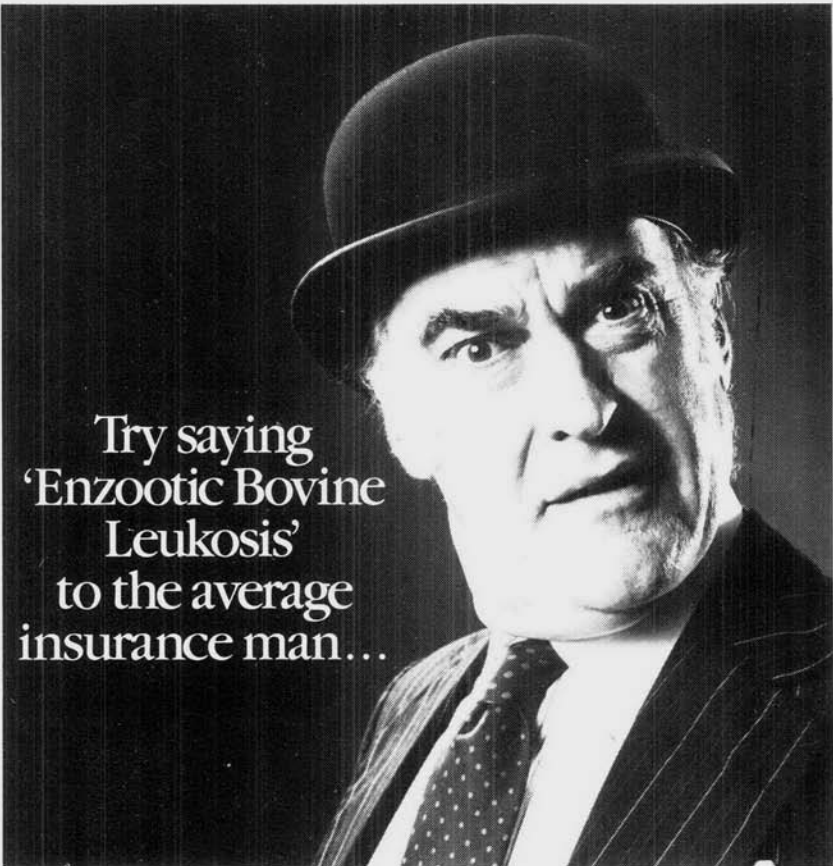


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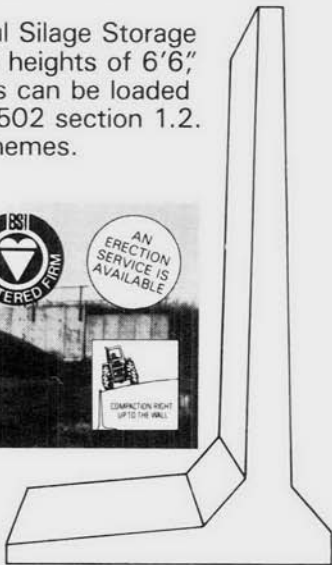
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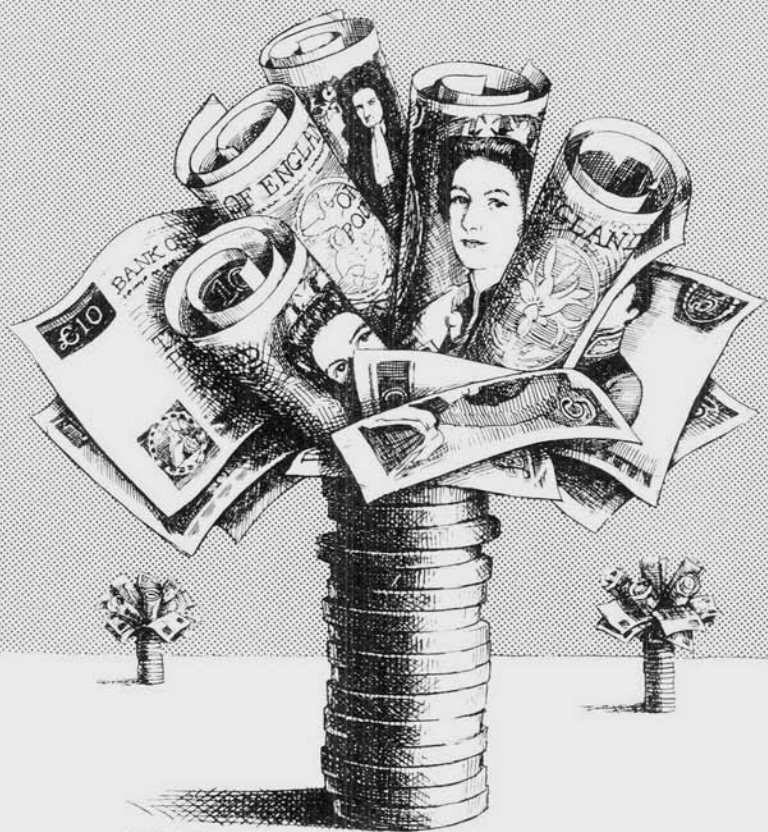
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Chairman's report

Norman Coward, CMA Chairman, Senior General Manager's Assistant (Agriculture)

The Centre of Management in Agriculture has made dramatic advances in the last two years. Its membership stayed around 900-1,000 in the late 1970's-early 1980's but has now increased to over 1,500. Thirty new county branches have been formed. This upturn in membership has arisen partly from a great improvement in the quality and quantity of the services CMA provides - and partly from an increased need among farmers and farm managers for the kind of support which CMA and the British Institute of Management itself, can offer.

The improvement in the quality and quantity of services to members is reported in detail in other parts of this Yearbook. The increased number of county branches means more local activities - mainly evening discussion meetings in the winter months with some farm walks in the summer. More conferences are being organised, on topics which are intended to highlight aspects of managing a farm business which may not be covered by the wealth of other conferences and meetings in farming areas. Such topics have included management in the face of quotas, and the CMA Farm Management annual conference continues to rank alongside the Oxford Farming Conference as a major forum for management-orientated issues. The quarterly

Farm Management Journal provides unique articles on all aspects of managing a farm business.

The increased need for professionalism in management, arises from the increasing complexity of farm businesses and the pressures which will surely come upon them in the next few years. The increasing sophistication of the agricultural labour force is well known. Centre of Management in Agriculture can assist in questions relating to the terms and conditions of employment for farm managers, questions of employment legislation, and such matters as interviewing techniques and negotiations. The adoption of new tech-



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nology in an industry which traditionally shows a poor return on capital has inevitably led to increased borrowing, so that the need for sound financial management has also become very important. In this context CMA offers courses, and most branch meetings have representatives of banks and accountancy firms present.

In 1984 the EEC Council of Ministers grasped a nettle which it has long avoided. It accepted the need to maintain or even reduce the prices of most farm produce. In all countries there was a fall – at least in real terms – in the prices set for import levies, export subsidies, intervention buying, etc. This action by the EEC was in response to the increasing cost of disposing of growing surpluses. Furthermore, in the dairy sector, where the effects of the imbalance of EEC supply and demand had become most acute, quotas were introduced.

The inevitable pressures which poorer price levels and quotas will have on the cash flows of many farm businesses, will lead to an increasing need for professional management. Farmers' resources must be utilised as effectively as possible and the opportunity which the Centre of Management in Agriculture provides to enable managers of farming businesses to meet together and to compare experiences, to hear and question speakers on vital topics will be even more valuable. With its increased membership and hence

increased resources, CMA is also able to undertake more work which should directly benefit farmers and farm managers. A good example of this is the CMA Computer Users Survey based on a large sample of the several thousand farm businesses which now use a computer.

The Centre of Management in Agriculture is now on a very sound base and is developing fast at a time when it is likely to be most needed.

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Objects of the CMA

The Centre of Management in Agriculture is a special interest group of the British Institute of Management

Established in 1965 as the Farm Management Association, the Centre of Management in Agriculture (part of the British Institute of Management) is the professional organisation that caters specifically for individuals involved with farm management.

It is the objective of CMA to promote both the raising of standards, and the professional status of farm management by:

- i Demonstrating the importance of management practice to the farm business.
- ii Supporting and providing

education and training in farm management techniques.

- iii Providing a focal point for those who work in the farm management world.

- iv Co-operating with other organisations in the farming industry.

- v Organising contact with managers from other sectors of Industry.

Membership is open to farmers, farm managers and those such as bankers, farm consultants etc. who work in the auxiliary agricultural industries.

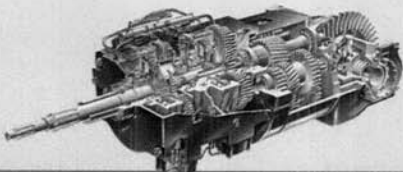
Services to members

Individual members have direct access to, and involvement in, the work of CMA. They are able to influence the direction and scope of activities, and future development of the organisation.

Regional/Branch Activities

Local Branches provide the opportunity for members to meet and gain appreciation of other members' farming problems and achievements.

