

# A new idea in working together

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Dave Monaghan (seated), project manager, stock control, and secretary Jill Hopkinson of personnel central staff discussing fixtures in one of the demonstration units with section leader John Powell of facilities planning.

Today office work patterns have to be modified more frequently than in the past and it is desirable that the office environment should adapt easily and economically to new situations.

To meet this challenge, manufacturers have developed a style of office equipment known as modular (or 'action') furniture specially designed to move with the times.

We all like to be consulted about changes in our working environment and; when facilities planning were considering the purchase of such new equipment to accommodate staff in bld.32, they decided to find out the reactions not only of the users, but also of potential users, for it is possible that the style eventually chosen will be adopted as standard throughout RXMP and will in time replace existing equipment.

In January a demonstration of four different office units which meet the department's specifications was set up in bld.44/4, and managers and their staff were invited to come along to inspect them and express their views.

They were given pro formas to complete, rating each unit on comfort, appearance, whether facilities were adequate, whether there was sufficient elbow and leg room and so on. Finally, they were asked to reply to the crucial question: 'Would you like to work in it?'

The first day was reserved for works engineering who assessed how easy the units would be to erect and dismantle. Cleaning, safety and fire considerations were other aspects that had to be taken into account.

During the rest of the week that the demonstration was open, over 100 pro formas were filled in - some people even covered the backs of the sheets with their comments for good measure. These ranged from a simple 'I like this one because...' to the more outspoken 'finger crunchers!' in reference to some filing units.

Section leader John Powell who, together with Maurice Gibbons, was in attendance to answer any queries, said later: 'The feedback we got is proving very useful in helping us to identify the best for our purposes.'

What advantages do modular furniture offer besides flexibility?

John points out that the use of such equipment could achieve a 25 per cent saving in space as well as energy savings.

For instance, vertical space is made use of by suspending filing bins and shelves from the sound-absorbing screens (the items are slotted into the connectors that hold the screens firmly together).

Indirect lighting can be fixed to screens or cabinets, and you can have individual 'task lights' to provide light where you need it while unwanted overall lighting is turned off. Air conditioning too is less of a problem than with closed offices where special ducting is needed.

Instead of such offices, modular furniture offers workstations with openings instead of doors, the idea being to provide privacy but allow communication.

And there's the personal touch. Recognising that people come in all shapes and sizes, surfaces and seating are adjustable to individual requirements.

'It's an idea for working together successfully,' as one brochure puts it.

# OFFICES

# A winter's tale

## Snow on site!



*The spell of arctic weather last January made the Forest of Dean one of the worst-hit parts of the country. This is the story of how Mitcheldean coped with extreme conditions and got back into production after losing only one day-shift.*

Aerial photo by Leslie Leach.



This shot of our white site was taken by photo club member Julian Shufflebotham.

Snow started falling on the night of Thursday, 7 January, and a blizzard raged throughout the Friday and Saturday, covering Mitcheldean with a white blanket 3ft deep and whipping up snowdrifts 10ft deep in places.

Temperatures plummeted and a cold water feed pipe to the site boiler water system froze, resulting in the blowing of a safety device on one of the heat exchangers.

Works engineering worked late on Saturday and on Sunday to repair it, but the mains remained frozen and the system had to be kept topped up.

By the Sunday it had stopped snowing and 'Operation Snow' could commence. Says works engineering manager Graham Bunt: 'We had lined up three JCBs for ploughing but only one was available and this concentrated on cutting an arterial road giving access to every building.'

It became obvious, however, that the plant could not be opened on the Monday, 11 January, and a message went out over Severn Sound announcing this and asking for volunteers, preferably armed with shovels, to make their way to the site to join the regular snow crew.

Some 50 people bravely responded and, directed by Roy Powell and his managers, all wielding shovels, they did a grand job clearing walkways for pedestrians and access to material docks.

Those who hadn't brought their own were issued with company shovels (we bought up all the remaining stock at Hale's). Harlene Denning, Margaret Cale and Mike Keen knocked up 73 hot meals for them in the club house, the village shops having been scoured for any supplies that could be found.

The roads on site were spread with salt, but our reserves were down (since early December some 90 tons had had to be used) and a load of 50 tons which had been on order for some time got bogged down in Swansea before the weekend.

Says Graham: 'We made extensive enquiries to get further equipment on site and we eventually obtained four more JCBs for Mitcheldean, one for Cinderford and two for Lydney.'

'A fleet of three 15-ton eight-wheelers was obtained from George Read which was able to shift over 20 tons of snow per load, and mini-mountains of it were removed to an unused area at the corner of Barton Hill.'

After widening the arterial road, with the volunteers working on walkways, the snow crew moved on to the car parks.

This work was completed by the end of the day and it was possible to run a shift that

night, advance notice having been given over Severn Sound.

By chipping themselves out of their homes, struggling through deep snow and making hazardous journeys on foot or on wheels, people got in. Among those who made it were Jackie Bowkett (personnel), who is confined to a wheelchair, and Bob Coleman (CBA), a man in his sixties who, despite a leg disability, walked all the way from Ruardean.

Self-help groups were formed; managers ferried people to work, getting up at 5am so as to be able to make several trips; and front wheel drive vehicles proved worth their weight in gold.

By the Wednesday some 75 per cent of the workforce was back and an amended works bus service was running, although, even by the end of the week, those in remoter areas like Ruardean and Yorkley were still not operating.

The regular snow crew, coming in at 6am, continued to shift the stuff but the JCBs were called off mid week, by which time fresh supplies of salt had been delivered and this, supplemented by 30 tons of grit, improved the condition of the roads on site.

But nature had more tricks up her sleeve. Frost and freezing fog. Thursday, 14 January dawned, so cold that diesel froze in the vehicles and virtually all transport was immobilised. The sprinklers in bld. 29 froze. Even the clock-cards in bld. 41 were frozen in the holder and people couldn't clock in!

### Fuel crisis

By this time we were running out of heating oil and the boilers were at risk. Urgent action was called for. Although there was a ban on articulated vehicles, special permission was obtained to bring in supplies.

An oil tanker came up from Avonmouth and was met at Highnam by security police in a Landrover, with a JCB just in case! A huge sigh of relief greeted its eventual arrival at Mitcheldean.

Propane for local heaters did actually run out and a lorry went all the way to Newport, Gwent, only to return empty; the trip had to be repeated the next day when supplies became available.

There were further problems. Several heat exchangers burst, the most dramatic case occurring in bld. 23 where there was serious flooding. Snow lying on roofs melted as the buildings warmed up and was unable to escape because the gutters were frozen.

As for production supplies, stock control manager Julian Alington told us: 'We had a lot of problems – the main trouble being we couldn't move materials between on-site and off-site locations. Sunrise meetings went on longer than usual but with some ingenuity we managed to avoid line stops.'

Because of the ban on articulated vehicles, a large backlog of machines and spares built up. Peter Chislett told us that, since arctic form the bulk of their fleet, the ISC had to rely on two smaller rigid vehicles plus some hired ones to get any consignments out at all.

