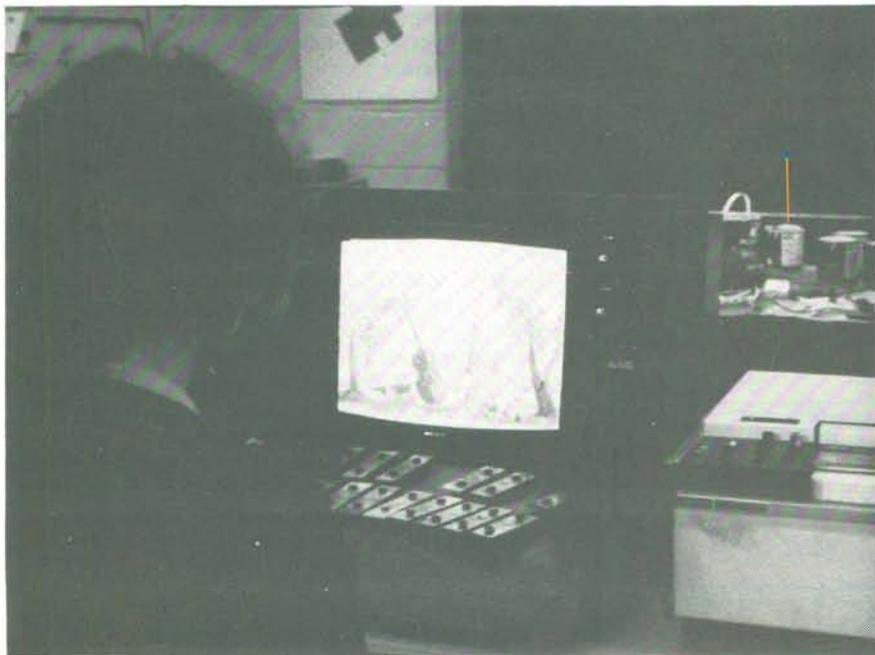
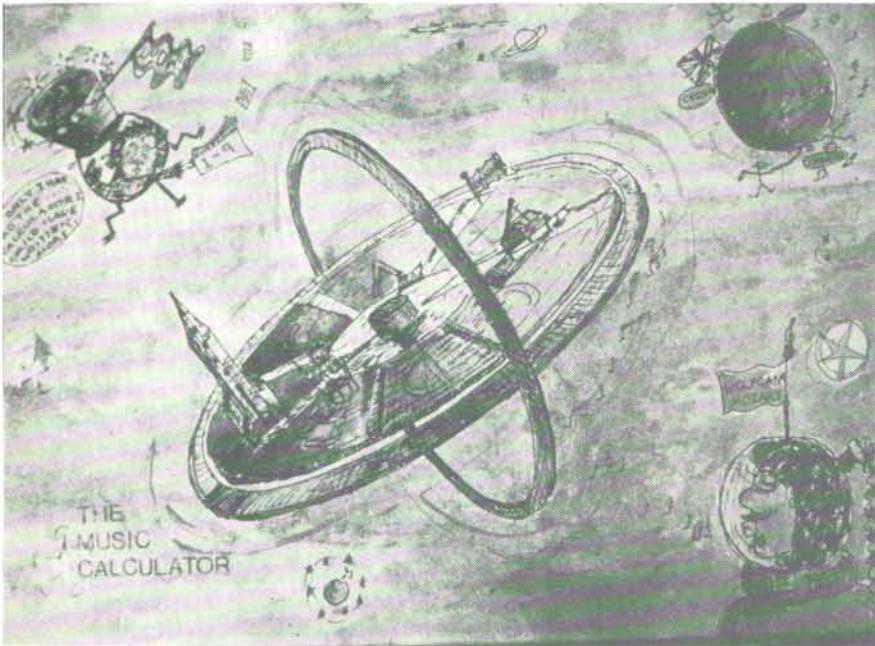


Top left: Calculator MkI
 Middle left: Advertising aspects and cover of Explanatory Booklet for Calculator MkI
 Bottom left: The Jingle Dell Concept



specifications – the circuiting was to serve 192 light emitting diodes in sixteen columns of twelve, triggered diodes remaining ‘on’ until the phrase (three bars or four) was complete. This meant of course, that notes previously struck would have to be unaffected if struck more than once in the phrase.