The 28 CMA branches run programmes of events which include evening meetings with nationally known speakers; farming conferences; illustrative farm walks; and educational courses and seminars. An important part of these activities is that Members not only receive up to date information on farm management practice, but also that such information goes hand-in-hand with practical illustration and the per-



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1294	61	56	4 cyl - 3594
1394	72	66	4 cyl. Turbo - 3594
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1694	108	99	6 cyl. Turbo - 5393

1594



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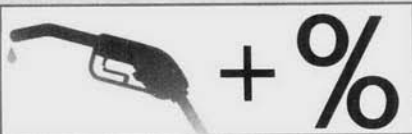
1694



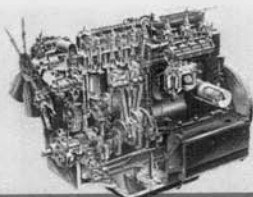
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sonal experiences of individual members.

Information Services

Through the British Institute of Management's Information Centre, CMA provides a comprehensive service of information on farm management practice. Additionally, the Information Centre can provide information and advice on wide range of management related topics including training; employee relations and personnel management; career planning and strategies for finding appropriate employment etc.

Education and Training

One-day and residential courses form the backbone of a farm management education and training programme designed to meet the training needs of those involved in the practice of farm management.

Conferences

Regional conferences are held throughout the country, covering subjects of topical interest to the farming community.

The two-day National Farm Management Conference held in Harrogate during November is the highlight of the CMA Programme. Recognised as one of the major conferences of the farming year it is addressed by nationally known speakers, and attracts some 200 farmers, farm managers and other involved in the industry.

Careers Advice

Drawing on the experiences of senior members, CMA can provide career advice and guidance to members who are entering the farm management world or who feel a change of employment is desirable.

Publications and reports

Farm Management is the Journal of the Centre of Management in Agriculture. With specially prepared articles and illustrated case studies it brings to CMA members the new developments, current thinking, and successful achievements in farm management.

The Journal is issued four times each year and builds up into a comprehensive and informed

reference source on farm management practice.

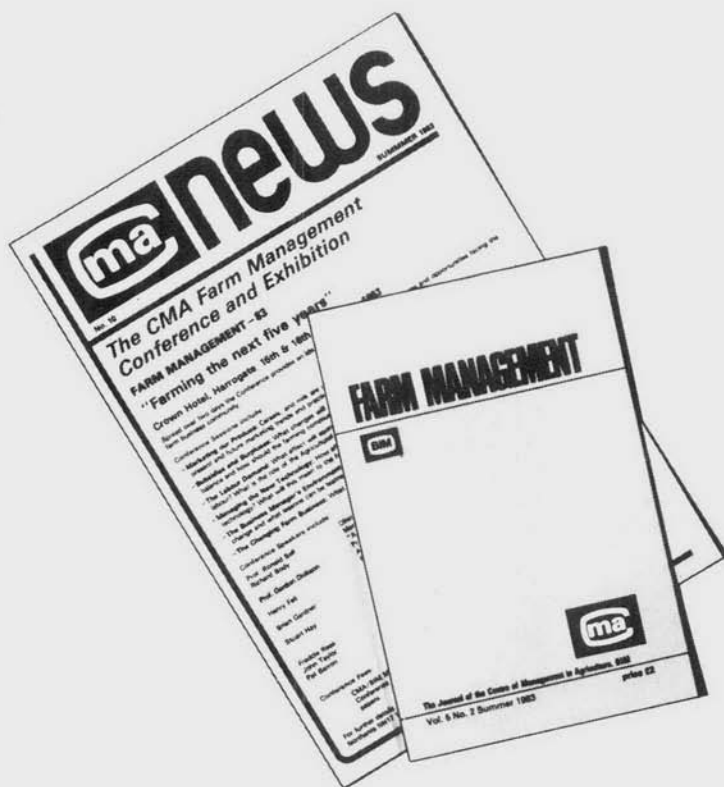
The CMA Newsheet is also issued quarterly. Members comments; branch reports; personalities; the local and national activities programme; all keep members in touch with each other and their management organisation.

Recent decisions in Brussels, and

changes in the Common Agricultural Policy mean for the first time since the CAP's inception direct and indirect subsidies to farm businesses will be reduced. As a result of this many farm businesses will be pressured towards an optimum use of their resources rather than, as has been possible in the past, increasing production to improve business performance.

Since this represents a significant change of emphasis in farm business management, CMA are planning a series of publications both to advise individual farmers and farm managers and to promote discussion on the subject within the agricultural community.

A number of technical publications advising on development areas in farm management practice are also published.





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It is against this background that the CMA has commissioned a study to identify the extent to which farmers are satisfied or dissatisfied with their computerisation. Satisfaction has, of course, to be measured against anticipation and the study examined the whole area of farmers' requirements for computer facilities; their intentions, their experiences with computers, their current view as to their practicability and their future requirements.

The exercise was undertaken in two parts. Firstly a differentially

sampled quantitative survey was made identifying basic details concerning ownership or access to a computer; type and extent of usage of the hardware and software; farm classification details etc.

This was followed by in-depth interviews with computer users (and some non-users) identified from the quantitative survey, to fully examine the motivation and reaction to the reality of computer use in the farm business. The interviews investigated which computer systems are in use and the influence of the computer on the farm business. Within this framework comes a detailed examination of computer application, including all aspects of data collection, storage and access facilities through processing techniques to particular application, viz. planning and budgeting, business management, accounting techniques and modelling predictions.

Both the report and full survey are available from:

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- ii their business objectives
- iii their own role and that of others in achieving these objectives
- iv how the successful manager performs
- v the strong and weak points in how they run their business
- vi helping others to perform well
- vii the ways in which they can improve their management performance
- viii using time effectively and having a life outside the business

Course staff

Prof. Tony Giles

Director of Reading University
University Farm Management
Unit

Mike Atkinson

Principal Lecturer in Farm
Management at Seale-Hayne
College

Visiting tutors

Len Norman

Principal of the Hampshire College
of Agriculture

Malcolm Stansfield

Deputy Director of Reading
University Farm Management
Unit

Developing the use of your Farm Computer

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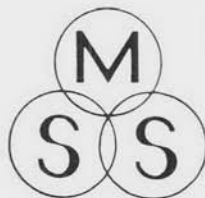
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Course staff

The tutors for the course are drawn from the Agricultural Management Departments of Bishop Burton Agricultural College.

Course staff

Director

Prof. John Nix

Head of the Farm Business Unit
Wye College

Tutors

Paul Hill

Nigel Williams

Paul Webster

Lecturers from the Farm Business Unit, Wye College

Other speakers

Prof. Dennis Britton

Michael Pope

Agricultural Economics

Prof. Gerald Wibberley

Reeves & Neylan, Accountants
Countryside Planning

Financial Management of the Farm Business

The course is designed to help delegates improve and develop the financial planning and control of their farm businesses.

Within a general financial management framework the following areas will receive particular attention.

- i information and recording systems
- ii decision making using micro-computers
- iii the balance sheet and flow of funds
- iv financing the farm
- v investment appraisal
- vi accounting for inflation
- vii tax planning



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You and your management

A participant's reflections a month after the CMA course held on 27-30 March 1984.

It is probably a good idea to sit back after a course like this and wait a while for the results of four days of self-analysis to sink in rather than rushing back to one's business and endeavouring in a short time to put into practice all or some of the ideas that one has heard about. These ideas may have come from one's fellow participants, the course tutors, visiting tutors or maybe even from one-self.

We were invited (forcefully but politely) to expose to public view the weaknesses and strengths of our businesses. We defined our businesses and personal objectives and how we, our principals and our subordinates were going to attempt to achieve them.

We looked at the personality required by an effective manager and how to communicate to our staff the motivation to attain all, or even some, of our business objectives.

Analysis

Inevitably, early on in the course the phrase 'Management by Objectives' appeared. I expect we had all heard of it before but probably none had actually tried to analyse its meaning in relation to their own business. Having then clarified this we were then required to relate it to our

customers – those people who are always right – but rarely given enough consideration.

Planning

Amongst other phrases that were to recur throughout the course were 'strategic planning', 'key result areas' and in particular 'the activity trap'. I felt sure that most course members left Reading with these words imprinted on their minds and, it is to be hoped, with the good intention to improve their methods of management, to avoid 'management by crisis', and the pitfalls of always thinking one-self so busy that it is impossible to look logically at one's business.

Commitment

Course members were persuaded to commit themselves publicly and in writing on wall charts to analyse their management and its aims. This was very much an individual and personal target and needed a conscious effort to not only achieve it, (it is so easy to fall back into the old ways) but also to monitor its progress.

Details

With the help of Malcolm Stansfield we looked in detail at staffing and how we involved our staff in the business, how we supported them, motivated them, talked to them, recruited them and trained them,

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delegated and supervised. That now old-fashioned word 'leadership' appeared again but it sums up the needs of the effective manager. We also took a long deep look at ourselves as executive managers, at our personal aims, feelings, emotions and restraints, how we can affect or are affected by, outside social influences or whether we conducted our businesses on more formal or rigid lines.

Practical

Visiting tutor, Philip Crawford from Dorset gave us a thoroughly practical account of how good management could help achieve high output, and set the foundation for a look at how we used our time and the factors that controlled our management of ourselves. A course such as this would have been very introverted if it had only looked at management as a business tool and it was both useful and important to be made to look at our lives outside the business by Len Norman, who forced us to analyse the influence of outside factors on our lives and to make an 'action plan' for the near future.

Action

This was not the only 'action plan' we came away with. Professor Tony Giles and Mike Atkinson had led us through this course with the intention that having analysed ourselves and our businesses we

should go away and improve both. They encouraged us to reflect upon and reappraise our businesses and strive to achieve new objectives.

