

DOWTY ROTOL NEWSLETTER

Issue 4
July 1986

Message from the Managing Director

'The 1985/86 financial year is now closed, the results are in and the auditors satisfied. In the near future we shall be able to publish these accounts but I wanted to take this opportunity to let you know, in general terms, how we performed.

Last year was a good year for the company. The £95 million target which we set for sales turnover was achieved. We made satisfactory progress, particularly in the latter part of the year, on the many new projects coming into the company. The determination shown by so many employees is a great asset to the company and is essential if we are to sell our products in an increasingly competitive world.

We were not able to meet our forecast for profit. The reason for this was our success in winning new long-term orders at a much higher rate than we expected. This meant that we had to spend more than was forecast on engineering, development hardware and free prototype equipment for new customers. This is the price it has been necessary to pay in order to provide the security which comes from a high future order book.

During the year there were some notable achievements:-

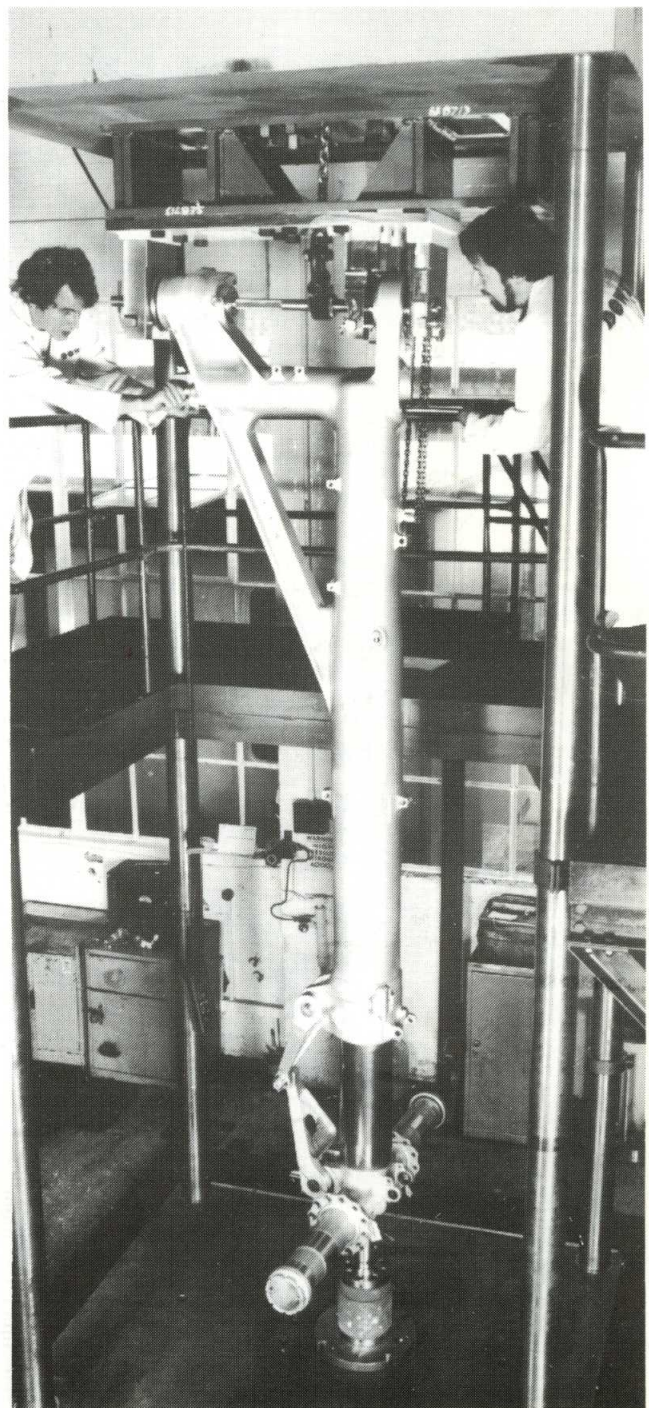
- The monthly rate of sales increased by 15% and our future orders rose to match this rate.
- New prototype equipment was delivered for the Fokker 50, the British Aerospace experimental fighter and a host of other new projects.
- Major new projects such as the Airbus A320, Fokker 100 and the BAe ATP progressed through design and prototype build.
- The capital investment made last year was the highest for many years. New computers were provided for CAD/CAM and new machine tools to increase productivity.

