

Bulletin

JEAN
BANFORD
R1

of the Rutherford Appleton Laboratory

15 June 1987 No.8

RAL WORKSHOPS JOIN THE COMPUTER AGE

In March the Instrumentation Division Workshops took a leap into the computer age with the installation and commissioning of a system which finally bridges the gap between computerised drawing and computerised manufacture.

Engineering drawings created on the Laboratory's computer aided design system can now be passed to a craftsman for the addition of machining instructions. Alternatively he can create the required geometry if no computer drawing file is available.

The machining operations are added on a terminal in the workshop using simple commands which relate to the geometry already created. The craftsman can then verify the sequence of these instructions on screen and edit as necessary. The machine commands are then transferred directly to the computer controlled machines for manufacture, eliminating the old paper-tape method of programming the machines.

Using this system the possibility of errors has been greatly reduced since the geometry used for machining has been programmed in by the designer and the machining sequence proved on screen. It gives the added advantages of faster job production and an increase in the complexity of jobs that can now be considered.

The machine sequence for the base-plate shown in the lower photograph took one day for the craftsman to program after the computerised drawing had been transferred, and 2.5 days to cut on the machine using these new techniques. This, compares very favourably with an estimated programming time of 3 days if the old long hand method with paper-tape instructions to the machine, had been used. The 2.5 days machining time is also a vast improvement on the conventional pre-computer numerically controlled machines which would have taken at least 12 days to do the same job, with a much higher risk of error.

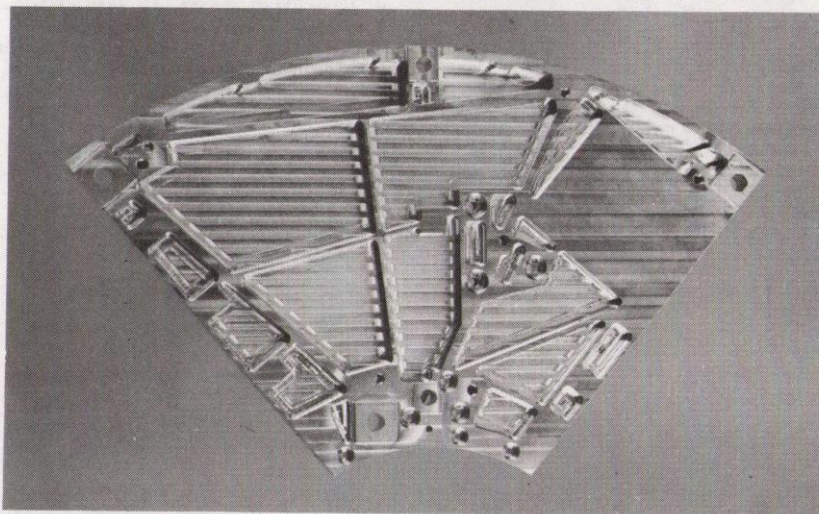
Currently two workshops are linked to the system and access is available to three milling machines. In the future, it is hoped to add additional machines as funds permit.

For further technical details contact
Brian Wyborn, Ext: 5589.



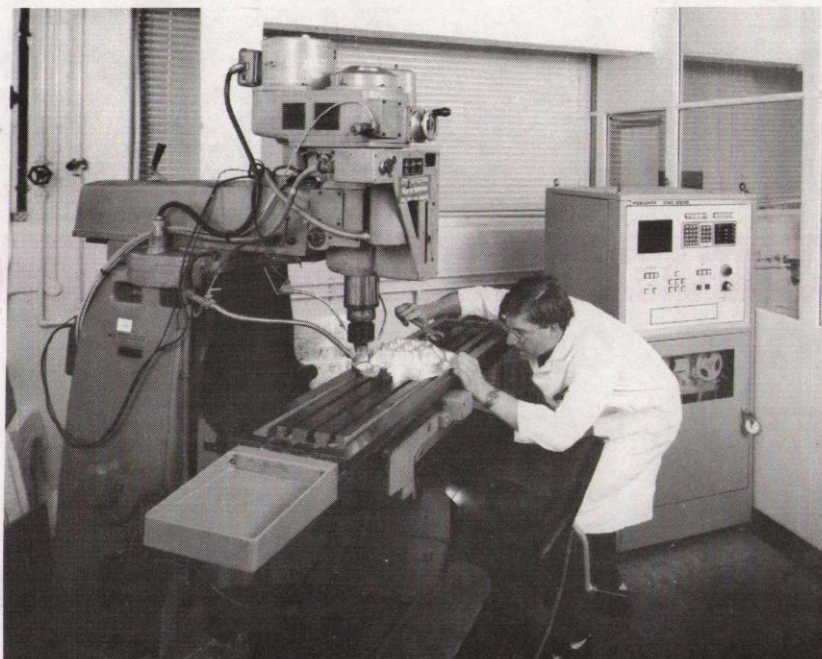
Programming the machining sequence.