I am sure we all left Reading grateful to the tutors, organisers, the sponsors Massey-Ferguson and to our fellow members for providing a stimulating and constructive course and we will look forward to meeting again in the autumn to see whether we have achieved any of the targets we set ourselves.



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The British Institute of Management organisation

The Centre of Management in Agriculture is a special interest group of the British Institute of Management

The Institute was born shortly after World War II, but it had its origins in a meeting at the Board of Trade towards the end of the war. This meeting was held because the immense problems of wartime production and logistics had shown that Management was an activity which could be distinguished from functional operations; that the promotion and more general adoption of best management practices were essential in the future; and that though there were professional bodies representing functional activities, there was no clearing house for promulgating general management knowledge and practice or for the development of managerial skills.

In late 1945 a committee under Sir Clive Baillieu was appointed by the President of the Board of Trade to formulate proposals for setting up an Institute to cover all matters concerned with management. Then with financial contributions from industry and an initial government grant, BIM was established in 1947. Government grants ceased many years ago and the Institute is now financially independent.

Today the British Institute of Management is the largest institute of

its kind in the world. It has 74,000 individual members, 60,000 of them in 88 branches throughout the UK, the remainder overseas spread through many countries.

Who are the members

There are four grades of individual membership. The most senior members are designated Companions; these are people who have been invited to accept the honour of Companionship because of their eminent achievement in management.

Fellowship is the most senior grade for which application can be made and which is granted by assessment. The main criterion which an applicant for fellowship must satisfy is general management responsibility at board or general manager level, usually held for a period of at least two years.

The main grade is 'Membership' (MBIM) which acknowledges a good level of management expertise and standing and includes members from a wide range of middle and senior management.

There is also the non-corporate grade of Associate which is for younger people who are not yet qualified for MBIM, and also for



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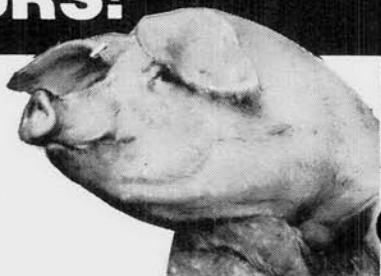
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others in areas related to management who want to benefit from BIM services.

Services to members

The Management Information Centre

The Management Information Centre is a management library containing published and unpublished material on all aspects of management in most types of organisation, including examples of company practice, case histories, case studies and reports. Photocopies of articles from a wide range of management journals are available for loan on all management topics. An index to management training films, training packages and games can be consulted, and some 185 reading lists have been prepared. A team of trained information officers deals with enquiries for information and will research material on behalf of members or put them in touch with an expert who can answer a specific problem. Readers may borrow up to four items at any one time.

Careers Information Service

Currently the service provides information and general guidance to members on

- CV preparation and self presentation
- job search strategy
- recruitment consultants and agencies

- sources of specialist careers advice
- retraining courses

The Head of Employee Relations and Personnel Management Services can help with the legal and financial aspects of redundancy and dismissal and the Service can arrange interviews with a counsellor for members who need a more fundamental appraisal of their strengths and weaknesses and employment prospects. There is a small charge for counselling interviews.

Personnel Advisory Service

Though many enquiries from managers and companies can be answered over the telephone or at a meeting, some company problems require detailed investigation and for these the Service carries out in-company assignments. In addition, a series of practical guidance notes are available from BIM at a small charge. These are used to help answer common enquiries, for example, the handling of long-term sick employees or the drafting of disciplinary procedures, and also to update members on current or proposed legislation.

Training Courses

Continual observation and research combine to identify what courses, conferences and seminars are most needed by members of BIM. As a result, carefully planned programmes are prepared and offered to members and others. These programmes comprise acti-

vities in a number of broad categories:

i a short course programme – one and two-day courses covering a wide range of general management and personal skills.

ii a foundation course in effective management – a five-day event which can also be tailored to individual companies at all management levels.

iii a series of specialised seminars on such subjects as energy-saving and micro-computing for managers.

iv a series of conferences on issues of current concern to managers.

v a residential seminar for

senior executives which is held once a year at Nuneham Park near Oxford; and

vi an in-company programme of tailored courses and advisory assignments on organisational and training problems.

Most of the courses and seminars are open to non-members – as, for example, the short course programme which covers a large number of subjects from the use of computers and management accounting to specific aspects of industrial relations and chairing meetings, and from tax planning and credit management to report writing and rapid reading.

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Dawkins B. D. MBIM
Day I. J.
Downer D. A.
Downes J. T. FBIM
Ellis P. R. J. MBIM
Ferguson R. M. FBIM
Gallow J. D.
Gordon Lee J. D. FBIM
Griffith-Jones M. T. L. MBIM
Hailey S. P. MBIM
Halford C. E.
Harris S.
Hicks K. G.
Hill S. M. MBIM
Hough P.
Iddesleigh Rt Hon Earl
Jones P. M.
Kent P. MBIM
Langdon M. P.
Morley Miss A. MBIM
Peters C. W. MBIM
Persey R. L. MBIM
Quicke J. G. FBIM
Rounsfall T. M.

Devon continued

Russell Miss S. J.
 Salkield A. M. MBIM
 Sampson R. H. FBIM
 Seddon Q.
 Slee Dr R. W.
 Smith A. B. MBIM
 Sobey E. J. MBIM
 Soffe R. J. MBIM
 Spence D. MBIM
 Staines P. F. MBIM
 Steer M. N.
 Trump C. C. G.
 Trump J. M.
 Turnbull J. A.
 Twenddell Downes FBIM
 Warren M. F. MBIM
 Watson J. R. MBIM
 Williams A. J. MBIM
 Wright D. A. MBIM

Dorset

Anderson R. A.
 Aston B. T. FBIM
 Bareham T. J. MBIM
 Barker P. J. MBIM
 Bateman J. H. MBIM
 Batten R. W.
 Bovey A. J.
 Boyt P. T. MBIM
 Bridges C. J. G.
 Bryant S.
 Buckland M. B.
 Burt E. F. H. MBIM
 Coombs R. M. MBIM
 Cradock D. N. FBIM
 Crane P. A. T. FBIM
 Crawford P. A. V.
 Crocker D. G. H.
 Cross H. B.
 Dampney H. T.
 Dampney T. D. FBIM
 Dowse C. T.
 Drybrough W. G. MBIM
 Gale M. E. MBIM

Glyn R. L. MBIM
 Gooch Miss B. J.
 Gulliford R. M.
 Hall R. R. MBIM
 Hann G. A. G.
 Hoey P. M.
 Jones D. S.
 Lawton W. N.
 Lewis A. G.
 Lewis M. H.
 Lewis P. R.
 McFarlane D. B.
 Mitchell C. J. W.
 Paul N. L.
 Raymond G. P.
 Rippon P. R.
 Sealey E. A.
 Simpson P. D.
 Streatfield G. H. MBIM
 Tory M. A.
 Viney N.
 Webb P. J. FBIM

Essex

Calthorpe Mrs G. MBIM
 Cooley J. MBIM
 Crees E. J. FBIM
 Curtis P. J. MBIM
 Daldry J. M. MBIM
 Dodgson G. J. MBIM
 Fairhead R. W. T.
 Flack J. C. MBIM
 Fleming J. D. MBIM
 Giffin G. F. FBIM
 Gray T. D.
 Green C.
 Gummery K. J.
 Hawkes R. J.
 Hendrick A. E. MBIM
 Innes P. FBIM
 Lilley J. B. MBIM
 Longbottom G. A. FBIM
 Macdonald L. J. MBIM
 Mackie J. M. MBIM
 Manson J. C. FBIM

Essex continued

Markham N.
 Miller W. M.
 Nott N. M. MBIM
 Orman Mrs B. W. MBIM
 Payne J. S. FBIM
 Roberts J. D.
 Rook J. A. J. MBIM
 Simmonds F. FBIM
 Thompson C. R. M.
 Turner J. M. MBIM
 Whiting P.
 Wilkins R. J. MBIM
 Willy R. J. MBIM
 Yates I. R.