Our results for 1985/86 were not achieved without difficulty. We had to squeeze the proverbial "quart from a pint pot", especially on the design and prototype build of so many new projects. With the benefit of our experience there are, no doubt, further improvements which can be effected. We also need to increase our profitability in order to justify the substantial investments being made in the company.

In spite of the difficulties I feel that Dowty Rotol employees can be proud of the overall result achieved in 1985/86.

Thank you for your efforts.'

JIM LIGHTFOOT



Assembly of first main landing gear for Airbus A320

Current Performance

Sales turnover 1985/86

In the last NEWSLETTER we reported that our sales turnover was £1.5 million down on the target set for the ten month period to the end of January 1986. We managed to make up this deficit by producing over £2 million more than the targets set for February and March.

Month	Target	Achieved
February 1986	£ 7,923,000	£ 9,116,000
March 1986	£ 8,642,000	£ 9,609,000
2 months total	<u>£16,565,000</u>	<u>£18,725,000</u>
1985/86 financial year	<u>£95,113,000</u>	<u>£95,718,000</u>

The turnover of £95 million was significantly higher than the £78 million sales which we produced in 1984/85. Looking back farther and allowing for the effect of inflation, our turnover since 1981/82 had been declining and it is only in the last year that this trend has been reversed. This was achieved through the efforts of employees, additional recruitment and increased subcontracting. You might be interested to know where the equipment we made last year went to. The table below shows our turnover broken down into home and export sales and illustrates our superb record for export achievement.

United Kingdom	£29,926,000
Europe	£36,013,000
North America	£17,615,000
Rest of the world	£12,164,000

Because of the rules of the Stock Market we are unable to disclose the company's profit for last year at the present time. We shall, however, publish full details of our financial performance for 1985/86 in the next issue of the NEWSLETTER.

Sales turnover 1986/87

In the current financial year we have a turnover target of £112.8 million. When inflation is taken into account this represents a 12% increase over last year. The figures below show that we are on target for the first two months of this year.

Month	Target	Achieved
April 1986	£7,749,000	£7,800,000
May 1986	£8,787,000	£8,800,000

Order book

Month	Orders received	Total outstanding
February 1986	£4,251,000	£147,308,000
March 1986	£3,818,000	£141,517,000
April 1986	£8,940,000	£142,657,000
May 1986	£6,745,000	£140,602,000

The order book at the end of May is down compared to the peak of £152,173,000 at the end of January. However, we expect this trend to reverse in the near future and to meet the order intake forecast for 1986/87. It should also be noted that the order book for May 1986 is £7½ million higher than it was at the end of May 1985.



BEM for Don Wakefield

We are pleased to report the award of the British Empire Medal to Don Wakefield who works in the Experimental Machine Shop. The award was announced on 15 June 1986 in the Queen's Birthday Honours List and the medal will be presented by the Lord Lieutenant of Gloucestershire on 30 September.

Don has been a shop steward for 37 years and is well known for his enthusiastic involvement in a wide range of charitable activities. He has served on the Cheltenham committee of the National Society for Cancer Relief for over 20 years and has raised funds for the Cobalt Unit. Don initiated the scheme for weekly employee contributions to Cancer Relief and he has served as a union representative on the Dowty Retirement Club since 1965.

Earlier this year, Don was presented to HRH Princess Margaret at the inaugural ceremony in Cheltenham of a new radiation linear accelerator used in the treatment of cancer.

Don has asked us to thank all those at Dowty Rotol Limited who have contributed to his fund raising activities although he points out the need for more funds to finance the tremendous work carried out by Cancer Relief.