By the end of the week the longed-for thaw had arrived, mopping-up operations were in full swing, both on site and in individual homes, and Mitcheldean was able to get back to normal.

None was more thankful than those responsible for maintaining support services, who bore the brunt of the bad weather. (Keith Jones' team in works engineering had, in fact, also worked throughout Christmas and responded to some 25 emergency calls, day and night.)

### Team spirit

Weather on that scale costs a great deal in time, money and effort; events had to be postponed, budgets and schedules were dented. But there was a credit side.

Medical had no major casualties to report (unless one counts a lamp post which went and hit a snow plough!), and we now have an approved snow procedure to put into effect should there be a repeat performance at any time.

The experience produced a team spirit that was heart-warming and, as a mark of his appreciation, director Ron Morfee offered an extra day's holiday to the volunteers who assisted with clearing snow from the roads on Monday, 11 January.

In a letter to each one he said: 'I am looking forward to building on this team spirit with you for a successful 1982.'

### A HELPING HAND

It's good to report that Mitcheldean did not fail to be a good neighbour during That Week. Although short of oil ourselves, we gave 200 gallons to Townsend House, the elderly persons' home nearby, where they were virtually out of oil.

Machinery based at the plant was also used to dig a way into Mitcheldean primary school.

# Work experience scheme

## Projects to help their prospects

You can't get a job without experience, and you can't get experience without a job. That is the predicament in which so many of the young unemployed find themselves today.

Like other companies, Rank Xerox Mitcheldean has been doing its bit to help the young jobless by co-operating in the 'Work Experience' scheme, introduced as part of the Government's Youth Opportunities programme.

Our particular scheme has been operating for just over a year — and with considerable success judging from the fact that about 50 per cent of the trainees who have completed six-month projects with us have gone on to take up full-time employment.

The scheme is designed to give young people an insight into working life and offer them a chance to learn some skill, whether it be in an office, on the shop floor, or doing a modified engineering course in the training school.

Each participant is given a log book to keep, and mentors have been appointed to advise them and keep an eye on their progress.

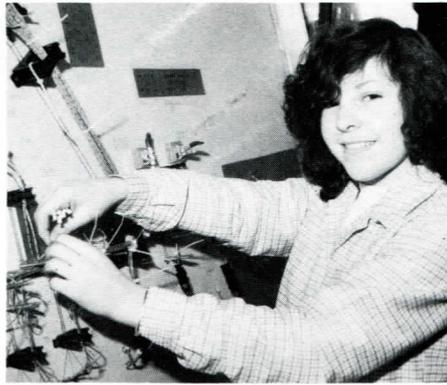
The Manpower Services Commission, who sponsor the young people, have said they are very satisfied with the experience and training we are providing. They particularly commented on the way in which, wherever possible, the abilities or interests of the trainees have been matched up with the type of work experience offered.

To find out what the young people themselves think, we went to see some of the 20 who are currently doing projects at Mitcheldean.

We found **Lesley Townley** working on a harness for one of our machines in electrical sub-assembly. She has always wanted to do electrical work and says: 'The training and practical work I've had will help me on my way. I'm doing part I of the TEC course and I hope to get an apprenticeship somewhere.'

In engineering department, **Jonathan Jones'** artistic abilities have been directed towards artwork for machine graphics. He's learned to use the phototypesetter and camera featured on page 8 and says: 'This experience will help me to get into art college.' (Incidentally, he did the artwork for the January issue of VISION EXTRA.)

Doing carpentry jobs at Mitcheldean, Lydney and Cinderford has firmed up **John Turley's** ideas about becoming a chippy.



Lesley Townley at work on a harness in electrical sub-assembly.



Carolyn Cottrell at the typewriter with Pauline Evans of APO.

**Jonathan Brooke** wants to be a journalist and has got off to a good start by having a short story published by Penguin. In personnel, he has learned about the use of video for training purposes, and has carried out a survey on our Freephone information service. 'I've got much better at communicating with people since I've been here,' he said.

**Joanne Lewis** has been helping in the club house office, coping with dance tickets, answering the 'phone and doing other general duties; **Kay Marfell** has been in central records, in the dyeline area, making microcards from drawings as well as doing secretarial work in the training school; **Heather Brain** was found a place in the technical library which she has found interesting.

### Off-the-job

With the backing of the MSC, our trainees attend college one day a week to do a two-part course: life & social skills (budgeting, coping with interviews, form-filing) in the



John Turley learns how to make a door, under the eye of carpenter Gerald Horlick.



Joanne Lewis in the club house office, getting guidance from Nadia Wheatstone.

morning, and either engineering (following a City & Guilds course) or business studies in the afternoon. In fact, three young ladies have recently been enrolled to take an RSA exam. in March.

Then there are the occasional training lectures at Mitcheldean on subjects such as safety and interactive skills.

Quite independently, Rank Xerox have blazed a trail by being the first to send a work experience lad on an 'Insight into Industry' course at Cowley Manor. And we've also provided character-training adventure for four girls who have been on an Outward Bound type of course at Poole, Dorset.

'People couldn't have been nicer,' 'I think I'll have a better chance of a job now because of the good reputation Rank Xerox has,' and even 'I can't see any fault in the scheme.' These are some of the comments it has been good to hear. We wish all of them the best of luck.

### ANY NEWS FOR VISION?

If you have, then please —  
mail it to me c/o Corporate Affairs, Bld 51/4,  
or leave it at any Gate House for  
collection by me,  
or post it to me at Tree Tops, Plump Hill,  
Mitcheldean,  
or ring me — ext 566 or Dean 542415.  
*Myrtle Fowler, Editor*



'Want to hear my secretary on stereo?'

# Product design & start-up

The quality task highlighted in this issue is the one 'up front' – Product Design and Start-up. Getting this right in the first place will spare us a great deal of work, time and expense later on, and engineering and manufacturing engineering departments are tackling this task in close liaison.



A meeting of the engineering QIP steering committee.

## Blue-print for quality

For engineering department, the QIP task has developed into an exercise which is having its impact on every facet of their activities.

Last year a steering committee, chaired by Ray Pyart, was set up to look through the quality spyglass at the work that comes into the department, the way that work is handled, and the department's output.

Says Ray: 'We started off with 12 design tasks which were divided into 27 sub-tasks.'

'A third of these concerned the quality of product design specifications – the input to engineering. The actual design process accounted for another third. The final third covered our output – that is, the drawings, documentation, etc., which go to our customers – MED, Venray, vendors and the field.'

'These tasks have been assigned to special quality teams and people have been deliberately given tasks outside their normal disciplines so as to get a fresh approach to problems.'

'We are working very closely with MED and with RX engineering group at Welwyn,' says Ray. 'RXEG are currently carrying out a "Business Effectivity" drive and, where we have goals in common, we are combining several of our tasks with Welwyn's.'