Gloucestershire

Allen R. C. MBIM
 Beale R. E. MBIM
 Clarke M.
 Coleridge G. P. MBIM
 Davison M. J. FBIM
 Fretter T.
 Godwin R. A. MBIM
 Graham J.
 Hawkes-Reed A. J. MBIM
 Hitchman M. T.
 Humphreys J. F.
 Jones R. N.
 Padfield G. K.
 Pearson T. D. G. MBIM
 Ray C. T.
 Ross P. MBIM
 Rowe C. J.
 Rowles M. A. MBIM
 Stewart R.
 Taylor M. I. FBIM

Hampshire

Allison D. J.
 Arnison-Newgass M. MBIM
 Beazley R. M.
 Beresford-Stooke P. M. MBIM
 Botting J. M. FBIM

Boyle M. P. R. FBIM
 Brigstocke T. D. A.
 Brutton T. H. S.
 Caws R. A. MBIM
 Cox E. W.
 Day P. C. C. FBIM
 Dines R. D. MBIM
 Dolbear J. MBIM
 Eagar A. E.
 Fairey J. N. F. FBIM
 Faragher T. W. MBIM
 Fielding D. F. MBIM
 Firmston T. J. MBIM
 Fitzherbert-Brockholes R.
 Forster N. C. MBIM
 Fullman D. J. MBIM
 Gates M. L. MBIM
 Gray A. MBIM
 Hallet G.
 Harbottle D. F. MBIM
 Herdman R. H. L.
 Illsley J. MBIM
 Jervoise J. L.
 Loveys Jervoise J. MBIM
 Maycock R. G.
 Moore M. V.
 Nettle J. D.
 Nightingale M. A.
 Norman L. FBIM
 Oldroyd D. C. L.
 Parker J. P. MBIM
 Payne A. J. MBIM
 Race M. G. MBIM
 Rennie I. J. MBIM
 Sclater E.
 Sclater E. A. MBIM
 Smail J. A.
 Snow J. E.
 Sutton A.
 Throup G.
 Tozer T. C.
 Tucker M. W.
 Welsh M. MBIM
 Young H. S. MBIM
 Young M. C. MBIM

Herefordshire

Beaumont Miss E. C.
 Billing S. C. MBIM
 Brocklebank M. MBIM
 Brimacombe R. W. MBIM
 Bullen B. S. MBIM
 Coquet A. R. MBIM
 Darley G.
 Grimley R. FBIM
 Hart W. J.
 Howie I. B. FBIM
 Jennings R. J. MBIM
 Jones M. G. MBIM
 Lewis C. G. MBIM
 Mann B. G.
 Perry A. W.
 Roskill T. W. MBIM
 Scudamore P. H.
 Strevens P. J.
 Summers D. C.
 Thompson Major W. V. H. MBIM
 Wareham D. A. MBIM
 Whitmey C. J. MBIM
 Wightman B.
 Wilder B. C. MBIM
 Williams J. C.

Hertfordshire

Adamson D. J. MBIM
 Arnold R. L. MBIM
 Brereton J. MBIM
 Castle D. M.
 Causton A. E. MBIM
 Clark G. S. MBIM
 Coslett D. A.
 Edwards A. D. MBIM
 Gardner D. A.
 Geary Dr J. R. MBIM
 Goodwin A. J. R. MBIM
 Hawkins Mrs V. R. MBIM
 Johnson D. T. FBIM
 Jones Davies D. M. C. MBIM
 Massey J. E. FBIM
 Moffit R.
 Moody Dr D. P. FBIM

Morton R. J. MBIM
 Palmer W. J.
 Parker R. B.
 Simmons P. MBIM
 Thompson G. C. FBIM
 Ward Dr J. FBIM

Humbershire

Clarke H. E. MBIM
 Crossley K.
 Doran C. J. MBIM
 Elvidge D. J.
 Glover R. H.
 Harrison P. H. FBIM
 Hayes P. M.
 Heald F. R. MBIM
 Hill C. F. MBIM
 Jordan D. A. CBIM
 Lamming S. V. MBIM
 Marsden A. MBIM
 Martinson P. R. MBIM
 Mewburn J. H.
 Neate D. J. H. FBIM
 Nutting K. E.
 Owen D.
 Pearson A. M. FBIM
 Rutherford I. A.
 Scarr W. A.
 Smallwood R.
 Stocks R.
 Styche A.
 Thompson N.
 Tindale G.
 Waters R. L.

Kent

Amos R. C.
 Bagshaw T. W. FBIM
 Binnie J. E. MBIM
 Bryson T. MBIM
 Carr H. R. FBIM
 Carroll P. R. FBIM
 Caspell N. MBIM
 Chater R. M. MBIM

Fisher A. MBIM
 Gilham Miss P. T. MBIM
 Harland P. H.
 Henson J.
 Hill G. P.
 Hobbs Mrs P. M. MBIM
 Holdstock H. J.
 Hukins S. R.
 Jackson M. MBIM
 Knight D. J.
 Knight S. W.
 Little R. J.
 Macwatt C. S. H.
 Martin R.
 Meyler S. MBIM
 Nelson J. K. MBIM
 Nicholson J. A. H. FBIM
 Nissim D. L. MBIM
 Nix Prof J. FBIM
 Older C. D.
 Page Miss G. M.
 Parkin W. K. MBIM
 Perkins D. M. FBIM
 Pope V. V. FBIM
 Reid I. G.
 Rigden S. R. MBIM
 Roberts C. D. F.
 Roberts D. J. FBIM
 Robertson R. A.
 Rogers K. R. MBIM
 Sander-Humphrey B. H. MBIM
 Shead T. MBIM
 Smith C. J.
 Smith D. P. FBIM
 Sparrow T. D. FBIM
 Spence F. A. FBIM
 Stoneman D. F. FBIM
 Stonham G. H. MBIM
 Sutton P. J. MBIM
 Thomas C. G. MBIM
 Toms D. A. MBIM
 Toohay M. J. D.
 Truscott P. D. MBIM
 Warren J. R. MBIM

Webster J. P. G. FBIM
 Welch R. A.
 Williams N. T. MBIM
 Winch D. A. MBIM

**Lancashire (including
Manchester & Merseyside)**

Allanson M.
 Asigbee E. M.
 Barker M. P.
 Bassett W. J.
 Bell J. G.
 Birkby J.
 Booth P. J.
 Bridge J. D.
 Brook J. B.
 Close J. S.
 Daniel C. A. MBIM
 Davies J. MBIM
 Fell W. H.
 Ford R. F. MBIM
 Gardner J.
 Gorst J. E.
 Gorst J. R.
 Halhead D. C.
 Hargreaves J. H.
 Hesketh T. C.
 Hewitt W. E.
 Higgin R.
 Hull L. H.
 Ishmael D. W.
 Johnson D. G.
 Kirkhail R. A.
 Kirkham T.
 Kirkman R. F.
 Millen W.
 Mitchell E.
 Mitchell J.
 Moore S.
 Morgan J. L. MBIM
 Murgatroyd E. MBIM
 Murray D. J. MBIM
 Park A. W.
 Parry C.
 Ratcliffe C. R. MBIM

Lancashire continued

Richmond R. W.
Rushton R. T. MBIM
Schoon P. J.
Shepherd J. B.
Simpson D.
Sweet A. G. MBIM
Taylor R. G.
Thorn P.
Todd A. S.
Tomlinson C. T.
Tomlinson T.
Walker D.
Waring M. S.
Welton D. E.
Yates R.

Leicestershire

Aston P. J. M. FBIM
Acafa A. A. MBIM
Brown A.
Elderfield P. FBIM
Harris S. G.
Hurst D. W. FBIM
Johnson G. W. MBIM
Joyce D.
Keene A. C.
Kerr H. W. T. FBIM
Packe-Drury-Lowe S. J.
Senior K.
Stokes S.
Tipper B. C.

Lincolnshire

Arden Miss M. S.
Attenborough W. J. FBIM
Atkin W. J. MBIM
Austin R. W. FBIM
Ball R. G.
Barlow R. P.
Barwell M. G. MBIM
Birkett F. H. MBIM
Bradshaw T. C.
Branfield P.

Braybrook D.
Brearley B. M. FBIM
Buckley D. C.
Bullivant A. F.
Burns J. A.
Camamile G. H. FBIM
Charlton I. K. MBIM
Clarey J.
Cragg W. S. MBIM
Day J. O. FBIM
Dorrington J. B. FBIM
Dorrington S. P. FBIM
Drake H. C. MBIM
Early B. E.
Elvidge D. J.
Farley V. FBIM
Findlay J. O. MBIM
Fox R.
Frow M. J. MBIM
Garner D. I.
Gibbons P. H. MBIM
Gillett G. S. W.
Grant J. E.
Hancox R. MBIM
Hargreaves L. H.
Haworth J. P. S.
Heald J. M. MBIM
Hodgson P. N. MBIM
Hustler W. MBIM
Keeling A. MBIM
Kennedy M. J. MBIM
Kerrigan M. FBIM
Killick P.
Leggott J. P. B.
Lilley P.
Louth R. W. MBIM
Lyon J. D.
McMichael G. MBIM
Morris A. B. MBIM
Murray S.
Neal S. G.
Parker J. P. M.
Piccaver D. J. T.
Poll P. E.
Proctor A. H.

Lincolnshire continued

Proctor J. H.
 Robertson E. A. FBIM
 Robertson I. J. F.
 Rogers Ms M. L.
 Sott C. A. P. CBIM
 Summerland M. D. MBIM
 Ursell I. MBIM
 Veasey J. P.
 Walker D. C.
 Wallace P. J.
 Walsham S.
 Wells S.
 Woodhead P. E.
 Wynn P. G. MBIM

Greater London

Akande S. B.
 Bays D. C.
 Brook D. C. L. MBIM
 Cocking W. P. FBIM
 Coward N. FBIM
 Dancey R. J. FBIM
 Eaves C. J. MBIM
 Ezewe M. L. MBIM
 Griffiths A. E. MBIM
 Hall C. F. FBIM
 Hickey G. J.
 Ijeona S. O. MBIM
 Longsdon R. S. MBIM
 MacPherson G. A. FBIM
 McKinlay W. W. MBIM
 McLellan P. J. MBIM
 McOran-Campbell A. G.
 Morrison K. E. M. A.
 Mulcahy-Morgan P. FBIM
 Ngwe E. U. MBIM
 Phiri M. J. M.
 Porter W. E. MBIM
 Raath M. H. FBIM
 Sefah-Duah D.
 Scott Davies J. MBIM
 Vernon Roberts W. FBIM
 Von Koch Miss A. MBIM

Warrender W. G. MBIM
 Whytock A. H. FBIM
 Yiadom B. MBIM
 Yusuf F. A. O.

