

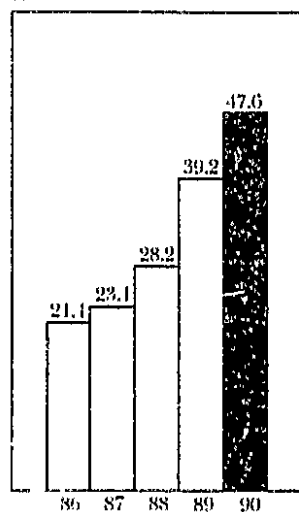
ANNUAL REPORT

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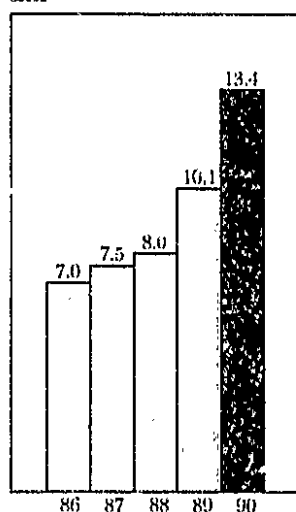
Results at a glance and financial highlights

	1990 £'000	1989 £'000
Turnover	47,561	39,197
Profit before taxation	13,423	10,088
Taxation	4,253	3,069
Profit after taxation	9,170	7,019
Dividend per share	6.0p	4.2p
Earnings per share	23.80p	18.23p

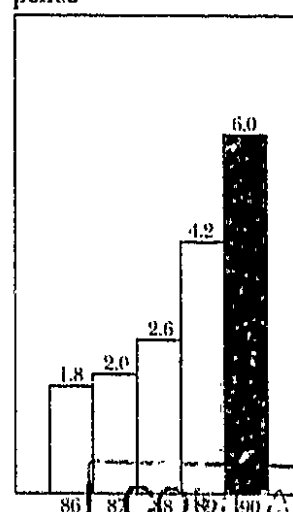
Turnover
£m



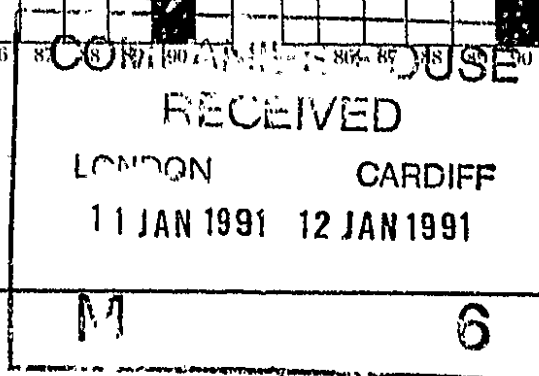
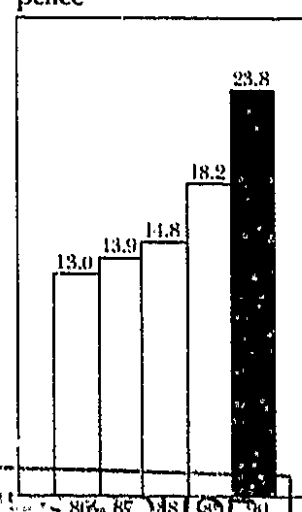
Profit before taxation
£m



Dividend per share
pence



Earnings per share
pence



Directors and advisers



DIRECTORS from left to right: A.C.G. Roberts, G.E. Migliardi, D.R. McMurry, D.J. Deer, B.R. Taylor, I. Brook

D.R. McMURRY, Chairman and Chief Executive, age 50, was employed by Rolls-Royce plc, Bristol, for 17 years, latterly holding the positions of Deputy Chief Designer and Assistant Chief of Engine Design of all Rolls-Royce engines manufactured at the Filton, Bristol, works. After inventing the original probe in the early 1970s, David McMurry formed Renishaw in 1973 with John Deer and joined Renishaw full-time in 1976. He is a member of a number of national and international technology committees.

D.J. DEER, Deputy Chairman, age 52, trained as a mechanical engineer and worked with Rolls-Royce plc, Bristol, from 1960 until 1971 when he moved to Renishaw to become the first full-time employee, responsible for the initial production and distribution of Renishaw products.

B.R. TAYLOR, Joint Managing Director, age 41, has been involved in the field of metrology all his working life after graduating in mechanical engineering and design from Pennsylvania State University. Prior to joining Renishaw Inc as President in 1985, he was the Director of Engineering at Sheffield Measurement, USA. He was appointed to the Board of Renishaw plc in June 1987 and is responsible for the Group's UK and Ireland operations. He also chairs a US national metrology committee and serves on a number of metrology committees and associations.

G.E. MIGLIARDI, Joint Managing Director, age 51, obtained a Doctor's Degree in mechanical engineering at Genoa University and a Masters Degree in machine tool technology at the University of Manchester Institute of Science and Technology, and before joining Renishaw in May 1989 worked at Olivetti headquarters as Business Development Director. Gianfranco Migliardi is responsible for the Group's international operations, Group strategy and finance.

A.C.G. ROBERTS, Finance Director, age 41, is a Fellow of the Institute of Chartered Accountants in England and Wales and, prior to joining the Company in 1979, he was employed for 11 years by KPMG Peat Marwick McIntock. He was appointed a Director in 1980.

I. BROOK, age 78, joined Renishaw in 1980 as a non-executive director. He is an engineer of long experience and has held many directorships and senior appointments in the engineering industry. He was Chairman of Simon Engineering plc from 1970 to 1977 and is currently Chairman of Associated Nuclear Services.

COMPANY SECRETARY AND REGISTERED OFFICE

A.C.G. Roberts, F.C.A.
Gloucester Street, Wotton-under-Edge,
Gloucestershire, GL12 7DN
Registered Number: 1106260
Telephone: (0153) 842533
Telex: 437258 RENWOL G
Facsimile: (0153) 843689

AUDITORS

KPMG Peat Marwick McIntock

SOLICITORS

Norton Rose

PRINCIPAL BANKERS

Lloyds Bank Plc
Societe Generale

STOCKBROKERS

Rowe & Pitman Limited

FINANCIAL ADVISERS

Brown, Shipley & Co Limited

REGISTRARS AND TRANSFER OFFICE

Lloyds Bank Plc,
Registrar's Department,
Goring by Sea, Worthing,
West Sussex, BN12 6DA



Chairman's statement

Trading results and dividends

I am delighted to report yet another record year for the Group.

Turnover of £17.6m represents an increase of 21% over the comparable turnover of £14.2m in 1989. Operating profit amounted to £11.3m (1989 £8.9m), an increase of 27% which, together with interest receivable of £2.1m (1989 £1.2m), gives a profit on ordinary activities before taxation of £13.4m compared with £10.1m, an increase of 33%.

Earnings per share were 23.80p (1989 18.23p), an increase of 31%.

Your Directors recommend the payment of a final dividend of 4.0p net per share which, together with the interim dividend of 2.0p per share, makes a total for the year of 6.0p per share (1989 4.2p), an increase of 43%. Subject to the approval of shareholders, the final dividend will be paid on 19th November 1990 to shareholders on the Register of members at the close of business on 26th October 1990.

Trading climate

The market for the Group's traditional metrology business continued to grow for both co-ordinate measuring machine and machine tool products. Sales of PH9 and PH10 motorised heads have been particularly strong, with a large majority of co-ordinate measuring machine manufacturers fitting them as standard equipment in their products. The laser interferometer has seen growing market acceptance with sales increasing by 163% to £2.2m for the year.

A number of new products have been launched, with particular interest being shown in the new range of scanning probes, the manual indexable head and the TP7 high accuracy probe.

Overseas developments

Sales to overseas customers at £43.1m (1989 £35.2m) represented 91% of group turnover (1989 90%). All our overseas subsidiaries performed well and increased their sales. I am pleased to report that Renishaw S.p.A., our new Italian subsidiary, is now well established with turnover in Italy during the year increasing by 46%.

Research and development

The Group continues its commitment to a high level of engineering expenditure. The current year costs amounted to £5.1m (1989 £4.6m) which represents 11% of turnover (1989 12%). In accordance with SSAP 13 definitions, research and development expenditure included in engineering costs amounted to £3.0m (1989 £2.7m) with the balance of expenditure being incurred in supporting and improving current products and manufacturing efficiencies. All such expenditure is charged to the profit and loss account as incurred.

The Group's new 35,000 sq ft Technology Centre at Wotton-under-Edge has been completed and now houses the research and development activities of Renishaw Metrology Limited.

Queen's Award

In April 1990 we were delighted to receive news that Renishaw Metrology Limited had won a Queen's Award for Technological Achievement for the development and promotion of the PH9 and PH10 motorised heads. This is the sixth Queen's Award won by the Group. Renishaw Metrology Limited, together with our overseas subsidiaries, are to be congratulated on this excellent achievement.

Capitalisation issue

In order to bring the issued share capital of the Company more into line with the capital employed in the business, the Board is proposing a one for four capitalisation issue of new shares. The new shares, if shareholders approve these proposals, will rank *pari passu* with the existing ordinary shares, except that they will not rank for the final dividend in respect of the year ended 30th June 1990. It is intended that dividends per share in 1991 will be at least maintained on the capital as increased by the capitalisation issue.

Purchase of own shares

Your Directors consider that the Company should have the flexibility to be able to make market purchases of its own ordinary shares, up to a total of 10% of the issued share capital. Shareholders will be asked to pass the necessary Special Resolution at the Company's Annual General Meeting. There is at present no intention to purchase shares and, if granted, the authority would only be exercised if an improvement in earnings per share were expected to result.

Personnel

On behalf of the Board of Directors, I wish to thank all our employees worldwide for their enthusiasm and commitment, and for all their hard work during a year of further changes and continued growth.

Current trading and future prospects

Turnover in the first quarter of the current year is ahead of the comparable period last year. Despite the current uncertainties with regard to the world economy, your Board looks forward with confidence to another successful year.

D.R. McMurtry
Chairman and Chief Executive
26th September 1990



Notice of meeting

NOTICE IS HEREBY GIVEN that the 17th Annual General Meeting of the Company will be held at the Post House Hotel, Thornbury Road, Alveston, near Thornbury, Avon on Friday 16th November 1990 at noon to transact the following business:

1. To receive and adopt the reports of the Directors and Auditors and the Statement of Accounts for the year ended 30th June 1990.
2. To declare a final dividend.
3. To re-elect as a Director of the Company Mr A.C.G. Roberts, who is retiring by rotation.
4. To re-appoint KPMG Peat Marwick McLintock as auditors of the Company and to authorise the Directors to fix their remuneration.