'The last of the Mitcheldean engineering quality tasks should be completed by the end of March '82 and we shall be implementing our findings by the middle of the year.'

### Specifically speaking

The product goal established by marketing is converted into a product specification by the relevant Strategic Business Unit and it is this which triggers off design activities in engineering at Mitcheldean.

How, we asked task leader Malcolm Dickson, do you go about improving the quality of such a specification?

## Are we getting through?

Though many of the product design tasks involve technicalities, there is one which everyone on site can identify with – communications. Norman Jones and his task team have looked at three main categories – verbal, the written word, and electrical systems including telecommunications – and have come up with some recommendations.

They aim to improve the verbal kind by retraining people. For instance, much time is spent at meetings, and by encouraging staff to attend a training programme called 'Making Meetings Work' they hope to ensure time spent round a table is used as effectively as possible.

Whether you have a master memory or not, jotting down telephone messages is essential, but often they get hidden among all the other pieces of white paper on a desk. Engineering's answer is to use coloured pads so that the message stands out clearly.

'Now we are a managing unit on certain products,' says Norman, 'there is increased traffic with other units. We are looking to electronic mail to speed up and simplify communications and 'Mailbox' has been extended, both in bld. 38 and in bld. 50 terminal room.'

Reports are now listed on computer and the technical library is acquiring a terminal so that any requests for information on reports can be directly accessed from the library itself; this will speed up the process and eliminate inaccuracies.

It has also been suggested that two-way communication would be improved by people contributing letters and newsy items for possible publication in VISION or VISION EXTRA.

## Keep the customer in mind

Everyone knows what a platen is, don't they? No, they don't.

When you've been in the copier business for as long as we have, you tend to forget that many people are not familiar with our jargon.

This point was rammed home when TSD at Aylesbury carried out a little experiment. They invited some people who had no knowledge of our machines to use one of our lower volume models, designed for use by a casual operator.

They gave them the relevant literature and asked them to get copies from the machine.

The results, recorded on film, were somewhat embarrassing. The people obviously did not understand the instructions. Not knowing what a platen was, one person attempted to shove the original document up the exit tray! After all, there was nothing on the machine to indicate which part was for output and which for input.

This film was shown to John Barratt and his 'operability' task team and the lesson to be learned from it, says John, is that our machines must be designed more with the customer in mind.



took to diagnose a problem, repair the defective part and get the machine back in working order to the customer's satisfaction.

'We found 20 per cent of the serviced items were responsible for 60 per cent of the total service costs,' Mel told us.

This finding was reflected in a maintainability check-list which the team has prepared.

All the design process tasks are being overseen by Mev Shelley who told us: 'We shall assess all this information for improving our designs, sort it, and grade it in order of importance. The results will take the form of single-page check-lists which, combined in a small booklet, will indicate the principles that design engineers must adopt to ensure good design quality.'

### Drawings & documents

In the drawing office, centralized checking in a dedicated area is being introduced, and checking practices are being improved. These include a procedure for feeding errors back to the originators, and a system of coding to indicate the firmness of the design (what is termed the 'confidence level') to manufacturing in the case of new products.

The use of isometric drawings (see 'Pictorial Process') and computer-aided design is currently being investigated as part of the 'Business Effectivity' drive within RXEG. 'Here at Mitcheldean,' says Bob Wright, 'we will be using computer-generated wire harnesses and lists to facilitate the engineering and draughting functions.'

Another aspect of engineering services, managed by Jeff Kew, is documentation. 'John Brain has been looking at some 75 documents in use and making proposals for improving the layout of forms, and speeding up their progress,' he told us, 'and proposals for improvements in operating procedures have also been developed.'



# Check-list for change

A review of competitive products can yield useful information. We can also learn from our competitors' methods of operation.

As John Roberts, manager manufacturing engineering, points out; 'If you compare Japanese and Western manufacturing cultures you will see that, as a general rule, from the design initiation to the production start-up, the Japanese place more emphasis on the planning cycle with subsequent reduction in problems during the implementation cycle.'

'Western cultures tend to use fast-track optimistic planning, often with the result that the need for a considerable amount of change is identified during the production start-up phase.

'Japanese machines are designed with service reliability and maintainability as a major selling element. To compete effectively we must also concentrate on these areas, in addition to the operating features we offer.

'It is also my opinion that, like the Japanese, we must place more emphasis on the use of standard proven components wherever possible, rather than placing too much importance on always being the first with advanced technologies.'

As the department responsible for the total manufacturing process, manufacturing engineering have a major part to play in contributing to the Mitcheldean improved product quality targets, and says John, 'I am convinced that in the longer term the drive towards improved quality must be achieved through the product design.

'The vendor has expertise which can be of great value in developing a good design, and should be included as part of the total team,' says John.

## A new charter

A new charter for the responsible manufacturing engineer (RME) has been developed to ensure clear definition of responsibilities and also to ensure that design concurrence is applied in a consistent and methodical way, with final review and sign-off by the responsible team.

As part of this new approach the RME uses a check-sheet to ensure that key design and manufacturing-related factors have been reviewed in relation to the design drawing. Areas that are seen as potential production or field problems are highlighted for elimination or improvement.

Can the design function be simplified? Is the process capable of achieving consistent quality targets? These are two of the questions included in the 30 significant items that are questioned through the check-sheet review.

Also analysed is the performance criticality of a component. The component can be critical for a number of reasons. It may involve the use of new technology, new materials, or new manufacturing processes of which there has been no previous experience.

The component may have very tight tolerances or it may perform a function within the product that is critical to performance –

for example, the critical function of a lens in relation to the quality of the copy.

Whatever the reason, if it appears on the 'criticality component guide,' a full analysis in relation to defined criteria is carried out and reported on, by means of a special tracking system. This data also enables valuable analyses to be made with the results being flagged up to other areas of MED, QA and materials management, acting as an early warning system so that plans can be prepared to control this criticality.

The analysis also provides basic trend indicators for particular commodities or design features which are fed back to the design engineer for consideration in future designs.

Another important part of the new forward planning strategy concerns the disciplined tryout of all new products, product upgrades or significant changes. This tryout would be planned to take place some weeks before first production build.

A 'pilot build' area is in the process of development, which will be close to the main line assembly production area. This is where the tryout activities will take place. The intention is to carry out a structured 'pilot build' of new materials, new build processes and new tooling. This will include the involvement of engineers, quality and production personnel, to ensure the maximum input of user experience, and will be sufficiently in advance of the first production build to prevent any major problems that may be identified being introduced into production.

## Early involvement

'High on the list of manufacturing engineering priorities is a need for early involvement with engineering to ensure manufacturing requirements are identified during the design process, particularly concerning producibility at consistent quality standards.'

A team of manufacturing engineers is already co-located with design engineers to provide this early input and the intention is for this to become a way of life.

Early involvement with our vendors is also essential, particularly for critical components.

John Bright (design engineering), Roger Pearce (MED), Mike Howell (design engineering) and Mike Payne (MED) work together on a new product.



