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STATISTICAL NEWS

**Developments
in British Official
Statistics**

A publication of the Government Statistical Service

Note by the Editor

The aim of *Statistical News* is to provide a comprehensive account of current developments in British official statistics and to help all those who use or would like to use official statistics.

It appears quarterly and every issue contains two or more articles each dealing with a subject in depth. Shorter notes give news of the latest developments in many fields, including international statistics. Some reference is made to other work which, though not carried on by government organisations, is closely related to official statistics. Appointments and other changes in the Government Statistical Service are also given.

A cumulative index provides a permanent and comprehensive guide to developments in all areas of official statistics.

It is hoped that *Statistical News* will be of service and interest not only to professional statisticians but to everybody who uses statistics. The Editor would therefore be very glad to receive comments from readers on the adequacy of its scope, coverage or treatment of topics and their suggestions for improvement.

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Government social statistics

Muriel Nissel, *Chief Statistician, Central Statistical Office*

Introduction

This century has seen steadily increasing involvement by Government in social policy and along with it rapidly rising expenditure of money and manpower on the social services. In 1972, Social Security, Health and Personal Social Services, Education and Housing made up nearly half of total public expenditure. The social services, which are very labour intensive, also absorb a high proportion of the country's manpower resources, particularly highly qualified manpower. At the time of the 1971 Census of Population some two million people were employed in the social services.

It is not surprising that against the background of this outpouring of resources on the social services, social statistics have proliferated. Good administration needs reliable statistics for monitoring day-to-day operations of the social services both at national and local level. Those running the system must know how resources are employed – how staff, buildings and equipment are used and how much is spent. Without this information it is not possible to run an efficient organisation.

However, superimposed on the growing pressure for better statistics for administrative purposes, there has been a further influence. There is now a much keener interest in the impact of policies, both economic and social, on the individuals they are intended to serve. No longer is it simply assumed that, providing output grows, social conditions will get better. People and governments are increasingly asking questions about the value of the benefits they obtain from these policies: whether they are in fact doing what was intended and are improving 'the quality of life'. This involves being explicit about the aims of policies and specifying them in such ways as can be quantified. Policies by definition are intended to bring about a certain course of action, but before a judgement can be made about their effectiveness at least three types of information are required: firstly, it is necessary to know what the present situation is, secondly, what changes are taking place in it and, finally, why these things are happening. Without the third, which is one of the weakest parts of our

information system in the social field, there is no satisfactory means of developing explanatory or predictive models to evaluate policies or to establish priorities between them. It is here that the government statistician needs the help of social scientists in developing hypotheses which can be systematically tested.

In addition to the statistical needs of the administrator and the policy-maker, there has been a third factor influencing the growth of social statistics. This has been what might be called the demand for 'statistics for enlightenment', or statistics giving the kind of background information which is needed not only by administrators and policy makers at all levels but also by the general public, particularly in its role as final arbiter of the success or failure of government policies. This third category of information involves analysing, selecting and disseminating statistics which have already been collected for other purposes, rather than gathering new data; the Central Statistical Office publication *Social Trends* is an example of one of the more recent and most successful developments serving this purpose.

This article however is concerned with describing the various different sources which are available for meeting the more specific needs of the policy maker, both for evaluating existing and formulating new policies. Different policies, both at local and central government level, call for different types of information which may have to be collected in different ways, with varying degrees of comprehensiveness, detail, frequency and general quality. The two types of source are data derived from administrative procedures and from censuses and surveys, the main distinction being that whereas the first group is bound by the scope and definitions of existing services the second group is not. Since their coverage is inevitably very wide this article can only select particular examples in each category.

Statistics from administrative sources

Statistics from administrative sources are primarily designed to give information about the management of a system. They result from routine operational processes and may be used for such purposes as accounting, the complementing of offices, or measurement of the work load and the extent to which staff are coping with

Note: The article is based on a paper given at a seminar of the Institute of Statisticians at Bournemouth on 17–19 October 1973.

it. Much of the information becomes available in aggregate terms only and has little analytic value. But above all it usually relates to services and institutions rather than the people who use them. It is not, in the first instance, designed to aid policy decisions in the broader sense, though useful data for this purpose can, and often must, be derived from it. Statistics based on administrative procedures will inevitably remain one of our prime sources of social information because, as by-products, they are cheap to collect and, to the extent that they have an immediate and evident operational purpose underlying their collection, the basic data tends to be reliable. Moreover one of the distinguishing features is the speed with which much of it is processed, so that rough and ready though it may be, it provides a quick guide to the state of affairs in a particular area.

Examples of administrative data which are used for policy purposes are claims for sickness benefit under the National Insurance Scheme, unemployment registration, registers of drug addicts, student enrolments, receptions into prison etc.: this is material which, without much modification of its original form and substance, can be used for decisions about health and employment policy, drug addiction centres, teacher training and prison building programmes.

One of the problems of basing statistics on administrative operations is that changes in these procedures, or in the law itself, often involve changes in definitions and coverage and hence lead to serious breaks in the continuity of statistical series. Criminal statistics are particularly subject to these difficulties: in recent years there have been major developments in criminal law, such as the introduction of suspended sentences, the progressive removal of children committing offences from the jurisdiction of the criminal law, the redefinition of theft and modifications of the law relating to drugs⁽¹⁾.

Sometimes major changes in administrative processes offer the opportunity for reconsidering, and improving important statistical series. One such recent example was the collection of employment statistics. From 1948 to 1971 the detailed annual statistics of employment by industry within each region and local area, and the quarterly series of total employment by region were obtained from counts of national insurance cards. However, under the new arrangements whereby national insurance contributions will be related to earnings and collected through the PAYE system, national insurance cards will be withdrawn. The imminent complete disappearance of this source of statistics led to the setting up of an entirely new annual employment census, addressed to employers, asking

for the number of employees in a particular week. One of the advantages of this forced change to a new system, specifically designed for policy purposes and not for administrative data collection, is that better information will now be available for planning and policy work particularly at the local level where reliable employment information is becoming more and more important for both economic and social policy. Under the old system it had become increasingly difficult to produce regional and local area statistics because of the tendency for the national insurance cards of persons employed in branches to be exchanged centrally by the head office of firms⁽²⁾.

Hospital and education statistics both offer examples of ways in which a new approach to statistical collection has come about, not because of any specific imminent change in administrative procedures, but because of the need to rethink the organisation of data collection for administrative purposes⁽³⁾. The hospital scheme, known as Hospital Activity Analysis, is of particular interest because it shows, not just how reorganisation of an administrative data system opened up an opportunity to build into it a better provision of statistical material for wider purposes, but also how it has been possible to integrate it with and use it as a basis for providing material for an already existing regular analytical survey of morbidity, the Hospital In-patient Enquiry (HIPE)⁽⁴⁾. The HIPE has been carried out regularly since 1949 by the Department of Health and Social Security and the Office of Population Censuses and Surveys to amplify data available from the basic hospital summary returns. It is a sample of ten per cent of discharges from and deaths in non-psychiatric hospitals and is designed to provide information about the use of hospital services and types of illness treated in terms of the age, sex and other characteristics of patients. These analyses of morbidity are used in general planning, control, and policy at both national and regional level, giving, for example, information about comparative lengths of stay, the extent to which children and the elderly are nursed in departments other than paediatric and geriatric, etc. Since 1965 an increasing number of hospitals have provided this information from records built up under the Hospital Activity Analysis Scheme (HAA).

The main purpose of the HAA is to give the hospital doctor a summary of case notes on his patients and then to aggregate this for general clinical and management purposes both at local hospital and Regional Hospital Board level. The initial information about the patient is put on a medical record form and includes clinical data relating diagnosis and operations, administrative information about admission, stay and dis-

charge and more general information such as sex, age, marital status and area of residence. These record forms are not processed centrally but are sent from the hospitals to the Regional Hospital Boards who are responsible both for organising the scheme within their own region and for carrying out the computer processing of their own data. This is intended to allow speedier feedback of information and greater flexibility in output of statistical data for local use. Provision has also been made on the basic form for the inclusion of additional items of particular interest in the Region (for example, for research purposes).

A further interesting feature of the Hospital Activity Analysis scheme is its potentiality for record linkage. Although the information put into the computer does not, in most cases, include the names of patients, the medical record form itself does include personal identification particulars because of the possibility, at present being considered by the Government, of linking the records of a patient's individual hospital spells to each other and to vital records. For many years it has been recognised that if it were possible to relate together into a single history the medical and vital events in the lives of individuals which are recorded in different places or at different times, then the medical care of those individuals and medical research generally, would be greatly facilitated. From a statistical point of view such a system would have enormous potential for producing analyses serving many purposes ranging from administrative problems of resource allocation, to epidemiological studies. Experimental work along these lines has been going on for some years in the by now well known work of the Oxford Record Linkage Study which is being carried out in collaboration with the National Health Service. More recently, the Scottish Home and Health Department together with the General Register Office for Scotland have been experimenting with a computer-based system aimed at linking patients' hospital records and associating with them certain basic vital event data held in the General Register Office. The potentialities of record linkage for statistical purposes are continually in the minds of government statisticians in their approach to the re-organisation of data. Possibilities exist for linking different administrative data sources and data derived from censuses and surveys, though in the latter case the resulting information cannot be used for other than statistical purposes. It is especially important to maintain a clear distinction between the linkage of samples of data for the production of statistical aggregates and the comprehensive linkage of two or more registers for administrative purposes. However, even for statistical purposes, the transfer of personal data between Departments is now and will continue to be carefully

controlled, with full regard to public sentiment and proper safeguards.

Censuses and surveys

One of the most important aspects of record linkage is that it opens up the possibility of overcoming one of the big limitations normally associated with administrative data, that of establishing inter-relationships between different groups of people. In recent years it has been increasingly recognised that social problems are inter-related and that they do not disappear simply by treating one or two of the more obvious symptoms. The replacement of slum housing by new council housing, for example, may do little to ease the other social problems of the residents. This has been illustrated in both Liverpool and Glasgow where new housing estates abound both with new problems and with problems similar to those in the old slum areas. The inter-relationships between the various social conditions mean that information about people 'in the round' is required rather than unrelated sets of information about single aspects of social conditions. This requirement cannot at present easily be met by data from administrative sources, particularly when the very nature of the inter-relationships are in doubt and can only be established through research. Such information can however be collected through the medium of censuses and surveys which are not bound by the scope and definitions of existing services. The paragraphs which follow describe (a) some of the special purpose regular social surveys designed to meet ever present policy interests in a fairly specific field; (b) the more general purpose surveys which have a variety of existing and potential policy objectives in mind; and (c) some of the *ad hoc* surveys which have a special function, particularly in the formulation and monitoring of new policies.

Special purpose regular surveys

An area of continuous government interest in recent years is earnings. Arising from the concern of successive governments with income policies generally and their effect on lower paid workers in particular, there has been a growing demand for information on all aspects of earnings; for example, the distribution of earnings (to supplement data on average earnings), the make-up of pay (basic pay, overtime etc.), the earnings of people in different occupations, and the earnings of employees affected by particular wage agreements. Incomes policy is an example of a policy area which, on first acquaintance, is economic but which has strong social implications and for which information is required to evaluate both its economic and social effects. To help meet these data needs the

New Earnings Survey (NES)⁽⁵⁾ was introduced by the Department of Employment in 1968 and put on an annual basis in 1970. It has provided extensive information about earnings of employees, including averages and distributions of gross weekly and hourly earnings, by occupation, age, region, industry and collective agreement, and also information on such topics as numbers under training, labour turnover, length of service, holiday entitlements and numbers in sick pay and pension schemes.

An interesting feature of this survey, which covers about one per cent of all employees, is the way the sample has been selected and maintained. Information is collected from employers about all employees whose National Insurance numbers end in certain combinations of digits, and who are in employment at the time of the survey. Since the same combinations of digits are used each year employees who are in the sample one year and who are still in employment the following year will be in the sample again. Each year, some of the employees selected will leave the labour force and their places will be taken by those new entrants and re-entrants whose National Insurance numbers end in the selected combination. This means that information is collected every year about a matched sample of employees and it is therefore possible to analyse the year to year changes in earnings of those employees who were included in two or more samples of the NES. In particular it allows the study of low pay and of changes in earnings of unchanged groups of employees.

The, by now, well known Family Expenditure Survey (FES) is a good example of a household survey originally conceived for one main purpose but which, because it embraces a number of different social characteristics of households, has subsequently been extended to meet a variety of other purposes. It was originally designed to provide weights for the Retail Price Index compiled by the Department of Employment but, because it is the only regular survey containing information about household budgets related to other household characteristics, it has also been extensively exploited by many other Government departments and outside research organisations. For example, for more than a decade the Central Statistical Office has analysed the data to demonstrate the incidence of taxes and social service benefits on the distribution of income, the Treasury has used the Survey to help formulate tax policy and the Department of Health and Social Security has used it to develop schemes for new forms of benefits and allowances and for estimating the take up of existing benefits.

General purpose surveys

Although both the NES and the FES are used for a

wide range of policy purposes they were originally designed as special purpose surveys to monitor particular aspects of policy. The population Census and the General Household Survey (GHS) on the other hand are both general purpose surveys about social and demographic conditions throughout the country and serve a variety of policy objectives.

Not only does the Census of Population predate most of the massive administrative information systems of today but its importance in the field of Government social data is undiminished and in fact appears to grow with time. Its importance is due to the fact that it normally covers the complete population of Britain and it includes a wide range of subjects. It is these two features which give it its unique character as a source of information for small area analysis, enabling extensive cross-analyses by a number of variables. It is thus of immense value to local authorities and central government. For central government one of its other main uses is as a basis for projecting future populations. Apart from the general population projections produced by the Government Actuary's Department projections are also made of sub-groups of special interest. One such projection is the number of potential households classified into household types as published by the Department of the Environment. This has obvious implications for the demand for housing generally and, taken in conjunction with migration estimates, for housing of specific types and sizes in different parts of the country. Other equally important projections are those for the school population prepared by the Department of Education and Science and for the working population prepared by the Department of Employment.