Norfolk

Adshead R. J. MBIM
 Allen J. G.
 Alston I. J.
 Arkey C. M. MBIM
 Austen J. S.
 Bond F. S. FBIM
 Boyt E. F. MBIM
 Buckingham G.
 Bunn R. C. FBIM
 Chambers D. W.
 Clancy S. M. MBIM
 Coe H. P. G. MBIM
 Cook D. M. MBIM
 Cornish Lt Col E. E. C.
 Cox P.
 Dixon R. G. J. MBIM
 Eglington B. D.
 Emmett R.
 Farnham C.
 Garner D. A.
 Gillespie J.
 Harris B. MBIM
 Harris E.
 Hill D. W. J. MBIM
 Hornigold R. A.
 Howlett R. M.
 Hubbard H. R. MBIM
 Ingram R. C. MBIM
 Knowles W. H.
 Manners J. G.
 McClean S. P.
 Morgan K. FBIM
 Mutimer R. I. FBIM
 Naphew M. R.
 Pearce D. G. FBIM
 Pepper R. S. W. G. MBIM
 Prentice C. G. MBIM
 Rowe Mrs C.
 Salmon R. J.

Norfolk continued

Sargent M. P.
 Seligman P. FBIM
 Sloan W. M. MBIM
 Simpson R.
 Smith N. J. MBIM
 Spinks I. M.
 Starling R. G. E. FBIM
 Steed N. J. MBIM
 Steven R.
 Sumner R. L. G. MBIM
 Thorby J. D. P. MBIM
 Watkins D. I. MBIM
 Witton E. P.
 Wooley N.
 Young P. J. MBIM

**Tyne & Wear and
Northumberland**

Anderson J. P. R. MBIM
 Armstrong H. J.
 Crangle B. J. FBIM
 Jenner R. P. MBIM
 Macrae D. J. R. MBIM
 Mallen R. T.
 Oates R. G.
 Pardoe T. J. MBIM
 Roger-Coltman W. J.
 Sanderson T. N. H.
 Storrar R. M. MBIM
 Straker N. D. B. MBIM
 Wilkinson W. MBIM

Northants

Bush P. H. MBIM
 Day B. R.
 Edwards R. A. MBIM
 Evison D. W. V. FBIM
 Fletcher D. FBIM
 Gaunt W. C. E.
 Horsley R. C. FBIM
 Lyon T. S. MBIM
 McDonald S.
 Messinger W. T.

Moore B. L. MBIM
 Oldman L. C. MBIM
 Sanders R.
 Webb F. F. CBIM
 Williams T. M. MBIM
 Wood J. MBIM

Nottinghamshire

Boreham R. B. MBIM
 Brunton M. B. MBIM
 Drury D. J. MBIM
 Gray J. R.
 Hoyland B. T.
 Husselbee P. FBIM
 Mawer K.
 Murch P. S.
 Parker Miss J. E.
 Scott A.
 Smithers R. S. MBIM
 Thompson G.
 Wright C.

Oxfordshire

Barker Mrs J. M.
 Birtles J. P. FBIM
 Bridgeman M. R.
 Brown R. H. E. MBIM
 Bruce-Fielding R. M. MBIM
 Cherry W. E. P. MBIM
 Cobham R. O.
 Daniels R. M. FBIM
 Fox C. R. M. MBIM
 Hearne Dr A. S. MBIM
 Heydon D. L. MBIM
 Hood C. J.
 Keene D. R.
 Kirby M. R.
 Lowe A. N.
 McDonald S. G. MBIM
 Oxtoby K. N.
 Parrett A. D. MBIM
 Phillips P.
 Price D. C. MBIM
 Rampton R. D. H. MBIM

Oxfordshire continued

Street Dr P. R. MBIM
 Trotter C. J. R. FBIM
 Wigley T. A. MBIM

Shropshire

Bacon J. K. FBIM
 Beckett G.
 Bradley B. P. FBIM
 Cox B. E.
 Cutting N. D.
 Eyres R. G. FBIM
 Henderson C. A. MBIM
 Hardy D. FBIM
 Hughes D. MBIM
 Kaye D. M. FBIM
 Metcalfe K.
 Millington D. B. MBIM
 Nagington D. MBIM
 Rowlands D. W. L. MBIM
 Wozencroft I.

Staffordshire

Bower J. S. MBIM
 Browne I. R. P.
 Coates J.
 Crow N. C. FBIM
 Dally A. E. H. MBIM
 Dunlop J.
 Gray P. H. B. MBIM
 Hackey K.
 Hill A. J.
 James D. R.
 Lycett R. A.
 Needham A.
 Roberts I. D.
 Tavenor A. J.
 Throup G.
 Tunley J. G.
 Waltho Ms M. A.
 Whittaker G. G.

Suffolk

Ashburn M. J. MBIM
 Baker J. E. FBIM

Black R. J.
 Cobbald S. W.
 Darby D. H.
 Egerton F. R. MBIM
 Fiske N. J. FBIM
 Gabain R. G.
 Glessing-Richardson C.
 Gooding R. MBIM
 Grose D. A.
 Hendy P. T.
 Hill J. FBIM
 Hingston C. J. FBIM
 Hordern H. C. MBIM
 Hyde Parker Sir R. FBIM
 Ingram D. J. FBIM
 Jones P. W.
 Keer J. W. MBIM
 Kunkler P. B. FBIM
 Le Blanc Smith R. M. MBIM
 Lee D. G. FBIM
 Macrae Miss M. M. P. MBIM
 Marchant Miss S.
 Mayhew R. J. MBIM
 Miszewski K. MBIM
 Myram C. MBIM
 O'Brien M. J. D. MBIM
 Paice J. E. T.
 Passmore T. H. W.
 Pettit C. H.
 Prior S.
 Saumarez E.
 Simmonds V. J. E.
 Stanners R. H. MBIM
 Thirkell J. D. FBIM
 Turner J. A. MBIM
 Upton R. J. FBIM
 Vincent G. W. FBIM
 Westrope P. R. C.
 Wright T. L. FBIM

Surrey

Abbott T. M. FBIM
 Bell A. C.
 Bloomer S.
 Bolton T. H.

Surrey continued

Burr P. D.
 Carter Brig A. W. MBIM
 Colton P. H.
 Culpin T. D. MBIM
 Davis J. H.
 Evans M. W. FBIM
 Fox T.
 Gamon V. C. FBIM
 Hayes B. FBIM
 Jones M. J. MBIM
 Lester E. A. K. FBIM
 Luckin P. S. MBIM
 Lumb S. D. MBIM
 Markham D.
 Mills B.
 Morgan D. E. MBIM
 Parrott A. W. MBIM
 Playford G. MBIM
 Poulson A. E.
 Rae I. F. MBIM
 Rogers P. MBIM
 Richards A. C. H.
 Salvidge P. M.
 Stannard E. J. MBIM
 Stewart C.
 Winsloe R. D. FBIM
 Williams S.
 Wolfenden Capt M. E. H. MBIM

Sussex

Beaumont M. A. H. MBIM
 Beilby J. P. MBIM
 Braden P. G.
 Carslaw K. S. E. MBIM
 Charman K. F. MBIM
 Collinson P.
 Coomber D. H. MBIM
 Coote R. B. FBIM
 Courtney J. D. MBIM
 Eager R. N.
 Filkins Miss A.
 Handley E. MBIM
 Harrison J. E. FBIM
 Harrison R. FBIM

Haydon R. G. L. MBIM
 Hayter C. A.
 Hume A.
 Johnstone B. R. MBIM
 Logan R. MBIM
 McEwan T. R. MBIM
 McFadden M.
 Mewett K. H. G.
 Monaghan J. M.
 Morgan Rees A. M. FBIM
 Morris B. P. W. FBIM
 Neill A.
 Phillips D. J. MBIM
 Raikes T. M. M. MBIM
 Ratcliffe G. E. MBIM
 Rebati Mrs M. B.
 Robinson J. H. MBIM
 Sanders B. MBIM
 Scott K.
 Shrubbs N. F.
 Spiby G. A.
 Spofforth M. G.
 Sullivan D. W. K. MBIM
 Swarbrick O. FBIM
 Tranter D.
 Wilson J. P. FBIM
 Wishart L. B.

**Warwickshire & West
Midlands**

Almond G. W. J.
 Bird P. C. J. FBIM
 Black W. M. MBIM
 Crabtree P. FBIM
 Dalby A. A. MBIM
 Dymond A. J. MBIM
 Hastings M. R. FBIM
 Hearth J. D. M. CBIM
 Jackson G. H. FBIM
 Knibb G. R. MBIM
 Maley Miss B.
 Mathias C. H. MBIM
 McGraham R. FBIM
 Measures A. R. MBIM
 Mills P. D. FBIM

Warwickshire & West Midlands continued

Mouton N. W. MBIM
 Neilson K. G. FBIM
 Nott W. H. M. MBIM
 Taylor J. R. MBIM
 Thompson H. D.
 Weston W. C. FBIM
 Williams A. T. FBIM

Wiltshire

Boustead N.
 Carter D. V. FBIM
 Cooke D. G. W.
 Cooper R. H.
 Cuttell G. P. MBIM
 Deague G. A. MBIM
 Duckworth M.
 Duncan C. J. FBIM
 Fitzgerald D. J. MBIM
 Jeary P. T. MBIM
 Jones D. I.
 Lugg G. W. J. FBIM
 Maynard B. A. CBIM
 Pollard R. G. MBIM
 Rasch S. A. C. MBIM
 Rider J. C. MBIM
 Rosen A.
 Smith P. C. MBIM
 Stibbard P.
 Webb S. D. MBIM

Worcestershire

Fowler R. J. G. MBIM
 Holt P. S. MBIM
 Hamer J. C. MBIM
 Hughes M. J. FBIM
 Marris A. H. FBIM
 Ruddock J. G. FBIM
 Simpson W. J. MBIM

North Yorkshire

Ackerley J. MBIM
 Barrett J. R.

