

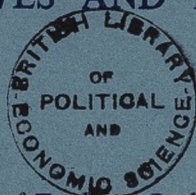
BOARD OF TRADE

S
H2
[HA 251]

*The Report on the
Census of Production
for 1954*

Volume 2: Industry H

EXPLOSIVES AND FIREWORKS



*Presented by the Board of Trade to Parliament in pursuance of the
Statistics of Trade Act, 1947 (10 & 11 Geo. 6 Ch. 39, Sec. 7)*

LONDON: HER MAJESTY'S STATIONERY OFFICE

1957

PRICE 1s 6d NET

The Report on the Census of Production for 1954

VOLUME 2, INDUSTRY H

EXPLOSIVES AND FIREWORKS

THIS REPORT on the Explosives and Fireworks Industry relates to establishments engaged wholly or mainly in the manufacture of explosives, fireworks, detonators, fuses, percussion caps, flares, signal rockets, small arms ammunition, etc., and in filling bombs, cartridges and shells.

Twenty Government establishments are included for 1954, sixteen for 1951 and thirteen for 1948. This industry corresponds to minimum list heading 33 in the Standard Industrial Classification. There were no establishments in Northern Ireland in the register for this industry.

LIST OF TABLES

Table No.	Title	Page	Table No.	Title	Page
1	Industry summary: estimates for the industry as a whole	2/H/3	6	Sales of principal products of the industry by establishments classified to other industries	2/H/5
2	Summary of returns received	2/H/3	7	Sales in the industry of other than principal products	2/H/5
3	Analysis by size, 1954	2/H/4	8	Total make of intermediate products	Does not apply
4	Analysis according to specialisation within the industry, 1954	Does not apply	9	Purchases of materials and fuel, 1954	2/H/5
5	Sales of principal products of the industry, including sales of these products by establishments classified to other industries	2/H/4	10	Average number of employees, and wages, salaries and superannuation payments	2/H/7
			11	Employment in a specified week	2/H/7

IMPORTANT NOTES and definitions appear on the next page. In interpreting the data in the tables, it is essential to bear these in mind.

S
H2
[HA 25D]

30.10.57

The following notes describe terms in general use in the tables of the report. More detailed explanations of the terms used and a description of the scope and method of taking the census are given in the separate booklet entitled 'The Report on the Census of Production for 1954 - Introductory Notes' (price 1s. 6d. net).

Industrial Classification: Establishments are classified to industries according to the nature of their output and, as far as possible, in conformity with the Standard Industrial Classification. Certain products are identified as the principal products of individual industries, the principal products for a given industry being of a similar nature or commonly associated in production. The principle of classification normally followed is that an establishment is classified to an industry if its output of the principal products of that industry accounted for a greater proportion of the value of its output than did its output of the principal products of any other industry.

Specialist producers normally comprise those establishments 50 per cent. or more of whose total output by value is accounted for by the characteristic products of the specialist group.

Intermediate products: For some industries figures are given showing the total quantities made during the year of intermediate products, i.e., products which may be further processed in the establishments in which they are produced.

Larger establishments: The information given in the report relates mainly to 'larger establishments', i.e., establishments of firms employing on the average more than 10 persons. In most cases an establishment comprises the whole of the premises under the same ownership or management at a particular address (e.g., a mine or factory). Offices, warehouses, laboratories and other ancillary places of business situated apart from the producing works are not regarded as separate establishments and are included in the return for the works.

Small firms are those employing on the average 10 or fewer persons.

The estimates for the industry as a whole given in Table 1 are normally obtained by increasing the other items shown in the same proportion as total employment.

Gross output (production) is the total value of goods made and other work done during the year; it is obtained by adjusting the value of sales and work done during the year for changes in the value of stocks of products on hand for sale and work in progress.

Net output is the amount left after deducting from the value of gross output the aggregate of the cost of materials and fuel used, the amount paid for work given out, and, for 1951 and 1954, any transport payments made. This represents the value added to materials by the process of production, and constitutes the fund from which wages, salaries, rents, rates and taxes, advertising and other selling expenses and all other similar charges have to be met, as well as depreciation and profits.