Like the Population Census, the General Household Survey (for which a selection of results for the first full year of its operation was published in 1973 ⁽⁶⁾) is not designed to provide information for any one single topic but rather to act as a vehicle for meeting the interests of many departments on many varied topics. By simultaneously dealing with a wide selection of social and demographic characteristics it is possible to cross-tabulate and demonstrate inter-relationships between groups of people. Moreover because it is a regular and continuous survey, unlike the Census, it is possible to build up short term trends for a large number of social parameters. For such purposes it is intended to retain a core of more or less permanent questions. Provision has also been made for inserting special questions to meet urgent requirements for new data which need to be linked with the permanent topics. The GHS sample size however – fifteen thousand households per year – is too small either for analysing

many topics in depth or for small area studies at the local level.

Ad hoc surveys

A common problem faced by Government in formulating new policies is identifying the numbers and characteristics of people at whom these policies are aimed. To some extent, because they cover a broad spectrum, both the Population Census and the General Household Survey can be useful in providing background information but very often information is required at short notice or about a particular minority group. In these circumstances the only means of obtaining the information may be to mount a special survey. A current example of this kind of statistical problem is that now facing the Royal Commission on Civil Liability and Personal Injury. This Commission, under Lord Pearson, has been set up to consider to what extent, in what circumstances and by what means compensation should be payable in respect of death or personal injury (including ante-natal injury) suffered by people in a number of specified circumstances. For an inquiry like this the basic information required is the total number of people who suffer death or personal injury, the degree of injury, and the circumstances in which it occurred. Administrative sources, such as the National Insurance Scheme, the Factory Inspectorate, and the Hospital In-patient Enquiry, provide certain large pieces of the jigsaw, but do not give the complete picture. To get some idea of this, questions could be included in the General Household Survey, but, because of its limited sample size, it would be unlikely to generate sufficient information for detailed analysis. The alternative is to conduct a special survey specifically to obtain the necessary information. This was the method adopted in the statistical inquiries which preceded the 1970 Act relating to the chronically sick and disabled. In 1969 a quarter of a million households were sent a postal questionnaire. Subsequently some sixteen thousand households, which were identified in the first stage as containing disabled people, were interviewed. At this second stage a nine-fold classification of degrees of disablement was developed based on the extent to which a disabled person can look after himself. When the attendance allowance was introduced it was designed to help categories one and two of this nine-fold classification.

Another example of *ad hoc* surveys instituted for direct policy considerations arose in the housing field when the Committee on the Rent Acts (the Francis Committee) was set up. The Department of the Environment undertook three surveys in 1970. One was designed to reveal the characteristics of tenancies in stress areas and to indicate why so many regulated

tenants had not taken advantage of the Rent Officer and Rent Tribunal systems. Another survey analysed a sample of landlords by such characteristics as age, country of origin, social grade and number and type of tenancies, their familiarity with Rent Act procedures and their relations with tenants and the rent regulation machinery. The third survey studied a selection of Rent Tribunal cases in Greater London⁽⁷⁾.

Social indicators

The first part of this article has been concerned with the wide detailed range of social statistics needed by Government departments for controlling the administrative machine and for formulating, in the main, fairly specific departmental policies. There has been no discussion about the use of statistics in helping to establish priorities between policies, both within and between departments. It is in the development of such an information system that social indicators, in the rather special sense that has begun to be attached to the term, have a part to play.

Social indicators are expected to be something more than just good social statistics. Running through the widespread discussions on the subject there have usually been two distinguishing characteristics which qualify social indicators for a special role amongst the more general social statistics. Firstly they are concerned with outputs rather than inputs and secondly they are expected to represent broad concepts. It is the degree to which a social statistic indicates these broader concepts, or the extent to which it can be explicitly and quantifiably related to things, concepts or theories other than itself, and thus belong to a structure or system of series, which qualifies it as a social indicator.

Social indicators measure outputs rather than inputs of social programmes, for example, improvements in the health of individual people rather than expenditure on health services, the raising of educational levels rather than attendance at schools. In short, indicators relate to ends rather than means. There are two conceptual difficulties. One is that there are often aims which are 'intermediate' ends: thus school attendance is in one sense an end and in another sense a means to the end of better education. In the same way statistics demonstrating the redistribution of income in one sense measure the outcome of taxation and social security policies but in another sense redistribution of income is a means towards achieving more equity in the standards of living, which it may or may not achieve. The other difficulty is in measuring outputs. Often, for better or worse, input measures have to be used as proxies for output measures.

Although it is not a qualifying attribute of a social indicator it is perhaps worth making the point that,

whatever measure is selected for monitoring social change, it should be sensitive to changes that occur. Social policies are normally directed at improving or changing the conditions of particular groups of people and their success can most readily be judged by studying the marginal or most vulnerable section of the group. The selection of social indicators therefore often needs to be derived from statistics showing changes in distributions rather than in average levels of output benefits from health, education, etc.

It is possible only in limited fields to use social indicators for policy purposes, though the closer attention which has been given in recent years to programme budgeting and policy analysis review has called for more explicit relating of activities to objectives and this in its turn has forced attention to the kind of key statistics which are most suited to studying and measuring the progress of policies. Most of the development of social indicators at central government level has been devoted to defining concepts and identifying areas of social concern rather than to measuring them. Some of the discussion has been at the international level, particularly in the Organisation for Economic Co-operation and Development (OECD) whose member countries tend to be at similar stages of development and have many common social problems. Only now are these deliberations moving into the phase of specifying the particular statistical series which should be selected to represent the areas of concern which have been identified⁽⁸⁾.

One study, involving the development of output measures for the welfare of the elderly, is now being conducted by York University under the sponsorship of the Department of Health and Social Security and the Institute of Municipal Treasurers and Accountants. The project is particularly concerned with local authority policies for the elderly and with testing alternative means of achieving stated objectives. If the pilot study presently being carried out is followed by a main study, it would be carried out by regularly surveying a sample of old people over a period of two years and, using the output measures selected, making an assessment of the part played by different local authority services in achieving their ends.

This is an approach to the testing of alternative policies on a trial basis in a comparatively limited field. It is, however, already a very complex exercise involving a multitude of different variables. The application of this kind of analysis to the whole area of social policy involves infinitely more complex inter-relationships between housing, health, education, juvenile delinquency, etc. The dilemma which faces the statistician who is tempted to say that it cannot be done

is that all policies imply some hypothesis about the relationship between inputs and outputs and when Ministers settle priorities for public expenditure they continually make implicit judgements about these relationships. If the statistician is to help towards basing these decisions on more explicit criteria then some attempt must be made to relate policies on spending programmes to the ultimate benefit obtained by the different groups of people whom they are designed to serve.

The preparation of such a systematic guide to establishing policy priorities can be approached in two ways. Both are necessary and complementary. The first starts with particular groups (such as children, the handicapped or the mentally ill) to whose help policies might be directed and then attempts to weigh up which programmes both general and specific, are likely to have the most impact: the second starts with existing policies on spending programmes and makes some estimate of the benefit they bestow on particular groups. A first step in an overall analysis of the second kind might be to build up matrix tables for particular groups of people cross-classified, in the first instance, by use of particular services and facilities and then to try to measure how much public expenditure goes to which group for which service. This use of services approach is, of course, based on intermediate not final output measures but it is an essential link in the process of building a social policy model which has final output measures, such as better health, better education, etc, as its objective. If particular programmes are to be expanded or reduced it is then at least possible to assess which groups will be directly affected. The crucial leap from use of services by and public expenditure on these different client groups to an assessment of the ultimate benefits they obtain from these policies is one where social theory and the social scientists will have to come to the aid of the statistician.

References

- (1) For a short discussion of the use of criminal statistics and the definitional problems associated with them see 'Crimes of violence against the person in England and Wales' by Stanley Klein *Social Trends* No. 3 1972 (HMSO) November 1972 (Price £2.90 net).
- (2) An article describing the Census of Employment in more detail was published in the *Department of Employment Gazette* January 1973.
- (3) Details of one such scheme, the Further Education Statistical Record, which was introduced on a national basis in November 1973, were described by C. J. Bellis of the Department of Education and Science in *Statistical News* 20.8 (February 1973).
- (4) *Report on Hospital In-patient Enquiry (England and Wales) Part I Tables* (HMSO) annual.
- (5) *New Earnings Survey* (HMSO) annual
- (6) *The General Household Survey - Introductory Report* (HMSO) July 1973 (Price £1.80 net).
- (7) The results of these surveys are appended to *Report of the Committee on the Rent Acts* Cmnd 4609 (HMSO) March 1971 (Price £2.85 net).
- (8) The Report on the first phase of the OECD Social Indicators Development Programme has been published *List of Social Concerns Common to Most OECD Countries* (OECD Paris 1973).

Manpower planning – a case study

P. L. Ashdown, *Statistician, Civil Service Department*

Introduction

This account of a manpower planning exercise in which Statistics 3 Division of the Civil Service Department played a consultancy role is being published quite exceptionally. The purpose is to give an insight into the *modus operandi* of the operational manpower planning branches of the CSD, and to illustrate the very necessary co-operation between personnel management, statistician (manpower planner) and staff side (Trade Union) required to bring a joint manpower planning study to a successful conclusion. The article has been written with the consent and fullest co-operation of the Forestry Commission (for whom the study was conducted) and the Civil Service Union.

The main function of the operational manpower planning branches is to conduct manpower planning studies for the Civil Service Department and, on a 'consultancy' basis, for other government departments. Work for the Civil Service Department is concerned mainly with servicewide studies, while work for other departments relates either to members of servicewide groups (for example, the Administration Group or the Science Group) or to members of Departmental Classes who are employed by the department concerned. The aim of this work is to identify existing and future manpower problems and to assist management in the development and evaluation of manpower policies.

To assist in the analysis a wide range of computerised manpower planning models, developed within Statistics Divisions or by their academic consultants, is available. It is the operation of these models, including responsibility for the data input, which itself includes assistance in formulating the required input assumptions, interpretation of output and presentation of results, that constitutes the operational manpower planning branches' contribution to joint projects.

Currently the operational branches are engaged on projects concerning a number of centrally managed groups of non-industrial staff, and a large number of departmentally sponsored projects. The project chosen for the purpose of this article is one being conducted in conjunction with the Forestry Commission. As the Forestry Commission is a non-Exchequer body the Civil Service Department's participation in a joint

manpower planning project had to be by special arrangement involving the repayment of staff and computer costs. In most respects it is a fairly 'typical' project although by virtue of being confined to two classes and comparatively small and straightforward grade structures in a single employing organisation, it is rather easier to present as a case study than many other projects. The Civil Service Union, which is the Staff Association representing the group of staff primarily covered by the investigation, has been particularly closely involved in the project almost from its inception. The Institute of Professional Civil Servants was also involved in the initial discussions as it was proposed to include, in the later stages of the project, a group of staff for which they have Staff Side responsibility.

Setting-up the project

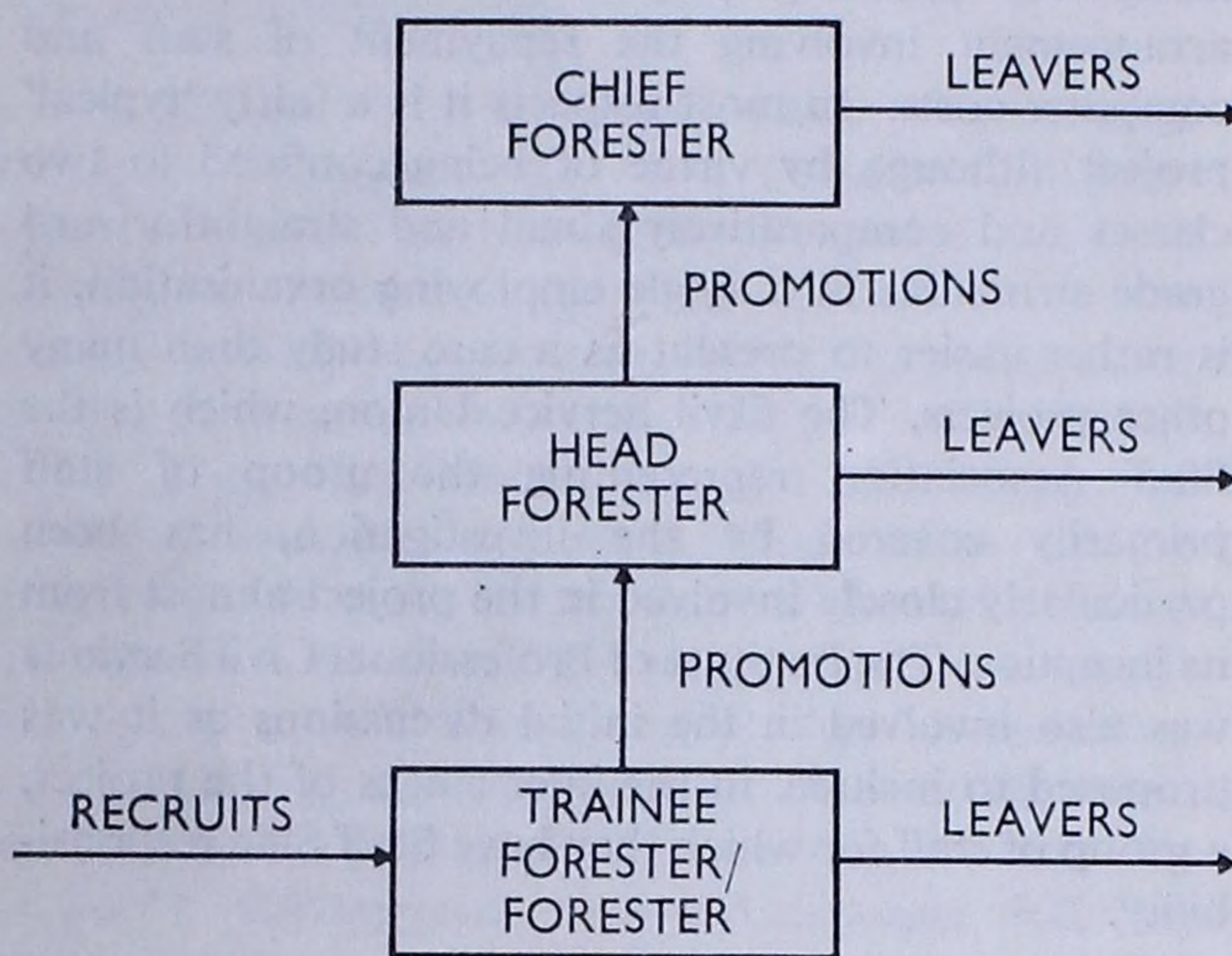
Early in 1972 the personnel officer responsible for non-industrial staff in the Forestry Commission attended a Senior Management Seminar on Manpower Planning run by the Civil Service College. Contact was made during the Seminar and it was agreed to follow up the ideas discussed as soon as both parties had formally accepted a manpower planning commitment.