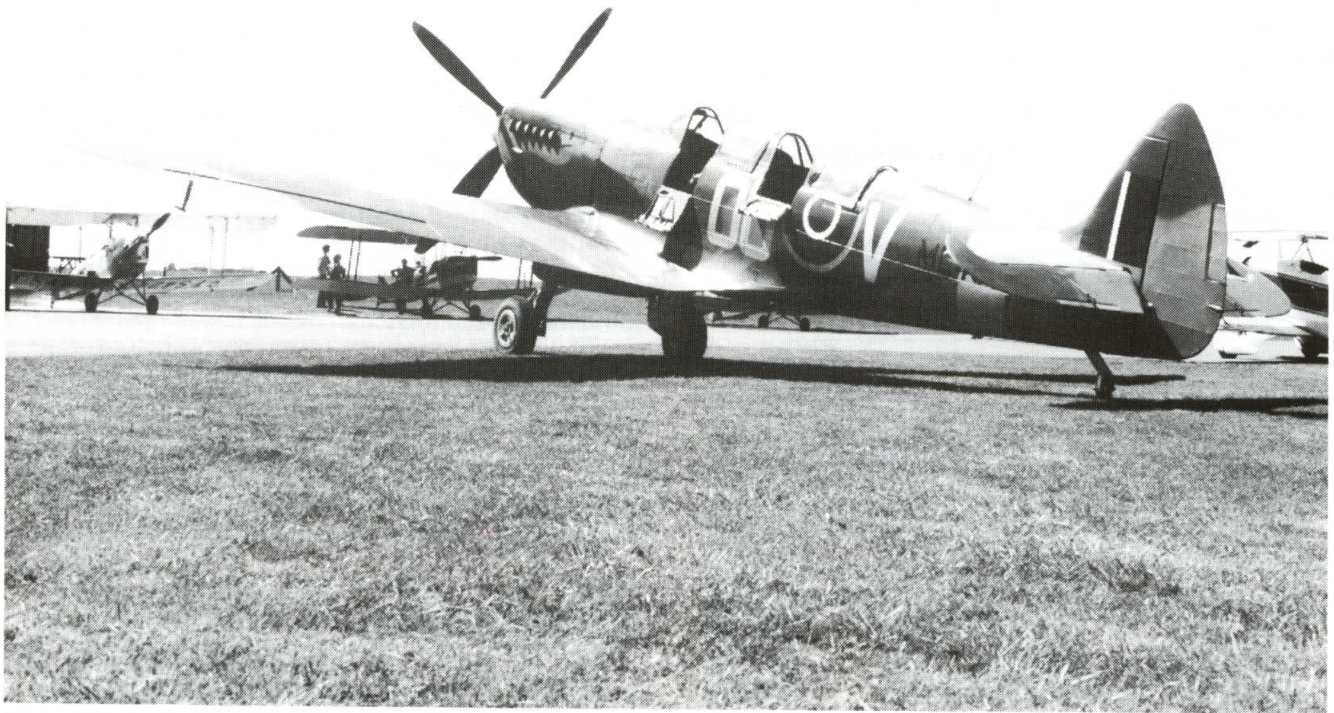
Our congratulations go to Don for this well-deserved honour.

Merit Award for Dowty

Dowty Group employees have recently received a Certificate of Merit from the National Society for Cancer Relief for their support in aiding the society in its work helping cancer sufferers and their dependants.

By means of regular weekly contributions, employees from Dowty Rotol (assisted by other Group companies) have donated over £15,000 to the NSCR.

The Certificate of Merit is the first to be awarded to a group of company employees and was accepted on our behalf by Don Wakefield.



Nick Grace's Spitfire at Staverton Airport after being repaired

Spitfire Salute

Dowty Rotol employees were recently treated to the rare sight of a Spitfire flying over the factory. The background to this story and our involvement is as follows:-

On 5 March the Spitfire Society was holding its 50th anniversary celebration at Southampton Airport. Nick Grace, who owns and pilots one of the World War II fighters, had a difficult landing and damaged the wooden propeller blades. Our Repair and Overhaul Department was asked for assistance and was pleased to help although we no longer manufacture wooden blades.