Sales means sales during the year of goods made in the establishment covered by the return or made on commission for it, whether produced in the year or not. The value of sales is the net selling value, i.e., the amount charged to customers, whether on an ex-works or delivered basis, and net of any trade discounts, agents' commissions, allowances for returnable cases, purchase tax, etc. For goods charged on a delivered basis to customers overseas, firms were required to give the f.o.b. value.

Materials and fuel: The total cost of materials and fuel purchased includes all purchases during the year of materials for use in production, and of fuel (includ-

ing oil, gas and electricity) for all purposes; packing materials, including the full cost of returnable cases when first purchased; workshop and office materials; water charges; materials for repairs to buildings, plant and vehicles when carried out by firms' own work-people included in their returns; consumable tools; and parts for machinery purchased as replacements. Purchases of goods for merchanting are excluded. The cost of materials and fuel used, given in Table 2, is obtained by adjusting purchases for changes during the year in the value of stocks.

Stocks: Firms were required to give stocks of materials and fuel, products on hand for sale, and work in progress, at income tax values.

Customs and Excise Duty paid on materials purchased is normally included in the cost of materials. Finished goods are similarly valued as they were sold, duty-paid or duty-free. The net amount of any duty paid is deducted in arriving at net output.

Employment: Total employment includes working proprietors, administrative, technical and clerical employees, and operatives, but excludes outworkers, canteen employees and persons engaged in merchanting or any other activity not covered by a firm's return, who are shown separately as excluded employees. Employees are persons on the pay-roll (i.e., persons whose National Insurance cards were held by employers), whether employed full-time or part-time.

Working proprietors are proprietors of businesses other than limited companies, together with members of their families who worked in the business without receiving fixed wages or salaries. Any persons working less than half the normal hours are excluded. For Northern Ireland directors of limited companies (other than those paid by fee only) are also included.

Administrative, technical and clerical employees include directors, other than those paid by fee only (except in Northern Ireland); managers, superintendents and works foremen; research, experimental, development, technical and design employees (other than operatives); draughtsmen and tracers; travellers; and office (including works office) employees.

Operatives include all other classes of employees, i.e., broadly speaking, all manual workers.

Outworkers are persons employed by the firm who work on materials supplied by the firm in their own homes.

Wages and salaries include all overtime payments, bonuses and commissions without any deductions for income tax insurances, contributory pensions etc. They exclude payments to working proprietors.

Capital expenditure includes expenditure on new building work, and on plant, machinery and vehicles, charged to capital account during the year, including any transport and installation costs involved. It includes expenditure in respect of establishments in Great Britain which had not begun production before the end of the year (which has not previously been included in the Census of Production reports for individual industries).

Symbols used:

.. for not available

- for nil or negligible (less than half the final digit shown).

Where figures are rounded, e.g., given to the nearest £ thousand, there may be apparent slight discrepancies between the sums of constituent items and the totals shown. In some cases, figures have been combined with others of a similar nature where publication of separate details might disclose information relating to an individual undertaking.

TABLE 1 Industry summary: Estimates for the industry as a whole

	United Kingdom			Scotland 1954 (a)	Wales 1954 (a)
	1948	1951	1954		
	£ million	£ million	£ million	£ million	£ million
Gross output (production)	18.6	32.1	53.1	..	..
Net output	11.1	14.7	29.2	..	..
Total stocks and work in progress					
At beginning of year	5.8	7.6	14.0	..	..
Change during year	+ 0.4	+ 3.4	- 0.3	..	..
Capital expenditure less disposals (b)	0.5	1.0	3.4	..	..
Wages and salaries	7.9	11.4	18.7	..	..
Total employment (including working proprietors)	Thousands 24.9	Thousands 30.6	Thousands 40.7	Thousands ..	Thousands ..

(a) Owing to the risk of disclosure of information relating to individual firms separate particulars cannot be given.

(b) Capital expenditure on new building work and plant, machinery and vehicles (including (except in 1948) that incurred in Great Britain for establishments not yet in production), less amounts received for plant, machinery and vehicles disposed of.