Whilst the project was still being formally set-up the member of the Forestry Commission's Establishment Division who was to be responsible for the day-to-day running of the project, attended a two week manpower planning practitioners course also run by the Civil Service College. At the same time representatives of the Civil Service Union attended a one-day seminar on manpower planning organised by the Civil Service Department. This proved to be a considerable advantage to both parties as it created an area of extremely fertile common ground.

The two groups of staff, Forester Class and Forest Officer Class, covered by the project are responsible for all the technical aspects of operating and managing the Forestry Commission's forests. Entry to the Forester Class is at the basic grade and requires possession of an Ordinary National Diploma or an ordinary degree in Forestry. Only one College currently runs an Ordinary National Diploma course in Forestry, which is a three year course, and as the Forestry Com-

mission is the largest single employer of forestry staff any significant change in recruitment has to be planned well in advance to enable the necessary adjustments to be made to the training capacity. The Forester Class consists of a basic three grade system with straightforward progression by promotion and a training grade.

The following diagram represents the grade structure and manpower flows within the Forester Class.



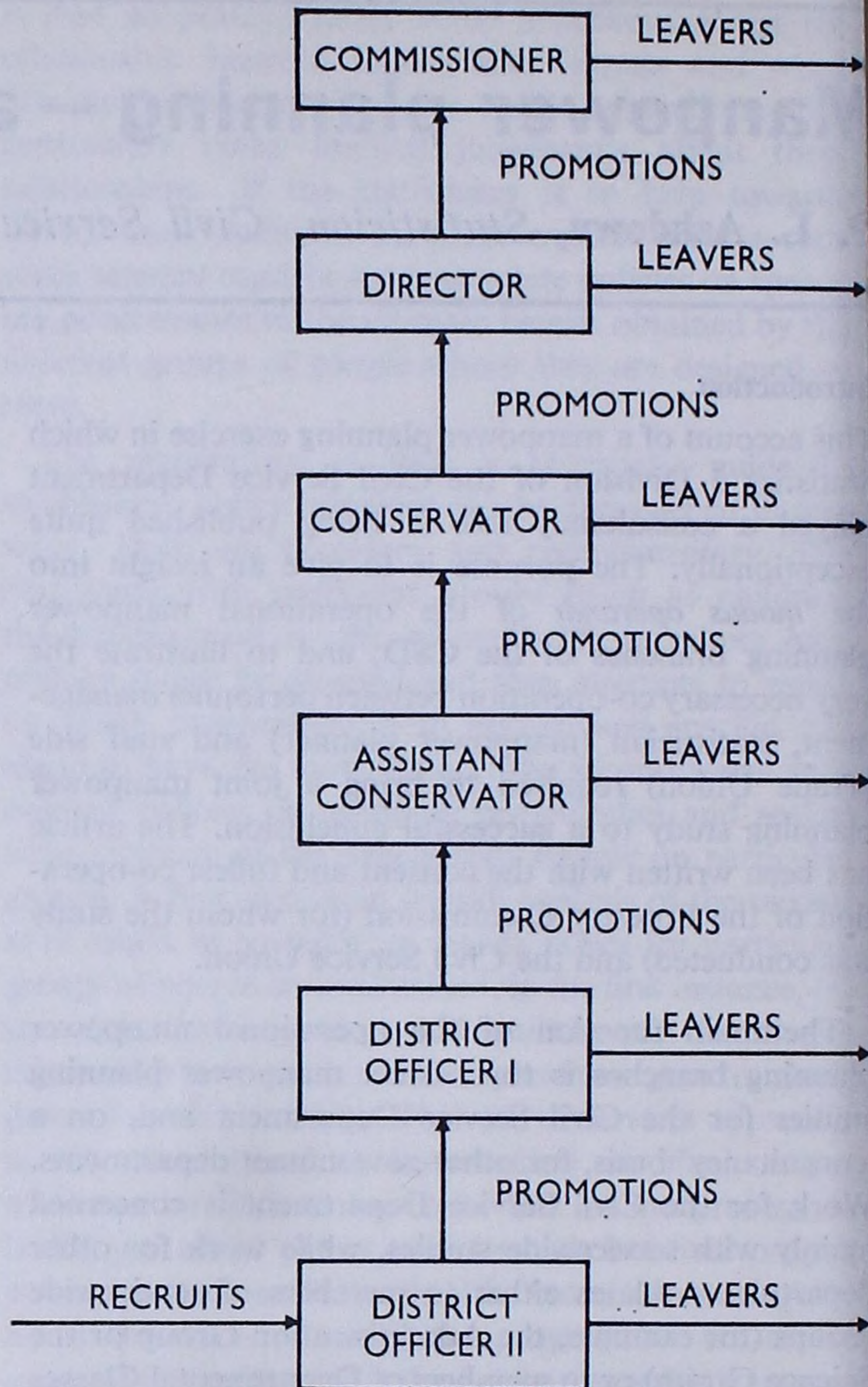
The Forest Officer Class consists of a six grade system with straightforward progression by promotion. Entry is at the basic grade and an honours degree in Forestry is a required qualification for entry.

The following diagram represents the grade structure and manpower flows within the Forest Officer Class.

The general framework of the project was planned to incorporate two sequential stages, the first of which would involve a detailed examination of the Forester Class, as it was thought that the policy of compulsory retirement at age 60 required a re-examination and major recruitment problems were going to appear in the future due to relatively large age bulges currently moving through the system. Stage two would examine the effects on the groups, and implications for future personnel management, of merging the separate Forester and Forest Officer classes into a single group.

Choosing a model

Having determined the general framework of the project it then became necessary to select a model or models to operate within the framework from the wide range available. Each model has been developed to analyse a different set of problems, so the choice is determined by the objectives of a particular piece of work. As the data requirements vary from one model to another it is necessary to try to determine at an early stage which



model is to be used to avoid having either to obtain a large volume of data initially, a large amount of which may be redundant, or keep ordering new data which will lead to frustration and delay.

The model chosen for this particular exercise, at least for the first stage of it, was the 'Kent' model which is basically a renewal type model. The determining factors for the Forester Class were:

- (a) grade sizes were to be constrained, and
- (b) recruitment, which is an output of the Kent model, was the primary area of interest.

In simple terms the Kent model works from the highest grade by first calculating the expected number of leavers from the grade – both retirements and casual wastage (that is all leavers other than retirements) – in the first year of the projection, and then expanding or contracting the grade, on the basis of the grade size before the projected leavers were taken out, according to pre-determined rates. Vacancies so created are then filled by promoting and/or recruiting into the grade

according to a set of rules, with the process being repeated for all grades down to the basic grade, when all vacancies created are filled by recruitment. The whole process is then repeated for each subsequent year of the projection period.

Data

In most of the manpower modelling work currently being undertaken in the CSD the basic data are obtained from the Civil Service Central Staff Record (CSCSR). This is the centrally held, computer based, personnel record for all non-industrial civil servants. As the Forestry Commission is a non-Exchequer body its staff are not included in the CSCSR and consequently the basic data had to be obtained from the Forestry Commission's own records.

All the historical data requirements of the Kent model, staff in post, promotions, retirements, casual wastage and recruits, must be classified by grade and usually age. Length of service could be used instead of age if required. The age by grade distribution of staff in post is required as at say 1 January, and the age by grade distribution of promotions, retirements, casual leavers and recruits for the following twelve-month period. These data are used to help determine the manpower flow assumptions required by the model and therefore as many as possible relevant twelve-month periods ought to be taken. In addition, the age by grade distribution of staff in post is required for the beginning of the projection period.

In projecting past trends into the future care must be taken to ensure that the historic information to be used is a reasonable base from which to formulate assumptions for the future. Ideally sufficient historical flow data are required to establish the existence of trends in, for example, wastage and retirement rates. However, in practice the latest three year's data is, in general, the longest historical run that can usually be obtained. This has the advantages of being readily available, not imposing too great a burden on the collectors, and usually within memory of current staff who are therefore well placed to make a useful qualitative contribution. In areas where rapid changes are taking place only the most recent year is largely relevant. However, in this instance a five-year run had to be obtained, because in 1971 the Forestry Commission had introduced a voluntary severance scheme for the Forester Class which accounted for one hundred and twenty two leavers in twelve months. This was considerably above their 'normal' wastage level. As this was bound to affect subsequent casual wastage, at least in the years im-

mediately following the severance scheme, pre-1971 data had to be used as a basis to estimate meaningful casual wastage figures for the period when the effects of the severance scheme were judged to have worn off.

Estimation of model input assumptions

When the data had been collected by the Forestry Commission they were handed over to the Operational Manpower Planning Branch for the estimation of flow assumptions to be used in the Kent model. The flow assumptions consist of age specific casual wastage and retirement rates, and recruitment and promotion age distributions for each grade. In calculating the wastage rates two problems arose. One was the voluntary severance scheme and the second was the relatively small casual wastage under 'normal' circumstances. To meet the first problem 1972 wastage experience (immediate post-severance scheme) was used for the first two years of the projection and the aggregate wastage experience from 1968 to 1970 for the remaining years. This implied that 1973 and 1974 wastage would be affected by the severance scheme (the theory being that the majority of casual leavers in the years 1972-1974 would probably have taken the financial inducements offered in 1971) and that wastage levels would return to 'normal', pre-severance scheme, from 1975 onwards.

To help in overcoming the second problem the data were grouped into age bands, rates being determined for each band and then smoothed over the single ages within each band. Determining retirement rates was no problem, at least in the initial stages, as a compulsory age of retirement (60) was introduced with the voluntary severance scheme.

A recruitment age distribution for the Forester Class was required for the basic grade only. The distribution defines the proportion of the total projected annual recruitment that the model allocates to specified age groups, for example:

Table 1

Age group	20-25	26-30	Total
Percentage of annual recruitment to Trainee Forester by age group	55	45	100

Promotion age distributions consist of the proportion of annual projected promotions between two grades that the model will take from specified age groups in the stock of the lower grade. For example, promotions from Forester to Head Forester were assumed to be distributed by age as follows:

Table 2

Promotable age groups	31-35	36-40	41-45	46-50	51-55	Total
Percentage of annual promotions by age group	25	30	25	15	5	100

Thus if 20 promotions occur in a given year between Forester and Head Forester, 5 will be aged between 31-35, 6 between 36-40, 5 between 41-45, 3 between 46-50 and 1 between 51-55.

After a first indication of the assumptions had been derived from past data they were discussed with the Forestry Commission to enable modifications to be made in the light of planned or proposed future policy – in other words to superimpose management considerations onto historical information. An area where this procedure was closely followed was that of retirement. Management (Forestry Commission) wanted to investigate the possibility of re-introducing a minimum age of retirement of 60 with compulsory retirement at age 65. This meant that retirement rates (age by grade specific) had to be determined and they were arrived at partly from historical data, pre-1971, and partly from a management view.

In order to bring the Staff Associations fully into the project two preliminary meetings with them were held. The first meeting was a joint affair with the Forestry Commission and the Civil Service Union (CSU) Executive Committee representing the Forester Class, together with officials of the Institute of Professional Civil Servants (IPCS) who represent the Forest Officer Class. The purpose of the meeting was to explain briefly to the Staff Associations the underlying philosophy of analysing manpower systems with computerised models, and to give them an account of the Kent model, together with the assumptions needed to operate it. A question and answer session followed which was a most fruitful part of the meeting, as it allowed a lot of misconceptions and misgivings to be aired and hopefully cleared up to the satisfaction of all concerned.

The second meeting was with the Forestry Commission and a small group from the CSU Executive Committee, the purpose of which was to agree on the assumptions to be used in the preliminary Kent model runs on the Forester Class. After a considerable amount of discussion the basic flow assumptions were agreed together with a requirement for four preliminary model runs based on two alternative growth rates, zero growth and 1 per cent per annum contraction, and two alternative retirement policies, continuation of current policy of compulsory retirement at age 60 and the introduction

of a minimum age of retirement of 60 with compulsory retirement at age 65 from 1 January 1975. The 1 per cent per annum contraction rate in numbers was arrived at by the Forestry Commission after allowing for planned increases in production, etc. taken together with increased productivity. It was also agreed to produce the projections for a twenty year period.