Biggin J. A.
 Bowles E. B.
 Broderick J. M.
 Carter A. FBIM
 Clappison J. P.
 Cockerill M. R. MBIM
 Coley A. MBIM
 Craddock J.
 Darley G.
 Fairburn H. L.
 Field T.
 Fraser A.
 Free E. F. FBIM
 Fussey D.
 Gibson R. A. FBIM
 Goldie M. A.
 Grice P. D.
 Hall A. J. FBIM
 Hamilton J. M.
 Hesk P. C. FBIM
 Hodgson J. B.
 Horton-Fawkes G. N. Le G.
 Lamplough D. B.
 Livingston Dr
 Lodge D. N.
 Longthorpe R. W.
 Loveday W. J.
 Matthewson J. M.
 Middleton R. M.
 Miles D. L.
 Milton H. R. A. MBIM
 Moverley J.
 Nettleton P. B.
 Oliver G.
 Payne C. P.
 Palmer H.
 Pardoe A. R.
 Perry D. B. MBIM
 Robinson J. H.
 Rowbottom D.
 Rymer J. S.
 Tagg D. W. FBIM
 Turner R. R.
 Wade A. R.
 Webster S. G. MBIM

North Yorkshire continued

Williams A. J. FBIM
 Willoughby M. The Rt Hon
 Worsley G. O. MBIM

South Yorkshire

Booth Mrs S. MBIM
 Holmes M. G.
 Thorpe A. MBIM

West Yorkshire

Buckley H.
 Elmhirst R. N. MBIM
 Green J. R. H. MBIM
 Hammond M. J. MBIM
 Joce E. H. B.
 Mitchell W. FBIM
 Pearce M. G. R.
 Sale P. M. FBIM
 Sellars P. MBIM

Scotland**Borders**

Burnham T. A. MBIM
 Dick R. I. FBIM
 Douglas I. M. MBIM
 Fisher B. W. MBIM
 Fleming T. MBIM
 Fleming T. Jnr
 Forbes McCulloch A. MBIM
 Mills K. J. MBIM
 Mountrie G. A.
 Murdoch G. A.
 Sloan R.
 Tennant T. W.
 Usher C. J. FBIM
 Wailles-Fairbairn A. G. FBIM
 Wemyss A. G. MBIM

Central Scotland

Fraser I. R. MBIM
 Scott D. MBIM
 Tullis K. W. MBIM

Dumfries & Galloway

Butlin E. A. MBIM
 Byrec G. W. H. FBIM
 Cox J. P. MBIM
 Douglas D.
 Johnston J. M. MBIM
 McDiarmid I. MBIM
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Prestel farmlink

The agricultural industry has never had a greater need for fast reliable information on which to base professional management decisions. Thea James describes the new Prestel 'Farmlink' service.

The judgement and experience of the farm manager who has access to fast accurate and local information, can make a considerable difference to the profitability of any enterprise.

Computers, telex, recorded telephone messages and various information services have proliferated in order to meet the needs of industry and the agricultural industry is no different. However, the complexity of such systems, which are not compatible with one other, leads to general frustration and managers are looking more and more for a service which combines all the elements required in one service.

Prestel, the world's first and by far the largest viewdata service is the answer for stockbrokers, travel agents, building societies and banks and now for farmers and farm managers too. In fact Prestel has just been awarded the Queen's award for Technological Innovation.

Prestel, British Telecommunication's public viewdata service, links adapted television screens to computers through ordinary telephone lines so information and two-way services can be delivered directly into offices and homes.

Information on Prestel can be up-

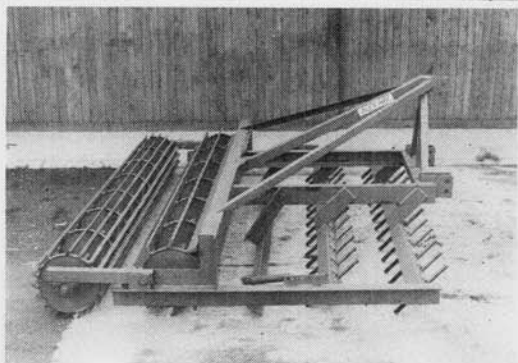
dated by the minute and is available 24 hours a day.

In addition, by using 'Gateways' private computers can be linked to Prestel sets via Prestel computers. This facility makes possible services such as home banking, home shopping and for travel agents, confirmed reservations of airline tickets. A telex service via Prestel is also available.

Because the system is two-way, all customers can send messages, make bookings or request information at the touch of a button. There are well over 300,000 frames (or pages) of information available ranging from the general - for example, train time-tables, news and weather, games, sports results, recipes - to the more specialised. Some of the specialist services Prestel offers are Homelink, CitiService, messaging, Private Prestel and Prestel Micro-computing.

The agricultural industry has shown an interest in Prestel since it started in 1979 and some 3,000 pages of agricultural information were available. However, there was not a coherent strategy amongst them providing the information, and it was difficult to locate all the information relevant to any particular problem. With the advent of 'Gateway' and in-

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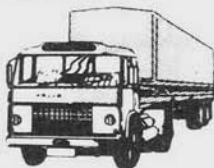
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dividual secure message sending on a national scale a marketing decision was therefore taken to provide farmers with a management information service which was specifically designed to meet their unique needs. Thus on April 10 Prestel launched its new specialised service for the agricultural industry - Prestel Farmlink. This service was launched in the South West of England, the first region to be covered by Farmlink which will be progressively extended nationwide, region by region. Farmlink is a comprehensive farm management service designed to help farmers make the most of their experience and judgement, cutting down on time spent looking up and telephoning round for information or talking to sales reps. Today, more than ever before, the efficient running of a farm depends on having the right information at the right time and Farmlink gives this 24 hours a day. The information is localised but also has national aspects and gives, for example, the latest news on crop problems, weather, market prices and pest warnings.

There are three main categories of information within the service:

Farming information

ADAS (the Ministry of Agriculture Fisheries and Food's Agricultural Development and Advisory Service) gives facts and figures, pest and disease alerts and localised farming reports; the Meat and Livestock Commission provides

up-to-date daily livestock market reports; the Meteorological Office issues weather warnings and 5-day rolling forecasts; Prestel Cityservice shows cereal, pig meat, soya and potato futures.

Products services and supplies

This gives farmers the availability and prices of products and services which they require. Using Prestel's two-way communications ability makes it easy for farmers to make further enquiries and even place orders at any time of day or night with their local merchants, distributors or co-ops.

Management advice

Because Prestel can link up to other computers through 'Gateways' the Farmlink customer can perform wages and ration formulation analysis calculations using nothing more than a basic Prestel set. Full user to user messaging is also offered.

The current (summer '84) all-in cost of subscribing to Farmlink will be around £4 a week for the average user (this figure includes equipment rental and service subscription costs).

Prestel Farmlink is a unique, low cost management information tool for farmers and its effective use will help revise the standards and the professional status of farm managements - objectives which are familiar to all members of the Centre of Management in Agriculture.



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Soil problems and remedies

Soil condition is vital to efficient farming. S. Boatfield describes the most common problems.

Too much water in the land causes far more trouble than not enough water. Even in the dry Eastern Counties, land drainage is very important and there is still much land which is not doing its best because it is badly drained. Shortage of water for crop growth is also a problem, but it does not concern so many farmers.

The object of land drainage is to remove surplus water, usually by controlling the level of the water table. If there is too much water in the soil, there is not enough soil air and this is bad both for the plants and for other living things.

These are the troubles caused by bad drainage:

1. Poor root development – and a poor plant.
2. Wet land is late land – slow to grow crops in the spring.
3. Wet land is cold land – this holds back the growth of plants.
4. Bad soil structure – the land is difficult to work.
5. Manures and fertilisers are wasted or not used properly.
6. On wet land, soil troubles and diseases of crops and livestock are much more common.

It is not always obvious that land is suffering from bad drainage but these are some signs that land is badly drained:

1. The land lies wet for long periods.
2. The land dries out in patches during the summer.
3. Poor patches in crops, often stunted growth, and yellow looking plants.
4. Coloured markings in the soil, usually streaks of red and brown, due to iron salts and lack of air.
5. Particular weeds, such as horse-tail, coltsfoot, rushes, sedges and watergrass.
6. Water coming to the surface; wet and spongy soil.

Draining the Land

Land drainage is a complicated and expensive job which must be planned and carried out properly. It is usually done by contractors who specialise in this work. Government grants are paid for land drainage and drainage officers of the Ministry of Agriculture advise on drainage problems and inspect the work.

There are several methods of draining land which aim to get the water away to the main water-courses.