TABLE 2 Summary of returns received

	Unit	Great Britain 1948	United Kingdom	
			1951	1954
FIRMS EMPLOYING ON AVERAGE MORE THAN 10 PERSONS				
Number of establishments	No.	49	59	61
Total value of sales and work done	£'000	18,901	30,774	53,164
Products on hand for sale		2,337	2,821	6,843
and work in progress		89	1,251	85
Gross output (production) (a)		18,569	32,025	53,079
Purchases of materials and fuel		7,816	18,787	22,234
Stocks of materials and fuel		3,501	4,780	7,160
change during year		+ 319	+ 2,176	- 187
Cost of materials and fuel used		7,497	16,612	22,421
Payment for work done on materials given out		2	16	..
Payment for transport (c)		420	689	1,489 (b)
Net output		11,071	14,709	29,169
Average number of employees	No.	21,144	26,068	34,842
operatives		..	3,763 (d)	4,448
others		..	..	5,774
Total employment (e)		24,911	30,519	40,616
Net output per person employed (e)	£	444	482	718
Wages and salaries	£'000	5,884	8,790	14,469
of operatives		..	2,631	4,186
of others		1,957	..	..
Capital expenditure				
New building work (f)		94	415	1,179
Plant and machinery		472	641	1,624
acquisitions (f)		97	157	104
disposals		..	..	..
Vehicles		66	115	209
acquisitions (f)		..	..	..
disposals		8	29	34
FIRMS EMPLOYING ON AVERAGE 10 OR FEWER PERSONS				
Number of returns	No.	6	8	9
Total employment, including working proprietors		36	41	46

(a) For the year 1948 gross output excludes payments for transport services outwards on finished goods sold. For subsequent years gross output includes payments to other firms and undertakings and to firms' own separate transport organisations for transport services.

(b) Owing to the risk of disclosure relating to individual firms, separate particulars cannot be given.

(c) Payments to other firms and undertakings and to firms' own separate transport organisations. For the year 1948 payments cover only transport outwards of finished goods sold. For subsequent years they cover payments for transport of both finished goods sold and materials and fuel purchased.

(d) Number in week ended September 25, 1948.

(e) Excluding outworkers.

(f) Excluding expenditure for establishments not yet in production.

EXPLOSIVES AND FIREWORKS

Analysis by size, 1954

Larger establishments in the United Kingdom

TABLE 3

Average number employed (a)	Estab-lish-ments	Gross output	Net output	Employees		Wages and salaries		Capital expenditure (b)	Net output per person employed (a)
				Operatives	Others	Operatives	Others		
	Number	£'000	£'000	Number	Number	£'000	£'000	£'000	£
11 - 49	8	311	183	226	27	61	28	11	722
50 - 99	9	746	396	539	58	144	44	11	663
100 - 199	14	3,026	1,542	1,911	210	620	139	93	727
200 - 299	7	2,383	1,219	1,591	220	575	162	86	673
300 and over	23	46,613	25,829	30,575	5,259	13,070	3,815	2,812	721
Total	61	53,079	29,169	34,842	5,774	14,469	4,186	3,012	718

(a) Excluding outworkers.

(b) Capital expenditure on new building work and on acquisition of plant, machinery and vehicles, excluding expenditure for establishments not yet in production.

TABLE 4 - Analysis according to specialisation within the industry, 1954

Larger establishments in the United Kingdom

No specialisation within this industry was distinguished.

Sales of the principal products of the industry, including sales of these products by establishments classified to other industries

Larger establishments in the United Kingdom

TABLE 5

	1951		1954		Entries
	Quantity	Value	Quantity	Value	
	Mn.	£'000	Mn.	£'000	
Live small arms ammunition, including military and sporting ammunition (a)	..	3,953	..	9,564	9
Fuses and blasting accessories	Mn.ft.		Mn.ft.		..
Safety fuse	1,369.2	2,622	1,275.2	2,525	..
Electric detonators	39.3	2,106	90.4	3,147	19
All other fuses, tubes, primers and detonators	..	716	..	2,707	..
Other accessories, including cables and parts of fuses and of blasting accessories	29.0	921	13.5	413	6
Propellant powders of all types	111.7	2,302	205.1	5,846	9
High explosives					
Blasting powder	82.2	582	117.1	1,030	5
Other sorts of high explosives	1,090.5	8,198	1,107.9	9,563	9
Fireworks					
For amusement and display purposes	..	1,663	..	1,793	15
Other, including signal rockets, line carrying rockets, etc.	..	481	..	1,424	14
Explosives, not elsewhere specified	..	188	..	2,639	7
Ammunition, not elsewhere specified	..	2,868	..	4,749	6
Waste products	..	111	..	616	20
Repair and maintenance work on ammunition (b)	..	2,667	..	3,999	14
Work done for the trade or on commission (b)	..	1,252	..	4,424	12
Total		30,630		57,672	..
Sales in other industries (see Table 6)		3,556		8,924	..
Principal products of this industry sold by establishments in the industry		27,074		48,747	55

(a) Not exceeding 30 m.m. calibre.