Results

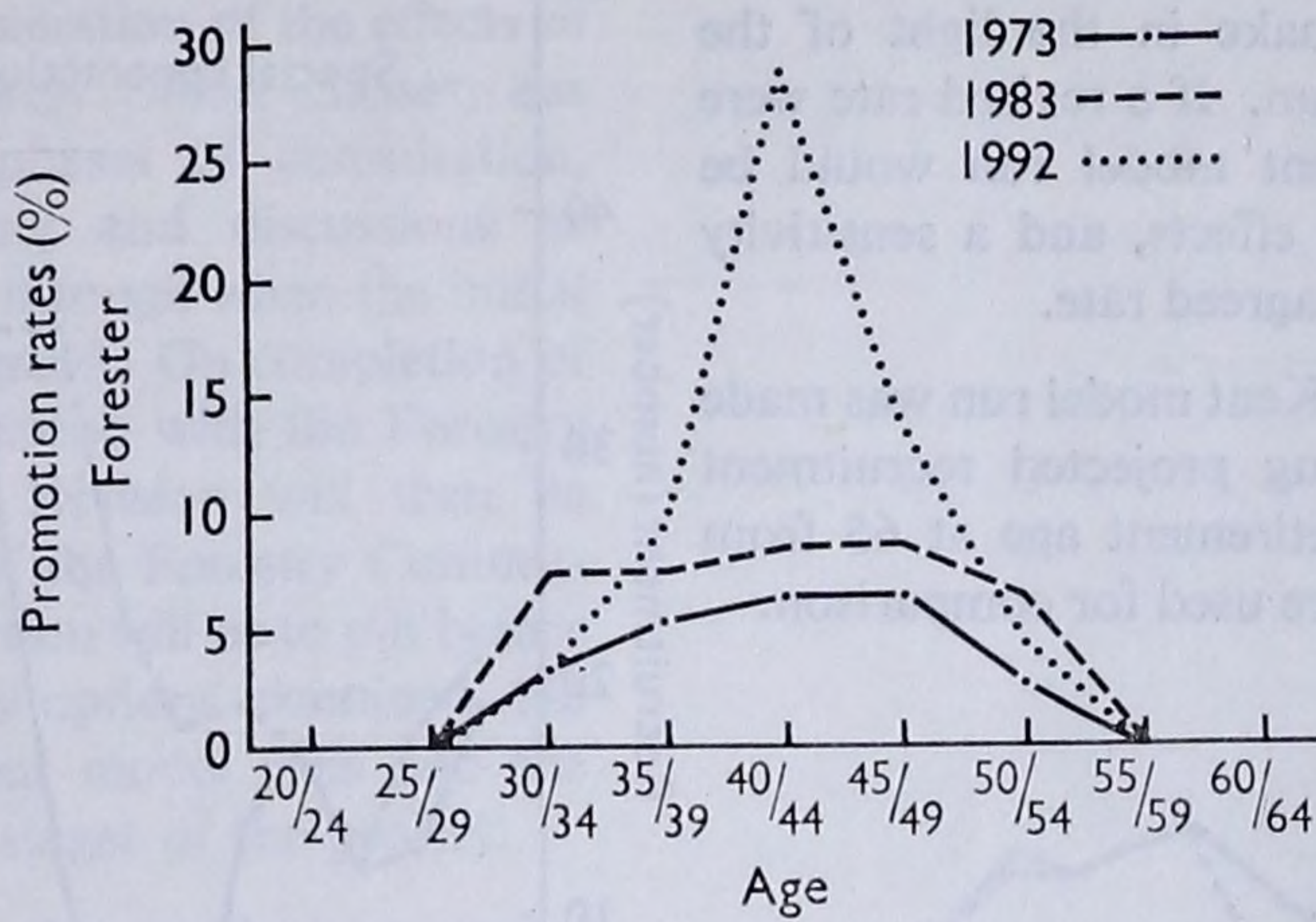
A twenty year projection on a relatively simple three grade manpower system using the Kent model takes approximately ten minutes to run through the computer once the basic data file has been created. This data file consists of the opening stock by age and grade plus the flow and growth assumptions previously agreed with management.

At the completion of each Kent model run the computer produces a large amount of output, approximately ninety pages in this case, which contains details of every projected movement in each year of the projection *plus* a series of summary tables on projected stocks, leavers, promotions and recruits. A major part of the task of the statistician is to write a report for personnel management summarising the salient facts that emerge from the projections. In addition to the summary the reports always contain an appendix which sets out in detail the assumptions upon which the projections were based.

Customers may have copies of the computer outputs as well as, or instead of, the report but this option is rarely exercised due to the sheer bulk and detail of the outputs.

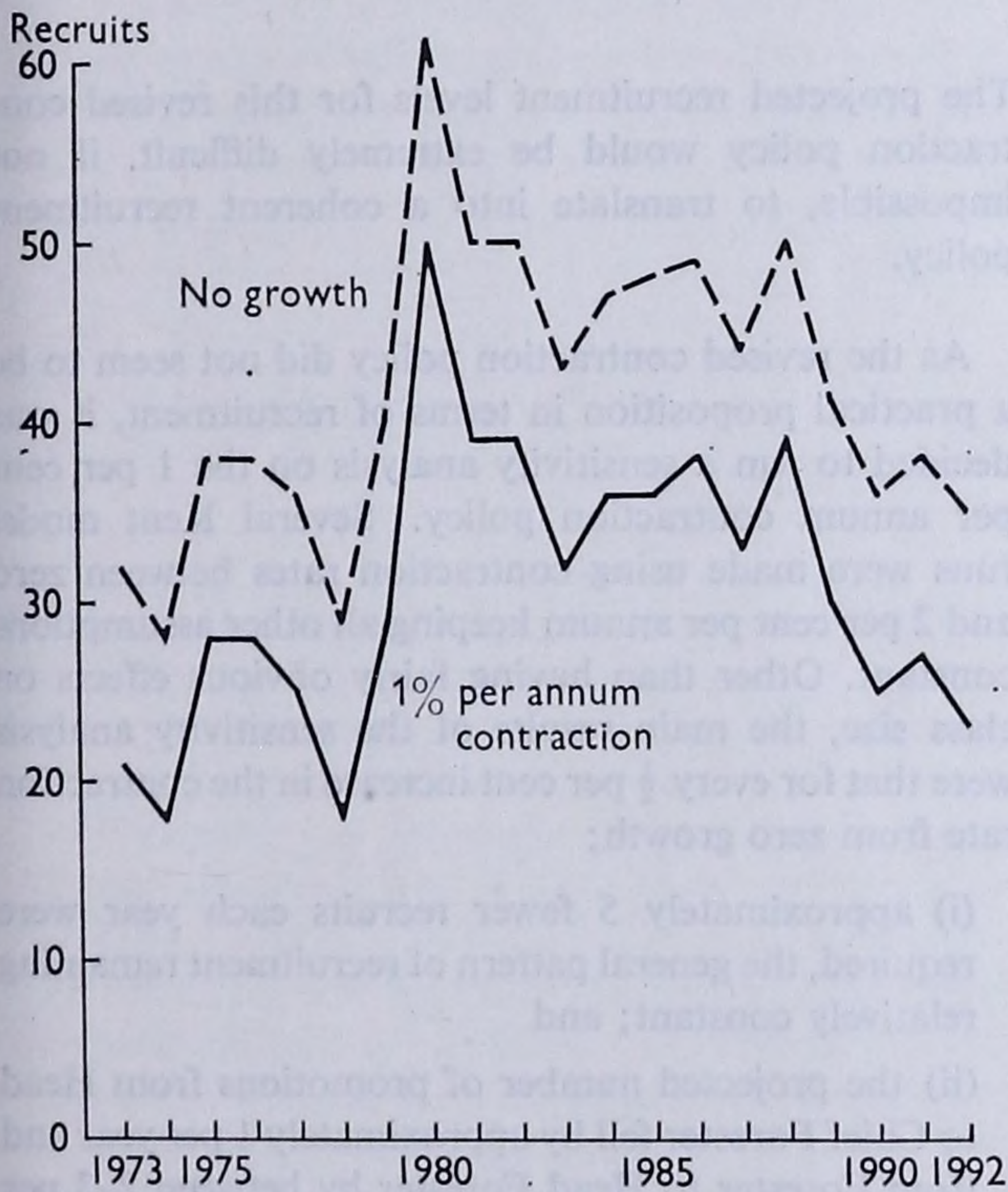
For the four preliminary model runs the three hundred and sixty pages, approximately, of computer output were summarised into a seven page report. In addition to the text, graphs are also used to illustrate the position, usually at the beginning and end of the projection period, with regards to stocks, promotions and leavers. Presenting only the opening and closing position implies a fairly consistent transition from one state to the other, and if any significant deviation occurs during the projection period then it is illustrated by further graphs. The following graphs on projected promotion rates and recruitment are taken from the report on the Forester Class preliminary projection.

A promotion rate is an indication of promotion prospects of the stock in a specified age group within a grade. For example, the projected promotion rate for the 40-44 age group in 1973 for the Forester/Trainee Forester grade is approximately 6 per cent. This means that during 1973 approximately 6 per cent of the stock at 1 January 1973 aged 40-44 were promoted according to the model.

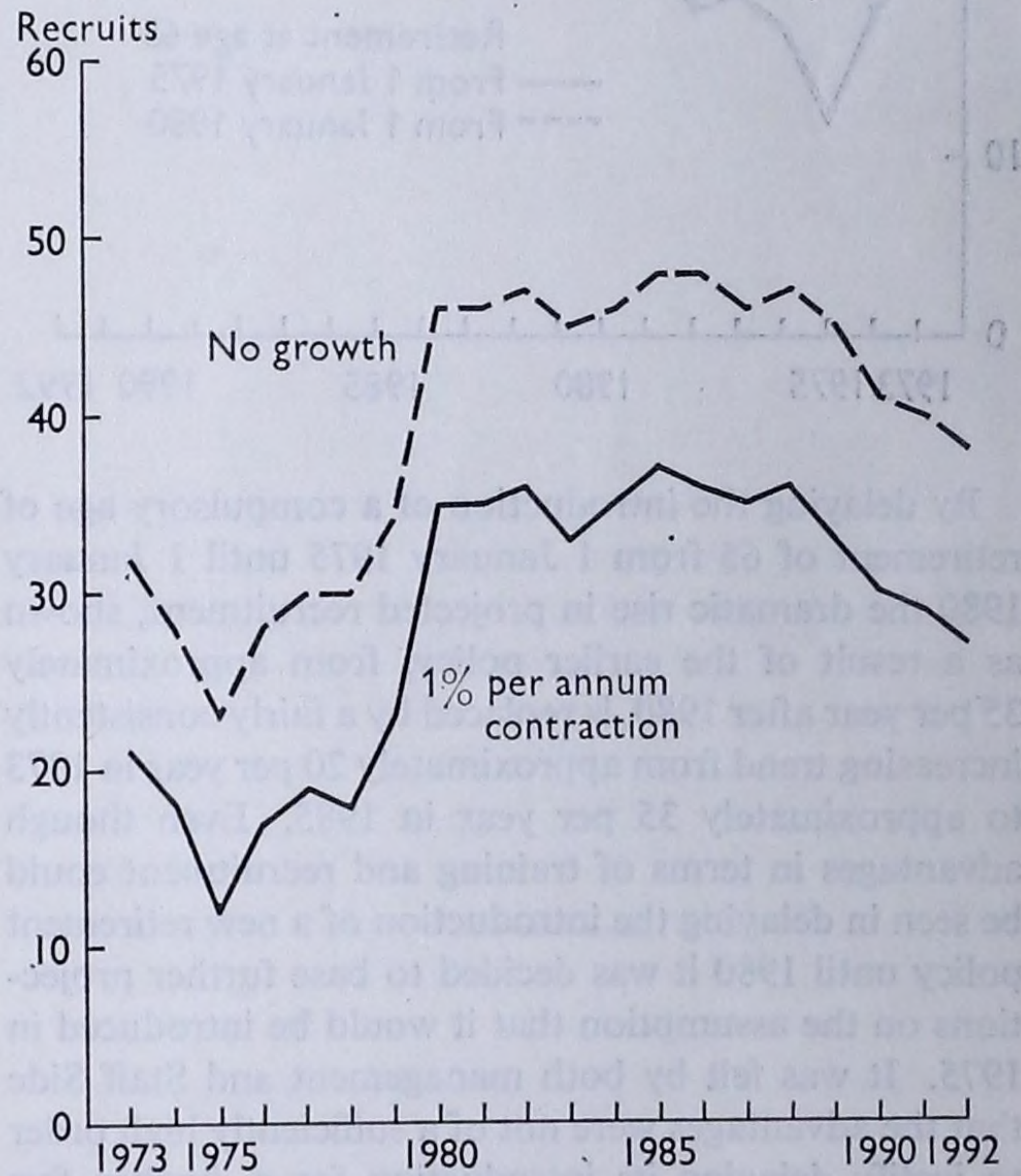


Projected recruitment to the Forester class
1973-1992

(1) Retirement at age 60



(2) Retirement at ages 60-65 from 1 January 1975



The change in promotion rates during the projection period is a reflection of changes in the number of promotions and in the age distribution of the stocks from which they were drawn. For example, in the 40-44 age group the number of projected promotions during 1973, 1983 and 1992 are 4, 6 and 4 respectively and the corresponding stocks are 65, 71 and 13.

Follow-up action

When the first reports had been completed and passed to the Forestry Commission a further meeting was then

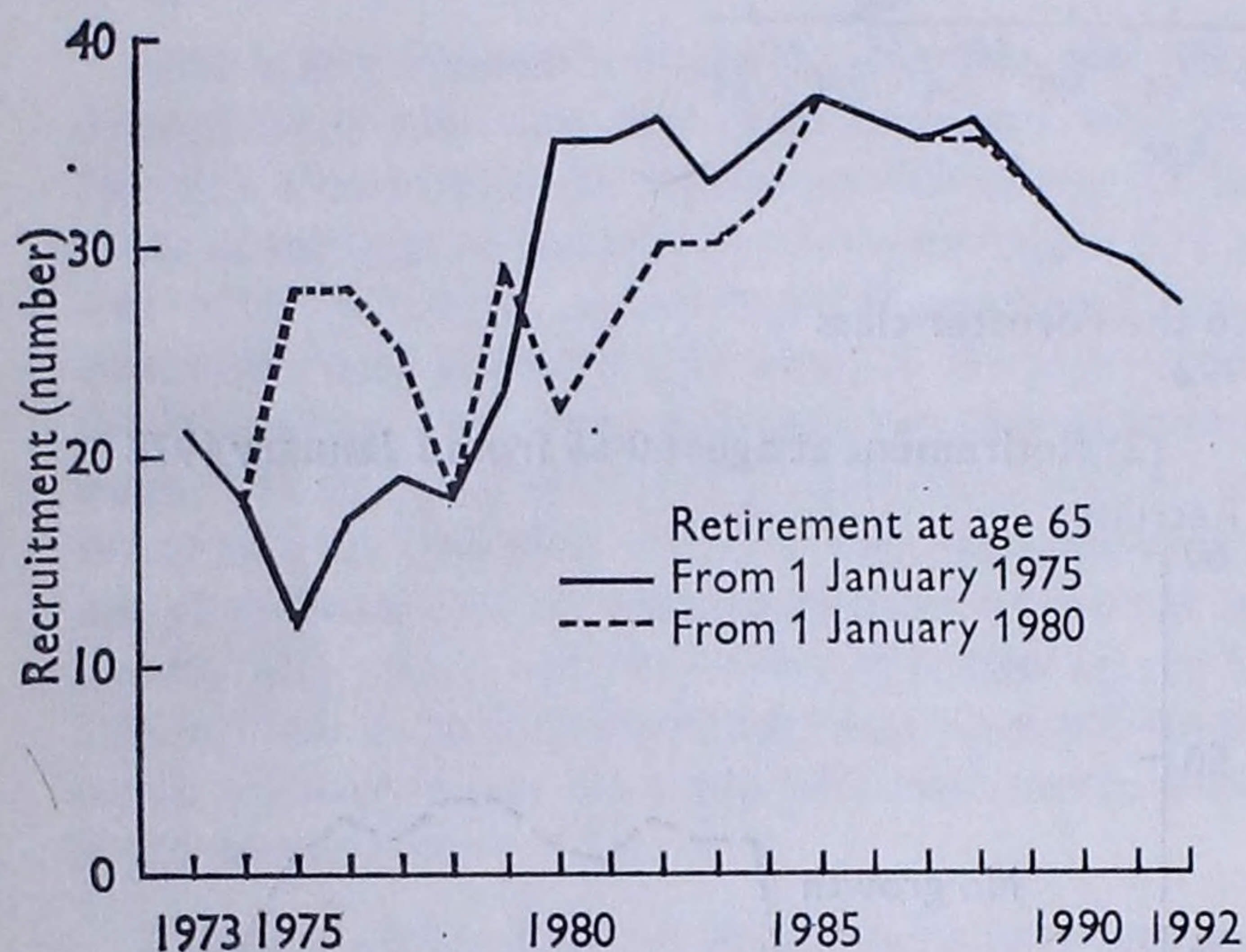
held to consider the implications for personnel management of the results that emerged from the preliminary projections and to plan the next phase of the project.