To consider as special business and, if thought fit, to pass the following resolutions which will be proposed as to Resolution No.5 as an Ordinary Resolution and as to Resolutions Nos 6 and 7 as Special Resolutions:

5. THAT:
 - i) on the recommendation of the Directors, the sum of up to £1,943,947.40 (being part of the amount standing to the credit of Profit and Loss Account) be capitalised and the Directors be authorised to appropriate the said sum of up to £1,943,947.40 as capital to and amongst the persons appearing on the Register of members as at the close of business on 19th November 1990, such sum to be applied in paying up in full at par such number of unissued ordinary shares of 20p each of the Company as shall be necessary for the purposes of allotment hereinafter mentioned, and that such ordinary shares of 20p each credited as fully paid be allotted and distributed to such persons holding issued fully paid ordinary shares of 20p each of the Company in the proportion of one ordinary share of 20p for every four issued ordinary shares of 20p each held by them at the close of business on such date;
 - ii) the new ordinary shares to be issued to holders of fully paid ordinary shares of 20p each pursuant to this Resolution shall not rank for the recommended final dividend of 4p net per ordinary share in respect of the financial year ended 30th June 1990 but shall rank in full for all dividends and other distributions hereafter declared, paid or made on the ordinary share capital of the Company and in all other respects pari passu both inter se and with the existing issued fully paid ordinary shares of the Company;
 - iii) whenever as a result of such allotment and distribution any member would become entitled to a fraction of an ordinary share of 20p, the Directors shall for the purposes of eliminating such fractions allot to such members such number of new ordinary shares of 20p each as will not result in such member becoming entitled to a fraction of an ordinary share of 20p; and
 - iv) the Directors shall give effect to this Resolution.
6. THAT, the Company be and is hereby generally and unconditionally authorised to make market purchases (within the meaning of Section 163 of the Companies Act 1985) of ordinary shares of 20p each in the capital of the Company ("ordinary shares") provided that:
 - i) the maximum number of ordinary shares hereby authorised to be purchased is 4,826,252;
 - ii) the maximum price which may be paid for an ordinary share is an amount equal to 105% of the average of the middle market quotations for an ordinary share (as derived from The Stock Exchange Daily Official List) for the 10 business days immediately preceding the day on which the ordinary share is purchased;
 - iii) the minimum price which may be paid for an ordinary share shall be 20p;
 - iv) the authority hereby conferred shall expire at the conclusion of the Annual General Meeting of the Company to be held in 1991 or, if earlier, on 31st December 1991 unless such authority is renewed prior to such time; and
 - v) the Company may make a contract to purchase ordinary shares under the authority hereby conferred prior to the expiry of such authority which contract will or may be executed wholly or partly after the expiration of such authority and may make a purchase of ordinary shares pursuant to any such contract.
7. THAT Article 23(A) of the Articles of Association of the Company be and is hereby amended by substituting "20p" for the reference to "5p" in such Article.
8. To transact any other business of an Annual General Meeting.

By order of the Board
A.C.G. Roberts
Secretary
Gloucester Street
Wotton-under-Edge
Gloucestershire
GL12 7DN
22nd October 1990

Notes:

1. A member entitled to attend and vote is entitled to appoint a proxy or proxies to attend and, on a poll, to vote instead of him or her. A proxy need not be a member of the Company and the appointment of a proxy will not preclude a member from attending and voting at the meeting. A form of proxy is enclosed for this purpose.
2. The register of Directors' shareholdings and the Director's service contract will be available for inspection at the registered office of the Company during normal business hours until the date of the meeting and at the place of the meeting for 15 minutes prior to, and during, the meeting.
3. The purpose of Special Resolution No.7 is to reflect the present par value of 20p of each ordinary share so that in the case of a poll every member present in person, by representative or by proxy at any General Meeting shall have one vote for every 20p in nominal value of ordinary shares of which he is the holder.

Directors' report

The Directors have pleasure in presenting their 17th Annual Report, together with the audited Accounts for the year ended 30th June 1990 as set out on pages 9 to 19 and approved by the Board of Directors on 26th September 1990.

Trading results

The Group results for the year were as follows:

	1990 £000	1989 £000
Profit on ordinary activities before taxation	13,423	10,088
Taxation on profit on ordinary activities	4,253	3,069
Profit for the financial year	9,170	7,019
Dividends	2,311	1,617
Retained profit for the year	6,856	5,402

Review of the business

The principal activities of the Group during the year were the design, manufacture and sale of advanced precision metrology and inspection equipment and computer aided design and manufacturing systems. During the year, the Group's UK operations were consolidated, with the businesses previously carried on by Renishaw Research Limited and Renishaw-MAE Limited being transferred to Renishaw Metrology Limited. A new sales company, Micro Aided Engineering Limited, 30% owned by Renishaw plc, has been established to distribute the Group's CAD/CAM products.

The principal activities of the subsidiaries are detailed in note 19 to the Accounts. There has been no significant change in the Group's activities during the year. Further details are incorporated in the Group Profile accompanying these Accounts. An analysis of turnover by geographical market is given in note 1 to the Accounts.

Dividends

The Directors propose a final dividend of £1,544,101 for the year, which is equivalent to 4p per share net and together with the interim dividend of 2p makes a total of 6p for the year, compared with 4.2p for the previous year.

Directors and their interests

The Directors who served during the year and their interests in the share capital of the Company at the beginning and end of the year, were as follows:

	Ordinary shares of 20p each	
	30th June 1990	30th June 1989
D. R. McMurtry	14,525,417	15,025,417
D. J. Deer	7,136,457	7,386,457
B. R. Taylor	—	—
GF. Migliardi	—	—
A. C. G. Roberts	38,145	75,615
L. Brook	9,165	9,165

All the above holdings were beneficially held with the exception of 1,250,000 shares which were non-beneficially held by D.J. Deer but in respect of which he has voting rights. There has been no change in the above holdings in the period 30th June 1990 to 26th September 1990. Under the terms of the employee share option scheme, options granted to Directors outstanding at 26th September 1990, which are exercisable between 3 and 10 years after the date the options were granted, were:

Date options granted	Option price	Number of shares		
		B. R. Taylor	GF. Migliardi	A.C.G. Roberts
24th July 1985	£2.02	7,000	—	12,000
6th August 1986	£2.26	3,500	—	7,500
7th September 1987	£1.75	7,500	—	7,500
23rd September 1988	£1.46	7,500	—	7,500
6th September 1989	£2.38	7,500	7,500	7,500

In accordance with the Articles of Association A.C.G. Roberts, who does not have a service contract, retires by rotation and being eligible, offers himself for re-election.

No Director was interested during or at the end of the year in any contract which was significant in relation to the Group's business.

Share capital

Under the terms of the employee share option scheme, options have been granted to employees of group companies. Details of options exercised and outstanding are given in note 16 to the Accounts. There has been no change in share capital between 30th June 1990 and 26th September 1990.



Directors' report

Special business

(i) Capitalisation issue - In order to bring the issued share capital of the Company more into line with the capital employed, the Directors propose that a capitalisation issue be made, to shareholders registered on 19th November 1990, of one new ordinary share for every four ordinary shares held. The new capitalisation shares to be issued will rank pari passu with the existing ordinary shares except that they will not be entitled to the recommended final dividend for the year ended 30th June 1990. Fractional entitlements to new ordinary shares will not be allotted. It is intended that dividends per share for the year ending 30th June 1991 will be at least maintained on the capital as increased by the capitalisation issue. Application will be made to the Council of The Stock Exchange for the new ordinary shares to be admitted to the Official List. It is proposed that definitive share certificates will be posted to shareholders by 30th November 1990 and that dealings in the new ordinary shares will commence on 3rd December 1990. The number of ordinary shares and/or the subscription price in respect of shares which are the subject of options already granted but not exercised will be adjusted; optionholders will be notified of the relevant adjustments in due course. Ordinary Resolution No.5 is being proposed at the Annual General Meeting in order to authorise the capitalisation issue.

(ii) Purchase of own shares - Your Directors consider that the Company should have the flexibility to be able to make market purchases of its own ordinary shares, up to a total of 10% of the issued share capital following implementation of the capitalisation issue. Shareholders are being asked to pass the necessary Special Resolution No.6 at the Annual General Meeting to give the required general authority until the conclusion of the 1991 Annual General Meeting or, if earlier, 31st December 1991. There is no present intention to purchase shares and, if granted, the authority would only be exercised if an improvement in earnings per share were expected to result.

Recommendation - The Directors consider the proposals above to be in the best interests of the Company and its shareholders and accordingly recommend all shareholders to vote in favour of the resolutions to be proposed at the Annual General Meeting, which they intend to do in respect of their own shareholdings amounting to 21,709,181 ordinary shares representing 56.2% of the issued share capital.

Substantial shareholders

Apart from the shareholdings of Messrs McMurtry and Deer (56.1%) the only shareholding notified to the Directors which represents 3% or more of the issued share capital of the Company is that of Prudential Corporation (3.3%).

Fixed assets

Following a review of the Group's property requirements, it was decided to dispose of part of the Group's freehold premises at Cwmbran. A sale has not been completed, but it is expected that the proceeds will be for an amount greater than book value. Since the year end, the Group's land and buildings have been revalued by professional valuers, with the result that the current market value of £12,136,000 exceeds the net book value of £8,277,000 by £4,159,000. The revaluation has not been incorporated in the Accounts. The Group Technology Centre at New Mills site was completed in August 1990 and occupied in September 1990. The changes in tangible fixed assets during the year are summarised in note 9 to the Accounts.

Research and development

The Group has a continuing commitment to a high level of research and development. The expenditure involved is directed towards the development of new products relating to metrology.

Employees

The maintenance of a highly skilled workforce is essential to the future of the business and the Directors place great emphasis on the continuation of the Company's approved training policy. Health and Safety matters are given special attention by the Directors and it is their policy to ensure that continued employment is offered to employees who become temporarily or permanently disabled and the Company always carefully considers an application for employment by any registered disabled person.

Regular contact is maintained with all employees through departmental channels and the monthly in-house journal ensures staff are kept well informed on the progress of the Group.

Donations

During the year the Company made charitable donations amounting to £17,150 (1989 £0,214). No political donations were made.

Taxation

The Company is not a close company within the provisions of the Income and Corporation Taxes Act 1988.

Auditors

On 1st January 1990 our auditors changed the name under which they practise to KPMG Peat Marwick McLintock and accordingly have signed their report in their new name. In accordance with Section 385 of the Companies Act 1985, a resolution for the reappointment of KPMG Peat Marwick McLintock, as auditors of the Company, will be proposed at the forthcoming Annual General Meeting.

By order of the Board
A.C.G. Roberts, Secretary
26th September 1990



Accounting policies

The principal accounting policies applied in the preparation of the Accounts of the Group are described below. The Accounts have been prepared under the historical cost accounting rules.

Basis of consolidation

The consolidated Accounts incorporate the Accounts of the Company, all its subsidiaries and its related company.

Turnover

Turnover represents the value of group sales to third parties invoiced during the year less returns, allowances and value added tax.

Intangible asset and amortisation

The intangible asset is stated at cost less accumulated amortisation. Amortisation is provided to write off the cost of the asset on an incremental basis over the period of the relevant agreement.

Tangible assets and depreciation

Tangible assets are stated at cost less accumulated depreciation. Depreciation is provided to write off the cost of assets, less their residual value, on a straight line basis over their estimated useful lives as follows:—

Freehold buildings — 50 years
Plant and machinery — 5 to 10 years
Motor vehicles — 3 years

Stocks

Stocks are valued at the lower of cost, being direct materials and labour plus overheads applicable to the stage of manufacture reached, and net realisable value.

Research and development

Research and development expenditure is charged to the profit and loss account in the year in which it is incurred.

Hire purchase

Hire purchase interest is charged to the profit and loss account in proportion to the capital sums outstanding.

Deferred taxation

Deferred taxation is provided using the liability method in respect of the taxation effect of all timing differences to the extent that it is probable that liabilities will crystallise.

Foreign currency

Each trading transaction entered into by the Group denominated in a foreign currency is translated and recorded at the rate of exchange ruling at the date of the transaction, and any differences in value on settlement are taken to the profit and loss account.

Overseas profits are translated into sterling at the rate of exchange ruling when they are earned. Overseas assets and liabilities included in the consolidated balance sheet are translated into sterling at the rates of exchange ruling at the end of the accounting year and resultant currency adjustments are treated as movements on reserves.

Government grants

Government grants received relating to the purchase of tangible assets are released to the profit and loss account over the estimated useful life of the relevant asset. Grants relating to revenue expenditure are credited to the profit and loss account when received.

Pension scheme

The Group operates a contributory pension scheme, of the defined benefit type, for the benefit of UK based employees. The scheme is administered by trustees and is independent of the group finances. Contributions are paid to the scheme in accordance with the recommendations of an independent actuary to enable the trustees to meet from the scheme the benefits accruing in respect of current and future service. The Group's contributions are charged to the profit and loss account in accordance with SSAP 24. An independent actuarial valuation has been carried out on the scheme in July 1990 and the scheme is adequately funded.