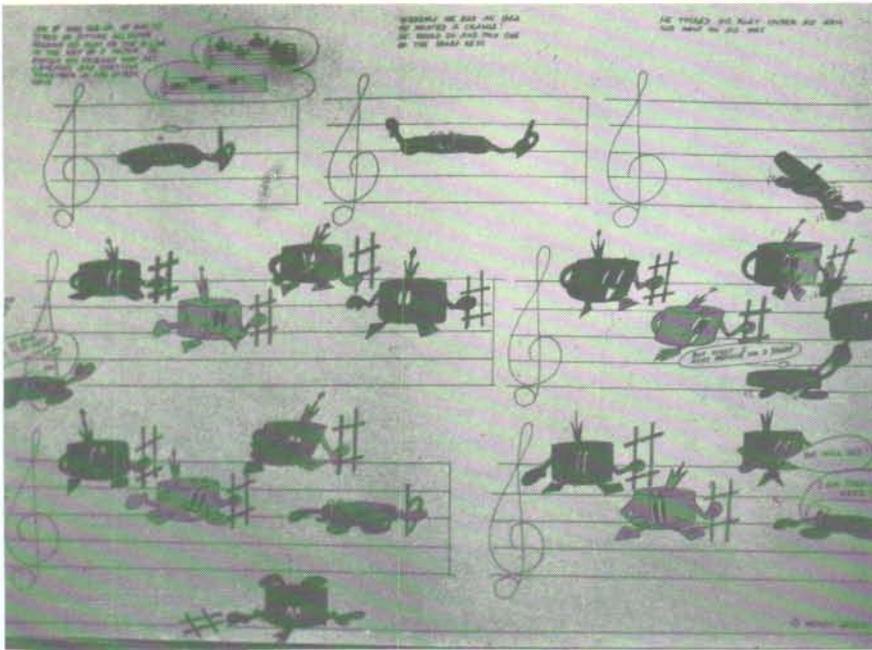
As my knowledge of electronics was restricted to that gained from a part-time course, I was very much dependent on the expertise of the boys. I had sufficient knowledge only to follow the ‘gist’ of what they were doing and to take part in the many discussions on circuiting problems, offering advice or help with decisions when I could. This teacher function is an example of the Design teacher in a project management role, relying on an assessment of the characters and abilities of the pupils in specialist fields, encouraging and advising where possible.

With the ‘Sound Visualiser’ the team competed in the BBC’s Young Scientists of the Year in 1979.

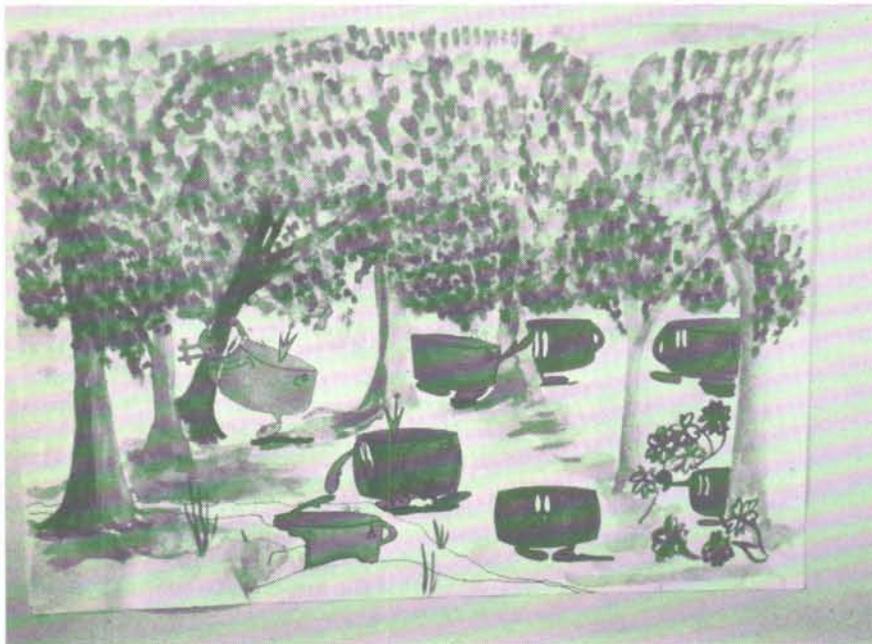
One would have thought that, after working on the project for 2½ years, that Wendy’s zeal, enthusiasm and determination would have diminished, but quite the opposite was the case! She had new ideas to develop! The boys too felt that the Sound Visualiser could be developed further, and one of them, David Stevenson (who had quite an advanced personal knowledge of Computer Science) felt that the existing complex circuitry would not be necessary if the Sound Visualiser keyboard were to be interfaced with a micro-computer and V.D.U.