Anyone who has helped a child at Christmas to assemble a model kit or has delved into a car service manual will be familiar with isometric or three-dimensional drawings, sometimes known as exploded diagrams.

The use of this kind of drawing to replace the conventional text manufacturing process has recently been explored with a view to improving the assembly operator's understanding of the assembly method, and sequence, and also to highlight quality critical features. This is particularly important during the training of the operator, or when a design change is being cut in.

One of the particular advantages of the 'pictorial process' is that it requires considerably less text; and information not required by the assembly operator, but used by support functions, can be transferred to other specialised documents.

Encouraged by the response of the production areas during recent trials of this new approach, MED are now planning to introduce the pictorial process for all CBA major subs and main line operations.

## Pictorial process

The pictorial process does not utilise part numbers but numbered 'balloons', which can be cross-referenced to a component schedule. The numbering sequence identifies the order in which the assembly should be carried out, while numbered flags indicate against balloons that tools are required. Colour can also be used on the pictorial process for particular emphasis on critical quality features.

A separate toting and kitting schedule is provided for the materials management function for station loading purposes.

Because text on the pictorial process is kept to a minimum, less frequent updates will be needed. Drawings are also set out in logical

'frames' which should also minimise the need for frequent re-drafting when changes occur.

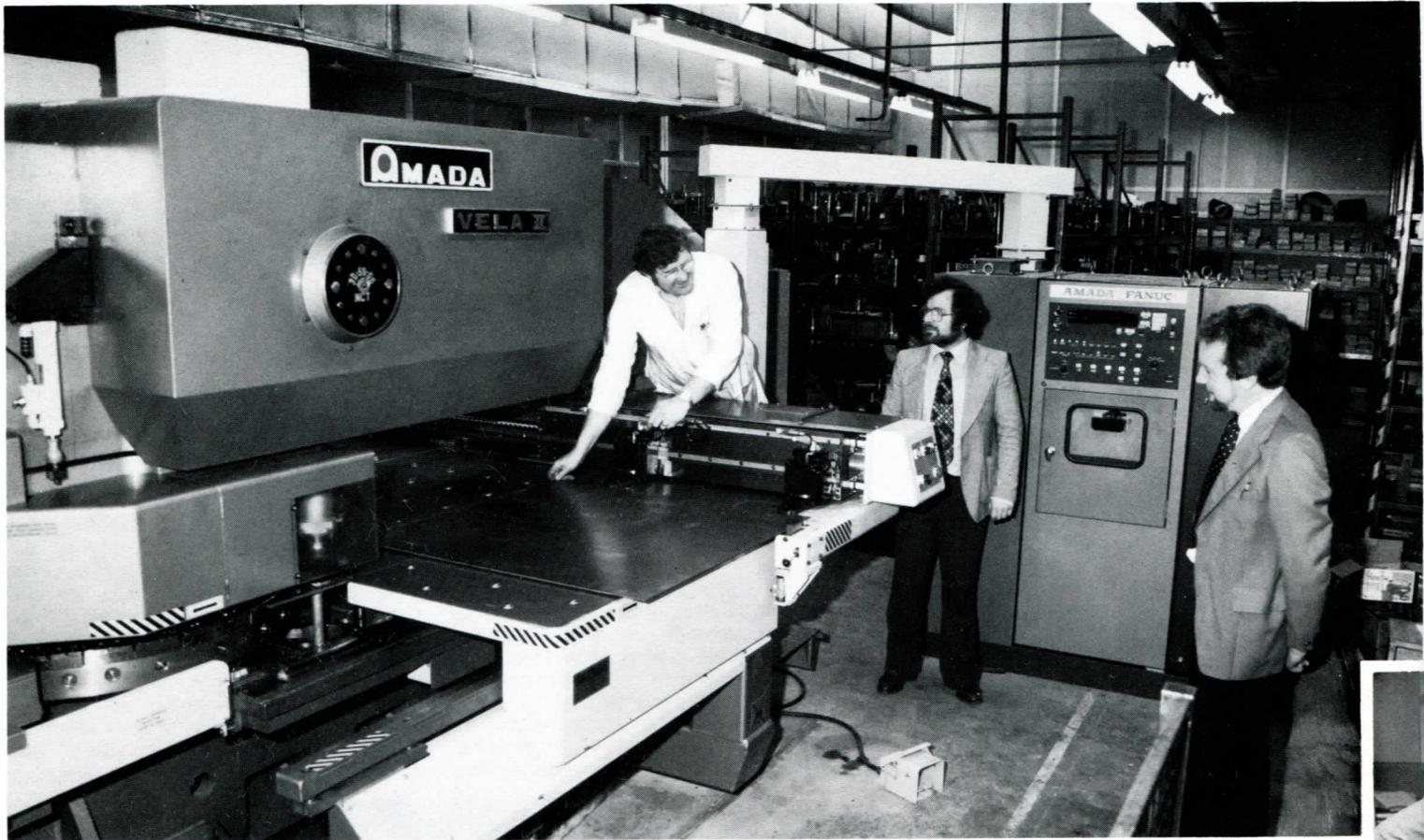
MED manager John Roberts sees some exciting potential opportunities developing from this concept. The future aim should be the creation of a single three-dimensional drawing that can be used by engineering, manufacturing and RTSDD (who prepare service manuals for the field), with unique information applicable to each function being added to the drawing in the form of overlays when copies of the drawing are produced. Operating companies' overlays could also use foreign language text in the same way.

There are also significant further advances in the use of computer aided design by which the pictorial 3D-type processes can be produced.

'This may be the next stage in the continuing aim to contribute to improved product quality and reliability through, amongst other things, the virtual elimination of design and processing errors during the development cycle,' says John.

# An impressive performance

## What's happenin



In the last edition of VISION we explained the Cinderford consolidation, part of which placed the press shop in building 11 next to the main canteen.

Parts manufacturing department have not stood still since and are really moving with the times.

Early in December last year an Amada CNC turret press was installed in the building. To the uninitiated, a CNC turret press is a computer-controlled press which uses 'unit' type tooling sited in a turret to produce components with varying sized holes and shapes from sheet material.

Our Amada has a 56-station turret and can accommodate blanks of 2½ x 1¼ metres. As well as punching holes and nibbling shapes with its 30-tonne pressure, extruded holes, dimples, louvres and small forms can also be produced.

It is a very efficient machine as setting time is low and tooling cost is negligible compared to the more conventional methods.

At present the work in bld. 11 consists of small pressed parts – and many of them; with the help of the Amada this will change to the larger sheet metal assemblies.

The Amada will produce the flat blanks which are then formed into shape on one of the existing brake presses. One of these is being updated in February to include an NC facility which improves its versatility and productivity.

Also located in bld 11 is the spot weld area, and this too is benefiting from new investment early this year. Currently, all the machines are of the 'fixed' type more suited to the smaller parts, but parts manufacturing are installing a portable welder which can be moved around the work instead of the present reverse situation.