Foreign based employees are covered by state and private pensions schemes in their countries of residence. Actuarial valuations of the foreign pension schemes, in accordance with SSAP 24, were not obtained because of the costs involved and the small number of foreign employees.



Consolidated profit and loss account

for the year ended 30th June 1990

	Notes	1990 £'000	1989 £'000
Turnover	1	47,561	39,197
Cost of sales		22,008	18,088
Gross profit		25,553	21,109
Distribution costs		6,483	5,454
Administrative expenses		7,753	6,737
		14,236	12,191
Operating profit	2	11,317	8,918
Interest receivable less payable	3	2,106	1,170
Profit on ordinary activities before taxation		13,423	10,088
Taxation on profit on ordinary activities	4	4,253	3,069
Profit for the financial year	5	9,170	7,019
Dividends	6	2,314	1,617
Retained profit for the year		6,856	5,402
Earnings per share	7	23.80p	18.23p

Movements in reserves are set out in note 17 to the Accounts.



Balance sheets

at 30th June 1990

	Notes	The Group		The Company	
		1990 £'000	1989 £'000	1990 £'000	1989 £'000
Fixed assets					
Intangible asset	8	129	274	—	—
Tangible assets	9	14,819	12,491	4,828	4,711
Investments in subsidiaries	10	—	—	2,036	4,815
		<u>14,948</u>	<u>12,765</u>	<u>6,864</u>	<u>9,586</u>
Current assets					
Stocks	11	5,173	5,374	—	—
Debtors	12	12,234	9,227	10,262	951
Cash at bank		17,625	15,977	16,834	15,582
		<u>35,032</u>	<u>30,578</u>	<u>27,096</u>	<u>23,533</u>
Creditors					
Amounts falling due within one year	13	11,359	10,358	19,706	17,872
Net current assets		<u>23,673</u>	<u>20,220</u>	<u>7,390</u>	<u>5,661</u>
Total assets less current liabilities		<u>38,621</u>	<u>32,985</u>	<u>14,254</u>	<u>15,247</u>
Creditors					
Amounts falling due after more than one year	14	172	2,234	—	1,395
		<u>38,449</u>	<u>30,751</u>	<u>14,254</u>	<u>13,642</u>
Provision for liabilities and charges					
Deferred taxation	15	2,341	1,566	517	639
Net assets		<u>36,108</u>	<u>29,185</u>	<u>13,737</u>	<u>13,213</u>
Capital and reserves					
Called up share capital	16	7,722	7,700	7,722	7,700
Share premium account	16	206	—	206	—
Profit and loss account	17	28,180	21,485	5,809	5,513
Shareholders' funds		<u>36,108</u>	<u>29,185</u>	<u>13,737</u>	<u>13,213</u>

D. R. McMurtry
A. C. G. Roberts

Directors



Consolidated statement of source and application of funds

for the year ended 30th June 1990

	1990 £'000	1989 £'000
Profit before taxation	13,423	10,088
Adjustments for items not involving the movement of funds:—		
Amortisation of intangible asset	122	113
Depreciation of tangible assets	2,181	1,807
Profit on sale of tangible assets	(40)	(51)
Currency movements	127	108
	2,393	1,977
Total generated from operations	15,816	12,065
Funds from other sources		
Exercise of employee share options	228	—
Secured loan	172	1,090
Sale of tangible assets	134	61
	534	1,151
Total sources of funds	16,350	13,216
Application of funds		
Purchase of tangible assets	4,763	3,136
Secured loan repaid	1,530	220
Hire purchase repaid	1,173	536
Taxation paid	3,835	1,825
Dividends paid	1,848	1,247
Deferred liability paid	123	104
	13,272	7,068
Increase in working capital	3,078	6,148
Movements in working capital		
Stocks	(201)	562
Debtors	3,007	1,743
Creditors	(1,376)	(330)
	1,430	1,975
Net liquid funds	1,648	4,173
	3,078	6,148



Notes to the Accounts

for the year ended 30th June 1990

1. Turnover

Turnover is defined under the accounting policies and relates to the principal trade. An analysis by geographical market is:-

	1990 £'000	1989 £'000
USA	15,402	12,999
Japan	9,050	7,101
Germany	6,593	4,829
France	5,987	5,064
Italy	3,299	2,265
Other overseas countries	2,756	2,986
Total sales to overseas customers	43,087	35,244
United Kingdom	4,474	3,953
Total group sales	47,561	39,197

2. Operating profit

a) The operating profit is stated after charging:-

	1990 £'000	1989 £'000
Research and development	3,021	2,724
Depreciation	2,184	1,807
Amortisation of intangible asset	122	113
Directors' emoluments	841	484
Auditors' remuneration	78	76

b) Emoluments of Directors

The emoluments of the Chairman, excluding pension contributions, were £166,427 (1989 £121,627). The emoluments, excluding pension contributions, of the other Directors, whose duties were performed mainly in the UK, fell within the following ranges:-

	1990 Number	1989 Number
£ 5,001—£ 10,000	—	1
£ 10,001—£ 15,000	1	—
£ 15,001—£ 20,000	—	1
£ 20,001—£ 25,000	—	1
£ 25,001—£ 30,000	1	—
£ 30,001—£ 35,000	1	1
£ 35,001—£ 40,000	1	—

c) Staff numbers and costs

The average number of persons employed by the Group (including Directors) during the year was:-

	1990 Number	1989 Number
Office and management	129	126
Research, manufacturing and marketing	685	639
	814	765

The aggregate payroll cost of the above was:-

	1990 £'000	1989 £'000
Wages and salaries	12,611	9,958
Social security costs	1,429	1,084
Other pension costs	537	415
	14,580	11,457

d) Emoluments of higher paid employees

The number of UK employees of the Group other than the Directors of the Company whose emoluments, excluding pension contributions, exceeded £30,000 for the year, fell within the following ranges:-

	1990 Number	1989 Number
£30,001—£35,000	9	4
£35,001—£40,000	1	1
£40,001—£45,000	1	1
£45,001—£50,000	—	2
£50,001—£55,000	2	—

3. Interest receivable less payable

	1990 £'000	1989 £'000
Receivable		
Bank	2,875	1,879
Payable		
Hire purchase	156	159
Bank and other short term interest	613	550
	769	709
	<u>2,106</u>	<u>1,170</u>

4. Taxation on profit on ordinary activities

Based on group profit on ordinary activities for the year:-

	1990 £'000	1989 £'000
Corporation tax at 35%	2,192	2,535
Deferred tax at 35%	931	(153)
Overseas tax	1,130	689
	<u>4,253</u>	<u>3,069</u>

A further liability to taxation would arise if the retained profits of overseas subsidiaries were distributed.

5. Profit for the financial year

As provided by section 228(7) of the Companies Act 1985, a separate profit and loss account dealing with the results of the Company alone has not been presented. The profit/(loss) for the financial year, excluding dividends receivable, dealt with in the Accounts of the Company is £160,000 (1989 (£332,000)).

6. Dividends

	1990 £'000	1989 £'000
Interim dividend paid of 2p (1989 1.1p)	770	539
Proposed final dividend of 4p (1989 2.8p)	1,544	1,078
	<u>2,314</u>	<u>1,617</u>

7. Earnings per share

Earnings per share are calculated on earnings of £9,170,000 (1989 £7,019,000) and on 38,532,637 shares (1989 38,499,896), being the weighted average number of shares in issue during the year.

8. Intangible asset

The Group	1990 £'000	1989 £'000
At 1st July 1989	274	351
Amortisation for the year	(122)	(113)
Currency adjustment	(23)	36
At 30th June 1990	129	274

9. Tangible assets

	Freehold land and buildings £'000	Plant and machinery £'000	Motor vehicles £'000	Total £'000
a) The Group				
Cost				
At 1st July 1989	6,443	11,721	1,073	19,237
Additions	2,550	1,918	295	4,763
Disposals	—	(859)	(180)	(1,034)
Currency adjustment	(120)	(62)	(8)	(190)
At 30th June 1990	8,873	12,718	1,180	22,771
Depreciation				
At 1st July 1989	446	5,758	542	6,746
Charge for the year	152	1,718	314	2,184
Released on disposals	—	(792)	(153)	(945)
Currency adjustment	(2)	(24)	(7)	(33)
At 30th June 1990	596	6,660	696	7,952
Net book value				
At 30th June 1990	8,277	6,058	484	14,819
At 30th June 1989	5,997	5,963	531	12,491
b) The Company				
Cost				
At 1st July 1989	3,692	1,706	832	6,230
Additions	69	513	173	755
Disposals	—	(212)	(145)	(357)
At 30th June 1990	3,761	2,007	860	6,628
Depreciation				
At 1st July 1989	321	729	439	1,489
Charge for the year	89	346	216	651
Released on disposals	—	(210)	(130)	(340)
At 30th June 1990	410	865	525	1,800
Net book value				
At 30th June 1990	3,351	1,142	335	4,828
At 30th June 1989	3,371	977	393	4,741

c) Outstanding capital expenditure not provided for in these Accounts was:-

	The Group		The Company	
	1990 £'000	1989 £'000	1990 £'000	1989 £'000
Authorised but not committed	1,351	2,751	50	2,200
Authorised and committed	382	469	20	50

10. Investments in subsidiaries

The Company	Shares £'000	Loans £'000	Total £'000
Cost			
At 1st July 1989	897	12,760	13,657
Repayments	—	(1,780)	(1,780)
Amounts written off in the year	—	(1,864)	(1,864)
At 30th June 1990	897	9,116	10,013
Provisions			
At 1st July 1989	857	7,955	8,812
Amounts released in the year	—	(835)	(835)
At 30th June 1990	857	7,120	7,977
Net book value			
At 30th June 1990	40	1,996	2,036
At 30th June 1989	40	4,805	4,845

Details of subsidiary companies are shown in note 19.

11. Stocks

	The Group	
	1990 £'000	1989 £'000
Raw materials	1,705	1,677
Work in progress	1,297	1,334
Finished goods	2,171	2,363
	<u>5,173</u>	<u>5,374</u>

12. Debtors

	The Group		The Company	
	1990 £'000	1989 £'000	1990 £'000	1989 £'000
Trade debtors	10,512	7,911	—	—
Amounts owed by subsidiaries	—	—	9,708	7,393
Prepayments	1,722	1,316	554	558
	<u>12,234</u>	<u>9,227</u>	<u>10,262</u>	<u>7,951</u>

13. Creditors

Amounts falling due within one year

	The Group		The Company	
	1990 £'000	1989 £'000	1990 £'000	1989 £'000
Bank loans and overdrafts	—	220	—	220
Trade creditors	5,151	3,335	673	367
Amounts owed to subsidiaries	—	—	15,872	14,010
Corporation tax	2,762	3,119	1,420	957
Other taxes	640	476	62	40
Other creditors	1,262	1,737	135	1,121
Hire purchase	—	393	—	79
Proposed dividend payable	1,544	1,078	1,544	1,078
	<u>11,359</u>	<u>10,358</u>	<u>19,706</u>	<u>17,872</u>

14. Creditors

Amounts falling due after more than one year

	The Group		The Company	
	1990 £'000	1989 £'000	1990 £'000	1989 £'000
Total obligations under hire purchase agreements	—	1,173	—	161
Current obligations (note 13)	—	393	—	79
Non-current obligations	—	780	—	85
Deferred liability	—	144	—	—
Bank loan				
due between one and two years	17	220	—	220
due between two and five years	52	1,090	—	1,090
due after more than five years	103	—	—	—
	<u>172</u>	<u>2,234</u>	<u>—</u>	<u>1,395</u>

The 1990 bank loan is secured against freehold property in Germany with interest fixed at 7.4%. The 1989 bank loan was settled during the year, as were all obligations under hire purchase agreements.