It was agreed after the CSU had been consulted that further action should be taken on the following points:

- (1) to explore the effect on recruitment of delaying the raising of the compulsory retirement age to 65 until 1 January 1980, using the contraction rate of 1 per cent per annum; and
- (2) the Forestry Commission would examine the

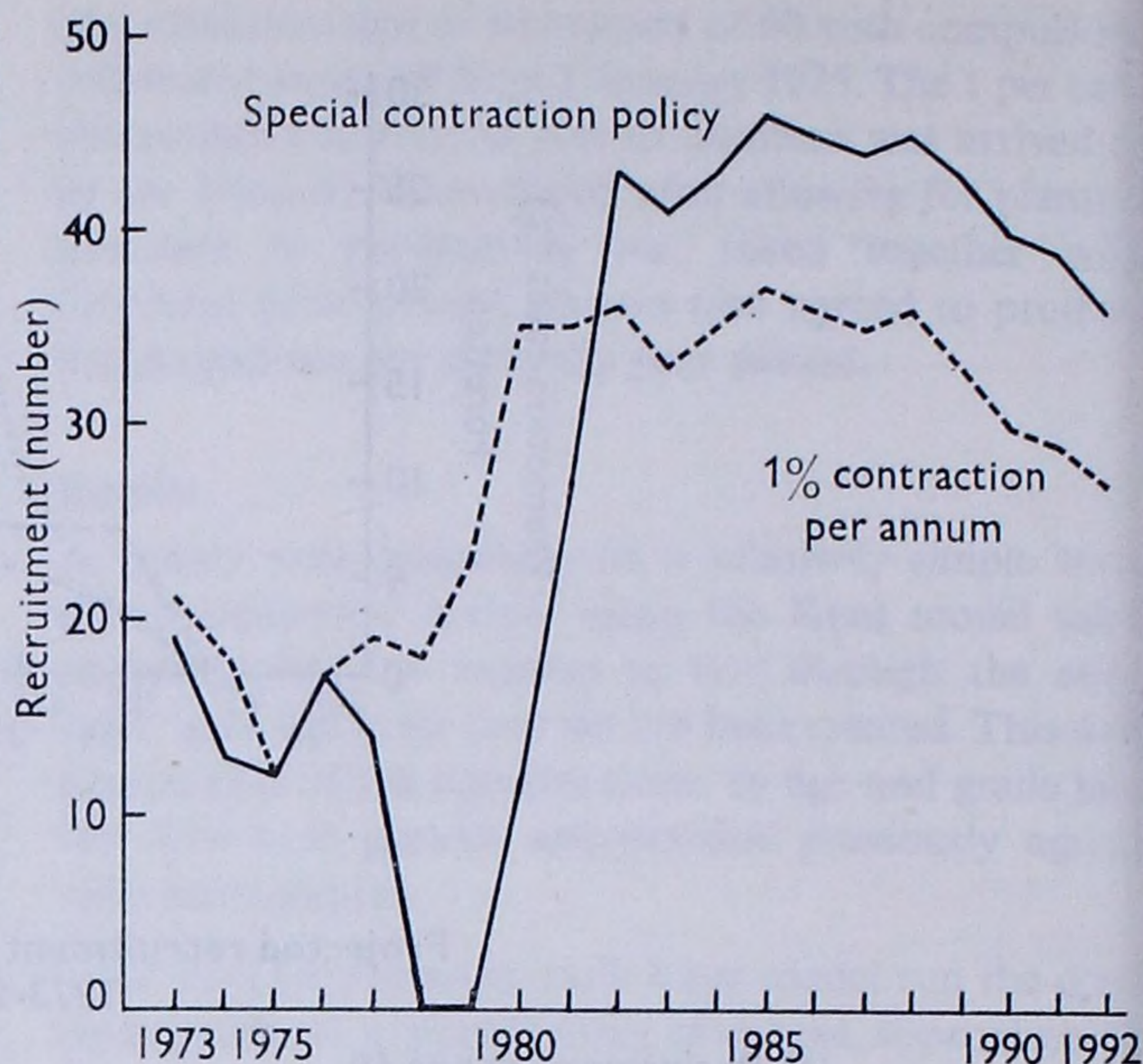
1 per cent per annum contraction rate to see if it was the best assumption to make in the light of the Commission's corporate plan. If a revised rate were put forward a further Kent model run would be undertaken to examine its effects, and a sensitivity analysis carried out on the agreed rate.

On the first point a further Kent model run was made which produced the following projected recruitment pattern. Results from the retirement age at 65 from 1 January 1975 projection were used for comparison.



By delaying the introduction of a compulsory age of retirement of 65 from 1 January 1975 until 1 January 1980 the dramatic rise in projected recruitment, shown as a result of the earlier policy, from approximately 35 per year after 1980, is replaced by a fairly consistently increasing trend from approximately 20 per year in 1973 to approximately 35 per year in 1985. Even though advantages in terms of training and recruitment could be seen in delaying the introduction of a new retirement policy until 1980 it was decided to base further projections on the assumption that it would be introduced in 1975. It was felt by both management and Staff Side that the advantages were not of a sufficiently high order to justify delaying its introduction for a further five years.

With regard to the second point the Forestry Commission put forward a revised contraction policy which, in total, still reduced the Forester class to the same size as in a steady 1 per cent per annum contraction policy, but concentrated the contraction in the early years of the projection. In fact all the contraction takes place up to 1982 with the class remaining constant in size from 1983 until 1993. The results, in terms of recruitment, of running this policy option through the Kent model are shown in the following graph.



The projected recruitment levels for this revised contraction policy would be extremely difficult, if not impossible, to translate into a coherent recruitment policy.

As the revised contraction policy did not seem to be a practical proposition in terms of recruitment, it was decided to run a sensitivity analysis on the 1 per cent per annum contraction policy. Several Kent model runs were made using contraction rates between zero and 2 per cent per annum keeping all other assumptions constant. Other than having fairly obvious effects on class size, the main results of the sensitivity analysis were that for every $\frac{1}{2}$ per cent increase in the contraction rate from zero growth;

- (i) approximately 5 fewer recruits each year were required, the general pattern of recruitment remaining relatively constant; and
- (ii) the projected number of promotions from Head to Chief Forester fell by approximately 1 per year and from Forester to Head Forester by between 2-3 per year.

When the results of all these further projections had been written up and sent to the Forestry Commission a joint meeting was held with the CSU and Forestry Commission to discuss the implications on personnel policy of the policy options examined to date. The outcome of the meeting was that no further model runs were required on the first stage of the project and the Forestry Commission would prepare a policy document on raising the compulsory age of retirement to 65 on or before 1 January 1975 and on recruitment.

The future of the project

Stage 2 of the project, an examination of the effects of merging the Forester and Forest Officer classes, has still to commence. Similar phases of consultation, model running, report writing and discussions as mentioned above will be gone through when the initial flow assumptions have been agreed. On completion of stages 1 and 2 a joint presentation with the Forestry Commission's Establishments Division will then be given to senior management of the Forestry Commission. The object of the presentation will be to put before Senior Management the policy options examined, the results obtained from the Kent model runs and the conclusions drawn from both stages of the project.

In the longer term it is planned to produce an annual up-date of the projection on the Forester class, *plus* any intermediate examination of the class that may be thought desirable in the light of possible changes in policy.

Methods of forecasting the quantities of freight in Great Britain

A. H. Brown and A. S. Maultby, *Senior Assistant Statisticians,*
Department of the Environment.

Forecasts of the demand for freight transport in future years are required by the Department of the Environment to assist with the formulation of policy towards transport, consistent with its wider planning responsibilities. In many cases the forecasts are used as a stepping stone for estimating associated magnitudes such as the demand for road space, the numbers of goods vehicles of particular sizes, the relative position of road and rail and other important factors. In addition the forecasts of freight demand provide a background against which the position and plans of the nationalised transport undertakings in the freight market can be evaluated.

The forecasts of freight transport have therefore to be used for many different purposes. Each requirement suggests forecasts in a slightly different form and to meet these needs they are normally attempted in a certain amount of commodity detail. A split into the mode of transport is also often required but this factor has not been formally incorporated into the modelling work of the Department. Indications of the quantities moved by each mode of transport can be derived however from an examination of the commodity detail in the forecasts together with knowledge of the specialised natures and carryings of each mode. The split can also, to a limited extent, be influenced by policy considerations.

Forecasts using a single macro-economic measure

A technique which has been widely used in many countries for obtaining forecasts of total freight demand has been to establish a relationship between demand measured in tons or ton-miles and a measure of economic growth such as gross domestic product. Once the relationship is determined forecasts of freight demand can be readily obtained for any assumed level of GDP in the forecast year. In this country it appeared that over a long period despite short term fluctuations a one per cent growth in GDP in real terms led to a one per cent increase in freight movements. The basic assumption of this method was that the industries which were responsible for generating the demand for trans-

port (that is, those industries which consume or produce the majority of raw materials or output in weight terms) grow at the same rate as the economy generally. In recent years however it appears that this is no longer the case as transport demand has grown at a much slower rate than gross domestic product at constant prices. It is clear now that a 'broad-brush' method of forecasting transport demand which previously had the advantage of simplicity can no longer be used without awkward and unreliable assumptions about the way the relationship between freight demand and economic activity is moving.

The method described above was unreliable because it could not take into account the different rates of growth of individual industries and the changing structure of the economy. Another shortcoming of the method was that it failed to provide forecasts in any commodity detail.

Forecasts based on input-output analyses of the economy

It was therefore necessary to devise a method which could remedy the faults described above. The essence of the method chosen is to link each of the major flows which make up the demand for transport to the appropriate inter-industry flow contained in input-output analyses of the economy. In some input-output tables of the economy each cell is a sale from a commodity group to an industry. In transportation terms it will also be a physical movement of a commodity to an industry or final demand. Using information derived from the operators of transport services together with published statistics, it was possible to construct a matrix of transport movements in tonnage terms with commodity detail consistent with the input-output tables prepared by the Central Statistical Office for a past year.

In order to make forecasts of freight demand it is necessary to have a set of input-output tables of the economy relating to the forecast year in the prices of the base year. The forecasts of transport demand are then obtained by multiplying each cell of the base year transport-tonnage matrix by the ratio of the corres-

ponding cells of the forecast and base year input-output matrices valued at the common price basis. The resulting matrix is an analysis of transport movements in the forecast year which can be aggregated to whatever level of detail is required.

It can be seen that one advantage of this method is that it takes into account not only the different growth rates of 'transport-important' industries and the economy generally but also the inter-actions between the industries producing commodities and those consuming them. In addition the use of input-output tables as the basis of the model ensures that the 'independent variables' are internally and in aggregate consistent.

The input-output method has been tested using 1963 as the base for 'forecasts' of freight demand to 1968. A comparison between the actual quantities transported and those forecast was encouraging - there being only a 2 per cent difference in the totals. The differences between the commodity analyses were larger but still small enough for the method to be attractive.

At the time when the main work on this technique was carried out it was hoped that input-output projections of the economy would become available for future years so as to make it possible to prepare genuine freight forecasts. At the time of writing it is uncertain whether suitable forecasts of the economy in input-output form will be available either from official or unofficial sources. This technique for forecasting freight demand has therefore been shelved for the moment. It has however demonstrated the importance of taking changes in the industrial structure of the economy into account and has provided supporting information about the importance for transport of individual industries which has been valuable in the method of forecasting described below.

Forecasts based on selected industries

As it is not possible at the moment to prepare freight forecasts based on a complete picture of the freight flows of commodities to and from industry, it was decided to try and identify the industries which generate large demands for the transport of goods. Then by estimating the growths of these industries a prediction can be made at least for the greater part of inland freight traffic.