Finally, there is the twin-booth conveyor paint line which was installed in 1981, and is capable of applying the many paint finishes of the Rank Xerox machines.

An example of the new work moving into bld. 11 is a new machine cabinet which will commence full production in March. The project, headed by Peter Street, got off the ground in November last year and the first two examples were produced within three weeks – an excellent result of close teamwork between Bob Hart's manufacturing engineers and the shop floor.

Other 'new' parts include the 8200 back cover, and plans are afoot to continue production of the combo silencer which was produced as a small trial last year to prove the capability of the facility.

Ken Smart adjusts the clamps that hold the sheet metal on the Amada CNC turret press. Seen with him are component planning engineers Brian Sellick and Tony Walklett and, between them, the processor unit which holds the program tape.

## Plotting the parts for the press

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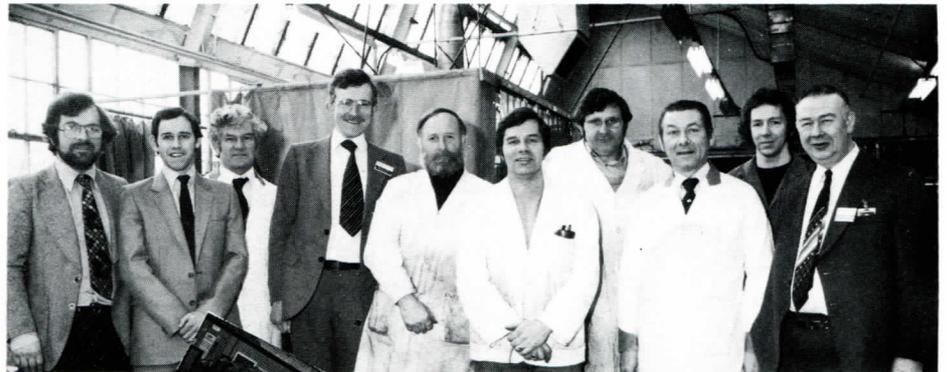
# g in building 11?



Working from a hard copy of the proved program (see below) Ken Smart sets the tools in readiness for a new production batch.



prepare the tape that instructs the Amada press, components use the Opti-Plot system. Like the press itself, this is an improvement on conventional systems, saving programming time as well as valuable machine time. The engineers write the program in code, indicating the tools to be carried out, the tools to be used, dimensions and details, and key this into the mini-computer which then computes the necessary geometrics to create the required item. The computer will even compute the punching path which will result in the most possible production and shows the time taken to produce the punched part. At the touch of a button, a plot of the actual part programmed is produced on the screen. The engineers are thus able to 'prove' the program before producing the tape. Any section of the program can be enlarged for closer study and hard copy for printing purposes can be obtained. As well, tape can be produced and this is fed into the Amada press unit. 'The engineers are very pleased with the system,' says section leader Bob Smith. 'It is working exceptionally well and can reduce the lead time for a job to about one-fifth.' The picture above shows Tony Walklett at the keyboard, controlled by Brian Sellick.



Members of the team involved with the production of the new machine cabinet referred to in our story – from left: Brian Sellick and Clive Davies (components planning), foreman Fred Brickel (spot weld/paint line), project leader Peter Street, Bill Meek (press & sheet metal), Brian John (spot weld), Ken Smart, foreman John Mould and Ray Lawrence (all of press & sheet metal) and Ted Adams, then manager ridge operations.



Left: Peter Street points to the 8200 combo silencer, produced as a trial in bld. 11; with him are Fred Brickel and Tony Walklett.

## Paint line moves "at the double"



Above: Spraying the 8200 cover on the twin-booth conveyor paint line. Spare paint particles are washed away in a 10ft-wide waterfall.

Left: Travelling at a speed of 18in per minute, the newly painted covers enter the double-pass oven where they do a U-turn, emerging dry and well turned-out at the end of their 170ft-long journey by conveyor.

# The DIY approach

## Graphic savings

Xerox machines communicate with the operator by means of symbols, diagrams and the printed word – in around 15 different languages.

Engineering department and the opcos share the responsibility for translation of the content of foreign labels and operator instruction cards, the English version being agreed with the opcos concerned to ensure no misunderstandings creep in.

At one time the RX customer education people did the artwork for the flip cards. Then, when they ceased to do so, the artwork for these was sub-contracted out, as was that for the labels.

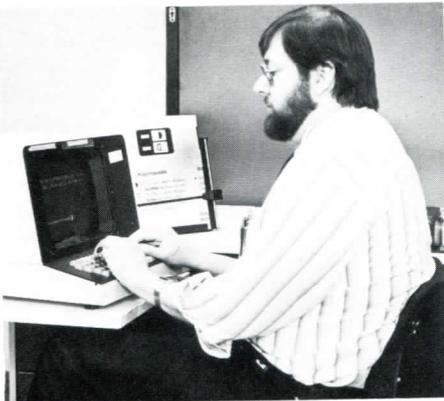
After investigation, the alternative of producing the artwork in-house was considered, and a comparison between vendors' costs and our own costs showed the advantages of this.

Says Norman Jones: 'The difference was large enough, in fact, to enable pay-back of the cost of the necessary equipment within 12 months, as well as covering the labour and material costs.'

'In addition, it meant we could significantly reduce the lead time in the manufacture of machine graphics.'

So the equipment was purchased and, since 1980, the drawing office has been using an AM Varitype phototypesetter (without disk storage facility) to prepare the final artwork for all labels, and for operator cards wherever possible.

Richard Hawkins taps out German text for an operator instruction card on the phototypesetter.



With its keyboard and VDU, the phototypesetter looks like a word processor, but instead of conventional typewritten output, the images are exposed on to photographic paper to give the high degree of image resolution required for label manufacture.

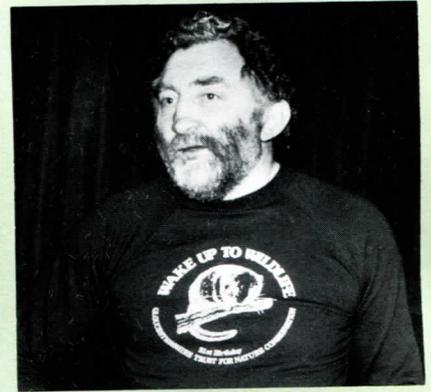
The output is laid out and pasted on to board, together with any drawings, etc., required, and, after checking, this artwork is photographed in the print room by means of an Agfa Gevaert automatic graphic art camera. This can enlarge up to 400 per cent, or reduce down to 25 per cent of the original size (the maximum size that can be reproduced is 18in x 24in).

The camera negative becomes the master for the generation of the positive film used by the manufacturer to produce the finished item.

This year, to improve productivity, the phototypesetter is to be enhanced by the addition of floppy disk storage; this will be particularly useful when modifying foreign language labels as it will avoid the need to retype unfamiliar foreign words.