(b) Amount charged.

(59477)

EXPLOSIVES AND FIREWORKS

TABLE 6 - Sales of principal products of the industry by establishments classified to other industries

Larger establishments in the United Kingdom

The total value of the sales of principal products of the industry by establishments classified to other industries was £8,924,000 in 1954 and £3,556,000 in 1951. Owing to the risk of disclosure of information relating to individual firms, details cannot be given.

TABLE 7 - Sales in the industry of other than principal products

Larger establishments in the United Kingdom

The total value of the sales in the industry of other than principal products was £4,416,000 in 1954 and £3,700,000 in 1951. Owing to the risk of disclosure of information relating to individual firms, details cannot be given.

TABLE 8 - Total make of intermediate products

Larger establishments in the United Kingdom

This table is not applicable to the industry.

Purchases of materials and fuel, 1954

Larger establishments in the United Kingdom

TABLE 9

	Quantity	Cost
	Th.bulk gal.	£'000
Materials		
Chemical products		
Alcohols (including industrial methylated spirits)	1,283.8	272
Th.tons		
Ammonia, anhydrous and liquified	13.2	402
Ammoniacal liquor (in terms of 100 per cent ammonia)	16.0	487
Ammonium nitrate	14.4	437
Ethylene glycol (a)	0.8	171
Glycerine		
Crude (on the basis of 80 per cent glycerol)	4.9	998
..	..	188
Distilled (on the basis of 98 per cent glycerol)	0.5	132
Isopropanol (a)	1.1	61
Methanol (methyl alcohol)	..	191
Nitric acid (in terms of 100 per cent. acid)	5.8	162
Pentaerythritol (a)	0.2	80
Potassium chloride	3.9	73
Sodium nitrate	3.4	61
Sulphur	2.7	41
Sulphuric acid (in terms of 100 per cent. acid)	17.4	226
Aluminium strip (a)	0.1	35
Brass and other alloys of copper (excluding nickel alloys other than nickel silver) in all forms except finished parts and wire	1.2	345
Cotton		
Linters	1.2	109
Yarn	-	1
Explosives		
High	4.4	530
Other explosives including propellant powders	8.9	611
..	..	91

(59477)

EXPLOSIVES AND FIREWORKS

	Quantity	Cost
	Th. tons	£'000
Materials (contd.)		
Fuse cotton (a)	0.5	333
Fuseheads and detonators	..	902
Fuses	..	52
Jute yarn	3.0	621
	Th.gross	
Metal cartridge cases (other than small arms ammunition) empty	1.3	11
	..	19
	Th.tons	
Pyrites	32.1	231
Rubber, balata and gutta percha in all forms	1.5	116
Shells, empty	-	30
Steel in all forms except finished parts and scrap	1.5	95
Wire		
Insulated	0.9	370
Uninsulated	..	60
Electrical	1.0	329
Other	..	89
Woodpulp	..	34
Replacement parts for firms' own machinery, plant and vehicles	4.3	365
Consumable tools bought as replacements	..	894
Packing materials	..	173
Packing cases made of timber	..	347
Paper and board, containers made of paper and board, and other packing materials	..	1,053
All other purchased materials	..	7,497
Fuel and electricity	Th.tons	
Coal	430.0	1,710
Coke	18.8	104
Liquid fuel (including creosote/pitch mixtures)		
For use in internal combustion engines	Th.gal.	
Motor spirit (petrol) for use in road vehicles and derv. fuel	677	125
Other	279	14
For burning in furnaces, boilers, kilns, etc.	1,558	64
Gas purchased	Th.therms	
From Gas Boards	..	18
From other sources, including other departments of the same firms	-	-
Electricity purchased (b)	Th.kWh.	
From Electricity Boards	111,899	491
From other sources, including other departments of the same firms		
All other purchased fuel		9
Fuel and electricity wholly unclassified		373
Total cost		22,234

(a) So far as recorded separately.