15. Deferred taxation

a) Movements during the year were:-

	The Group		The Company	
	1990 £'000	1989 £'000	1990 £'000	1989 £'000
At 1st July 1989	1,566	2,189	639	773
Charge/(release) for the year	931	(155)	34	(11)
ACT movement	(156)	(123)	(156)	(123)
Disposal of Renishaw Leasing Limited	—	(345)	—	—
At 30th June 1990	<u>2,341</u>	<u>1,566</u>	<u>517</u>	<u>639</u>

b) Represented by:-

	The Group		The Company	
	1990 £'000	1989 £'000	1990 £'000	1989 £'000
Accelerated capital allowances	2,417	1,549	593	622
Other timing differences	439	376	439	376
	<u>2,856</u>	<u>1,925</u>	<u>1,032</u>	<u>998</u>
ACT recoverable	(515)	(359)	(515)	(359)
	<u>2,341</u>	<u>1,566</u>	<u>517</u>	<u>639</u>

16. Share capital

	1990 £'000	1989 £'000
Authorised 50,000,000 ordinary shares of 20p each	10,000	10,000
Allotted, called up and fully paid 38,610,021 ordinary shares of 20p each	7,722	7,700

Movements in share capital and share premium accounts during the year were:-

	Share capital		Share premium
	Number of shares	£'000	£'000
At 1st July 1989	38,499,896	7,700	—
Employee share options exercised	110,125	22	206
At 30th June 1990	38,610,021	7,722	206

Under the terms of the employee share option scheme, options outstanding at 26th September 1990, which are exercisable between 3 and 10 years after the date the options were granted, were:-

Date options granted	Option price	Number of shares
24th July 1985	£2.02	102,470
6th August 1986	£2.26	57,900
7th September 1987	£1.75	108,560
23rd September 1988	£1.46	136,730
6th September 1989	£2.38	190,140

17. Profit and loss account

Movements during the year were:-

	The Group		The Company	
	1990 £'000	1989 £'000	1990 £'000	1989 £'000
At 1st July 1989	21,485	16,154	5,513	5,352
Capitalisation issue	—	(390)	—	(390)
Movement in currency reserve	(161)	319	—	—
Retained profit for the year	6,856	5,402	206	551
At 30th June 1990	28,180	21,485	5,809	5,513

18. Pension scheme

The Group operates a number of pension schemes throughout the world. The major schemes which cover 90% of scheme members are of the defined benefit type.

The total pension cost for the Group was £537,000 (1989 £415,000) of which £192,000 (1989 £90,000) relates to the overseas schemes. The pension cost relating to the UK scheme is assessed in accordance with the advice of a qualified actuary using the projected unit method. The latest actuarial assessment of that scheme was as at July 1990. The assumptions which have the most significant effect on the results of the valuation are those relating to the rate of return on investments and the rates of increase in salaries and pensions. It was assumed that the investment return would be 9% per annum, that salary increases would average 8% per annum and that future pensions would increase at the rate of 3% per annum.

At the date of the latest actuarial valuation, the market value of the assets of the UK scheme was £1,897,000 and the actuarial value of the assets was sufficient to cover 93% of the benefits that had accrued to members after allowing for expected future increases in earnings. This deficiency is not considered by the actuary to be material.

19. Subsidiary companies

The following are the principal subsidiary companies of Renishaw plc, all of which are wholly owned unless otherwise stated. The country of incorporation is England unless otherwise stated. The country of incorporation is also the principal country of operation.

Company	Principal activities
i) Subsidiaries of Renishaw plc	
Renishaw Metrology Limited	Design, manufacture and sale of advanced precision metrology and inspection equipment and computer aided design and manufacturing systems
Renishaw Transducer Systems Limited	Design, manufacture and sale of laser interferometer systems
Wotton Travel Limited	Travel agency
Renishaw International Limited	Overseas holding and investment company
ii) Subsidiaries of Renishaw International Limited	
Renishaw Inc. (USA)	Service and distribution of group products
Renishaw Electronics (Ireland) Limited (Republic of Ireland)	Manufacture and sale of precision metrology and inspection equipment
Renishaw Kabushiki Kaisha (Japan)	Service and distribution of group products
Renishaw GmbH (Germany)	Service and distribution of group products
Renishaw S.A. (France) (formerly <i>Périeféric SARL</i>)	Service and distribution of group products
Renishaw S.p.A. (Italy)	Service and distribution of group products



Auditors' report

KPMG Peat Marwick McLintock

To the members of Renishaw plc

We have audited the Accounts on pages 9 to 19 in accordance with Auditing Standards.

In our opinion the Accounts give a true and fair view of the state of affairs of the Company and of the Group at 30th June 1990 and of the profit and source and application of funds of the Group for the year then ended and have been properly prepared in accordance with the Companies Act 1985.

KPMG Peat Marwick McLintock
26th September 1990.

KPMG Peat Marwick McLintock
Chartered Accountants
Chepstow, Gwent

26th September 1990

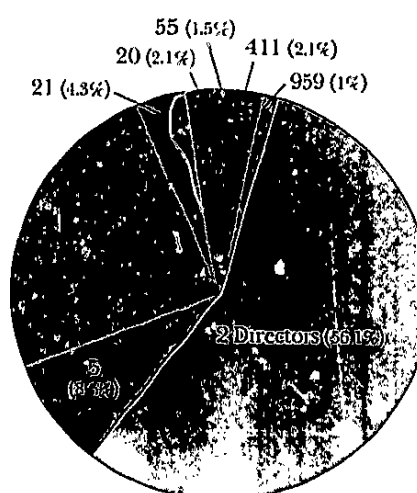


Shareholders' profile

	Number of shareholders		Number of shares	
	Number	%	Number	%
1. Range of shareholdings				
1-500	585	38.7	132,382	0.3
501-1,000	374	24.8	274,127	0.7
1,001-5,000	411	27.2	820,074	2.1
5,001-10,000	33	2.2	232,703	0.6
10,001-25,000	22	1.5	365,172	0.9
25,001-50,000	20	1.3	801,348	2.1
50,001-100,000	21	1.4	1,647,383	4.3
100,001-500,000	37	2.5	9,373,333	24.3
500,001-1,000,000	5	0.3	3,301,625	8.6
more than 1,000,000	2	0.1	21,661,874	56.1
	<u>1,510</u>	<u>100.0</u>	<u>38,610,021</u>	<u>100.0</u>
2. Categories of shareholdings				
Directors	4	0.3	21,709,184	56.2
Pension funds, insurance companies, nominee accounts and other bodies	214	14.2	15,588,113	40.4
Individuals	1,292	85.5	1,312,724	2.4
	<u>1,510</u>	<u>100.0</u>	<u>38,610,021</u>	<u>100.0</u>

Number of shareholders in each shareholding range

Shareholdings
1-1,000
1,001-5,000
5,001-25,000
25,001-50,000
50,001-100,000
100,001-500,000
500,001-1,000,000
more than 1,000,000



The above information was derived from the Register of members as at 9th July 1990.

Financial calendar

Annual General Meeting
16th November 1990

Dividends
Interim – payable April
Final – payable November

Announcement of results
Annual results – end September
Half year results – March



10 year financial record

Results

	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Overseas sales	43,087	35,244	25,053	20,098	17,869	13,878	9,347	5,565	2,790	2,146
UK sales	4,474	3,953	3,176	3,012	3,518	1,667	1,145	907	626	708
Total sales	<u>47,561</u>	<u>39,197</u>	<u>28,229</u>	<u>23,110</u>	<u>21,387</u>	<u>15,545</u>	<u>10,492</u>	<u>6,472</u>	<u>3,416</u>	<u>2,854</u>
Profit on ordinary activities before taxation	13,423	10,088	8,029	7,511	7,019	5,627	3,744	1,722	636	1,003
Taxation	4,253	3,060	2,337	2,149	2,022	1,813	1,548	813	257	397
Profit on ordinary activities after taxation	9,170	7,019	5,692	5,362	4,997	3,814	2,196	909	379	606
Extraordinary item	—	—	1,735	—	—	—	(260)	272	—	—
Profit for the financial year	9,170	7,019	3,957	5,362	4,997	3,814	2,456	637	379	606
Dividends	2,314	1,617	1,016	770	678	586	128	71	23	110
Retained profits	<u>6,856</u>	<u>5,402</u>	<u>2,941</u>	<u>4,592</u>	<u>4,319</u>	<u>3,228</u>	<u>2,328</u>	<u>566</u>	<u>356</u>	<u>496</u>

Capital employed

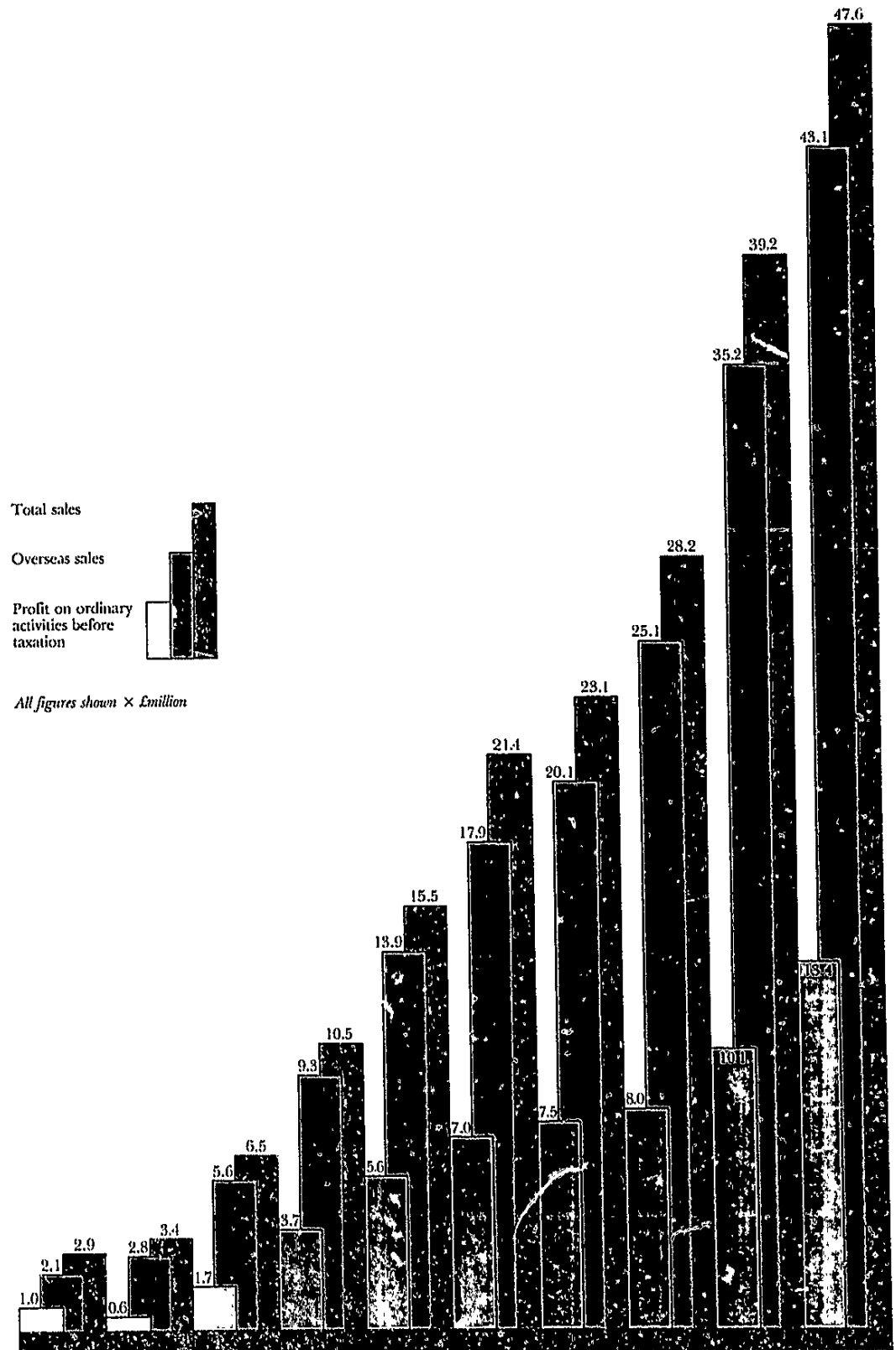
	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Share capital	7,722	7,700	1,540	1,540	1,540	1,540	1,400	1,400	14	14
Share premium	206	—	5,770	5,770	5,770	5,770	—	—	—	—
Reserves	28,180	21,485	16,154	13,794	9,227	6,209	3,051	676	1,479	1,123
Shareholders' funds	36,108	29,185	23,464	21,104	16,537	13,519	4,451	2,076	1,493	1,137
Deferred taxation	2,341	1,566	2,189	2,765	3,340	3,993	2,595	1,592	1,062	765
Capital employed	<u>38,449</u>	<u>30,751</u>	<u>25,653</u>	<u>23,869</u>	<u>19,877</u>	<u>17,512</u>	<u>7,046</u>	<u>3,668</u>	<u>2,555</u>	<u>1,902</u>