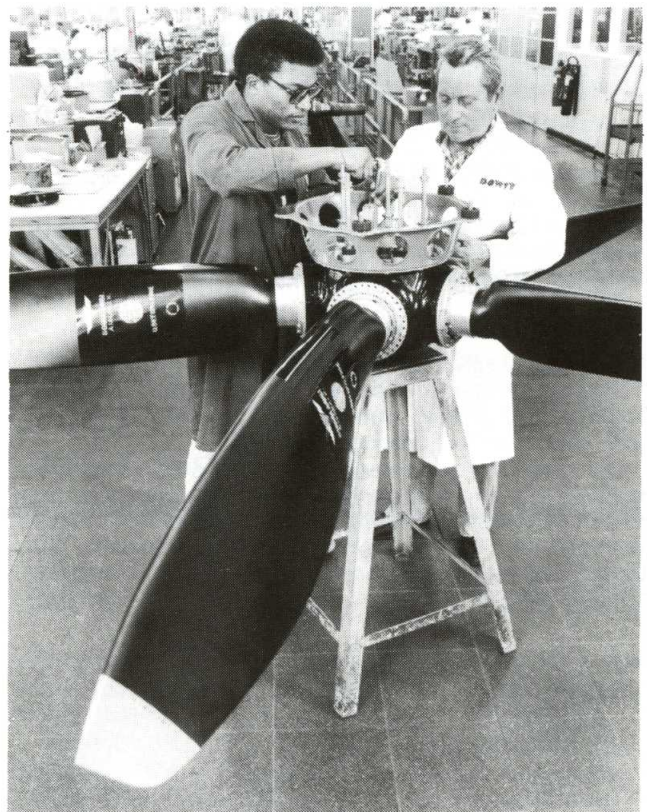
For the past ten years Hoffman of Germany has been responsible for wooden blade manufacture under our instruction and jurisdiction.

Nick Grace drove almost continuously to Hoffman's to collect the new blades and delivered them to Dowty Rotol.

After carrying out the necessary checks we assembled, tested and balanced the propeller and it was fitted back on the Spitfire at Southampton. We managed to complete the entire complex task in 72 hours and the work on the blades was such that each one carried 13 inspection stamps!

Nick Grace commented: 'They could not have done enough for me. Normal working hours went out of the window for this job.'

As a thank-you for our assistance, Nick gave a demonstration of aerobatics over the company which, judging by the turnout, was much appreciated.



Gordon Turner and apprentice Ray Thomas working on the final assembly of the Spitfire propeller

Fokker 50



Service engineers checking propeller on Fokker 50

In previous issues of the NEWSLETTER we have reported on the events leading up to Dowty Rotol winning the Fokker 50 contract. In this article we focus on the role played by the Technical Department and on the contract administration of the programme.

Technical Department

The aim on the Fokker 50 was to design equipment which met the often conflicting demands of weight, cost, reliability and maintainability.

It is often difficult to appreciate the amount of work involved in such projects by simply evaluating the final drawings. We used the latest technology in the design evolution and had to work to a tight timescale. This sometimes meant that action had to be taken before designs were 'firmed up' and this led to subsequent

difficulties with other departments. Close liaison also took place with Fokker engineers to ensure that our designs met their exacting requirements.

An example of the type of problem which can occur happened recently on the propeller overspeed governor which we supply to Pratt and Whitney for fitment to the PW124 engine which drives the propeller.

The overspeed governor (OSG) provides a secondary back up to the propeller pitch control unit (PCU) and controls the propeller in the event of a PCU failure. Also incorporated within the OSG is a high pressure pump which supplies pitch change oil to the propeller.

As with most new pieces of equipment the OSG has encountered various development problems which have required rapid action from Dowty Rotol to prevent delays in the test programme currently underway on the Fokker 50 in Holland. During a recent flight the drive shaft to the high pressure pump and OSG failed. This did not result in any hazard to the propeller or aircraft but an urgent solution was required. Subsequent investigations showed that the drive shaft was not capable of accepting the maximum misalignment which could occur between the OSG and the gearbox. A modified design was quickly produced and new components made. These were hand carried to Holland for fitment to the aircraft within a week of the original failure.

Administering the contract

Once the Fokker 50 order was obtained a Programme Manager was appointed to oversee our contractual obligations. The Programme Manager ensures that the performance, quality, delivery schedules and cost requirements meet set objectives. This entails regular meetings with other departments, as the project goes through its various stages, also liaison with the customer.

Customer liaison is vitally important. An aircraft manufacturer wants to be certain that the equipment he is buying from us will not arrive late and delay his new aircraft going into service.

During the running period of an order some problems inevitably occur which mean that we have to adjust production work to meet new requirements. This presents particular difficulties on new programmes like the Fokker 50 where the delivery of equipment for production aircraft is only a few months behind that for the prototype. The changes which are needed arise out of experience gained through endurance and fatigue testing at Dowty Rotol and feedback once the prototype has flown. Decisions about these changes may have to be taken on the basis of the best evidence available, but before all the facts are known, then negotiated at a later date with the customer.