Examination of freight traffic flows by commodity in 1968 (the latest year for which a detailed commodity analysis is possible) shows that a relatively small number of commodity groupings account for 85-90 per cent of the total inland freight tonnage. The groups are as follows:

- Materials for building and construction
- Food, drink and tobacco

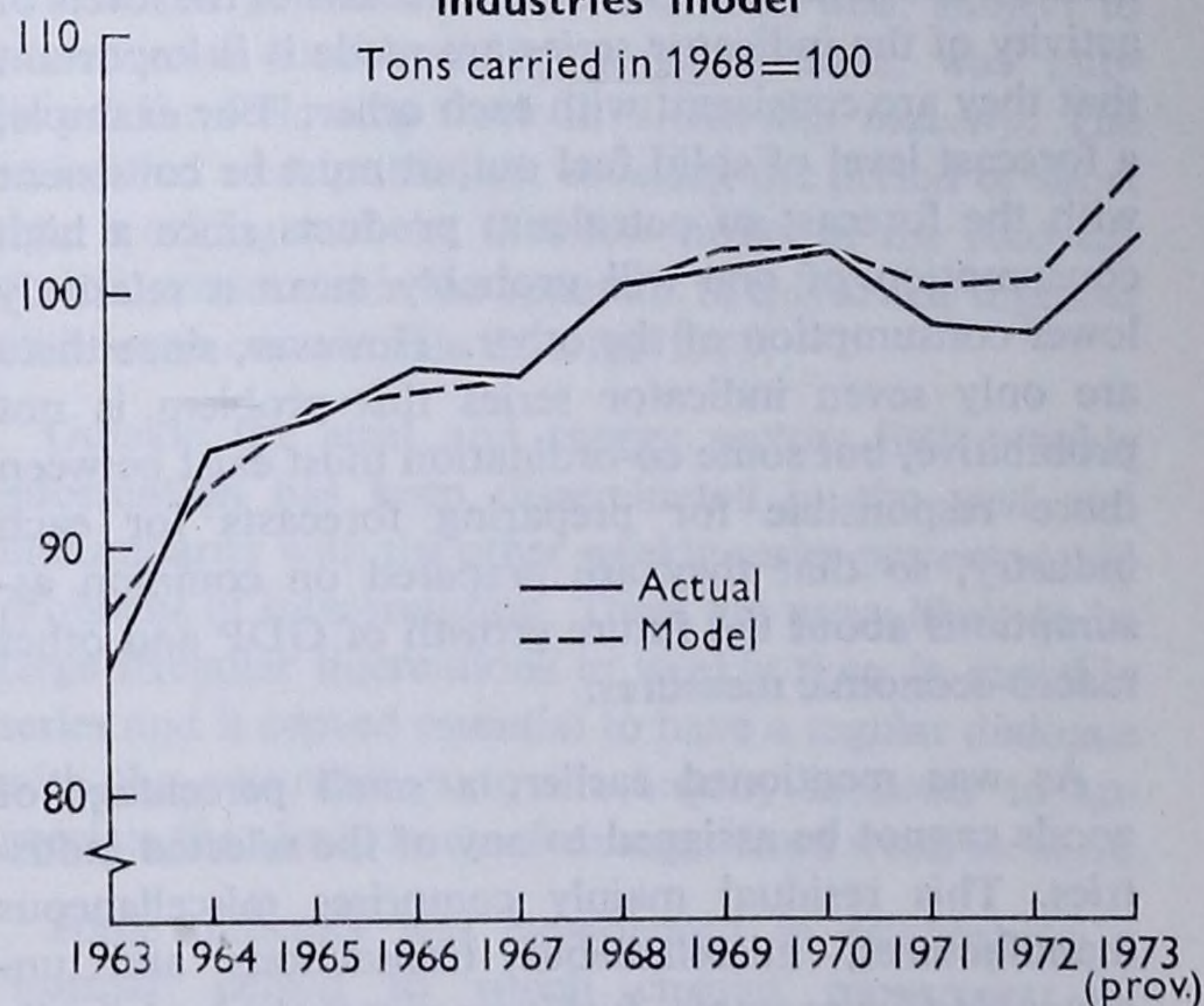
- Solid fuel
- Metals (including iron and steel)
- Petroleum (and products)
- Chemicals (including fertilizers)
- Machinery.

These groups of commodities can be associated with identifiable industrial sectors, which generate, either at the input or output stage or both, transport demand in the relevant commodities.

Having selected or 'assigned' industries to the seven commodity groupings the next step is to select for each group an index which measures the changes taking place in the level of activity. The series chosen, which could be for example output, consumption, etc. should reflect as nearly as possible the transportation of the associated commodities. Stocks present a problem in this respect because the goodness of fit of production or consumption measures to freight transport generation depends to a certain extent on the accumulation or running down of stocks and on the stage at which this takes place. However, this is essentially a short term problem which is reduced when forecasting extends over a lengthy period, say several years.

The next stage in the construction of the model is to give 'weights' to each industrial indicator assigned to each commodity grouping, corresponding to the relative importance, in tonnage terms of the groups in 1968. It is then possible to construct an index of the aggregate transport demand generated by the seven industry groups in a past period and to compare this with the actual values. If the model is to be valid for forecasting purposes then the two series should be fairly close. The correspondence can be seen in the graph below.

Index of tons carried plotted against estimated levels using the 'selected industries' model



The agreement is generally good and in particular there is close correspondence in the points of inflexion. As a further test quarterly calculations for the period 1970-1973 have been made and the model index follows reasonably closely the seasonal pattern of the actual freight series. This gives additional confidence in the model and further suggests that it is valid for forecasting purposes.

Although 1968 has been chosen as the 'base' year for weighting purposes, the 'weights' in succeeding years change automatically, reflecting the changing importance of the industries with regard to transport generation. A simple illustration will serve to show this. Table 1 shows two industries having 'transport weights' 20 : 80 in 1968. Indices of activity are given for each industry as well as a 'transport weighted series' using 1968 as base year. In 1969 the 20 : 80 ratio changes to 21.2 : 78.8 and so on until 1971 when the ratio is 24.2 : 75.8. In other words the relatively fast rate of growth of industry 1 means that more weight is attached to it than in 1968, even though this year was used as a base for the calculations.

Table 1

	Industry 1		Industry 2		Ratio (1):(2)
	Index of activity	Transport weighted (1)	Index of activity	Transport weighted (2)	
1968	100	20	100	80	20 :80
1969	110	22	102	81.6	21.2:78.8
1970	115	23	105	84.0	21.5:78.5
1971	135	27	106	84.8	24.2:75.8

This modelling approach does, however, raise problems of consistency. When the forecasts of the levels of activity of the indicator series are made it is important that they are consistent with each other. For example, a forecast level of solid fuel output must be consistent with the forecast of petroleum products since a high consumption of one will probably mean a relatively lower consumption of the other. However, since there are only seven indicator series this problem is not prohibitive, but some co-ordination must exist between those responsible for preparing forecasts for each industry, so that they are prepared on common assumptions about the future growth of GDP and other macro-economic measures.

As was mentioned earlier, a small percentage of goods cannot be assigned to any of the selected industries. This residual mainly comprises miscellaneous manufactures, miscellaneous transactions and un-allocable (for example, furniture removals) and finally

crude materials (for example, hides, wood pulp waste paper). The residual element is fairly closely related in past years to variations in total freight and in view of the small relative importance of the total amount of residual traffic, it can be treated as a fixed addition to the freight generated by the seven industry groups.

An examination of the behaviour of these transport important industries provides the explanation of the marked change in transport growth in recent years. Tonnage carried by all modes of transport fell in 1971-72 reversing the previous upward trend at a time when GDP continued to increase. The main factor has been the failure of the construction industry to maintain its expansion. Its growth was severely checked in 1970 and when some expansion recommenced in 1971, a cyclical down turn took place in the iron and steel industry.

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Monitoring industrial activity during the emergency – the use of weekly production figures

J. D. Wells, *Chief Statistician, Department of Industry*

Towards the end of last year, it appeared likely that industrial output would be affected for some weeks ahead by shortages of three of the four major fuels. Oil supplies were affected by the restrictions imposed by the Organisation of Petroleum Exporting Countries, coal by the miners' overtime ban and electricity by the restrictions imposed under the emergency regulations introduced in the middle of December.

The Government needed to have available as quickly as possible indicators of industrial activity in order to be able to identify:

- (1) the level of activity being achieved in the economy as a whole,
- (2) the output of key industries supplying home and export markets, and
- (3) disproportionate reductions in output which could give an early warning of impending difficulties in downstream activities.

However, most industrial output series are normally obtained only monthly, with the results becoming available some six weeks after the end of the period to which they refer and possibly later in a situation disrupted by three-day working.

It was decided that only weekly series would meet the requirement for frequent and up to date monitoring and that information should be collected for the duration of the emergency, and for a few weeks following the resumption of full-time, working in respect of a limited number of products, where this could be done easily without imposing too heavily on industrialists who were already operating in extremely difficult conditions. There were clearly some industries, such as engineering, where the weekly collection of output data posed intractable problems of measurement and interpretation. For this reason the then Department of Trade and Industry, in conjunction with the Departments of Energy and the Environment decided to limit the collection of data to the energy supplying industries, steel, aluminium, ethylene (as an indicator of downstream petro-chemical activity and the feedstock supply

situation), cans, passenger cars, commercial vehicles, television sets, cotton spinning, glass and cement. Production of these commodities was concentrated in a small number of firms or else the information was relatively easy for trade associations or similar bodies to assemble.

All the objectives listed above were not met. As the series were not comprehensive it was not possible to aggregate them to obtain an indicator of the total level of industrial activity, but this objective was aided to a considerable extent by contact with other industries who were able to provide a more qualitative indication of the level of working in relation to 'normal'. However, the weekly series compiled in quantitative terms were representative of industries operating continuous and batch processes and likely to be subject to different types of constraint, for example, fuel, raw materials, components or demand.

The series were presented in the form of index numbers (not seasonally adjusted) taking the weekly average of output in 1973 as 100. The information was circulated within Government within five days of the end of the period to which it related and, subject to commercial confidentiality considerations, was published the following week in *Trade and Industry*. The series that were published, covering the period of short time working and the first few weeks of the recovery period, are set out in the appendix to this article together with some comparable data for 1973.

Outside the steel and energy sectors little weekly information has been disseminated in the past and unfamiliarity with the other weekly series presented real problems of interpretation. There are more likely to be large irregular fluctuations in weekly than in monthly series and it proved essential to have a regular dialogue with the contributors to the inquiry in order to appreciate the significance of changes from week to week.

Some difficulty was experienced in establishing a 'normal' period to which current movements in output could be related, since the corresponding

period of the previous year, and even the average for the year as a whole might have been subject to abnormal influences. In order to set a common reference point for all the commodities covered, the average weekly output in 1973 was adopted as the base for the published data.

Reference to a particular series, that for motor vehicles, will illustrate most clearly the types of problem encountered. These figures – for passenger cars and commercial vehicles – were compiled by aggregating figures supplied by the four major manufacturers in the United Kingdom. A comparison of the monthly figures for the number of vehicles produced in January with an estimate based on the weekly figures has confirmed that the weekly series provided a reliable measure of output.

There were difficulties, however, in interpreting the figures. Firstly, as they measured only the numbers of cars and commercial vehicles produced, they accounted for only about half of the output of the motor vehicle industry as defined in the SIC (MLH 381). No figures at all were collected for the output of parts and components. Secondly, the number of units produced does not necessarily indicate the volume of output; the mix of the product may vary and it is known that there was some tendency for manufacturers to concentrate on the production of vehicles in kit form rather than fully assembled, the latter of course being of higher unit value. Thirdly, it is known that many vehicles, both for the home market and for export came off assembly lines incomplete; those for the home market were completed later while parts for vehicles exported incomplete were often sent by air.

Finally, because of the heavy losses due to strikes in 1973 there was some difficulty in selecting a base period for comparison in order to assess the loss of output; for most purposes January 1973 was taken as a standard for comparison because output in later months was unduly affected by industrial disputes. However, in considering the fall from the January 1973 level of output, it was difficult to assess how much was due to the emergency itself and how much was due to demand constraints resulting from the credit restrictions introduced in December 1973 and from the oil situation itself. The weekly figures did however, indicate how a major steel using industry was affected both at first hand and at a remove by reductions in the supply of steel and of energy. They provided some measure of the loss of output in numbers of units, but necessarily tended to under-estimate the loss of output in real terms.

The additional weekly series gave a valuable indication of changes in the output of the selected products during the period of restricted electricity supplies and in

the weeks immediately following the resumption of full time working. It was clear however that week to week changes had to be interpreted with caution. Special factors abounded which made it essential to understand the supply situation of a particular industry, particularly in respect of electricity and oil. The increase in own generation of electricity was only one of a number of factors that contributed to a higher level of output than might have been expected, as generally, industries not exempt from the restrictions were limited to three-day working or 65 per cent of normal electricity purchases.

This was not the only extra information collected specially during the emergency. There were a number of ways in which government departments and other bodies obtained information; this note has described only the information collected by the then Department of Trade and Industry. That gathered by the Department of Employment, the Confederation of British Industry, the Association of British Chambers of Commerce and the Bank of England highlighted other aspects of three-day working and also provided qualitative views on the level of output being achieved and could be the subject of another story.

Weekly indicators of industrial output

It should be borne in mind that weekly figures of output are particularly susceptible to fluctuation and that figures for the corresponding period of 1973 or for the average over the whole of that year may equally be unrepresentative of a normal position. Output of cars and commercial vehicles in 1973, for example, was much reduced by industrial disputes.

Index numbers of output

Average 1973=100: not seasonally adjusted

	Ethylene	Crude steel	Passenger cars	Commercial vehicles	Cement	Coal	Gas sent out	Television sets	
								Mono-chrome	Colour
1973									
Weekly averages									
January	90	102	118	103	84	108	130	135	92
February	99	107	103	105	93	110	125	125	92
November	98	107	115	97	105	92	125	98	120
December (2)	92	84	95	100	79	64	146	68	101
1974									
Week ending									
January 5 (2)	(1)	58	38	32	43	34	146	50	63
January 12	106	78	84	71	60	72	145	75	104
January 19	112	77	76	73	68	71	141	74	107
January 26	114	88	99	80	75	69	142	79	107
February 2	106	86	101	91	71	63	143	76	100
February 9	103	88	93	76	77	46	150	79	102
February 16	105	80	88	83	88	(1)	143	81	103
February 23	108	79	90	82	85	(1)	143	84	109
March 2	106	77	92	85	97	(1)	151	77	105
March 9	114	72	79	78	102	(1)	151	84	107
March 16	116	76	93	95	104	78	148	87	105
March 23	110	85	109	97	92	92	137	82	109
March 30	116	91	118	102	104	86	135	78	107

(1) Not available.

(2) Output in December 1973 and in week ending 5 January was also affected by holidays.

