Celebrating 50 years of computing at the Rutherford Appleton Laboratory: Overview and exhibition

On Thursday 13th and Friday 14th November 2014, Rutherford Appleton Laboratory hosted two days of events celebrating 50 years of computing at the Laboratory, with particular emphasis on the 50th anniversary of the Ferranti Atlas-1 computer originally housed in the Atlas Computer Laboratory just across the road.

Thursday's celebrations commenced with an afternoon of short lectures – some retrospective, some describing current work of the Laboratory and the Scientific Computing Department, and some describing future directions for data and computing power. These were attended by an audience of about 180 people, and are reported elsewhere.

The lectures were followed by a champagne reception in the Exhibition Centre, complete with a locally-baked Atlas@50 birthday cake, cut ceremonially by Prof Bob Hopgood and Dr Brian Davies.

Happy birthday Atlas! Bob and Brian cut the cake
while an Atlas engineer looks on

Friday's celebrations were more about the younger generation. Children from several local primary schools learned about computer programming by instructing a robot (one very brave, blindfolded member of staff!) to move physical "data" between buckets. Our local MP Ed Vaizey also dropped in to see what was happening and to

join in with the children's activities. He declined to be a robot under the control of non-voters, but did use a very modern mobile phone to Tweet about his morning looking at some computers that were older than he was.

Throughout the two days of celebrations we also hosted an exhibition of computing "then" and "now." Our star exhibit was of course the recently rediscovered Atlas console, now cleaned and restored, and on show again for the first time in nearly 15 years. We wired it up to a PLC to display plausible patterns of lights, but kept a small bucket handy in case it crashed and someone needed to fetch more pre-pulses. The console is a very tactile thing, and more than one person was caught with their hand underneath the protective Perspex flipping a few switches just for old time's sake.

We also enlarged to life-size some of the more iconic photographs of Atlas in the 1960s and displayed them around the Exhibition Centre.

Panorama of part of the Atlas section of the exhibition

One of the photographs was of Jack Howlett's office. We had arranged the photo such that there was a real chair in front of it, and one of Jack's famous abstract prints on the wall above his desk. We must have got it right because one of the Operators nearly burst into tears when he saw it.

Jack's "office." The print is a very faded Matisse *Interior with black fern*

A second photo, this time of engineers debugging Atlas with an oscilloscope, also provoked interest when one guest was seen earnestly studying the extreme right-hand side of the picture. This proved to be Simon Lavington who was thrilled that for the first time this particular photo had been digitised to sufficient resolution to enable him to make out the circuit board bay numbers printed on the inside of the cabinet.

"Big Data" was a modern-day theme; it was an olden-day theme too. Alongside the Atlas console (weighing approximately 160kg) we displayed what must be one of the most impressive consoles in existence – that of our IBM 360/195 (weighing about half a ton). People had forgotten that its wiring was yellow because so much dust had accumulated over the years that it was impossible to tell. We also displayed the skeleton of our Cray X-MP (weighing approximately two tons), and a 39" (99cm) Data Products disks (about 5kg), one of 16 that were used on Atlas.

Panorama of the "big data" part of the exhibition. The Data Products disc is just visible on the left of the picture; the red image is part of the *Finite Elements* animation; the wireframe on the other monitor is a VR presentation on the development of a chrysalis

To round-off the Thursday evening we were delighted that Dik Leatherdale agreed to demonstrate his Atlas simulator application.

Bob Hopgood, Dik Leatherdale, Victoria Marshall and Brian Davies
next to the Atlas console

Many people asked whether the "train sign" they remembered from the wall in Atlas Reception still exists. It does, and it inspired one of the smaller surprises of the day – a key-ring souvenir given to all guests.

During the course of the two-day event we had well over 250 visitors including invited guests, curious staff, an interested MP, the local Press and 50 pupils from local schools. Some of the Apprentices from ISIS dropped-in too. They had heard about punched cards, ferrite-core memory and computers you can't put in your pocket, but had never seen them; they promptly took pictures using their mobile phones. It was quite an extraordinary couple of days for everyone.

Victoria Marshall, November 2014

Behind the scenes...

A complete Cray weighs about 5 tons; a skeleton Cray weighs about 2 tons. It certainly weighs more than 1.2 tons because when we first attempted to lift it the 1.2 ton-rated forklift tipped over.

4pm the day before the event is not the moment to finally get hold of your brochure to discover that it has been bound inside out. Fortunately, the wonderful Mark and Andy at our Swindon office knew who to call and the re-bound brochures were delivered just as the first visitors were arriving the next day.

Dusting the wires of an IBM 360 is best done using an old paintbrush and the upholstery attachment of a vacuum cleaner. The vacuum part is important if you have smoke alarms in the room.

Before the event, check that the microphone is working and that you know how to switch it on.

Find a good place to keep the keys to your display cabinets. Inside the top is not a good choice because not everybody can reach down that far, and tucked into the cabinet itself is not a good choice either if the door locks automatically.

There are very few pictures of the Atlas console, and none at the high resolution required for enlargement to life-size. I really wanted to display the iconic mid-1960s photo of the Engineer at the

Atlas console in the machine room taken at 4:25pm, but locating the negative proved impossible because the photographic filing system of 50 years ago can most politely be described as "quirky." I had given up hope of finding something suitable when, just two weeks before the event, I was introduced to "the shed behind Atlas" which could in itself furnish an exhibition of networking equipment for the last 40 years. Tucked onto a shelf at the back were several boxes of glass slides, and amongst these was the picture we had been searching for. I carefully carried the boxes to the photographer and reverently extracted this one: "Look! It's got a different neggy number on it!" Another trip down to the photography archive and we managed to find this treasured negative in a completely different drawer to all the other 1960s negatives.   We scanned it at high resolution and gleefully used this photo in the exhibition. It does however contain a number of moiré patterns. Our theory is that that batch of negatives were thrown away many years ago, possibly due to deteriorating emulsion. Because this one photo was so iconic however someone went to considerable trouble to photograph a surviving print, but did so under glass, never imagining that one day the loss would be revealed.
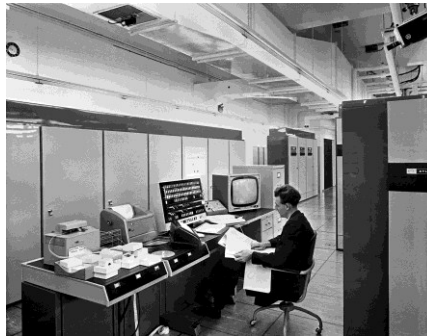
The nearly-lost photo; the clock in the top
left-hand corner reads 4:25