On a new and important contract like the Fokker 50 it is essential that all those involved are aware of our contractual requirements and that we 'keep the customer satisfied'.

Preparing for Farnborough

In a complex organisation like Dowty Rotol it is often the case that many of us do not fully appreciate the work carried out by some of the smaller departments.

In view of the forthcoming Farnborough Air Show (31 August to 7 September) we thought it would be of interest to explain the work undertaken by the Model Shop and how this relates to overall arrangements for exhibitions.

The company's participation in exhibitions – to display our equipment and win orders – is an almost continual operation.

It is essential that preparations are meticulous because our products are on display to potential customers and the world press.

During 1986, our first exhibition was at Singapore in January and as the months followed, we have been to Hanover and Jakarta with Farnborough and Anaheim, California to come.

Farnborough, which occurs every two years, is our chief show this year and demands the maximum effort.

Major emphasis in the 1986 show will be placed on exhibiting our equipment for the British Aerospace Experimental Aircraft Programme (EAP) demonstrator which is due to fly at Farnborough.

As explained in the last NEWSLETTER this will help to stake our claim for work on the EFA (European Fighter Aircraft).

Our Airbus activities will be demonstrated by the A320 main landing gear and ram air turbine in addition to the A310 gear both of which entail collaborating with other European countries.

Further commitments to European programmes will be shown by the Fokker 50 propeller, nose gear and flap power control unit; Fokker 100 main gear; Piaggio P.180 Avanti nose gear and Saab JAS.39 Gripen Hydraulics.

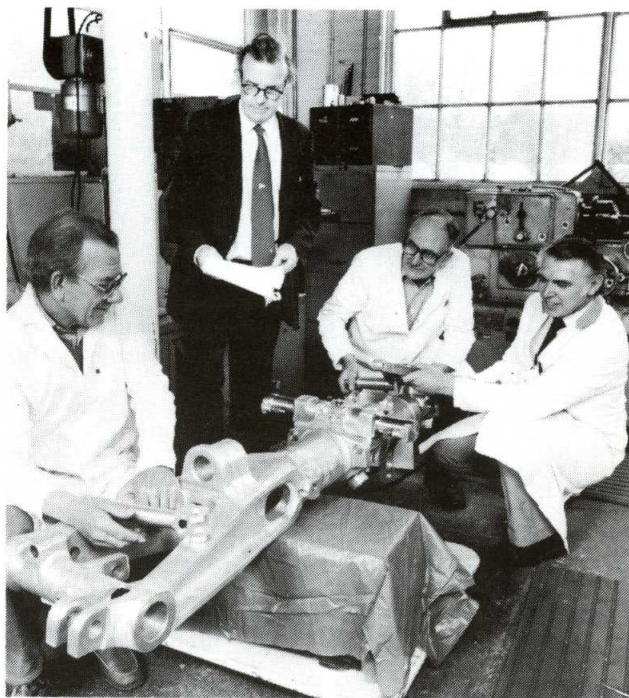
Our support for other leading programmes includes the BAe ATP Advanced Turboprop nose gear and BAe 146 high lift system.

Composites technology will be covered by a sectioned Saab SF340 blade with explanatory graphics and there will be display panels on Product Support in worldwide operation.

These exhibits are produced as a result of careful planning which starts months before the exhibition at which they are displayed.

Parts are collected from test equipment, salvaged from scrap, or made specially for the exhibition. Some of the exhibits have to be sectioned to show their interior mechanisms. All have to be finished to the highest standards to reflect the quality of our products.

This work is carried out by a small but dedicated team based in the Model Shop in South Works. The



Roy Ewington, Dick Hughes, Stan Tattershall and Dave Porter, preparing BAe ATP nose landing gear for Farnborough '86

team consists of Roy Ewington (Exhibitions Superintendent), Dave Porter (Foreman), Dick Hughes and Stan Tattershall.

Many other employees also contribute to the overall team effort required for a successful exhibition.

Exhibits have to be moved into Despatch for documentation, then transported to the exhibition site. This is not so difficult in the case of Farnborough, but arrangements can become complicated when a succession of exhibits are moved to and from distant countries.