Statistics

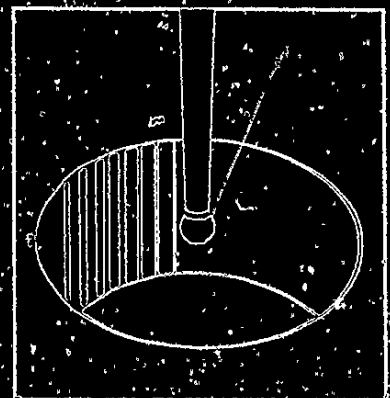
	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981
Earnings per share	23.80p	18.23p	14.78p	13.93p	12.98p	10.17p	6.18p	2.56p	1.06p	1.70p
Profit before taxation as a percentage of average shareholders' funds	41.1%	38.3%	36.0%	39.9%	46.7%	62.6%	114.7%	96.5%	48.4%	112.8%
Overseas sales as a percentage of total sales	90.6%	89.9%	88.7%	87.0%	83.6%	89.3%	89.1%	86.0%	81.7%	75.2%



10 further years of continuous growth



GROUP PROFILE



RENISHAW



RENISHAW

The Renishaw Group

Renishaw operates in the field of Metrology - the science of measurement. The Group designs, develops, manufactures and sells high technology precision measuring equipment. Renishaw's initial expertise was based on the 3D touch-trigger probe technology, developed in the early 1970s by David McMurtry, Renishaw's Chairman and Chief Executive. This patented device had a major impact on the development of Coordinate Measuring Machines (CMMs) worldwide, which today is the industry standard for qualifying the dimensions of manufactured parts. The technology was later extended for use on Computer Numerically Controlled (CNC) machine tools, which enabled hand measuring instruments to be dispensed with - the concept of machining "right first time" with probing as an integral part of the process.

The development of the probe, together with computer software enables fast, highly repeatable measurements to be carried out on a CMM, the system repeatability being typically one third of a micron - approximately one two hundredth of the thickness of a human hair.

Renishaw plc, formerly Renishaw Electrical Limited, was formed in 1973 by David McMurtry and colleague John Deer, Deputy Chairman. In 1974 John Deer left Rolls-Royce, where the probe had been developed originally for the Concorde project to devote himself full time to Renishaw's business. In 1976 it was agreed that Rolls-Royce and Renishaw should become joint patent holders, and in that year David McMurtry



The Group's Directors at the 1990 Annual Conference (l to r - rear) Peter Johnson - Marketing Director, Renishaw International Limited, David Pitt - Managing Director, Renishaw Transducer Systems Limited, Jack Parr - Managing Director, Renishaw Metrology Limited, Wilhelm Wolf - Managing Director, Renishaw GmbH, Harry Mackie - President, Renishaw Inc, Jean Marc Joffre - Managing Director, Renishaw S.A., Saburoba Fukui - Managing Director, Renishaw Kabushiki Kaisha, Peter McMurtry - Managing Director, Renishaw Electronics (Ireland) Limited, Josef Pierangelo Mosca - General Manager, Renishaw S.p.A. (l to r - front) Directors - Renishaw plc, Allen Roberts - Group Finance Director, Gianfranco Mighardi - Joint Managing Director, David McMurtry - Chairman and Chief Executive, John Deer - Deputy Chairman, Lechman Taylor - Joint Managing Director, Leopold Brook (non executive)

joined the company full time. The Group has since purchased all patent interests outright. The first company premises were also acquired in 1976, at Gloucester St, Wotton-under-Edge, Gloucestershire.

By the end of the 1970s, nearly all CMM manufacturers incorporated Renishaw probes as standard equipment for post process inspection and quality control, and annual sales reached £1m in 1979. By this time demand was increasing for Renishaw probing on CNC lathes and machining centres, and a range of products was developed which allowed the machining process to be monitored and made self correcting. Probing is essential to Flexible Manufacturing Systems (FMS) and fully automated manufacturing.

In 1983, the year of the company's 10th anniversary, Renishaw obtained a

quotation for its shares on the Unlisted Securities Market. In that year sales were over £6m of which nearly 90% represented sales to overseas customers. A year later, the company obtained a full listing on the London Stock Exchange and raised £5.9m by way of a rights issue to finance further developments in FMS

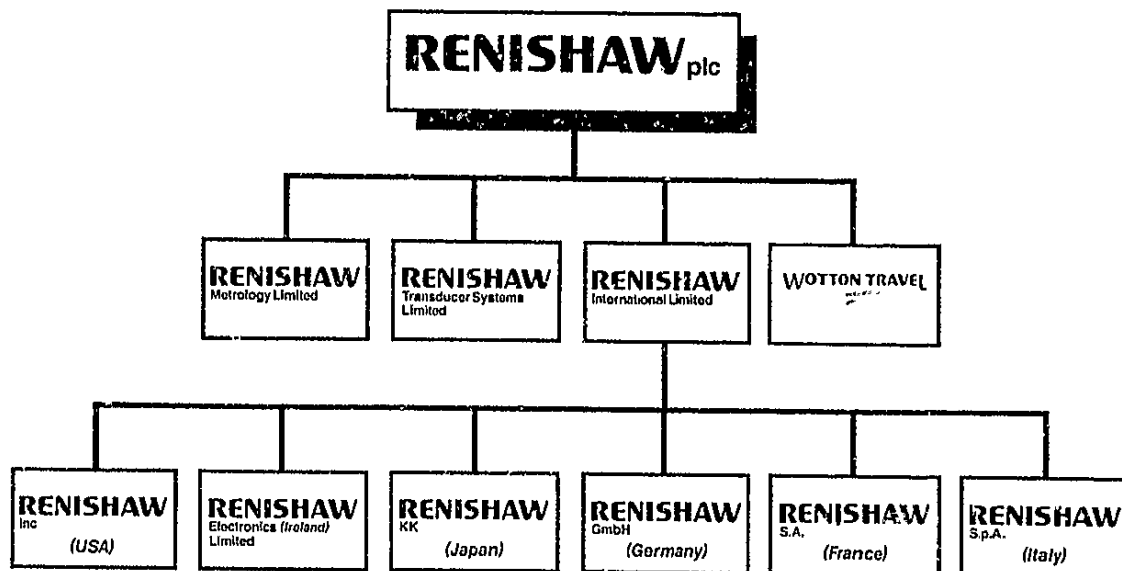


Early Renishaw probe



RENISHAW

The Renishaw Group



applications. Continued growth has resulted in annual sales approaching £50m.

Renishaw has been honoured with a total of six Queen's Awards, two for Technological Achievement, in 1980 and 1990, and four for Export Achievement, in 1979, 1981, 1985 and 1987. In 1987 The Fellowship of Engineering presented the coveted MacRobert Award "for the design and exploitation of Renishaw probes for metrology". Renishaw's range of motorised heads received a Design Council Award in 1989.



Recent export and technology awards

The manufacture of probes and related accessories, the Group's traditional products, is the business of Renishaw

Metrology Limited and Renishaw Electronics (Ireland) Limited. In addition to the facilities at Wotton-under-Edge, Renishaw has additional manufacturing operations in Cwmbran, South Wales.



The 1987 MacRobert Award

Renishaw Transducer Systems Limited was established in 1985 to develop products in the related technologies of opto-electronics and laser measurement systems.

Subsidiary sales and marketing companies have been established overseas to give service and product support for our customers in the major markets of USA, Japan, Germany, France and Italy, with appointed Distributors in other key countries.

The Group's products are used in manufacturing companies worldwide, in industries such as aerospace, automotive, civil engineering and construction, computing, consumer products, marine, oil, scientific and medical.

The Renishaw Group has enjoyed significant success, resulting from a firm commitment to research and development, together with a policy and an environment which encourages the employment of keen, innovative people, many of whom are leading specialists in their own sphere of operation.

Autumn 1990

RENISHAW plc

The role of Renishaw plc is to determine the Group's overall corporate policy and strategies, and to provide advice to the subsidiary companies in the areas of technical policy, finance and administration, human resources, patents, legal affairs, property and public relations.

Renishaw actively encourages recruitment of apprentices and sponsored students and has substantial numbers of both. The company views this recruitment as its investment in providing skilled employees in the future. In addition to mechanical, electronic and production engineering students, a number studying for marketing and business qualifications are also selected.

An active Sports & Social Club is based in Wotton-under-Edge which organises a wide range of events to cater for many interests. Similar activities are also encouraged in the Group's subsidiary companies. These, together with news, reports and features, are reported in Renishaw's house journal - *PROBITY* which is published monthly.

Support for local community projects, as well as national appeals, is administered through Renishaw's Charities Committee. Additional support is also given to local schools and colleges to help establish their own technology facilities.

The headquarters of the Renishaw Group is located at New Mills, Wotton-under-Edge, Gloucestershire, situated just below the southern escarpment of the Cotswold Hills. Wotton-under-Edge is located conveniently between Gloucester and



New Mills, Wotton-under-Edge, Gloucestershire

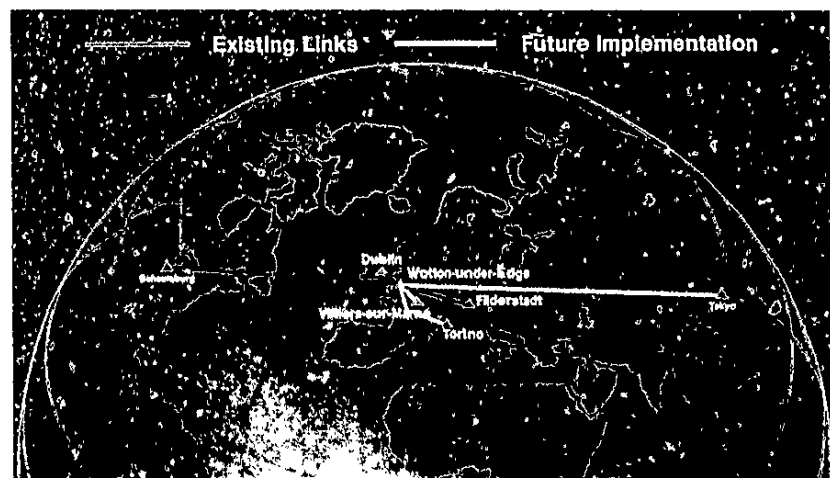
Bristol, adjacent to the M4/M5 motorways, and has excellent communications across the country.