From the ‘need’ to hear and see music in primary learning emerged the concept of a ‘Programmed Learning Aid for Music’ from elementary to advanced levels. As possibilities were discussed, it became clear that the computer would be able to cope with any requirement which could be foreseen; further, all of Wendy’s ideas from the outset of her original project could be incorporated – her board games ‘Musical Snap’, ‘Musical Beetle’, Musical Snakes and Ladders’ etc., could become computer games – her musical characters ‘Mr. Sharp’, ‘Mr. Flat’, ‘Mr. Minim’, ‘Mr. Crotchet’, etc., could all feature, not to mention ‘Mr. Treble Clef’, and not forgetting ‘The Tunes’ – a family comprising of characterisations of music notes who live in the village of Jingle Dell. Wonderful! – but could we make it all a reality?

It turned out that we could – David solved his interfacing and programming problems (in consultation at one stage at Marconi Avionics with specialists who would normally have been solving problems associated with our latest aircraft, the ‘Tornado’) Wendy began writing short stories about the Tunes family and the third member of the team Derek Deighton was about to enter Dartmouth Naval College. We had by this time entered the project for the 1979 Young Engineer for Great Britain Competition and had gone on from the Regional Finals to the National Finals at Wembley Conference Centre. As the project was in the senior age group of the competition where we would have to compete with under-graduate industrial students,



Top and middle left: *The Tunes*
Bottom left: *Inside Explanatory Booklet for Calculator MkII*



the team realised that on the day they would have to be good to survive.

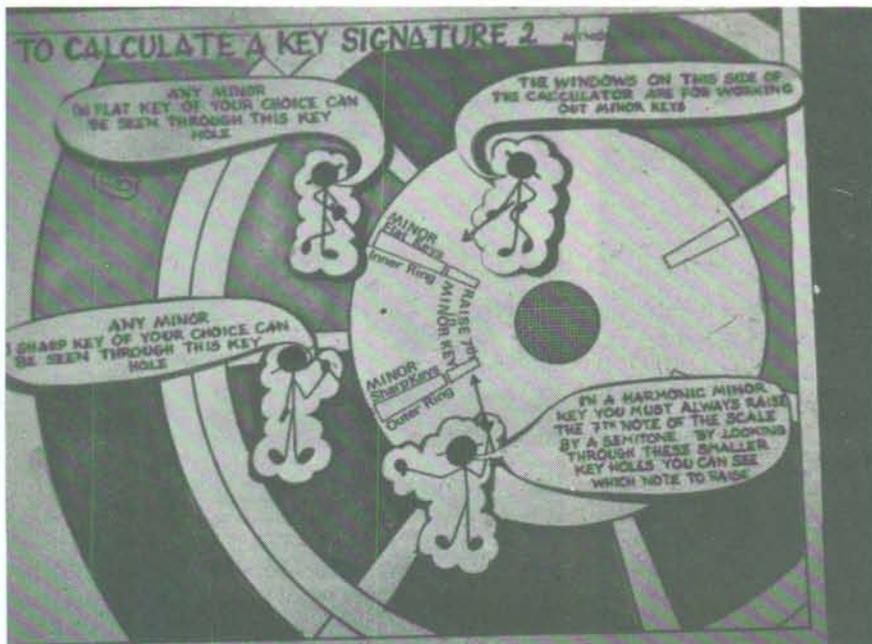
Competition fever raged, and the team redoubled their efforts to bring the project to a stage where programmed learning could be demonstrated. By this time Wendy had embarked on the making of a video film, a technique which no one in the school knew anything about, including of course myself. At first we discussed the possibility of using 'stills' from slide photographs of her 'Tunes Family' storyline suggestions – I should explain here that it was the intention that short stories featuring the 'Tunes' would be switched in by the computer at appropriate stages of the learning programme to re-inforce the theory being taught. I discovered at about this time that the Middlesex Polytechnic's Fine Arts Department had their own studio and processing for film making, both at their Trent Park site and at Alexandra Palace.