Notes on current developments

POPULATION AND VITAL STATISTICS

1971 Census of Population:

Tables for Parliamentary constituencies and for new local authority areas

In December 1973 tables on population and household topics were produced for Parliamentary constituencies as they existed at the time of the Census. Tables are now available for constituencies as they existed at the time of the February 1974 General Election. They are based on the standard small area statistics and copies of full or abbreviated versions for constituencies in England and Wales may be obtained from:

Customer Services Section,
Office of Population Censuses and Surveys,
Titchfield,
Fareham,
Hampshire, PO15 5RR
Telephone: Titchfield (032-94) 42511.

Also available from OPCS Customer Services Section at Titchfield are 1971 Census tables on population and household topics for the new local authority areas which came into being on 1 April 1974.

Scotland

The Scottish volume of population tables is due to be published in June, the usual residence and birthplace tables will follow in July, printing difficulties permitting.

Evaluation of new census techniques

Evaluation of the methods used in the October 1972 census test (see *Statistical News* 22.26) has now been completed and a report will be published in due course.

Two methods were tested for distributing the ten different census forms to households (see *Statistical News* 19.20). In the 'line sampling' method households were listed, in the order in which they were enumerated, on consecutively numbered lines of the enumerator's working record book; the number of the line on which a household was listed determined the form which that household subsequently received. In 'interleaved sampling' the enumerator's file of forms was ordered in sets of ten, each set containing one form of each type in numerical order; each household contacted received the next form from the top of the file. With both

methods the first form to be issued was determined by a random process.

With both methods of distribution the numbers of forms of each type that were delivered in all areas taken together did not differ significantly from one tenth of the total number of forms delivered. However, with line sampling, the numbers distributed in small areas varied quite widely from one tenth because non-residential properties, non-private establishments and households who did not participate in the test as well as responding households were recorded on the numbered lines. However, there was little variation between types of forms in terms of response rates, numbers of persons born in the New Commonwealth, numbers of retired people and of children aged under 15, and distributions of households by size. In practically all areas there was a significantly higher response rate from households which included retired persons than from the rest of the population; this reflects the comparative ease with which the retired could be contacted and their willingness to take part.

A similar evaluation will be carried out for the census test being held in April 1974 (see *Statistical News* 24.13). The method of 'interleaved sampling' is being used again, but the method of line sampling is being replaced by sampling according to a random number chart. The topics covered are not the same as in the October 1972 test, and moreover optical mark readable forms are being used as well as conventional ones.

For further information please contact:

Mr. K. Childs,
Office of Population Censuses and Surveys,
St Catherines House,
10 Kingsway,
London, WC2B 6JP
Telephone: 01-242 0262 ext. 2029

Population estimates

Revision of population estimates for the period 1961-1971

The Registrar General's Quarterly Return for England and Wales No. 500 contains revisions to the population mid-year estimates for the years 1962-1970 inclusive which have been produced in the light of the final results of the 1971 Census of Population. Figures are given for England and Wales, the two countries separately and for the regions and conurbations.

It was reported in *Statistical News* (24.13) that the Office of Population Censuses and Surveys had published populations for the three mid-years 1971, 1972 and 1973 for the new counties and county districts. It is expected that the details by sex and age for regions and metropolitan counties will be published in the *Registrar General's Quarterly Return No. 501 for the quarter ended 31 March 1974* to be published in August 1974.

Reference

The Registrar General's Quarterly Return for England and Wales No. 500 Quarter ended 31 December 1973 (HMSO) April 1974 (Price 23p net).

Electoral register 1974

Tables showing the number of parliamentary electors in each constituency of England and Wales were compiled on a provisional basis during February. The figures have now been finalised and extended to show electors with the ordinary residence qualification, service voters and numbers attaining 18 years of age. Enquiries should be addressed to:

Mr. G. Benson,
Office of Population Censuses and Surveys,
Titchfield,
Fareham,
Hampshire,
PO15 5RR.

Scottish statistics

The Registrar General's annual estimates of the population of Scotland were published in March. The fourth quarterly return for 1973 will be published shortly. In addition to the usual quarterly tables it will contain the provisional return for the year 1973, an analysis of 1973 births by parents' countries of birth, and a comparative table on causes of death by age and sex for the countries of the United Kingdom which was held over from the 1972 annual report.

Reference

Annual Estimates of the Population of Scotland 1973 (HMSO) March 1974 (Price 13½p net).

Marriage and fertility

Research is being carried out by Dr S. M. Farid of the Fertility Statistics Unit, Office of Population Censuses and Surveys on the demographic aspects of nuptiality and fertility in England and Wales. This is particularly relevant to the needs expressed in the *Report of the Population Panel* ⁽¹⁾ to monitor population trends and the factors affecting them. The results of three projects

are expected to be published in the OPCS series *Studies on Medical and Population Subjects*.

The first of these projects concerns trends in parity-specific fertility in England and Wales. A computerized simulation model (PARMOD) was developed and applied to the fertility data within first marriage of the cohorts of women who were married in each year since 1951. This generated, for each of these cohorts, birth order probabilities, family size distribution, mean length of intervals between marriage and successive births, parity progression ratios and mean family sizes of fertile women. A summary of the main findings has already been published in an article 'On the Tempo of Childbearing in England and Wales' ⁽²⁾.

The second project deals with the fertility of cohorts of women born in England and Wales in each year since 1920. The computer system (GENFER) has four main sub-routines dealing with fertility and reproduction rates, illegitimacy, contributions to total fertility by marital status of mother, and still births.

The third is concerned with the nuptiality of the cohorts of men and women born in England and Wales in each year since 1900. The computerised simulation model (GENMAR) generated tables of age-specific first marriage rates, probabilities of ever marrying, proportions ever-married and average age at first marriage.

Results from some smaller projects have been published: 'On the Pattern of Cohort Fertility' ⁽³⁾; 'Components of Period Fertility in England and Wales' ⁽⁴⁾.

References

- (1) *Report of the Population Panel* Cmnd 5258 (HMSO) March 1973 (Price 90p net).
- (2) *Population Studies* Volume 28, Number 1, March 1974.
- (3) *Population Studies* Volume 27, Number 1, March 1973.
- (4) *Journal of Biosocial Science* Volume 6, Number 1, 1974.

HEALTH

Morbidity Statistics from General Practice

Statistics were recently published based on returns made by general practitioners in fifty two practices covering nearly 300,000 patients. The study was conducted by the Office of Population Censuses and Surveys in collaboration with the Royal College of General Practitioners and the Department of Health and Social Security and related to the period from November 1970 to November 1971.

The booklet describes the methodology and validation, and gives statistics of numbers of persons consulting, episodes of illness and numbers of consultations by sex and age of patient and by diagnosis. In addition there are tabulations relating to referrals and types of consultation (home or surgery).

This publication updates the information from a similar study conducted in 1955/56 and published in *Studies on Medical and Population Subjects No. 14*. The results of a further study from November 1971 to November 1972 will appear in a later publication.

For further information please contact:

Mr D. Birch,
Office of Population Censuses and Surveys,
St Catherines House,
10 Kingsway,
London WC2B 6JP
Telephone: 01-242 0262 ext. 2244

Reference

Studies on Medical and Population Subjects No. 26 Morbidity Statistics from General Practice (HMSO) May 1974 (Price £4.00 net).

HOUSING

Survey of new building society mortgages

The regular table (No. 38) in *Housing and Construction Statistics* giving information from the 5 per cent sample survey of new building society mortgages in the United Kingdom, is expanded starting with issue No. 8. The expanded table gives the following new quarterly and annual series: the percentage of mortgages taken out by previous non-owner occupiers; the average dwelling price, the average mortgage advance and the average income of borrowers, for previous non-owner occupiers and previous owner occupiers separately; the average dwelling price, the average mortgage advance, and the average income of borrowers by region. A note on sampling errors shows the approximate coefficients of variation of the averages in each of the main series. Table 38 in issue No. 8 presents statistics in each series for 1969 to 1973 and the fourth quarter of 1971 to the fourth quarter of 1973, while a supplementary table (No. XIII) gives corresponding statistics for earlier quarters back to the second quarter of 1968, the earliest available. Other supplementary tables (Nos. VIII-XII) give further previously unpublished regional statistics from the sample survey.

Reference

Housing and Construction Statistics (HMSO) quarterly (Price 75p net).

MANPOWER AND EARNINGS

Survey of characteristics of the unemployed

The regular official unemployment statistics give a great deal of detail about registered unemployed persons: for example, the occupations in which they are seeking employment, their age and the length of time they have been registered. These statistics are based on objective facts. On two occasions in the past, in 1961 and 1964, further studies have been carried out to assess the prospects of obtaining work of a sample

of the unemployed and to shed light on certain characteristics which involve a degree of personal judgement by local office staff. Results of these surveys were published in the *Ministry of Labour Gazette* in April and September 1962 and April and July 1966. A further sample survey, on similar lines, was carried out in June 1973, (see *Statistical News* 22.29) under the general oversight of a Working Group which is considering detailed studies of the characteristics of the unemployed. This was set up following a recommendation of an Inter-Departmental Working Party on unemployment statistics, in its report published in November 1972 (*Statistical News* 20.31).

The one-in-thirty sample, of 14,251 men and 2,390 women (aged 18 and over), was drawn from the registers of unemployed adults held by Department of Employment local offices. It thus excludes young persons and also those unemployed persons, predominantly women, who do not choose to register with the Department, usually because they are not eligible for unemployment benefit. Information about this latter group has been published in the *Introductory Report on the General Household Survey* (*Statistical News* 22.19). A new departure in the 1973 survey was that the records for the persons selected in the sample in June 1973 were re-examined in January 1974 to see whether the persons were unemployed at that date and whether they had been in employment at any time in the intervening period. This has enabled some check to be made on the consistency of the local office judgements.

An article giving a description of the Survey and the tables of results has been published in the March 1974 issue of the *Department of Employment Gazette*. The sample results show that 40 per cent of those on the adult register at June 1973 were judged to have good or reasonable prospects of finding long-term work, though perhaps limited by local opportunities, and to be keen to find work; another 30 per cent were keen to find work but had poor prospects of doing so; and a final 30 per cent had poor prospects of finding work and were somewhat unenthusiastic in their attitude to work. Of the total coming on to the register over a period, a much higher proportion than 40 per cent would have good or reasonable prospects of finding long-term work; many remain on the register for only a short time.

The following further points from the survey results relate to unemployed men:

- (a) In the assessment of local office staff, for a given duration of unemployment, prospects (but not enthusiasm) decline with age, whilst for a given age-group, enthusiasm and prospects both decline with

length of unemployment. Whether this is because unemployment of long duration saps enthusiasm or because those who are somewhat unenthusiastic tend to have long periods of unemployment cannot be determined from the survey.

(b) The reasons for poor prospects of obtaining work are predominantly age or physical or mental condition. Experience or skill not acceptable to employers was given as a reason in only a small number of cases.

(c) Areas of high unemployment tend to have higher proportions of younger unemployed. Since the younger unemployed are considered to have better prospects of finding work than the older unemployed, this means that areas of high unemployment tend to have rather higher proportions of the unemployed considered to have good prospects of finding work.

(d) There are remarkable similarities between the 1973 results and those obtained from the similar survey in 1964. Proportions having good or reasonable prospects of obtaining work (allowing for limited local opportunities) in both surveys are much the same for particular age-groups whatever the region.

(e) It is estimated that about 50,000 of the unemployed are occupational pensioners. Of those receiving pensions of over £10 a week, less than half are in receipt of benefit.

(f) Most unemployed persons receive less in benefit than they would in employment.

(g) Very few of the small number of students included in the survey were thought to be unenthusiastic for work. Most of the men students (17 per cent of whom were married) were registered for labouring jobs.

(h) The follow-up review in January 1974 showed that local office assessments of prospects of obtaining work were largely borne out by events. Those thought to have had good or fair prospects of obtaining long-term work in June 1973 were much less likely to be unemployed six months later, and much more likely to have been in employment in the interim, than those judged to have had poor prospects. About a third of those who had been judged for one reason or another to have had poor prospects of obtaining long-term work had in fact been in employment at some time in the intervening six months.

References

Ministry of Labour Gazette April and September 1962 and April and July 1966 (HMSO).

Unemployment Statistics Report of an Inter-Departmental Working Party Cmnd 5157 (HMSO) November 1972 (Price 24p net).

Department of Employment Gazette March 1974 (HMSO Price 52½p net).
The General Household Survey - Introductory Report (HMSO) July 1973 (Price £1.80 net).

Employment in the public and private sectors of the United Kingdom economy

An analysis of employment in the public and private sectors of the United Kingdom economy at June 1971 and June 1972 was included in the April edition of *Economic Trends*. Out of a total employed labour force of 24,356,000 in June 1972, 17,954,000 were in the private sector and 6,402,000 were in the public sector.

These latest analyses are based upon data from the Census of Employment. Previous analyses have been based upon detailed counts of national insurance cards and the last in this series - for June 1971 - is also included to provide a link with the new figures.

Reference

Economic Trends (HMSO) April 1974 (Price 63p net).

Improving information on manpower resources

A Working Party comprised of eleven members from the Manpower Society, including industrialists interested in manpower planning questions and representatives of the Institute for Manpower Studies, and five members from the Department of Employment was set up in the Autumn of 1972, under the chairmanship of Mr A. R. Thatcher, CB, Deputy Secretary and Director of Statistics. Its terms of reference were:

'To consider what further work can usefully be done either by Government Departments or by other organisations to develop the systematic analysis, forecasting and planning of manpower resources; and prepare a report'.

The Working Party has recommended:

(a) further development of local labour market intelligence as in the Department's current experiments;

(b) various improvements to the available information on labour turnover, and occupational, industrial and regional mobility, and the movement of people from education into employment;

(c) that the Training Services Agency or Manpower Services Commission should give early consideration to the co-ordination of industrial training board statistics in a way that is compatible with the list of key occupations for statistical purposes and which takes account of minority occupations in the scope of one board being of interest to others;

(d) the extension of basic quarterly statistics on employment to such sectors as distribution, commerce and finance; and

(e) that early consideration be given to the desirability of producing periodic reports on the national manpower situation on similar lines to the Manpower Report of the President of the United States.