In the early 1980s Renishaw acquired this former woollen mill which dates back to the early 1800s. A programme of refurbishment was completed in July 1985 with the official opening. A Civic Trust Award was granted in 1987.

The New Mills site which comprises buildings with a floor area of 126,000 square feet in 15 acres of land, now houses the parent company Renishaw plc,

and Renishaw International Limited. Also on the site are other buildings occupied by Renishaw Metrology Limited.

The Group has a significant investment in computer systems which are used extensively in the areas of finance, production control, customer order processing and other management information systems. Worldwide computer communication links with each subsidiary company are being implemented to further improve the flow of information.



World wide computer network



RENISHAW

Research and development



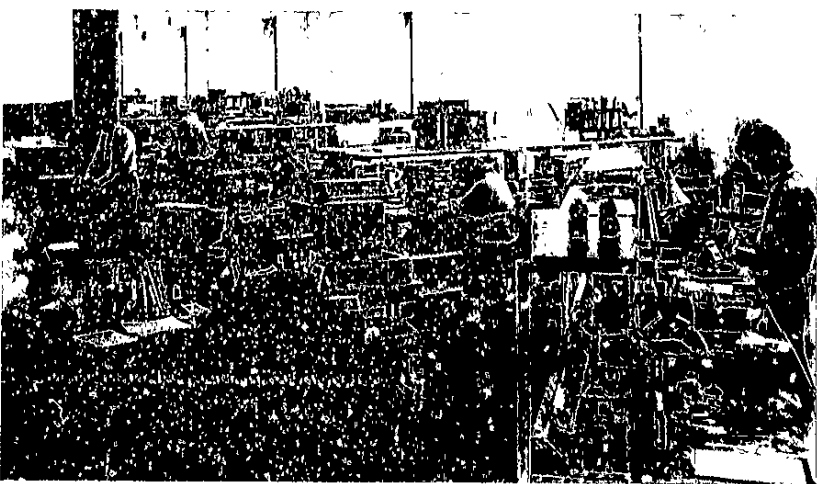
The Renishaw Technology Centre



Electronic and software research



Mechanical research



Research laboratory

Since its formation, Renishaw has always had a high commitment to research and development which in the financial year ending 30th June 1990, together with engineering expenses, represented over 10% of turnover.

The Group's investment in research has resulted in a comprehensive range of highly accurate probes, accessories and measuring systems which have significantly advanced the application of measurement technology and quality assurance in manufacturing industry throughout the world.

Renishaw's research activities have and continue to generate important patents which form the basis of current and future products.

Renishaw's new Technology Centre at New Mills was completed in August 1990. The building comprises two single storey units with a central link reception area, and covers some 35,000 square feet adjacent to the Mill itself. The facility houses Renishaw's main research operation and was built at a cost of £2.3m. Research activities are also carried out at Old Town, Wotton-under-Edge and at Renishaw S.A. in France.

RENISHAW

CMM probes and applications

Renishaw's touch trigger probes have become the industry standard and enable rapid and accurate inspection on CMMs. These machines, which act as a Quality reference, use probing systems to replace traditional manually operated measuring instruments such as micrometers, vernier calipers and dedicated gauges. Laser scanning probes can be used for non-contact inspection of a wide variety of surface finishes, textures and colours.

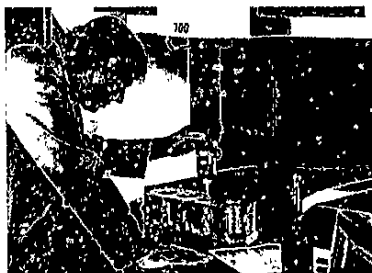
The manual indexable head enables high productivity on manually operated CMMs by eliminating the time consuming task of requalifying the probe each time the position of the probe is adjusted. Motorised heads, like Renishaw's award winning PH9 and PH10 models, maximise probing efficiency and give a 3 axis CMM, 5 axis capability. A motorised head is also central to the operation of Renishaw's autochange system which allows rapid and automatic exchange of multiple probe combinations.

Renishaw's innovative machine checking gauge gives a fast volumetric accuracy check of a CMM, allowing machine inaccuracies to be detected even on a daily basis.

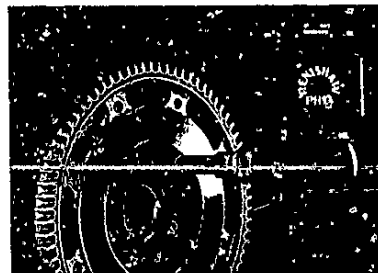
Renishaw's probes and probe systems are not only used in inspection departments worldwide, but are also an essential part of the production processes for assured quality.



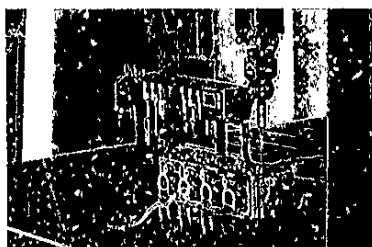
Surface inspection of engine housing



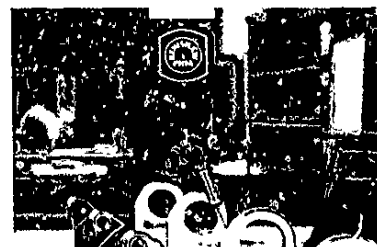
Manual indexable head checking a bore



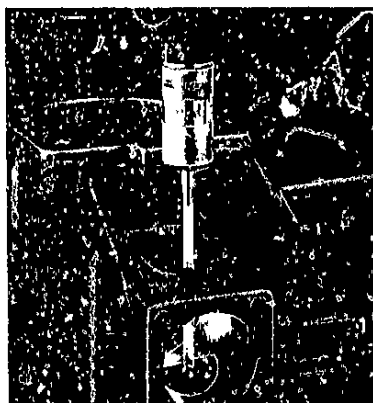
Boeing 737 engine component being checked



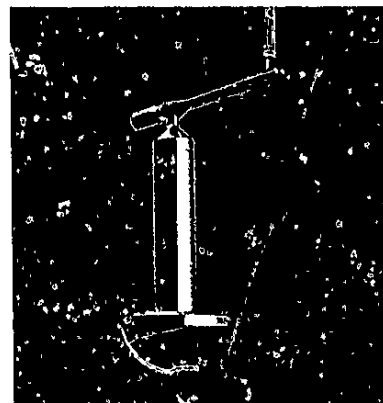
CMM flexible inspection centre using PH10 motorised head, TP7 probes and autochange system



PH10 motorised head fitted with TP2 inspection probe checking the features of a wing structure



Renishaw's latest CMM inspection probe - TP7



Machine checking gauge

RENISHAW

CNC machine tool probes and applications

Renishaw's probes for CNC machine tools have been designed for a long working life in the hostile conditions of hot metal chips and pressurised coolant sprays in the metal cutting environment. Probes used for component identification, workpiece setting, and inspection have superseded more costly, time consuming manual techniques which rely on the skill of the machine operator. They also enable inexpensive fixturing to be used. Toolsetting probes allow automatic update of tool offsets so that the machining process can commence earlier.

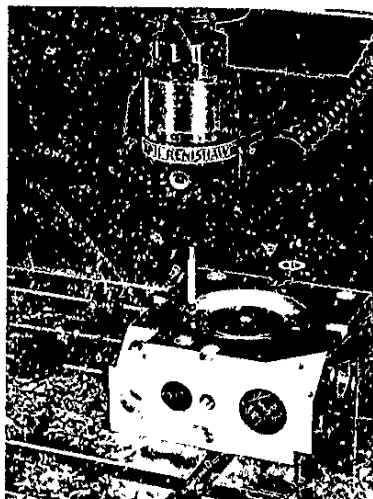
The application of probing technology allows the complete manufacturing process to be monitored and made self correcting and gives confidence that production will be right first time.

Renishaw offers probing systems to fit a wide range of CNC lathes and machining centres, with the option of inductive or infrared signal transmission to the machine's control where hardwiring is not practical.

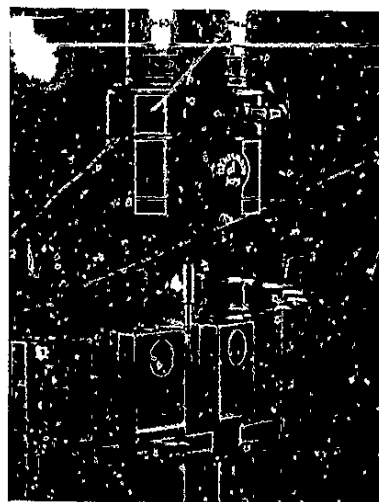
CNC machine tools are the core of highly automated FMS installations and Renishaw probing systems are essential to many of their operations, producing considerable savings in time, manpower and materials.



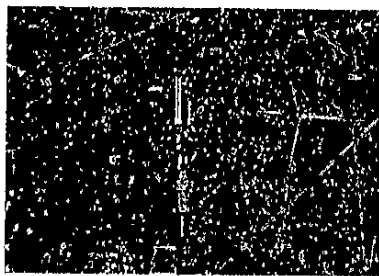
High precision arm with TS20 toolsetting probe, and LP2 inspection probe fitted to a CNC lathe



MP11 probe "hardwired" for machining centres with manual toolchange requirement



MP3 inspection probe checking the overhead of a C.I. engine



Renishaw's new non-contact probe (JC20) fitted to a machining centre

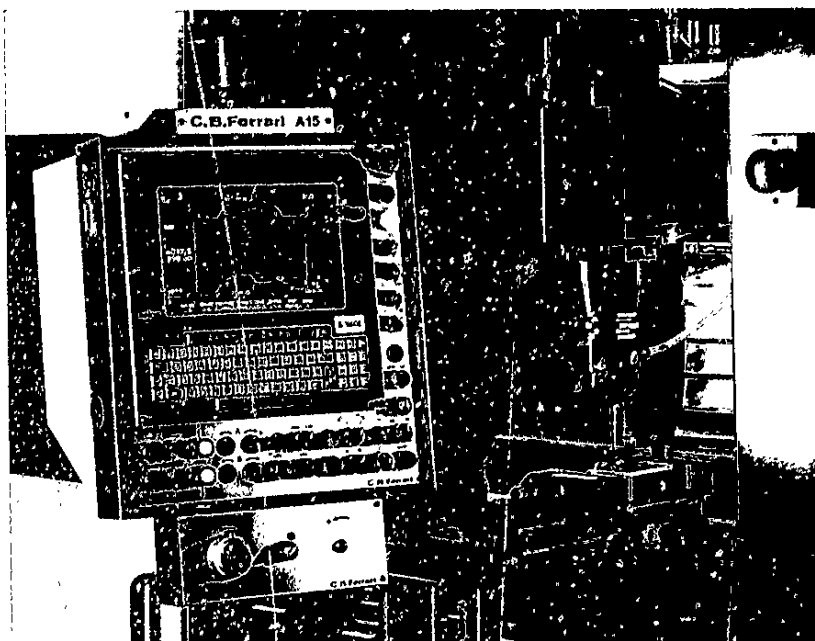


MP3 probe, with wide-angle infrared transmission, inspecting a sea water pump component

Scanning products

Renishaw's high performance three dimensional scanning probes are used to define or copy components when fitted to a CNC machine tool or CMM. Probes like Renishaw's SP2 operate at much faster scanning speeds, with higher accuracy and lower contact force than existing tracer probes. This allows better machine finishing of parts, and also enables relatively soft materials to be scanned.

Software is available which can utilise scanning data to give CNC machine tools the ability not only to copy parts, but to enable scaling, left to right and male:female transform.



