

KDK/JP/21M.

~~copy of notes~~
31st December, 1968.

NOTES ON A MEETING HELD IN R. & D.E. ON
WEDNESDAY, 4TH DECEMBER, 1968, AT 2.00 P.M.

Those Present:	Dr. A. Fozard	}	English Electric
	Mr. J.H. Jones		
	Mr. R. Morton		
	Mr. J.R. Wilcox	}	G.E.C./A.E.I.
	Mr. P. Powers		
	Mr. J. Eden		
	Miss C.W. Ayers	}	R. & D.E.
	R. Bryant		
	P. Curson		
	R.B. Dagnall		
	K.D. Kilburn		
	R.E. Thornton		

The English Electric system for processing data from a mass spectrometer was described. It uses the M2140 computer and the program system developed by ICI.

It samples the mass spectrometer output at 18 KH/sec and transfers the readings to a two part buffer store. Peaks above a preset threshold are detected, and their areas and arrival times are calculated.

At the end of the spectrum, the mass markers among the ten heaviest ions are identified manually. The computer is instructed to find all the other mass markers and to calculate the masses and formulae of all other ions. The system will accept up to 800 peaks in a spectrum.

All the programs available have been described by ICI in scientific journals. English Electric have spent two man years in transcribing these programs into machine language for their computer.

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The M2140 computer may be programmed in assembly language or FORTRAN. One FORTRAN instruction will do the work of twelve assembler instructions and an experienced programmer will write, test and correct up to 25 assembler instructions per day. English Electric will undertake programming at a cost of £5,000/man year.

The FORTRAN compiler is slow and complicated to use. It has poor facilities for tracing program errors. However, it can be used for real-time processing, because of the facilities for co-compiling FORTRAN and assembly language instructions.

The English Electric representatives were reticent, and occasionally evasive, on being questioned: electrical interference and fail-safe problems had not been examined, and the programs were in an undeveloped and untested condition. No M2140 computer had been installed at that time, although one was "due in Pembroke soon".

Extension of the "standard" system to allow recording of spectra on magnetic tape was expensive, and programs to control their tape deck would have to be specially commissioned.

After this meeting, a second was held, attended by J.R. Wilcox, J. Eden, R.E. Thornton and K.D. Kilburn.

The GEC/AEI representatives stated that GEC/AEI would not act as contractual supplier for a mass spectrometer/computer system which incorporated an M2140 computer. They expected administrative pressures to do so, since English Electric were now in the same group, but maintained that it would not be commercially desirable for them.

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GEC/ABI were prepared to act as a contractual supplier of the Ferranti Argus computer, and of all the programmes needed to provide a working system. It was claimed that Ferranti had developed a software threshold system to meet the terms of a Science Research Council contract. If true, this would remove the major disadvantage of the Ferranti system.

Arrangements were made for J. Eden to examine possible sitings for a mass spectrometer, and to take readings of floor vibrations.

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