It is important to know who a ditch belongs to. Ditches must be kept clear of rubbish, running freely with the banks and bottom

in good condition and below the level of the drain outfalls.

Tile drains can be used in any type of soil. The layout is planned first, then trenches are cut to allow a proper fall (so that the water runs properly), tiles laid in the bottom, covered with a layer of clinker or shingle and the soil filled back. Tiles are made of porous earthenware, concrete or plastic, and in different sizes, 10 or 15 cm (4 or 6 in) in diameter.

Tiles are put in at a depth of 1 metre (39 in) or more so that mole drains can be put above them and will not be disturbed by any cultivation. These figures give some idea of the size of outfall and main necessary to drain a field:

10 cm (4 in) main will take outflow from 2 hectares (5 acres)

15 cm (6 in) main will take outflow from 6 hectares (15 acres)

Long plastic pipes with slits in them are now being used, and it is possible now to drain through the growing crop.

Mole drains can only be made in heavy land, with a clay subsoil free from stones or veins of sand. A mole plough is pulled through the soil making a tube-like space in the clay which may be 5 to 8 cm in diameter. These moles are made at 45 to 60 cm deep and usually at about 3 m apart. It is common to make moles up and down the main slopes in a field and running over the tile drains so that the water gets away properly.

As well as leaving channels in the soil, one effect of moling is to split or fissure the soil from the mole up to the surface which helps water to get away more quickly. Moles will last up to seven years normally, even longer in very heavy land.

Irrigation

In the drier eastern and southern counties of England, there is usually a shortage of water for crop growth during the growing season of the year. Obviously it increases crop yields to apply water, but this is expensive. The heavier soils hold water and thus can keep crops going in a dry time so irrigation is used mostly on the lighter land. As it is expensive, it is carried out mainly on larger farms and on crops which will give a high cash return: potatoes, sugar beet and vegetable crops.

Soil Testing

The acidity (sourness) of the soil can be measured by testing. This is shown by the pH of the soil. High pH (7) means plenty of lime, and low pH (5 or less) shows that a soil is very acid. In practice soil acidity can be measured in the field by the farmer or a technical adviser. This is done on the spot, using simple apparatus which shows a colour change, red for acid, green for plenty of lime. A more accurate method is to take soil samples away and test them in the laboratory.

Signs of an Acid Soil

There are some signs that a field is short of lime, either in patches or all over, which include:

1. A mat of dead stuff in grass-land; no earthworms.
2. Poor growth of clovers.
3. Failure of certain crops, particularly barley and sugar-beet.
4. Club root disease in brassica (cabbage) crops.
5. Certain weeds, sorrel (sour-dock), spurrey (sand-weed), gorse, foxgloves, bracken.

Effect on Crops

Crops vary in the amount of acidity they can stand in the soil and most crops prefer less acid conditions. The crops more sensitive to acid conditions are barley, red clover, peas, mangels, sugar beet and lucerne, all of which will fail or grow very poorly if the soil is acid.

Lime Requirement

This is the amount of ground limestone or ground chalk needed to correct the acidity of the top 15 cm

(6 in) of a soil to make it suitable for general cropping and to bring the pH figure up to 6.0-6.5. When soil is tested, this figure is given in terms of tonnes of ground limestone (calcium carbonate) per acre (or per hectare). The amount needed varies according to the type of soil; sour heavy land needs more lime than sour sandy soil. Remember also that calcium is a plant food, needed in varying amounts by most crops.

Types of Lime

Several different types of lime are available, and in your district you may find there is a choice. In this case, it is wise to compare prices and values. Other forms of lime can be used so long as you adjust the quantity to that needed. These figures show how other forms of lime compare with 1 tonne of ground limestone:

Hydrated (slaked) lime: Calcium hydroxide 0.75 tonne.

Ground chalk: Calcium carbonate 1.0 tonne.

Lump chalk or limestone: Calcium carbonate 1.1 to 1.5 tonne.

pH	Description	Crops which will Grow
Below 4.8	Extremely acid	No normal crops grown in the British Isles
4.8 to 5.2	Strongly acid	Oats, potatoes, kale, rye, ryegrass, field lupins
5.3 to 5.7	Moderately acid	Those listed above plus wheat, beans, swedes, turnips, white clover, maize, cabbage
5.8 to 6.4	Slightly acid	All normal crops
6.5 to 6.9	Very slightly acid	All normal crops
Above 6.9	No acidity	All normal crops

Waste (factory) lime: Calcium carbonate 1.5 to 2.0 tonne.

Hydrated lime is too expensive for farm use; it is sometimes used for the garden. Ground chalk and ground limestone are commonly used and can be put on the land at any time without harm; lump chalk or limestone is cheaper, but needs a hard winter's weathering to break it down. Waste lime (such as lime from a sugar-beet factory) is often cheap – sometimes free for the collection – but as it is wet and bulky it is too expensive to transport any distance.

How to Apply Lime

Large dressings of lime – more than 15 tonnes per hectare (6 tonnes per acre) – should not be applied all at once; better to give

in two applications. The common forms of lime used on farms – ground limestone and chalk – can be spread at any time of the year. On grassland it is best to let the rain wash it down before live-stock are grazed.

Any form of lime should be spread as evenly as possible over the land. It is best to lime land after ploughing, so the lime is worked into the top layers of the soil. Do not lime land before a crop of potatoes is grown, as it can cause scab disease.

S. Boatfield is the author of Farm Crops, published by Farming Press, Wharfedale Road, Ipswich IP1 4LG. Tel. 0473 43011 who will provide a free, illustrated catalogue of their books.

The role of the FBIC in agricultural design

An outline of the services offered by the Farm Buildings Information Centre.

Founded just twenty years ago in 1964, the Farm Buildings Information Centre was created jointly by the Royal Agricultural Society of England and the Farm Buildings Association. It is a non-profit making organisation and attempts to provide a total range of information on the design, layout and construction of farm buildings, and also on fixed equipment. The organisation is independent and is supported by a membership system with four levels of subscription to suit individual requirements. Approximately one third of the members are manufacturers, one third professional people, and one third are farmers.

Technical enquiries

An enquiry service is provided by the FBIC and the main day-to-day work of the Centre is answering technical enquiries. These cover all aspects of farm buildings and are answered by means of a photocopying service from the wealth of technical information contained in the FBIC's library. Publications are also issued by the Centre which cover a wide range of topics and can often serve to answer a number of enquiries. The services of the FBIC are also available to non-members at a nominal charge.

Reference library

A comprehensive library is maintained at the Centre's main building at the National Agricultural Centre in Warwickshire. A large selection of material and technical information on farm buildings is stored in the library which includes design data, drawings, articles and reports and a complete collection of trade literature. As well as being used by the FBIC's technical staff, the library is available for general use as a reference library, open five days a week during normal business hours and free of charge. Approximately 500 people each year, including many students, take the opportunity to use this facility. The library also operates an Abstracting Service – abstracts of reports contained in the library are published with the full report being made available on request.

In addition to making available published information on farm buildings and related topics, the Centre publishes its own range of booklets and reports – several of which have recently been updated and revised. New publications include Planning Dairy Units, Buildings for Potato and Vegetable Storage, Buildings for Grain Storage and Bunker Silos. The Centre's latest publication is



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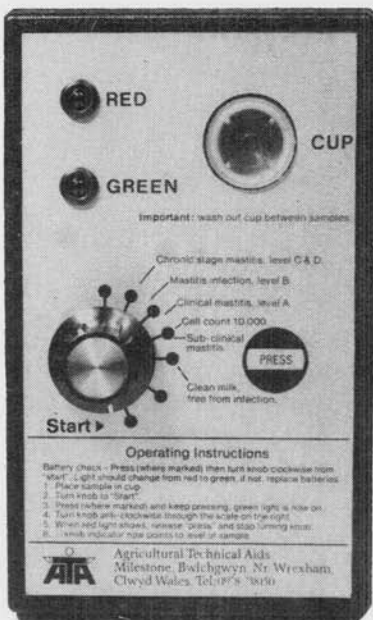
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Housing Sheep. This covers all aspects of in-wintering and is accompanied by a re-issue of Planning a Sheep Handling Unit. The Farm Buildings and Equipment Directory, published annually, continues to be one of the Centre's most popular publications, listing some 7,000 classified products from over 1,500 manufacturers of buildings, equipment and materials.

New Journals

During 1983 the FBIC and the Farm Buildings Association have been preparing the joint publication of a new technical journal to be called Farm Buildings and Engineering. From January this year this quarterly journal replaced the Centre's well known Digest and the popular FBA's Technical Journal. It will be compiled by a joint editorial panel and its scope will be widened to encompass more engineering and mechanisation aspects of modern buildings on the farm. The technical journal will also include articles, reports, reviews and case studies covering the developments in agricultural buildings. Reports on selected topics of farm buildings, a Buyer's Guide to some types of buildings and livestock housing manuals with full details of buildings for dairy cows, beef, sheep, pigs and calves can still be found in the Directory.

Each year approximately 10,000 people visit the Farm Buildings Information Centre's three permanent exhibition halls which contain exhibits showing materials,

components and equipment. These are primarily educational and informative exhibitions each with a particular theme. Together with the halls which are open daily the FBIC also participates in outside exhibitions and events both at the National Agricultural Centre and around the country. A complete information service is provided in the form of regular mailings of selected items of information, including design data and reference material, and short abstracts of all the items added to the Centre's library. A special service has been designed to meet the needs of ADAS Farm Buildings Group Centres, and is an example of how the FBIC can tailor its services to cater for the individual requirements of organisations.