SP2 probe scanning a model figure

Linear scale products

Renishaw's RG1 and RG2 linear scale products provide a variety of compact robust and easily fitted measuring systems. Flexible scale, delivered on reels, can be mounted directly on machines, or in a tracked carrier. Traditional scale in discrete lengths need no longer be stocked. Resolution to one tenth of a micron and optional reference marks are provided opto-electronically. Applications include CMMs, layout machines, height gauges, linear slideways, staged optical comparators, and many others.

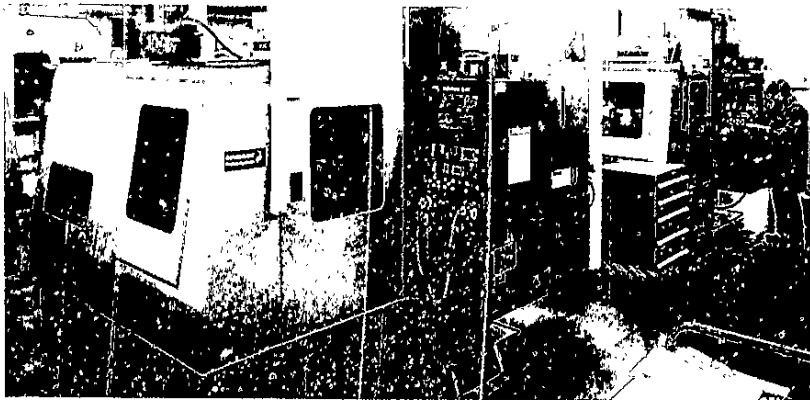


Scale systems fitted to a CMM

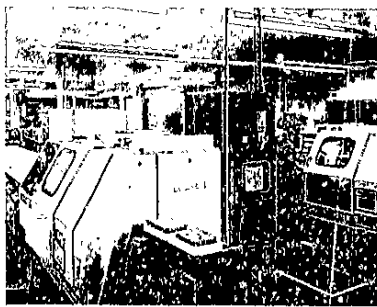


Scale on a reel, with readhead

RENESHAW Metrology Limited



CNC machining centres in machine shop



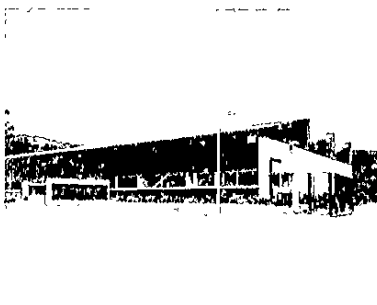
CNC lathe centres



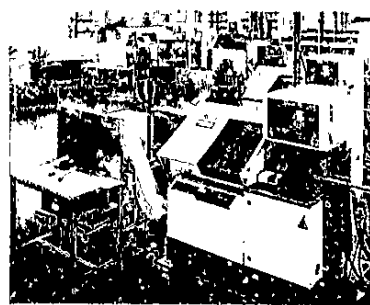
Mechanical assembly area



Technical laboratory



Technical laboratory



Technical laboratory

Renshaw Metrology Limited is responsible for the Group's traditional probe related business, with design, development, manufacture, assembly, customer repairs and shipping being carried out from the New Mills site.

The machine shop houses a wide variety of CNC lathes and machining centres where probe bodies and associated components are manufactured. Advanced production techniques using probes enable components to be machined correctly first time, from the raw material to the finished part. Machine downtime is minimised and so productivity is high.

The company successfully gained registration for the British Standards Institute categories BSI 8750 ISO 9001 EN 29001 in August, 1990 and regards this as the base for ongoing improvement in the company's commitment to quality.

Additional manufacturing facilities exist at Cwmbran, South Wales where components for many of the Group's products are machined. They take advantage of high volume manufacturing techniques using Renshaw's probes.



Technical laboratory

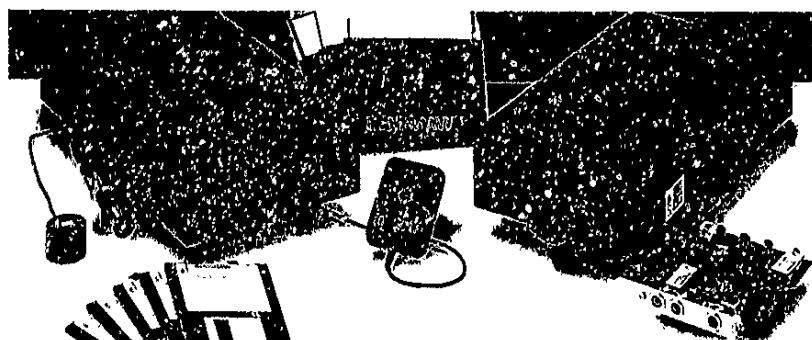
RENISHAW Transducer Systems Limited



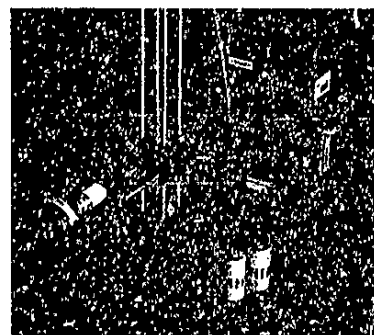
Process at Old Town



Lathe calibration and re-alignment



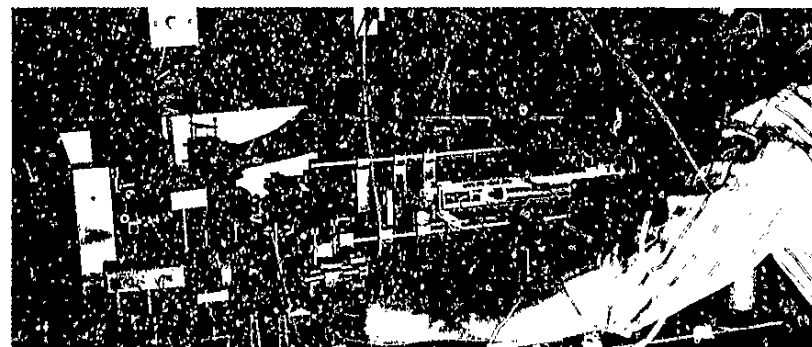
Laser interferometer system with accessory options



Probe development test



Calibrating a CMM



NPL Helium-Iodine stabilised laser reference source

Renishaw Transducer Systems Limited is located at Old Town, Wotton-under-Edge and comprises a multi-disciplined team who have expertise in the fields of optical, electronic and mechanical engineering, and software. Their latest product is a laser interferometer which is used to determine the accuracy of CMMs and machine tools, together with scientific applications. Its novel design and manufacture gives the greatest flexibility of operation, with ease of transport. The system configurations and options enable many operating parameters to be checked and calibrated in a very short time.

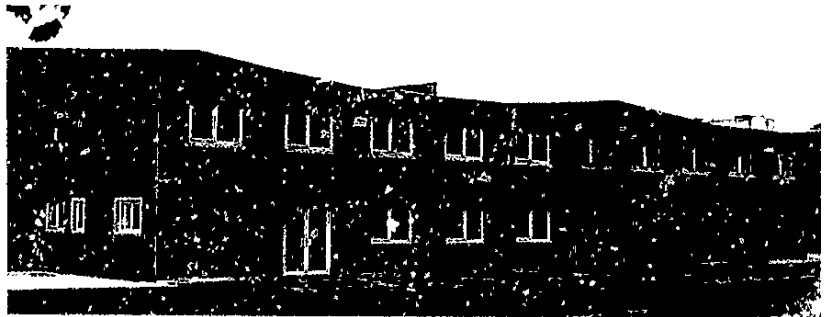
The company has developed a Helium-Iodine stabilised reference system which has been given formal traceability to the National Physics Laboratory (NPL). Renishaw's laser interferometers are calibrated to this reference source which means that in turn, each unit has traceability to the NPL.

Old Town houses the design, manufacturing and marketing operations. Further system developments are in the pipeline, with a number of projects being undertaken in collaboration with Universities. Projects are also undertaken jointly with Renishaw Metrology Limited in the development of new probing products.

RENISHAW

RENISHAW Electronics (Ireland) Limited

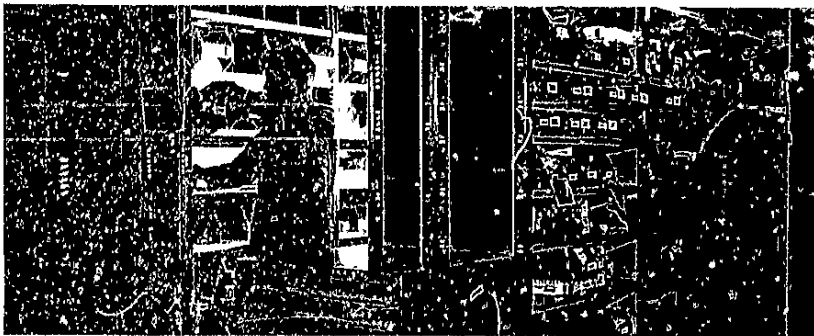
Renishaw Electronics (Ireland) Limited was established in 1981 to provide an additional independent manufacturing capacity for the Group's probe products. Located in Santry, one mile from Dublin's International Airport, the company is responsible, together with Renishaw Metrology Limited, for production of probes and related accessories. It has recently extended its premises and now occupies just under 20,000 square feet of manufacturing space where it produces over 140 different products



Premises at Santry



Manufacturing area



Stores



Inspection



Administration



RENISHAW

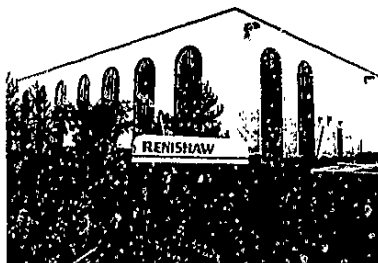
RENISHAW International Limited

Renishaw's rapid expansion has been assisted by the impressive growth in its export markets, which in recent years has accounted for 90% of the Group's business.

Renishaw International Limited is responsible for the marketing activities of the Group and coordinates the sales and service of all Renishaw products worldwide. Subsidiary companies have been established in the major markets of USA, Japan, Germany, France and Italy and are responsible for the sales support and customer service of the Group's products. Distributors have been appointed in other key countries around the globe.

The Group exhibits at major exhibitions worldwide as part of its promotional activities. Product literature, technical manuals, users' guides and customised software are available in various languages.

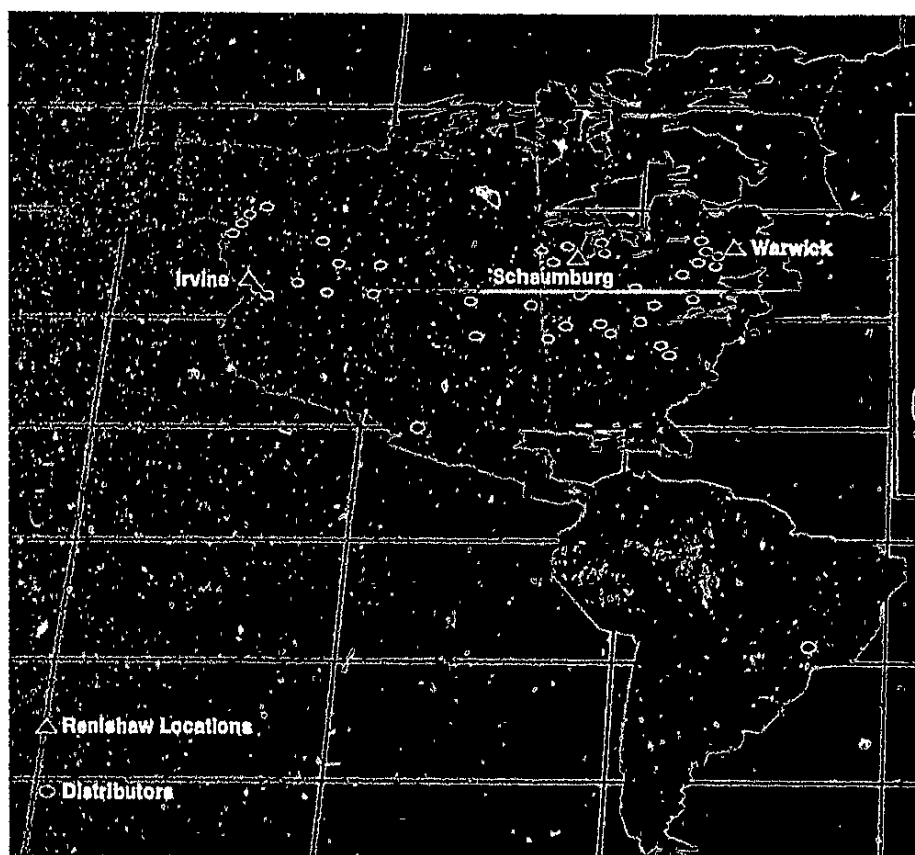
Renishaw's employees overseas represent over 25% of the Group's expanding workforce, which at the end of June, 1990 numbered over 800.



