sound effect from the BBC's vast library but treated them to produce cerebral effects. If you wanted a character to appear to be thinking, you got him to read the line and put in a strange echo." Similar techniques were already used in Europe in "musique concrete".

"They did it for their own investigation and research, but our way of life was we never did anything until a commission. So all our experimentation and research was taking place in the context of that radio or television programme."

One of Mills' proudest creations was the slimy monster sound, which was him spreading Swarfega cleaning gel on his hands and then slowing down the sound. And he made the upset tummy of Major Bloodnok in The Goon Show, a colonial officer who liked curry, by using burp sounds and an oscillator to give a violent, explosive gastro-effect.

Using contrasting sounds very quickly is a trick in audio comedy. "We did our own thing in the name of artistic creation. Working here was a bit like surf riding. Every so often a creative wave of energy kept you going until the wave ran out."

BROKEN GUITAR

One pluck of a guitar string became the famous Dr Who bass line. Derbyshire and Mills sped it up and slowed it down to get the different notes, and these were cut to give it an extra twang on the front of every note. "It slides up to the note every time if you listen carefully," says Mills. "Delia fabricated the baseline out of two or three lines of tape.

"You'd be scrabbling around the floor saying 'Where's that half-inch of tape I wanted to play on the front of that note?'" Every sound generated by the workshop and used in radio or television is preserved, partly in thanks to archivist Mark Ayres, who worked there while a student.

He believes one of its greatest legacies is that it made listeners more used to hearing such sounds as part of everyday entertainment and education.

"[It led to] the steady integration of experimental sound into popular culture and the placement of such sound into the mainstream rather than it being confined to various strictly academic studios.

"Certainly, much of this took place in parallel with developments elsewhere - The Beatles' Sergeant Pepper and Pink Floyd's Dark Side of the Moon for

example. "Later on, the workshop housed a couple of the most advanced computer-based MIDI studios in the world, but by that time competition from the outside world was too great and, under [the BBC's policy] Producer Choice, the workshop could not compete on price and its demise was inevitable."