They kindly offered their assistance, and discussions for filming went ahead. The film we made was about the day that Mr. F. Sharp got lost! This would link with that part of the teaching programme dealing with scales – the main idea being that the scale would be incomplete with F Sharp missing.

The film shows the 'Tunes' family setting off from 'Jingle Dell' on their way to music practice under the stern direction of the very eminent Mr. Treble Clef. Unfortunately one of the 'Tunes' gets lost on the way – in actual fact he was stuck up a tree! Mr. Treble Clef calls the 'Tunes' to order so that the scale may be practised, but oh dear! when they try it, it doesn't sound right. The formidable conductor notices the absence of Mr. F. Sharp and draws this to the attention of the other aspiring chorists, he is very annoyed and orders a search. Eventually poor Mr. F. Sharp is discovered stuck in the tree – of course he is rescued and participates in the next singing of the scale which sounds wonderful – and more important, correct! Peaceful bliss returns to Jingle Dell!

Came the day when filming was complete and there only remained the editing which was to be done at Alexandra Palace using the latest micro-processor controlled equipment. To cut a long story short, the equipment broke down – Gremlins were at work! or some of the 'Tunes' had got in!

Anyway, there it was and there we were, only days before our Wembley debut with an unedited film and the only outlet we could think of was television's 'It'll be Alright on the Night' programme. However, it was eventually 'alright on the night' as one of the technicians at Middlesex Polytechnic directed us to an address in Holburn where a Company called, wait for it! 'Fantasy Factory Video' operated, and where for a fee they would *teach you to edit*. In desperation we went there, and after 2 hours tuition managed to complete the editing, which though not absolutely perfect, was acceptable in the circumstances.





Top left: Making the Sound Visualiser Unit
 Middle left: Computer application and emergence of 'programmed learning aid' concept
 Bottom left: Making a video film



At Wembley we were placed third to Rolls Royce Technical College first and Darlington College of Technology second, it was a marvellous and interesting day and more than worth all the effort in getting there.

Following the publicity connected with the event, Thames Television expressed interest in Wendy's video characters and have since filmed another story about the 'Tunes' especially written and caricatured by her. The film was transmitted in December last year on ITV's childrens programme 'We'll tell you a Story'. It was quite an experience, both for myself and Wendy to see her material being professionally handled in the studio. (We also had a very special meal as it was the producer's birthday!)

The Cambridge University Press also became interested in Wendy's stories and games at this time and they are now to publish books by her in nine countries!

A Midlands firm is soon to commence production of a Mark 3 version of her music calculator – all this before she goes to University!

Wendy is to study psychology at University College, London, and the course apparently has a very strong design element. When qualified, she hopes to become a producer of children's television programmes.

Believe it or not, she has asked to continue with her project at University! Two professors have already been 'earmarked' and she has been told that further work on the project would constitute suitable study for a Ph.D.

It appears that the project is to continue growing for some years yet!