Renishaw Inc, Schaumburg, Illinois



Sales administration, Renishaw Inc



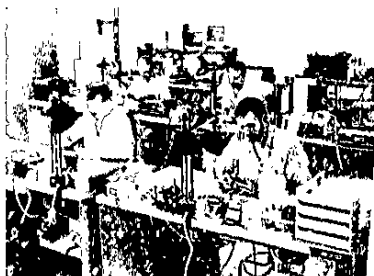
Product service centre at Renishaw KK



Store, Renishaw GmbH

RENISHAW

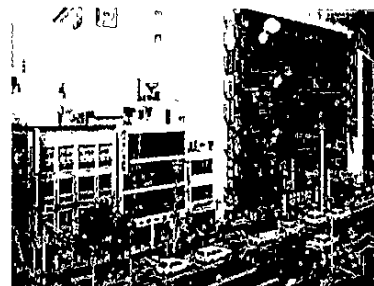
RENISHAW International Limited



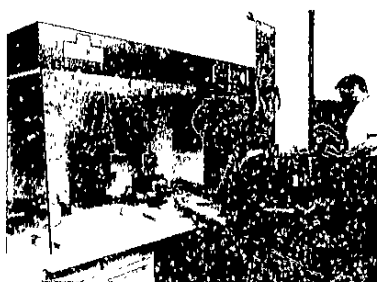
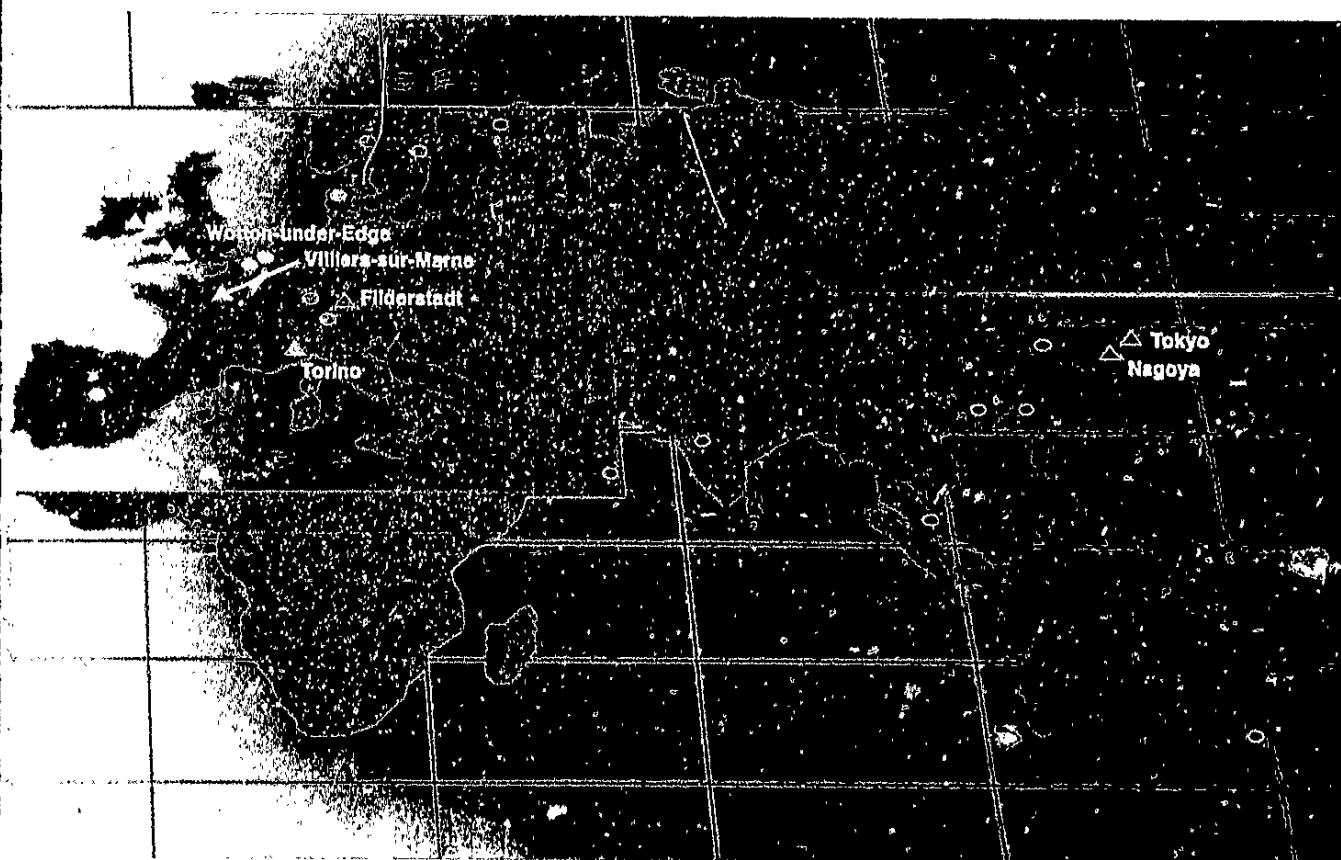
Product service centre, Renishaw Inc



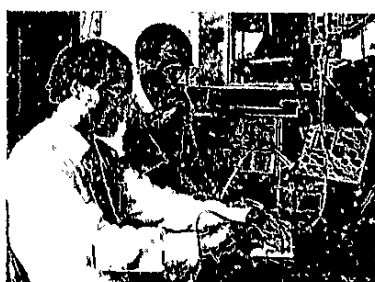
Location of Renishaw K.K., Shinjuku, Tokyo



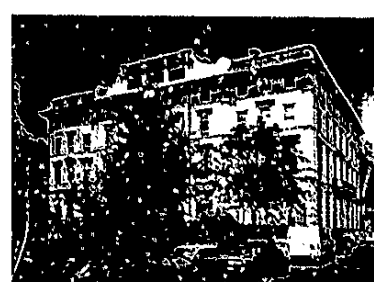
Location of Renishaw K.K., regional office, Nagoya



Quality check at Renishaw GmbH



Technical support at Renishaw S.A.



Location of Renishaw S.p.A., Torino

RENISHAW

WOTTON TRAVEL *Limited*

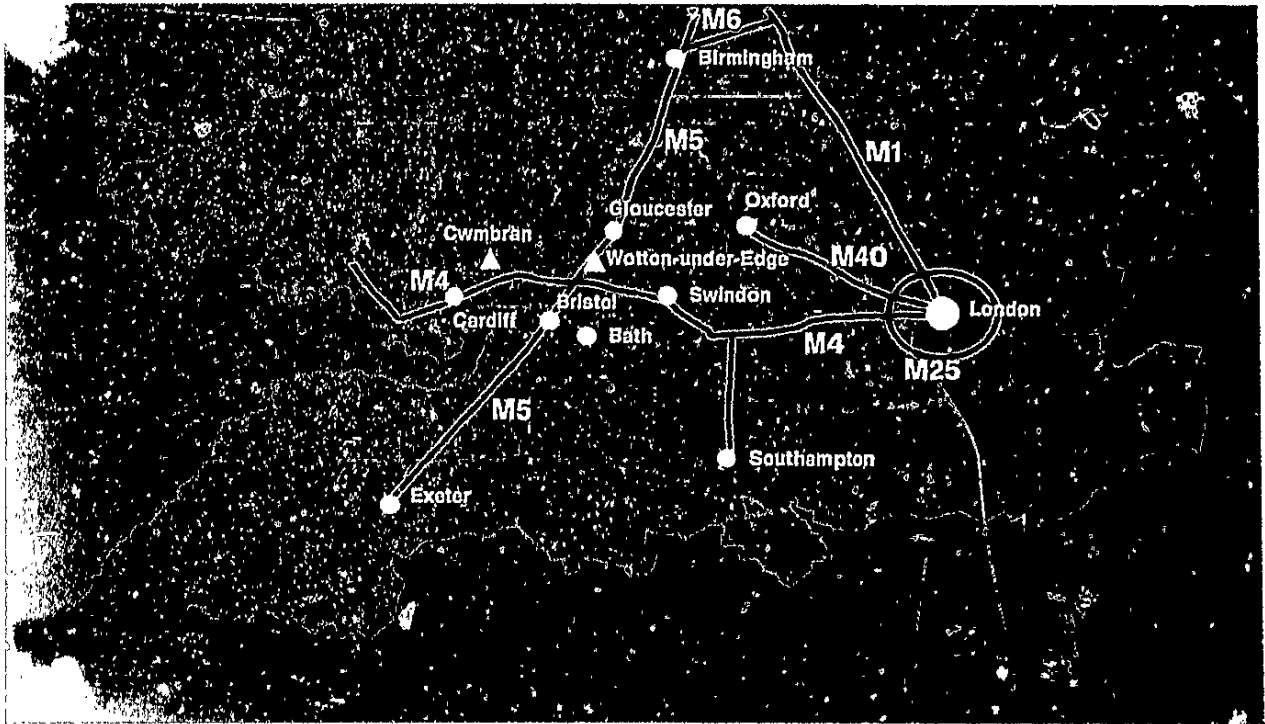
Wotton Travel Limited was formed in 1986 to coordinate the travel requirements of the Renishaw Group. The facilities were extended to meet local demands and Wotton Travel now provides a comprehensive service to both the public and business sectors, supported by the latest developments in travel technology. Immediate confirmation of flights is given, from the widest range of air fares and facilities.

Holidays all around the world are available whether beach, winter sports, city breaks or low cost fares.

A concessional discount is available to both Renishaw's employees and shareholders.



Wotton Travel showroom. [inset Jeremy Mais, Director and General Manager]



Map showing location of Wotton - under - Edge



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The future

"We have enjoyed 17 years of continuous growth by providing innovative solutions to satisfy our customers' measurement needs. These solutions have contributed to the increase in productivity of the modern factory, but there is still much more to do

Whether checking a part or checking the machine that made or measured the part, there is a demand for faster ways to collect the measurement data. Renishaw has already developed a wide range of sensors and systems which capture data more rapidly than previously possible. However, further development is required on the systems that utilise this data so that they can provide more timely feedback to improve product quality and reduce costs by increased manufacturing efficiency.

We will be improving the capabilities of our products and addressing the system requirements that are necessary for the advancement of factory automation.

International operations will continue to be developed to enhance the essential technical support, distribution and after sales service required by our customers worldwide.

The Group relies on the commitment and dedication of its employees to achieve these objectives and meet the challenges ahead."



David McMurtry, Chairman and Chief Executive



RENISHAW

Ten further years of continuous growth