Once our exhibits are at the exhibition site, we have to ensure that each exhibit is accompanied by suitable graphics and captions and that our display is arranged for maximum effect. Our sales staff also have to invite all relevant contacts from the aviation world to visit the stand and follow up on enquiries made.

The work carried out by employees in our Model Shop plays a part in our drive to bring new business to the company and maintain our reputation in the aerospace industry.

A Worthy Wheeler

When Phil Brookes, a Kit Marshall in the Repair Stores, read of the plight of eight-year-old Lisa Daniels, he was determined to do something to help.

Lisa suffers from severe cerebral palsy and needs specialist exercise treatment and equipment which her parents have to pay for.

Phil, a keen cyclist, decided to raise funds by cycling 160 miles to Leicester and back over Easter. He

managed to raise over £1200 mainly through the sponsorship of workmates at the company although regulars at his local pub also made a contribution.

Regardless of the weather, Phil has cycled to work from his home in Brockworth for the last seven years and so this journey did not cause him any problems. In fact, this was his sixth charity ride and to date he has raised over £2500 for various local charities.

Factory Moves

The increase in our turnover has not only meant extra work for our Production Departments. Doug Biggs, our Works Engineer, has had his work cut out making sure that we have enough space for the extra people, plant and equipment needed to reach our targets.

Although we already have 800 000 square feet of workshops and offices, it has been necessary to move some departments.

The following areas have been affected by the need for additional space in the Repair and Overhaul Department and in particular to accommodate the C-130 propeller contract:-

- **CRSP Stores and Stationery Stores** – moved from South Works to the Gloucester Trading Estate in Hucclecote.
- **Electrical Production** – moved out of Repair into the site left vacant by the Stationery Stores.
- **Repair Stores** – moved into the area previously occupied by Electrical Production.

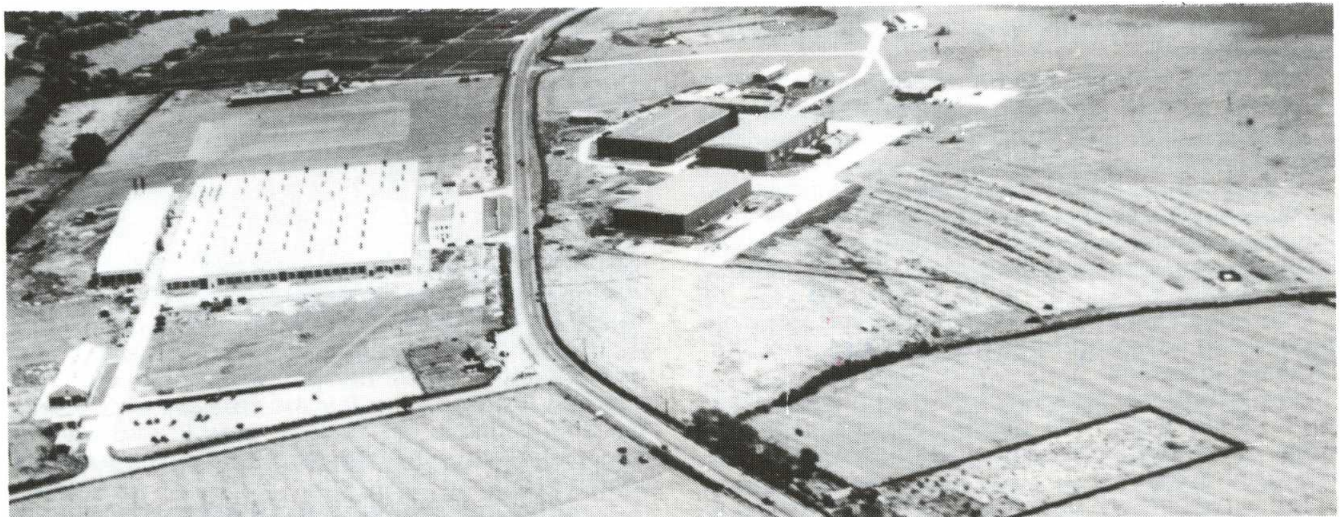
We have also decided to build a new Paint Shop, capable of dealing with a higher workload and to

expand the Plating Shop. This has meant the following moves:-

- **Gear Shop** – moved 'across the stream' to the Dowty Precision Castings Limited building.
- **Training Department** – moved to the Apprentice School on South Works.
- **Paint Shop** – a new Paint Shop is being built in the area vacated by the Gear Shop and Training Department.
- **Plating Shop** – will be expanded into the area currently occupied by the Paint Shop.