(b) The total quantity of electricity generated in firms' own establishments in this industry in 1954 was 27,924 Th. kWh.

EXPLOSIVES AND FIREWORKS

2/H/7

Average number of employees and wages, salaries and superannuation payments (a)
Larger establishments in the United Kingdom

TABLE 10

	1951	1954
	Number	Number
Average number of employees		
Operatives	26,068	34,842
Administrative, technical and clerical employees	4,448	5,774
Total	30,516	40,616
	£'000	£'000
Wages and salaries paid to		
Operatives	8,790	14,469
Administrative, technical and clerical employees	2,631	4,186
Total	11,421	18,656
	£	£
Wages and salaries per head		
Operatives	337	415
Administrative, technical and clerical employees	592	725
		£'000
Superannuation and other pension funds for employees and dependents		
Employers' contributions	..	259
Employees covered	..	10,341
		£'000
Pension, etc., payments to former employees and dependents	..	53

(a) The following persons, not included above, were also employed by larger establishments in this industry ("other workers" includes, for example, employees engaged in merchandising). Payments to outworkers are also shown:

	1951	1954
	Number	Number
Canteen workers		
Male	39	39
Females	558	728
Total	597	767
Other workers		
Male	2,698	978
Female	619	212
Total	3,317	1,190
Total excluded employees	3,914	1,957
Outworkers		
Male	3	18
Female	587	819
Total	590	837
	£'000	£'000
Payments to outworkers	34	52

TABLE 11 Employment in a specified week (a): Larger establishments in the United Kingdom

	1951			1954		
	Males	Females	Total	Males	Females	Total
Working proprietors	2	1	3	-	-	-
Operatives	17,170	9,047	26,217	22,861	12,117	34,978
Administrative, technical and clerical employees	3,149	1,335	4,484	4,182	1,630	5,812
Total employees	20,319	10,382	30,701	27,043	13,747	40,790

(a) Week ended September 22, 1951, or October 30, 1954.

LIST OF INDUSTRY REPORTS

VOLUME 1

- A. Coal Mines
- B. Non-Metalliferous Mines and Quarries (other than Coal, Salt and Slate)
- C. Salt Mines, Brine Pits and Salt Works
- D. Slate Quarries and Mines
- E. Metalliferous Mines and Quarries
- F. Brick and Fireclay
- G. China and Earthenware
- H. Glass Containers
- I. Glass (other than Containers)
- J. Cement
- K. Abrasives
- L. Building Materials
- M. Manufactured Fuel

VOLUME 2

- A. Coke Ovens and By-products
- B. Dyes and Dyestuffs
- C. Fertiliser, Disinfectant, Insecticide and Allied Industries
- D. Coal Tar Products
- E. Chemicals (General)
- F. Drugs and Pharmaceutical Preparations
- G. Toilet Preparations and Perfumery
- H. Explosives and Fireworks
- I. Paint and Varnish
- J. Soap, Candles and Glycerine
- K. Polishes
- L. Ink
- M. Match
- N. Mineral Oil Refining
- O. Oils and Greases
- P. Seed Crushing and Oil Refining
- Q. Glue, Gum, Paste and Allied Industries
- R. Plastics Materials

VOLUME 3

- A. Blast Furnaces
- B. Iron and Steel (Melting and Rolling)
- C. Iron Foundries
- D. Steel Sheets
- E. Tinplate
- F. Wrought Iron and Steel Tubes
- G. Non-Ferrous Metals (Smelting, Rolling, etc.)
- H. Scrap Metal Processing
- I. Motor Vehicles and Cycles (Manufacturing)
- J. Motor Vehicles and Cycles (Repairing)
- K. Aircraft Manufacture and Repair
- L. Railway Locomotive Shops and Locomotive Manufacturing
- M. Railway Carriages and Wagons and Trams
- N. Carts, Perambulators, etc.

VOLUME 4

- A. Shipbuilding and Ship Repairing
- B. Marine Engineering
- C. Machine Tools
- D. Textile Machinery and Accessories
- E. Small Arms
- F. Constructional Engineering
- G. Mechanical Handling Equipment

VOLUME 4 (contd.)