Courses

The FBIC also offers a series of Farm Building Courses - ranging from one-day courses on specific topics to one-week residential courses, and covering buildings for all classes of livestock and crops, as well as farmstead planning - is run by the Centre at the Stoneleigh headquarters. These include practical exercises on the National Agricultural Centre's livestock units and local farms. The Centre's Award Scheme, now in its sixth year, is achieving widespread recognition. Its objectives are to acknowledge and foster existing and new developments in farm buildings which incorporate the principles of good design. Other Awards in the Scheme include the British Steel

Corporation Award for high standards of structural steelwork in farm buildings; the Tradafarm Award for appearance, construction and functional design; and the FBIC Certificate of Merit for the concept of a composite insulated crop storage panel with a textured surface finish produced by London Brick Buildings Ltd., which took the Certificate last year.

Minimum standards

The FBIC assisted in the formation of the Agricultural Construction Industry Federation (ACIF). This follows the introduction of the Code of Practice for Farm Buildings BS 5502 and a consensus within the farm buildings industry to set up a body to inject some form of self-regulation to encourage construction of buildings to certain minimum standards of good building practice. Approximately 120 farm building manufacturers have so far joined. Companies are only accepted as members after giving an assurance to the Federation that they will only supply buildings in accordance with BS 5502 and have provided evidence of their technical competence to do so. The Federation's Register of Member Companies provides farmers and others with a list of firms which have undertaken to construct buildings to sound structural standards. Also MAFF (Ministry of Agriculture and Fisheries) will be using the Register as a list of manufacturers which will provide buildings which can be 'deemed to satisfy' the structural require-

ment of the grant-aided schemes.

To conclude on a note of the future a new-technology related aspect of the FBIC's service has crept into use in its well-visited Enquiry Bureau which appears at the Royal Show on a regular basis and enables visitors to discuss farm buildings problems. A recent feature of the Bureau has been the introduction of an ADAS Computer Terminal to provide on-the-spot guide costs to a range of selected building types. The success of this additional service has been such that it is likely to remain a feature for future Shows and may even be installed as a permanent facility at the Farm Buildings Information Centre.

Bulk handling safety

Millions of tons of material to aid production arrive on farms every year in the form of fertilisers, fuel and the like and an even greater tonnage goes off the farm in the form of its annual output.

A significant part of the material is still manually handled, resulting in many reported cases of strain and back injury. Training in correct lifting and moving techniques could do much to reduce the incidence of injury.

The major part of materials handling on farms is however now done mechanically using a variety of machines and techniques. Some machines are no more than a crane jib attached to the rear hydraulic linkage of an ordinary farm tractor, other machines such as rough terrain trucks and material handlers are specially built for their intended use.

Whatever machine is used for materials handling, only equipment designed specifically for the job should be used and care should be taken to ensure that it is properly maintained. This maintenance needs to extend to the care of any wire ropes, hooks and chains used in the lifting process and to any pallets, boxes and sacks used for bulk storage and handling.

All machines should be fitted with the requisite guards which again are properly maintained

and fully effective. Broken, damaged or poorly fitted guards can be just as dangerous as no guard at all.

All machines used for any sort of lifting purpose should be fitted with adequate front or rear weights unless such counter balance is built into a specialist machine. Machine lifting capacities should never exceed manufacturer's recommendations.

Big bags are becoming common for the handling and packaging of fertiliser. The majority of the bags used on British farms are manufactured to a British Standard and providing they are handled correctly, they are perfectly safe. Big bags should be lifted vertically, not snatched and never dragged along the ground, pulled sideways or allowed to swing against handling machinery.

Loads on pallets should be secure and careful stacking is essential. Pallets should always be moved just clear of the ground and only raised just prior to loading to minimize the danger from falling loads to ensure maximum machine stability. Loaded pallets should not be stacked more than three high.

To avoid accidents, a safe system of hitching tractors to machines is essential. Automatic coupling is the safest method eliminating the need for anyone to be in the

danger area when the operation is taking place.

Passengers should never be carried on pallets or bulk boxes and lifting plant or machinery should never be used as working platforms unless they are properly constructed with means of safe access and adequate guardrails.

Adequate operator training and

supervision is essential to prevent accidents and mishaps. Young children and the elderly are particularly at risk when materials are being moved because they lack agility and any appreciation of possible dangers. Accidents can be avoided by good planning and organisation and above all the adoption of well thought out safe systems of work.

Weighing and handling of large animals

In pig production one of the major operations, requiring the services of two or three men, is weighing the animals. Due to this high labour requirement weighing tends to be done only when the pigs are nearly ready for market. Emphasis is on both accuracy of weighing and high throughput of animals. However, with the majority of available weighers these two requirements are opposing. In general a man has to estimate the reading of an oscillating pointer on a dial - the quicker he does this the less accurate the reading but the higher the throughput.

The NIAE has developed a semi-automatic weighing system capable of easy operation by one man. The system uses two crates: a handling crate and a weighing crate. The handling crate is open topped and has a manually operated folding gate. The weigh crate is a commercial weigh crate which has been modified to incorporate pneumatically operated gates, a pig sensing device, blanked off sides and electronic weight averaging. The electronic averaging unit provides a steady reading of the weight to within about 1 % on a digital panel meter and can be linked to an automatic spray unit for marketing pigs over a set weight. The weigher is best used in a central weighing area. The queuing action produced by the two crate system speeds up

the handling of pigs through the system and if two pigs enter the handling crate simultaneously they can be separated before entering the weigh crate. The closing of the inlet gate and the opening of the exit gate of the weigh crate are under manual control. The pig sensor is connected so that only when a pig has left the crate will the exit gate close and the inlet gate re-open allowing entry of the next pig. A prototype was installed at Bedford College Farm, Silsoe in July 1973 and has been in use since then, weighing between 50 and 100 pigs each week. Throughputs of 100 pigs/man hour can be achieved. A commercially available, electronic weigh head replaced the original NIAE unit in 1981.

Work is underway to see whether fully automatic weighing of pigs inside their pen can be achieved at a reasonable cost. Initial results are encouraging.

Cattle weighing

The handling and weighing of cattle, particularly beef animals, is a very laborious and at times dangerous operation. The NIAE has developed methods of reducing the labour content of this work and minimising the hazards to both animals and operators. With such improvements, weighing can be contemplated on a more regular basis than at present.



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Two semi-automatic weighers have been developed for use with beef steers, heifers or similar lively beasts. The first has pneumatically operated gates and is designed for use with a platform weigher. The crate itself is mounted over the weigh platform and is not weighted by it. The main features of this crate are easily adjustable sides to suit different sizes of animal, see-through inlet and exit gates and a yoking mechanism to facilitate the reading of ear tags. It has been on farm trials since 1973, some 8,000 weighings being performed annually.

The second weigher is based on a commercial lever-balance weigh crate which has been modified to provide pneumatically powered see-through inlet and exit gates, an adjustable side and a pneumatically powered yoke. Farm trials commenced in 1976. The weigher is now installed at Boxworth EHF and is used for regular recording of dairy cows.

Each of the above weigh crates is fitted with an electronic weight averaging unit which provides a steady digital display of the animal's weight to within about 1%. The throughput of each weigher is about 150 beasts per hour, whereas the overall rate of work with two men (from pen, through weigher and back to pen) is about 70-80 beasts per hour. These rates include the reading of ear tags, recording and occasional spray marking. Crushing

facilities apart from neck yoking have not been added to the crates.

A fully automatic walk-through weigher has been developed for dairy cows. In this case a commercial leverbalance weigh crate has been stripped down, extended slightly and fitted with electronic circuitry for automatic weighing and identification of dairy cows as they leave a milking parlour. No attempt is made to physically separate or stop the cows as they cross the weigher and so the daily records need checking against the expected values. Farm trials started in 1977 and have indicated that, with the help of a dairy parlour computer to analyse the results, acceptable weekly records of each cow's body weight can be obtained without recourse to manual weighing. Trials in the exit races from herringbone parlours at Bedford College Farm and Bridgets EHF show that about 60% of the records are acceptable at each milking.

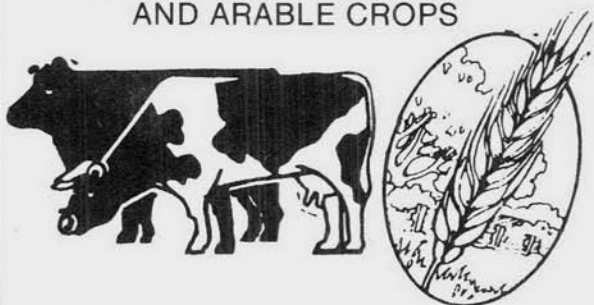
Electronic equipment for live-stock weighing is now available from several sources in the UK and Europe.

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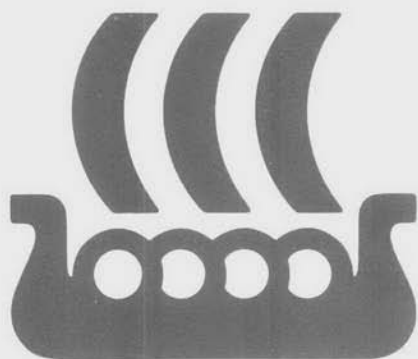
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