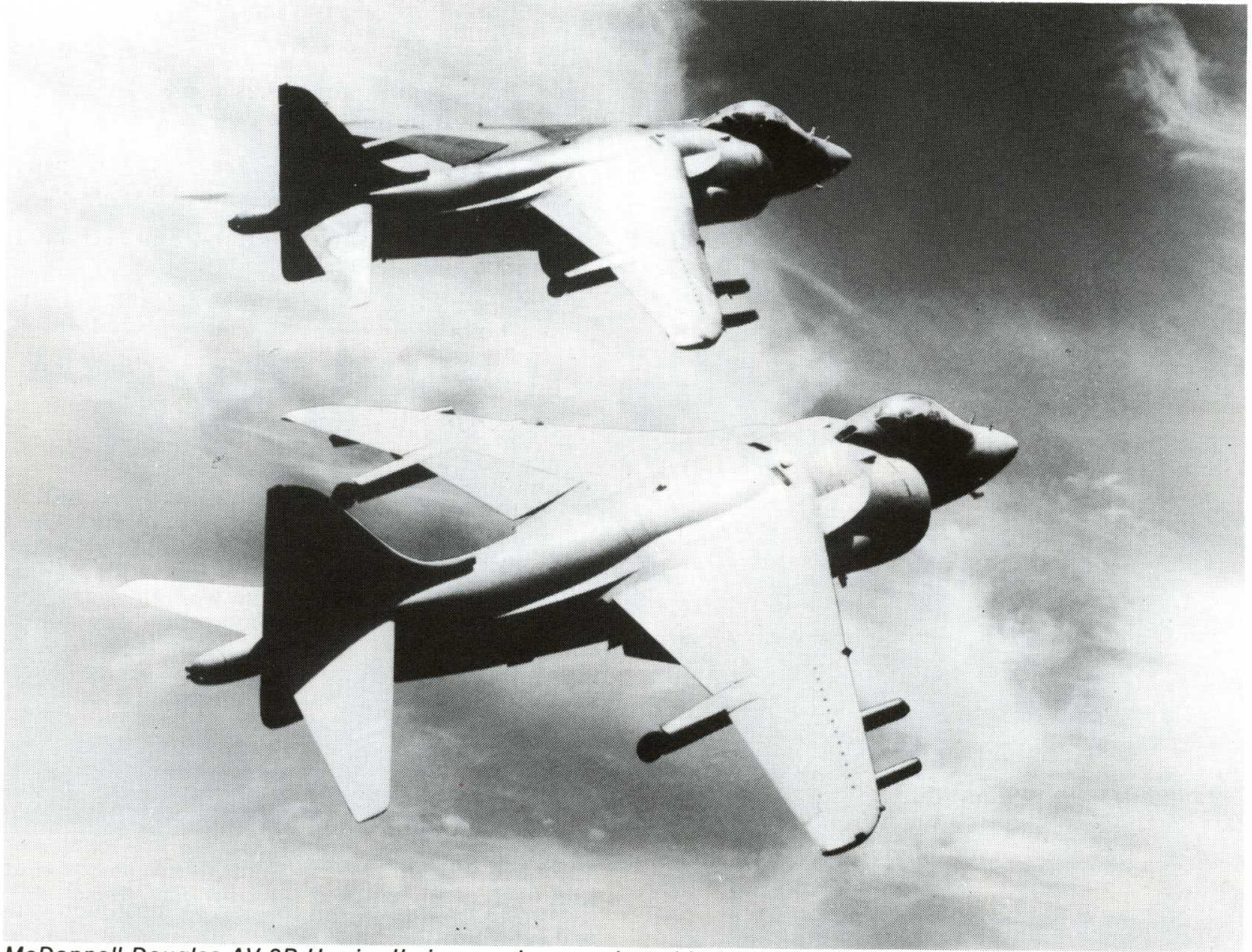
Changes to the layout of the site are, of course, not just a recent development. To illustrate this we publish below two aerial photographs. One was taken earlier this year and the other in 1939. At that time, Rotol consisted primarily of a machine shop and office block. The three hangars across the road belonged to the RAF.