86FC 5163.



Base plate for longwave spectrometer.

87FC 2053



The computer controlled machine at work.

86FC 3526

RAL and MUPPETS

The Rutherford Appleton Laboratory has been at the forefront in the development of the Positron Emission Tomography (PET) camera for over ten years (Bulletin 4/87). Now the fruits of these labours have been further realised. In a collaboration with the Department of Physics at the Royal Marsden Hospital and the Institute of Cancer Research at Sutton, Surrey the world's first low cost PET system for clinical use has been inaugurated.

The camera is up to 50 times more sensitive than the conventional gamma camera and is able to detect lesions, as small as 5 mm, deep in the body. The technique also lends itself to the quantitative measurement of physiological function such as the study of cerebral and coronary blood flow.

Until recently the cost of such a machine was in the region of £2 million but the newly developed detection system has reduced this price to around £200,000.

Designated MUPPET - Multiwire Proportional chamber Positron Emission Tomography - and using a powerful purpose made computer it is possible to generate three dimensional images in real time. A potentially important application of MUPPET is in the study of metabolism and growth rate of tumours. The quantitative aspect should allow the measurement of tumour growth and metabolism before, during and after treatment to be made.

An identical camera system is in use in an Industrial collaboration for fluid flow measurements in motor vehicle and aero engines.

No discount

'Home Sweet Home', furniture retailers have withdrawn from the RecSoc discount scheme.

Dave Craddock Cup Competition

I will be organising the 'Dave Craddock Cup' six-a-side cricket competition again this year.

Please may I have names of teams and players interested. Each year we have had a new name on the Trophy so do enter a team and you could be the next.

Games are played on a league basis with a semi-final and final, after work for about two hours.

A Napper Ext:6349.

Thanks

Dennis Rance and his wife Mickie would like to thank all their friends for the wonderful retirement present and flowers.

Dennis says he was sorry not to be able to say 'goodbye' to everyone, and threatens/promises 'you haven't seen the last of me'!

Film Badge Notice

It is period 7. Colour strip GREEN. Please be sure you are wearing the correct dosimeters, and return all old ones.

NEXT FILM ISSUE

Monday 13 July.

Missing

N Whitehead would appreciate the return of polaroid oscilloscope camera RL LP 1117 to Room 2.100, R25, by whoever removed it from the electronics lab 2.81 in R25.

Sales to Employees

The sale of scrap materials to RAL staff will take place from 12.00 - 12.30 hrs in the R24 scrap compound on 19 June and 3 July.

Inauguration of RecSoc Clubhouse

MID-DAY, MONDAY, JUNE 1st 1987 - an auspicious occasion for the RAL Recreational Society.

Just over two years before, Geoff Manning had pulled the first pint in the newly appointed Bar in R58. Now RAL Director Paul Williams was about to inaugurate the new clubhouse - an extensively restyled and refurbished bar.

The Chairman of the Rec. Soc. Tudor Morgan welcomed the Director and assembled members reminding them that the society was twenty years old this year. In its chequered career it had been housed in R13 Then R15 followed by a period of homelessness until coming to rest in R58. The present surroundings Tudor continued, were due to the determination of management and staff to provide the establishment with the facilities it had earned and deserved.

Paul was invited to pull the first pint and declare the clubhouse open.

In a succinct address Paul said he did not require a second invitation to pull a pint of FREE beer for himself! He reminisced on the previous uses of the building, especially the period when it had been a film processing laboratory for Bubble Chamber film. He had spent many evenings and nights scanning films him little realising what the future held for the building. The management were delighted with the Rec.Soc's. progress and initiative and would encourage its further development, he said.

With a deft hand on the pump Paul carefully pulled the celebration pint - clear and with just the right amount of head. The bar staff, frequently overworked had found a suitable stand-in when required.



Paul and the Celebration Pint, escorted by two founder members of the RecSoc Jenny Coates and Bob McClure.

87RC 3081

The following was received from Gordon Rowe Chairman CSSA.

On the occasion of the opening of the extension to the Rec. Soc. Clubhouse, please convey my warmest congratulations to all those responsible for the project.

I am sorry that I cannot attend the opening but I and my Committee wish to place on public record the SSA'S

appreciation of the combined efforts of RAL management (particularly Geoff Manning) and RAL staff (particularly Tudor Morgan and Ian Forster - without which this joint venture would not have been possible.

Best wishes and kindest regards to all present.

Tony Rush

RATs win through to finals

Last year's winners of the 6-a-side CSSC regional indoor football competition, "The RATs " entered again this year.

Confidence should have been high, but with a squad differing a little from the previous successful one, the team were not entirely confident.

This year's campaign would be fought by Jackie Allen, Ronnie Brumfitt and Mike Burton (all R18) and Dave Rippington (R34) Graham Douglas (R2), Tony Furnival (R20) and Mark Wheeler (R25) Captain.