Says Norman: 'The availability of this equipment means that other jobs – such as display material, overhead projection slides, forms and suchlike – which would otherwise have been sent to a vendor, can now be completed in-house and on demand, thus improving the department's productivity generally.'

Jean Burford positions artwork for a flip card under the graphic art camera.



## Bellamy and a birthday

What, you may wonder, has the magnificent expanse of David Bellamy's chest, emblazoned with a wildlife inscription, got to do with Rank Xerox?

We can explain. The Gloucestershire Trust for Nature Conservation are this year celebrating their 21st birthday, and they asked us some time ago for assistance in reproducing a specially commissioned logo. Engineering's graphic art camera came in useful as a step towards getting the logo printed on sweatshirts.

One was duly presented to the famous ecologist when he gave an illustrated talk in Cheltenham last December to launch the 21st birthday programme. Smaller versions of the logo are appearing on literature and other promotional items.

The camera was also used to reduce some of the tables and illustrations included in a habitat survey of Gloucestershire's wildlife, and our company donated £250 towards its publication last year.

As Dr Gordon McGlone of the GTNC points out: 'There is a lot of legislation protecting wild creatures, but it is the disappearance of unimproved grassland which is the real problem.'

Believed to be the only one of its kind in existence, the survey runs to some 160 pages of fascinating and disturbing facts, and it is assisting the GTNC in bringing the situation to the attention of those responsible for planning decisions.

## A marked

It may surprise you to know that the recently-issued car parking discs making their appearance on windscreens were actually manufactured here at Mitcheldean. It's all part of a new site service, designed to save time and money.

This do-it-yourself approach has been developed by MED. Since last October, they have been making labels (up to a maximum size of 4in square) for incorporating in our machines, as well as for bin numbering, component identification, location, safety and other applications.

The process involves an appropriately named 'Markem' label printer which has been installed in bld. 40/2, and the savings in cost which have already been achieved are truly remarkable.

Says manager Tony Howard: 'We saved



Clive Manns (MED) holds a finished roll of labels. Doing a quality check on an initial run is Dennis Trotman.

# The 610 electronic typewriters



*'They're simply great!  
say our secretaries*

Vanda Williams in IS shows office systems manager Mike Anstey just how easy the 610 machine is to operate.

Anna Holman (SBD) and John Bearham (personnel) call in to see how Sue Parry (supply centre) is getting on.

Last January, John Bearham of personnel central staff was seen carrying what looked like card-board suitcases to various secretarial offices around the site.

Packed inside each was an elegant and attractive model, newly arrived from France – the Xerox 610 electronic typewriter.

The 610 is the first in the 600 series of typewriters that Rank Xerox announced last November, and these models were the first to be placed in a 'customer's office' within Europe.

But why here, you may ask?

The reason represents yet another 'first'. John negotiated for Mitcheldean to carry out a field trial for the Systems Business Division – something we've never done before – and 20 secretaries have been asked to try out the machines and record their reactions, thus providing useful feedback to SBD before market launch.

The secretaries' only introduction to the machine was via a video presentation describing the Rank Xerox automated office strategy in which the 600 series plays a key role.

Each secretary was then required to unpack her typewriter on arrival, just as if she were a customer, connect it up and start typ-

ing, aided only by the operator handbook. She was asked to use the machine for all her typing and, while doing so, to record her likes and dislikes and details of the tasks she carried out. There was a telephone number to call if any serious problems arose.

However, all the girls we talked to experienced no trouble at all. 'It's fantastic!' said one. 'You really can work on it straight away.'

'I like the way it automatically centres, and prints in bold type the words you want to highlight,' said another.

Correction is automatic too, and the 610 remembers frequently-used phrases and types them at the touch of a key. There are other valuable aids to productivity such as tabulation without tears (it even positions figures around decimal points correctly), automatic carriage return, and self-diagnosis of any faults (though there's very little to go wrong). And there are 20 typefaces to choose from, including proportional spacing.

The secretaries are keeping the machines for three months and SBD are continuing to monitor them. At the end of that period Mitcheldean has an option to purchase the machines at a very favourable rate (they normally cost under £900, which is a highly

competitive price).

As product planning manager for the electronic typewriter business area, Anna Holman has a particular interest in the girls' reactions – she was involved in much of the design of the product. 'We believe it is the simplest, most attractive, best electronic machine available,' she said confidently.

Another person who is watching results closely is Mike Anstey, office systems manager in IS. He regards the trial as 'an interesting and exciting opportunity for Mitcheldean' (and one he hopes to see repeated with other Rank Xerox products for the automated office).

'We are going to get a lot of benefits ourselves from this survey, and it will enable us to reassess our strategy for improving work productivity. The Rank Xerox electronic typewriter looks just the thing to suit many of the work patterns within the plant.'

## The 600 Series

*Manufactured at Lille, the 610 is the basic model of the 600 series. The 615, which justifies on the right, and display models 620 and 625, which can memorise layouts and can be linked into a communications network such as Ethernet, will become available later in 1982, which, appropriately, has been designated 'Information Technology Year' by the Government.*

## improvement

£2,500 on a three-hour production run on one type of label alone.'

The only outside operation necessary is the making of dies and cutters from the artwork supplied by users, which can be completed in 14 days, or less in emergencies.

Clive Manns, who is the user contact in MED, showed us how the label printing process works. The image on the die is stamped, through dry ink-bearing foil, on to paper, vinyl, card or aluminium.

If a clear laminate is required (you can have it glossy, matt or embossed), this is automatically applied next. Then the cutter head cuts the outline shape of the label, cleverly avoiding penetration of the plain or adhesive backing.

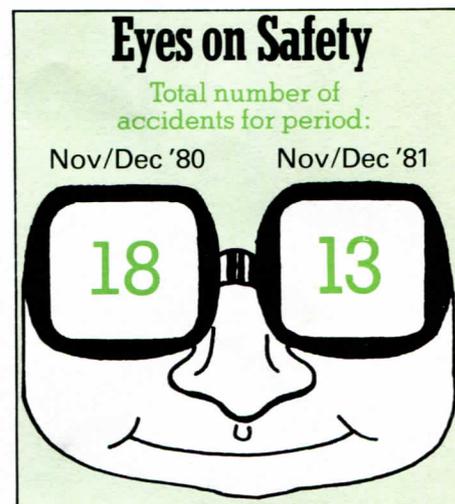
Should you so wish, you can have your labels produced in several colours (standard

or company colour-matched) – in fact, if you're really wanting to splash out, you can have eight colours simultaneously printed.

The approximate cost of tooling per label is around £50, which is negligible when you consider that, for example, a label costing £1.54 when made outside can be made in-house for as little as 3p – and that includes materials and overheads.

Even short runs of specialised labels such as language translations, exhibition labels, component marking and similar jobs can achieve worthwhile savings since there is no cost penalty to be taken into account as when manufactured outside.

The aim is eventually to produce the majority of the labels used on site and, says Tony, a machine that will cope with labels up to 8in x 6in is currently being investigated.