When we showed these photographs to Fred Moore, our Security Officer, he pointed out the large amount of unoccupied car parking space in 1939 and said that his predecessor at that time must have had an easy job!



Rotol in 1939. Below: Dowty Rotol in 1986.





McDonnell Douglas AV-8B Harrier IIs in squadron service with the US marine Corps

Jump Jetting with the US Marines

Many employees will have had something to do with the equipment we supply for the McDonnell Douglas AV-8B Harrier II, which is one of the company's major programmes. The latest order for aircraft sets exceeded £11.5 million and will cover phased production work from this September until early 1988.

Already, AV-8Bs are in squadron service with the US Marine Corps which was formed in November 1775, several months before the American Declaration of Independence in July 1776.

It is interesting to note that the US Marine Corps has enough aircraft and aviation personnel to form one of the world's ten largest air forces.

Dowty Rotol Limited and the US Marine Corps were both interested in the V/STOL (Vertical/Short Take Off or Landing) concept from the earliest Kestrel version in 1966. Dowty Rotol foresaw the potential for such an aircraft and was involved with the early stages of development. The US Marine Corps evaluated the Kestrel, decided it was underpowered, but closely followed its evolution to the Harrier.

When the Harrier began to look like a winner, the US Marine Corps was still interested but wary about showing an interest in a British built aircraft. It is on record that two Marine Corps pilots, visiting the 1968 Farnborough Air Show to see the Harrier, wore civilian clothes! The two pilots were the first Americans to fly the jump jet. When they reported back to their Commandant, he said: 'That looks like what we've

been dreaming of. I want it in the budget now.'

It required high level persuasion to change the US Defence Budget and to overcome objections in Congress to dependence on military equipment not built in the United States. It was eventually agreed that the plane would be redesigned by McDonnell Douglas and manufactured by them under licence from British Aerospace.

Although our landing gear and hydraulics were fitted on the British Harrier since the early 1960s we had to bid competitively for every single unit on the American AV-8Bs during the late 1970s. We made 30 separate bids totalling over 270 000 sheets of paper.

The first AV-8B Harrier II close combat squadron for the US Marine Corps was commissioned in January 1985. The second and third squadrons are scheduled for 1986/87.

'This aircraft,' said the US Marine Corps Commandant, 'is doing exactly what we hired it for - that is to solve the close air support equation. The AV-8B is meeting or exceeding all the specs and goals we set for it. It is a fine piece of machinery.'

The AV-8B represents a very important programme to Dowty Rotol, not only because it means £10 million each year, but also because it is the first major US military aircraft success achieved by this company.

Our performance on all AV-8B items is monitored and the resultant records will be analysed when the next generation of aircraft equipment is put out to tender.

To be a successful bidder for the 1990's aircraft at McDonnell Douglas we will have to be rated amongst the world's best suppliers. So far our record is a proud one but we cannot afford to relax.



Despatch on 26 June of the first Lockheed C-130 Hercules propeller overhauled at Dowty RotoI

Marathon Man



Ron Smith (centre) puts his best foot forward

Our congratulations go to Ron Smith, Deputy Spares Controller, who achieved a long-standing ambition by running in the London Marathon on 20 April.

Ron was one of the 22 000 runners who started the course and he finished in a respectable three hours and 44 minutes – not bad for a veteran!

Ron has told us that the atmosphere was fantastic and he spent some of the time running alongside Bernie Clifton, the comedian, who was wearing an emu costume.

Although this was Ron's first London Marathon, he has competed in two Gloucester Marathons and 12 other local half marathons.

He can be spotted out jogging on most mornings and estimates that he did 250 miles in training for the London event.

Ron managed to raise £750 for the Multiple Sclerosis Society through sponsorship of his run.

Retirements



The last few months have seen the retirements of a number of long-serving employees. The picture above shows Alan Lailey (left) being presented with a mounted blade by Peter Bowers as a memento on his retirement.

Alan left on 9 June after 47 years service, having spent most of his time in the Drawing Office after joining RotoI Airscrews Ltd on 12 December 1938.

Ernie Roberts from the Experimental Machine Shop can boast of an even longer period of service. Ernie, who retired early on 19 June, joined Dowty Equipment Ltd on 9 June 1938.

Our best wishes go to them both and all other employees who have recently retired.