The venue was again Gosford Hill School Kidlington and The Rats found themselves placed in a group with the Valuation Office, Post Office B and Aylesbury DHSS 'B'. In their first match the Rats beat DHSS 4-0, a score line that would prove important later. A 2-2 draw with the P.O in the next game meant that only a win over a skillful Valuation office would bring them to the play-offs.

After 7½ of the 8 minutes of the game neither side had scored, but with 15

seconds left on the clock Graham Douglas split Valuation's defence and drove a hard low shot into the corner of the net to give Rats the win they needed.

The P.O now needed 5 goals against DHSS to knock-out Rats on goal difference. This they failed to do, maybe due to shouted re-organisation of their defence from the Rats bench.

So the Rats qualified along with the Job Centre from Group 1 and Aylesbury DHSS A from Group 3. All these teams had to play each other, the top 2 going on to the Southern Finals at Alton.

Against their first opponents, the Job Centre, Rats did everything - except score. Shot after shot was brilliantly saved by the Job Centre goal keeper. Then disaster. The Rats were caught going forward and 2 Job Centre players were in the clear. Wheeler narrowed the angle in the Rats goal but could only parry the shot into the path of the other oncoming

striker giving him the formality of pushing the ball home.

Now it was essential that Rats should beat DHSS 'A'. Morale was low, but the diverting spectacle of the ladies finals made them forget their troubles for a while.

Both Rats and DHSS were by this time very tired but the Rats took the game to DHSS and were rewarded by a superbly taken goal by Jackie Allen. One more goal was now needed for a place in the final and to make Rats the outright winners of the day. The team were on a high now and the second goal came - a superb strike from Graham Douglas made the Rats look home and dry.

Happily the game closed on the same score and the game between the Job Centre and DHSS was played only to see who would join the RAL team to represent Oxfordshire Civil Service in the Southern Region finals at Alton Sports Centre, Hants on Sunday 7 June.

Mark Wheeler

Moving on 'Wally' Walford

Wally Walford's retirement presentation on 6th May was done according to the book - in truth from three standard works on speeches and presentations that Peter Smith, the presenter, had acquired from somewhere. As such, it was hilarious.

Before making the presentation Peter read out some basic advice for himself and the assembled company - one book recommended, for example, that the presenter should not "use foreign phrases" or "attempt impersonations", and that to cover any awkward pause at the end of the speeches the audience should then "crowd round to gasp at the engraved clock".

Having established the rules, he then proceeded to bend them. "I don't actually have any of the required humorous stories", he began, but it is usual on these occasions to remind people what the person has done, so Wally has helped by giving me a list".

Wally started in radio with GEC in 1940; spent five years with the Air Force in India and Ceylon; joined Malvern in 1948 on the synchrotron with John Lawson and came to Harwell in 1951 to work on klystrons and cyclotrons. At Rutherford he added Ion Sources, High Field Bubble Chamber design studies, polarised targets and dilution refrigeration to his list before joining Peter to build apparatus for the heavy particle search. This was followed by levitation apparatus



Peter, Merle and Wally enjoy the occasion

87RC 2851.

for a fractional charge search and, more recently, the first steps towards a low temperature dark matter detector.

Many of these projects have involved novel and unusual practical requirements, said Peter, "and from my own experience, and from the comments of everyone he has worked with, he has shown considerable ingenuity and skill in designing and constructing the new devices we have needed. He has also shown a great deal of physical insight and has always suggested new approaches to each problem and personally contributed many new ideas. This is something I will miss personally -

maybe we can persuade him to visit occasionally to discuss our current problems."

Gifts of special cards and what was apparently Wally's last delivery from Stores (it proved to be a circular saw) were then presented to Wally, with the addition of a beautiful bouquet for his wife Merle.

Taking his text from 'the book' Wally replied in correct format with an Eastern Proverb, to the great amusement of all (full transcript on request) and thanked everyone for the gifts, for their good wishes and for the splendid send-off, which he would never forget.

Pat Wallis

Pat Wallis retired from the cares of Finance and Accounts on Friday 29 May.

At an intimate little ceremony in the Cash Office Ty Moody recalled her 24 years at RAL, much of it spent as one of the sisterhood of scanners.

Her career had a strange distinction in that most of her 24 years were spent on a 'non-permanent' basis; until 1984 when she was finally appointed to Finance and Accounts, part-time and in 1986 finally cracked it by being appointed full-time.

"She has made many friends, while at RAL," said Ty "and we shall miss her friendliness, willingness and good common sense. We wish you a long and happy retirement and offer these few gifts to see you on your way".

Pat thanked everyone for the magnificent engraved glass bowl, for the card and for the good wishes everyone had expressed. "It has been a pleasure working with you and I wish I had come to Finance earlier", she said.



87RC 3210.

Bulletin

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