# SUE/GRIT system

## It gets to work early and helps our quality drive

Before a new computerised system has had time to cool, steps are being taken to build on it, or enhance it, as they say in the best system circles.

Three years ago we saw the arrival of SUE (stock update and enquiry) – our first on-line system at Mitcheldean, enabling us to control or track the receipt, storage and movement of production parts from the time they are booked into goods receiving department until their issue to the line.

But before we could feed information into the system we had to have a production receipt slip (PRS) and this had first to be photocopied as a set of six for distribution to various functions around the plant such as commodity operations, invoice clearance and progress departments.

Now SUE has acquired a compatible companion in GRIT (goods receiving and inspection tracking) which advances the current system to capture delivery information as soon as the supplier's advice note has been unpacked. So, as SUE/GRIT, the system gets to work earlier.

It also eliminates the manual work connected with a PRS by producing such slips automatically, thus speeding up the flow of paperwork and improving accuracy of delivery information.

But GRIT has other attractive attributes, one of which is its ability to contribute significantly to our quality improvement drive.

The extensive manual records maintained in goods receiving inspection and supplier quality assurance areas have now been computerised, and they are being used by GRIT not only to analyse suppliers' performances but also to determine whether a newly arrived consignment should be inspected or not.

Betty Kirsch operates the new terminal installed in receiving inspection, watched by manager Tommy Knight. On the right, Mary Trigg looks at the bulky Skiplot records which have now been fed into SUE/GRIT and will soon be dispensed with.



### How it works

To explain in great detail how a system works doesn't make for riveting reading, but a brief explanation should put you in the picture.

As soon as a delivery is made by one of our suppliers and the advice note is unpacked, this goes to the goods receiving terminal room; there it is checked against key information held within the SUE/GRIT system and accepted or rejected.

For example, if the delivery is excessively early, it will be rejected (except in special circumstances) – we don't want it taking up valuable space and increasing inventory costs.

If all is correct, a production receipt slip is printed by the system to indicate it is an authorised delivery.

This PRS is basically the same as hitherto, but it has one difference – it shows an 'inspection disposition' which identifies whether the part requires inspection or not. The system itself makes the decision by referring to information it carries about existing inspection records and the supplier's quality performance on previous deliveries of that particular part.

The delivery is next checked for quantity and, if there is a significant discrepancy, an

amended PRS is automatically produced. If inspection is *not* required, the delivery is passed to stores for location and availability for production use.

If inspection *is* required and samples are taken, the decision on whether to accept or reject the samples is fed back to the system via the terminal in goods receiving inspection.

This information will affect the inspection decision on the next delivery of that same part from the same supplier; it will also be used to update the historical record of the supplier's performance.

### Good reporter

This record in turn provides management with the information needed for our quality improvement drive.

'In fact', says David Davies, the project manager, 'GRIT provides a number of useful management and progress reports, either daily, weekly or monthly, covering purchased parts receipts, non-conforming material records and supplier quality performance. Incidentally, the latter includes a geographical analysis of suppliers – something we have never had before without a lengthy clerical analysis.'

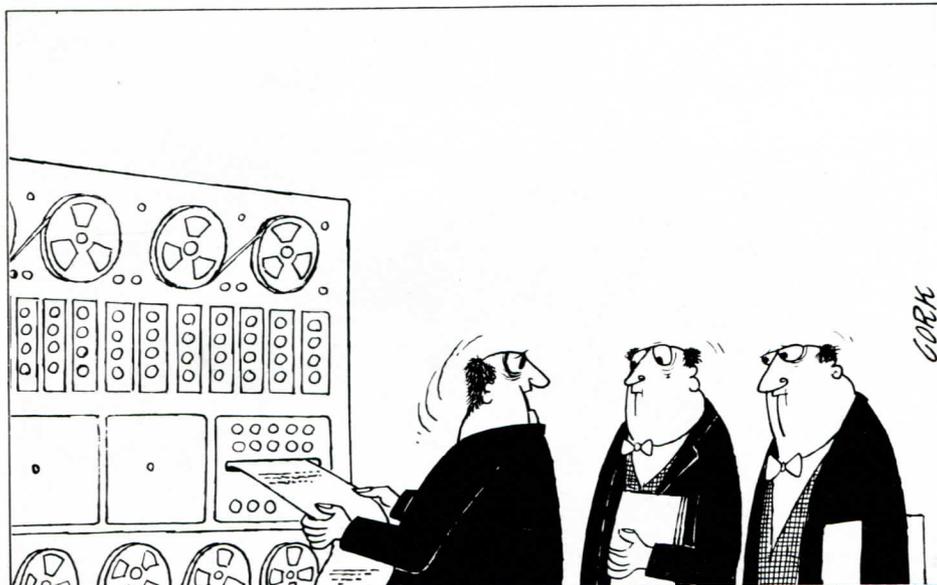
As with the SUE system, enquiries can be made through existing terminals concerning deliveries, orders, supplier performance, and users have been issued with handy enquiry cards which act as a ready reference on how to obtain the information they require from the system.

Said David Bowen of commodity operations: 'In pre-SUE/GRIT times there could be 24 hours' delay in learning of the arrival of parts. Now with the GRIT extension, we could find out within five minutes of touch-down, and track the parts all the way until their issue to the line.'

'We also have, for the first time, the facility to update as well as enquire via our terminal so we can, for example, change an order or feed in an order number for an urgent delivery simply by pressing a few keys.'

### Step forward

Very few other companies have a system such as this which links the goods receiving function with supplier quality analysis, and it is another important step in improving the efficiency of our plant operations.



'He wants a second opinion.'

## Angling club is rising to top place



Neil Barrett poses with a catch of pollack.

The Rank Xerox Sea Angling Club is now one of the top productive clubs within the county, having made four trips with catches in excess of 1,100lb, a further four of 800lb plus and two trips of over 500lb in weight during 1981.

All trips booked last year were wrecking trips and the fish caught were ling, pollack, conger eel, cod, plaice, bull huss and spurdog.

It was a very good year for the following anglers with annual weights ranging from 500lb to over 1,000lb; Terry James, Phil Taylor, Olly Evans, Roger Kempster, Dave Adams, Jamie Kempster, Barry Evans, Neil Barrett, Dave Pollock and Ted Chetcuti.

At the next membership meeting awards will be presented to Dave Pollock and Ted

Chetcuti for specimen fish caught (more details in the next issue of VISION).

Twelve deep sea wrecking trips have been booked for this year from Dartmouth and Brixham.

The new committee for 1982 is as follows: *chairman* – Dave Pollock; *secretary* – Neil Barrett; *assistant secretary* – Phil Taylor; *treasurer* – Olly Evans; *fish recorder* – Terry James; *committee* – Dave Adams, John Marshall, Pete Jennings, John Stanhope.

There were 44 members in 1981 and this number is expected to increase by a third in the current year – new members are always welcome (ring ext. 782 for details).