- H. Printing and Bookbinding Machinery
- I. Mechanical Engineering (General)
- J. Mechanical Engineering (Repairing)
- K. Electrical Engineering (General)
- L. Electric Wires and Cables
- M. Radio and Telecommunications
- N. Batteries and Accumulators
- O. Electric Lighting Accessories and Fittings

VOLUME 5

- A. Tool and Implement
- B. Cutlery
- C. Chain, Nail, Screw and Miscellaneous Forgings
- D. Wire and Wire Manufactures
- E. Hardware, Hollow-ware, Metal Furniture and Sheet Metal
- F. Brass Manufactures
- G. Needles, Pins, Fish Hooks and Metal Smallwares
- H. Scientific, Surgical and Photographic Instruments, etc.
- I. Watch and Clock
- J. Jewellery and Plate
- K. Precious Metals Refining
- L. Musical Instruments

VOLUME 6

- A. Cotton Spinning and Doubling
- B. Cotton Weaving
- C. Woollen and Worsted
- D. Rayon, Nylon, etc. Production
- E. Rayon, Nylon, etc. Weaving, and Silk
- F. Flax Processing
- G. Linen and Soft Hemp
- H. Jute
- I. Rope, Twine and Net
- J. Hosiery and Other Knitted Goods
- K. Lace
- L. Carpets
- M. Narrow Fabrics
- N. Canvas Goods and Sacks
- O. Textile Converting
- P. Made-up Household Textiles
- Q. Textile Finishing
- R. Textile Packing

VOLUME 7

- A. Asbestos
- B. Flock and Rag
- C. Hair, Fibre and Kindred Industries
- D. Leather (Tanning and Dressing)
- E. Fellmongery
- F. Leather Goods
- G. Fur
- H. Tailoring, Dressmaking, etc.
- I. Hats, Caps and Millinery
- J. Glove
- K. Umbrella and Walking Stick
- L. Boot and Shoe

VOLUME 8

- A. Grain Milling
- B. Bread and Flour Confectionery
- C. Biscuit
- D. Bacon Curing and Sausage

VOLUME 8 (contd.)

- E. Preserved Meat
- F. Milk Products
- G. Ice Cream
- H. Sugar and Glucose
- I. Cocoa, Chocolate and Sugar Confectionery
- J. Preserved Fruit and Vegetables

VOLUME 9

- A. Margarine
- B. Fish Curing
- C. Cattle, Dog and Poultry Foods
- D. Vinegar and Other Condiments
- E. Starch
- F. Ice
- G. Miscellaneous Preserved Foods
- H. Brewing and Malting
- I. Wholesale Bottling
- J. Spirit Distilling
- K. Spirit Rectifying and Compounding
- L. Soft Drinks, British Wines and Cider
- M. Tobacco

VOLUME 10

- A. Timber
- B. Furniture and Upholstery
- C. Soft Furnishings
- D. Shop and Office Fitting
- E. Wooden Containers and Baskets
- F. Paper and Board
- G. Wallpaper
- H. Cardboard Box, Carton and Fibre-board Packing Case
- I. Manufactured Stationery, Paper Bag and Kindred Industries
- J. Newspaper and Periodical Printing and Publishing
- K. Printing and Publishing, Bookbinding, Engraving, etc.

VOLUME 11

- A. Rubber
- B. Linoleum, Leathercloth and Allied Industries
- C. Brushes and Brooms
- D. Toys and Games
- E. Sports Requisites
- F. Miscellaneous Stationers' Goods
- G. Cinematograph Film Production
- H. Cinematograph Film Printing
- I. Plastic Goods and Fancy Articles
- J. Incandescent Mantles

VOLUME 12

- A. Building and Contracting
- B. Local Authorities (Building and Civil Engineering)
- C. Railways (Civil Engineering)
- D. Tramway, Trolley Bus and Omnibus Undertakings (Civil Engineering)
- E. Canal, Dock and Harbour Undertakings (Civil Engineering)
- F. Gas Supply Industry
- G. Electricity Supply Industry
- H. Water Undertakings

Crown copyright reserved

Printed and published by
HER MAJESTY'S STATIONERY OFFICE

To be purchased from
York House, Kingsway, London W.C.2
423 Oxford Street, London W.1
13A Castle Street, Edinburgh 2
109 St Mary Street, Cardiff
39 King Street, Manchester 2
Tower Lane, Bristol 1
2 Edmund Street, Birmingham 3
80 Chichester Street, Belfast
or through any bookseller

Printed in Great Britain