## A golfer's "sayonara"

On 10 December the club house was the venue for a farewell party – a none-too-rare event in recent months, you would agree.

This one was different, however, because the person leaving Mitcheldean, after a stay of nearly three years, was that popular FX resident and ardent golfer Goro Kushida.

Goro had invited his Mitcheldean friends along for a goodbye drinks-and-buffet session, and of course the Golf Section turned out in force, as he has been one of our keenest members over the last three seasons.

In fact, he had – as someone pointed out – been the top oriental player in the section's Order of Merit for every one of those seasons! (As Goro was buying the beer no one was unchivalrous enough to add that he was also the *only* oriental player in the section over that period.)

Harold Gardiner, as the section's captain, presented Goro with a parting gift in the shape of that most basic of all golfing requirements – a hip flask, and wished him many 'happy' rounds with its assistance. Though from what we hear about the cost of golfing in Japan, maybe Goro will have to make do with using his flask and imagination!

The rest of the evening passed in fine style with much talk of birdies, bunkers and feats of 'derring-do' – not all on the course, I would add.

All this activity ensued despite the marked absence of saké and seaweed sandwiches, the guests having to content themselves with some lesser known elements of Japanese

culture such as McEwan's Export, Glenfiddich, and an excellent club house buffet.

The Golf Section, and I'm sure all his friends in Rank Xerox, take this further opportunity to express their best wishes to Goro and Kyoko for their future happiness.

**Billy Gilmour**

Club captain Harold Gardiner tests the gift flask at the farewell 'do' for golfer Goro and his wife Kyoko!



## Banding together for charity

The arctic conditions of January may have upstaged the December snow, but the latter was bad enough to affect events. The Rank Xerox Christmas Band which, under the baton of Derek Wade, annually give such pleasure, could give only two instead of the usual three performances; one of these took place in the club house where this picture was taken. (They hadn't downed instruments – the photographer just thought it would be nice to show their faces unobstructed for once!) Those who joined in the singing of carols and donated cash to the cause may like to know that £50 was raised to help sufferers from multiple sclerosis.



# Putting you in the picture



Robert and Elizabeth Weyman.

## Wedding

Elizabeth Tims (stores maintenance) to Robert Weyman (internal transport) at St Stephen's Church, Cinderford, on 14 November.

## Births

Daniel William, a son for John Gurney (engineering) and his wife Sue, on 30 December.

David Alan, a son for Alan Kennaugh (product training) and his wife Jackie (formerly secretary to manager Ivilke Cooper), on 12 January.

## Retirements

Pat Cassidy (personnel) 13 years, Dennis Evans (commodity operations) 11 years.

## Obituary

We record with regret the deaths of the following: John Dancer (RTSDD) on 21 January at the age of 56; he had been with us eight years. Also pensioners George Hart, aged 71; Milson Reed on 9 January, aged 70; Howard Creed on 20 January, aged 63; and Albert Hatch, aged 51, on 1 February.

We extend our sympathy to the families of all.

## Service Awards

Our LSA president **Vic Buhmann** joined the company in 1952, but 'I still feel a comparative newcomer at Mitcheldean,' he confesses. The reason is that he did not take up a post here until some 12 years ago.

The earlier part of his career with us was spent at Woodger Road, Shepherds Bush, where he began as a tool-maker, moving into production engineering shortly after. The company's business was then the manufacture of professional sound recording and projection equipment for studios and cinemas as well as amplifiers for the Bell & Howell projectors being made at Mitcheldean.

It was when he was supervisor of the tool room, small batch and machine shop that he had his introduction to the xerographic process. 'We were making what I believe was the first commercial xerographic machine - a flat-plate copier which consisted of a wooden box camera and several other separate units and the whole process was carried out by hand.'

'Shortly after, we started making a quite sophisticated machine known as the Copyflo, the first completely automated xerographic machine, which produced enlarged prints on a continuous roll of paper from microfilm originals.'

In the 'sixties, Vic transferred his job, but not his location, to Rank Data Systems. As works superintendent he was responsible for the manufacture and assembly of the Copyflo and a large (10ft high) 'Xeronic' computer output printer based on the Xerox principle.

'A customer was J. Lyons & Co. who used it for their own "Leo" computer,' recalls Vic. 'Computers were enormous in those days and as they worked faster than the printers you had to have several of the latter to keep pace with the output.'

Twelve years ago he came to Mitcheldean to take up the post of machine shop manager; then, when the move to Cinderford took place in 1971, he was appointed to manage the factory there.



Vic Buhmann - a 30-year service award

After some four years he returned to the main site to become component production manager with responsibility for all manufacturing and finishing workshops except small batch. Further reorganisation within manufacturing took place when Cinderford operations were brought back to Mitcheldean and Vic transferred to works engineering where he is now manager production maintenance.

Oddly enough, his apprenticeship as a millwright had involved the mechanical maintenance function, so 'I seem to have gone full circle!'

Although much of his work concerns the maintenance of computer-controlled machines, Vic's leisure-time interest in micro-computing was acquired through his son. He enjoys the programming side, but says: 'I particularly like to play chess with the micro-computer - it doesn't always win!'

## Other awards

The following also recently became eligible for company service awards:

### 25 Years

January - Fred Pritchard (assembly).

### 20 Years

January - Fred Brickel (spot weld), Des Haines (machine shop), Brian Hill (PCD), Tom Howells (works laboratory), Mervyn Taylor (supply centre), John Wooding (works engineering); February - Rex Furley (QA), John Newman (machine shop), Myrtle Saville (sub-assembly).

### 35-year award

We shall be reporting on the presentation of a 35-year service award to **Ken Fox**, manager, Mitcheldean engineering, in our next issue.



Graham Gardner, Steve Hardcastle, Tony Martin, Geoff Barnes, Terry Gardner and Eric Smith. Missing member of Terry's team is apprentice Jeff Morgan.

## Innovation awards

After Engineering Report '81 Mid-year came Report '81 Year End, presented at the Chase Hotel, Ross-on-Wye, on 18 November. The theme was 'the office of the future' and Tony Burke, manager engineering operations, talked about the company's diversification into a number of development streams, all concerning electronic products for handling information. RXEG director Don Stephenson gave a snapshot of the 'state of the business' and commented on Mitcheldean and Welwyn highlights during the year. It was certainly a highlight for our site when he announced that Mitcheldean engineers had won two of the first three 'innovation awards' in RTG. One went to Mike Howell for a stacker concept, and one to Terry Gardner and his team for a carriage interactive display on a current product. After the presentation the audience was invited to view some of the Xerox pieces for the 'office of the future' (the 8010 workstation, the 860 and 820 models, and the new electronic typewriters).



Mike Howell



Assistant fitter Bert Knight retired before Christmas, having completed 18 years' service, most of which was spent in works engineering. An ex-miner, Bert is affectionately known as 'Bikey', and to mark his leaving, works engineering manager Graham Bunt presented him with this splendid wall-mounted clock from his mates as a 'shining' memento of his time at Mitcheldean.