The Department of Employment is considering these recommendations and consulting other Departments and other organisations about recommendations which concern them. Copies of the report of the Working Party may be obtained from the:

Unit for Manpower Studies,
Department of Employment,
Steel House,
11 Tothill Street,
London, SW1H 9LN.

Articles on manpower planning

A third set of articles on manpower planning (*Statistical News* 24.16) was published in the April 1974 issue of the *Department of Employment Gazette*. They described manpower planning activities of the Air Transport and Travel Industry Training Board, an analysis of the reasons for voluntary wastage in Imperial Chemical Industries' Mond Division and recommendations for improving information on manpower resources made a joint working party of the Manpower Society and the Department (see note above). Off-prints of these and earlier articles may be obtained from the:

Unit for Manpower Studies,
Department of Employment,
Steel House,
11 Tothill Street,
London, SW1H 9LN.

Female activity rates

An article published in the January 1974 issue of the *Department of Employment Gazette* presented and discussed trends over the last fifty years in female activity rates. These trends were based on information obtained from censuses of population. A major feature was the steep rise over the period in the activity rates of married women in all age-groups. In recent years, this increase has been most marked for women in the 35 to 59 age-group. Activity rates for married women, for single women and for widowed or divorced women were examined separately.

The article also provided tentative projections of female activity rates which were linked with those derived from the 1971 Census of Population. Cohort studies indicated that activity rates for married women were likely to continue to rise, given suitable employment opportunities, but activity rates for single, widowed and divorced women were likely to fall.

This article was linked with two earlier articles (ref. *Statistical News* 24.16) on the fall in the labour force 1966-1971 and on part-time women workers. A further article giving national labour force projections up to 1991 for males and females, is being pub-

lished in the *Department of Employment Gazette*.

Reference

Department of Employment Gazette January 1974 (HMSO Price 52½p net).

Women and Work: A Statistical Survey

In a new publication entitled *Women and Work: A Statistical Survey*, the Department of Employment has brought together, from various governmental sources the more important available statistics about the employment of women in Great Britain. They cover economic activity within various groups of the population, distributions of employment between industries and occupations, earnings, hours and employment behaviour.

Reference

Women and Work: A Statistical Survey (HMSO) forthcoming.

The computerization and geocoding of the Northern Ireland Census of Employment

In the past, manpower statistics have used as their geographical basis the administrative local office areas of the former Ministry of Health and Social Services. These local office area statistics are of diminishing value for planning purposes as governmental administrative units change and developments in communication and transportation lead to the creation of new economic areas. Accordingly a more flexible system of relating manpower statistics to areas ('geocoding') was needed and so a system of geocoding called 'grid referencing' has been introduced.

Grid referencing was first adopted for statistical purposes in Northern Ireland by the Census Office for population statistics. It is a system whereby an exact location of a place (or person) can be given. The Irish Grid, which is metric, provides a single reference system for all new government mapping. Within this system 20 squares each allocated a unique identifying letter and each of 100 kilometre side are required to cover Ireland. Northern Ireland is covered by five squares C, D, G, H and J. These one hundred kilometre squares are then subdivided metrically to the degree of scale required.

Manpower statistics will be geocoded to differing levels depending on the degree of accuracy needed for the purposes of the statistics and the costs involved - the decision being the result of a trade-off between accuracy and cost.

Taking as an example the new Census of Employment which covers all those places where workers are employed and which has been computerized and geocoded this year. All establishments have been geo-

oded to a 1 km square scale, for example, H6283 save or establishments in the conurbations of Belfast and Londonderry which have been geocoded to a 100 metre square scale, for example, J351746.

The actual geocoding of some thirty thousand employers was largely carried out by the national insurance card Inspectors in each area who used their local knowledge to locate places of employment on specially prepared pre-grid referenced six inch and twenty five inch maps.

However, in future, geocoding will be carried out by using a 'Geocode index' which is at present being compiled using as a basis the Post Office postal code books (albeit without the post-codes) and enumeration books drawn up for census of population purposes. Thus, in future, an address will be geocoded by looking up its grid reference in the Geocode index.

It is now possible to produce numbers in employment and size range data by minimum list heading for any area required.

Health and safety at work legislation

A Bill presented to Parliament in March, similar to one introduced in January by the previous government, embodies proposals for a unified system of law covering health and safety at work. The Bill implements the main recommendations of the (Robens) Committee on Safety and Health which reported in 1972 (*Statistical News* 19.22). Proposals for such legislation had been published in June 1973 as a basis for consultations. The Bill provides for the establishment of a Health and Safety Commission and a Health and Safety Executive. Under the proposals the Commission will have powers to obtain, with the consent of the Secretary of State, any information needed for the discharge of its functions or those of enforcing authorities. In order to avoid duplication of inquiries by these and other authorities, it is also proposed that certain limited kinds of information on work places and employment, obtained under the Statistics of Trade Act 1947 by government departments and the Manpower Services Commission and its Agencies may be disclosed, to the Commission or Executive for use in the discharge of their functions.

Reference

Health and Safety at Work etc. Bill House of Commons Bill No. 6 (HMSO) March 1974 (Price 74p net).

New Earnings Survey 1973

A wide range of results of the New Earnings Survey 1973 (*Statistical News* 20.33, 23.17) were published in five instalments of the *Department of Employment Gazette* from October 1973 to February 1974. These

together with other results not so far published will be included, as in earlier years, in the comprehensive booklet being published later in the year. The 1973 survey results include analyses in which employees are classified, for the first time, by occupation using the recently-introduced list of key occupations for statistical purposes (KOS) (*Statistical News* 18.27, 19.25.) New analyses show the extent to which employees in the various industries, occupations, wage-negotiating and wages council groups are affected by:

- (i) both a nationally negotiated collective agreement and a supplementary company, district or local agreement,
- (ii) only a national agreement,
- (iii) only a company, district or local agreement, or
- (iv) no collective agreement.

Reference

Department of Employment Gazette October 1973 to February 1974 (HMSO Price 52½p each net).

Problems of pay relativities

The report on problems of pay relativities, submitted by the Pay Board in January to the then Secretary of State for Employment, distinguished (i) relativities between categories within a single negotiating group (described as differentials), (ii) those between separate negotiating groups of employees of one employer (internal relativities) and (iii) those between groups of employees of different employers (external relativities). The Board had studied the various kinds of pay surveys for the exchange of information about rates of pay and the use made of these data and also the extent to which job evaluation techniques were used to establish differentials; the report of the Board concluded with separate annexes on job evaluation and pay surveys.

The Board advised a procedure for deciding claims for significant shifts in relativities between large groups of importance to the community. This procedure included examination of selected cases in depth and in public by or on behalf of an examining authority. The then Government accepted the principles of the report and selected the pay of members of the National Union of Mineworkers employed by the National Coal Board for urgent examination by the Pay Board in accordance with the recommended procedure. The Pay Board's report was published on 6 March; a statistical annex to the report included comparisons between earnings of manual men in coalmining and manufacturing on several bases.

References

Problems of pay relativities Pay Board Advisory Report No. 2 Cmnd 5535 (HMSO) January 1974 (Price 31p net).

Relative pay of mineworkers Pay Board Special Report Cmnd 5567 (HMSO) March 1974 (Price 34p net).

London weighting – payments to employees

The report by the Pay Board on its review of London weighting is expected to be made to the Secretary of State for Employment by the end of June. Such payments to compensate for the differential costs between the London area and other parts of the country of housing and travel to work are made in both public and private sectors. Among the aspects under review are geographical boundaries and methods of keeping the weighting up to date and, in particular, the formula recommended in 1967 by the National Board for Prices and Incomes.

INDUSTRIAL STATISTICS

Annual Census of Production, 1971

In *Statistical News* 24.17 there appeared a list of the Business Monitors which had been published to date for the Census of Production, 1971. The following table gives details of those Business Monitors published since that number of *Statistical News*. The Census of Production (PA) reports are available on standing order from Her Majesty's Stationery Office, P.O. Box 569, London SE1 9NH, although they are not included in the global subscription arrangements for the Business Monitor series.

Business Monitor No.	Description	Standard Industrial Classification Minimum List Heading
PA101	Coal mining	101
PA104	Petroleum and natural gas	104
PA279.7	Photographic chemical materials	279(7)
PA342	Ordnance and small arms	342
PA392	Cutlery, spoons, forks and plated tableware, etc.	392
PA416	Rope, twine and net	416
PA601	Gas	601
PA602	Electricity	602

Further information on these Business Monitors and on the Census generally can be obtained from:

Business Statistics Office,
Cardiff Road,
Newport,

Monmouthshire, NP1 1XG

Telephone: Newport (0633) 56111 ext. 2455.

Other new Business Monitors

Since November 1973 seventeen Business Monitors have been issued in the Production Series containing results of new quarterly inquiries into sales by United Kingdom manufacturers. The inquiries are being conducted by the Business Statistics Office as part of the new system of industrial statistics.

The reference numbers and titles of the Business Monitors are:

PQ102	Stone and slate quarrying and mining
PQ103	Chalk, clay, sand and gravel extraction
PQ211	Grain milling
PQ221	Vegetable and animal oils and fats
PQ229.2	Starch and miscellaneous foods
PQ232	Soft drinks
PQ399.2	Metal windows and door frames
PQ399.3	Safes, locks, latches, keys and springs
PQ399.8	Needles, pins, fish-hooks and other metal small-wares
PQ399.9	Domestic gas appliances
PQ399.10	Metallic closures
PQ399.11	Metal finishing
PQ429.2	Miscellaneous textiles
PQ469.1	Abrasives
PQ469.2	Miscellaneous building materials and mineral products
PQ480	Packaging products
PQ603	Water supply

These publications are appearing for the first time in the Business Monitor Series. A note on PQ480 appears in *Statistical News* 24.18.

Business Monitors are available on subscription from Her Majesty's Stationery Office, PO Box 569, London SE1 9NH, at 37½p per annum for each title. Copies may be purchased over the counter at either the Department of Industry's Central Library, 1 Victoria Street London SW1H 0ET, or at the Department's Statistical and Market Intelligence Library, Export House, Ludgate Hill, London EC4. Copies of specific issues can be ordered by post (payable in advance) from the Business Statistics Office Library which will supply prices on request; the address is:

The Librarian,
Business Statistics Office,
Cardiff Road,
Newport,
Monmouthshire,
NPT 1XG

Telephone: Newport (0633) 56111 ext. 2399

The first in a series of annual Business Monitors has been published showing an analysis of United Kingdom manufacturing (local) units by employment size in 1971. The new monitor (PA1003) is in three sections. Section A gives the analysis by Standard Industrial Classification Order (Orders III to XIX) and by Minimum List Heading. Section B gives the analysis by Standard Region, by Sub-Division of Standard Region and by Conurbation. Section C gives the analysis by Standard Region for each Standard Industrial Classification Order (Orders III to XIX). Copies of the monitor may

be obtained from Her Majesty's Stationery Office. Further information on this Business Monitor can be obtained from:

Mr C. A. Martin,
Business Statistics Office,
Cardiff Road,
Newport,
Monmouthshire,
NPT 1XG
Telephone: Newport (0633) 56111 ext. 2560

Reference
Business Monitor Series PA1003 *Analysis of United Kingdom manufacturing (local) units by employment size* (HMSO Price 54p net).

Copies of forms for retention

The Business Statistics Office has announced that because of the need to economise on paper usage, the practice of enclosing copies of inquiry forms for retention by the firms concerned is being discontinued. The issue of 'retention copies' with the sales inquiry forms which manufacturing firms are required to complete and return each quarter will be discontinued with effect from the issue of forms for the second quarter of 1974. The issue of 'retention copies' in connection with the monthly production inquiries ceased with effect from the issue of forms for April. All firms affected were notified of this change in practice in a letter which accompanied forms despatched at the end of March.

The Business Statistics Office regrets that it has been necessary to make this change and hopes that it will not cause firms undue inconvenience.

Retail sales – provisional estimates

In February, the Department of Industry issued the first of a regular series of monthly Press Notices giving provisional estimates of the seasonally adjusted index of the volume of retail sales and the increase in the value of sales compared with a year earlier.

The provisional estimates, which are based on early returns to the monthly inquiry, are available about two weeks after the end of the particular standard trading period (information is collected on a four/four/five week basis, rather than on a calendar month basis), with the final figures appearing some three weeks later. Past experience suggests that the average error (ignoring sign) in the provisional estimates will be about 0.5 per cent.

A detailed note on the method of compilation of

these estimates was published in *Trade and Industry* 21 February 1974. Copies of this note and further information can be obtained from:

Mr K. Mansell,
Department of Industry,
Room 257,
1 Victoria Street,
London, SW1H 0ET.
Telephone: 01-222 7877 ext. 3220

Resources devoted to research and development by manufacturing industry

An article published in the March 1974 issue of *Economic Trends* considers several aspects of expenditure on research and development by manufacturing industry. The size of expenditure on research and development in 1968 is considered in relation to various measures of the activity of individual product groups within manufacturing industry. Also looked at are how far expenditure on research and development is affected by cyclical factors, and the effect of also taking account of expenditure on licences, royalties, patents, etc. The effect is examined of regarding expenditure on research and development as a form of investment, akin to expenditure on fixed assets in that the return is not immediate and is usually long-term.

Reference
Economic Trends (HMSO) March 1974 (Price 63p net).

Survey of industrial expenditure on research and development 1972

The survey of industrial expenditure on scientific research and development in 1972-73 has now reached an advanced stage. The survey is similar to that taken three years ago in relation to 1969-70 but information has also been collected this time on expenditure on licences, royalties, patents, etc. and on the size of the company undertaking the expenditure. It is planned to publish the main provisional results in *Trade and Industry* about the middle of this year. This first article will permit a ready comparison with the results of the 1969 survey published in *Trade and Industry* on 14 December 1972, and in *Research and Development Expenditure – Studies in Official Statistics No. 21*. More detailed results, including employment on research and development activity and analyses by the size of company, will be published later in further articles which will be prepared for publication in *Trade and Industry*.

References
Trade and Industry (HMSO) every Thursday (Price 10p net).
Studies in Official Statistics No. 21 Research and Development Expenditure (HMSO) July 1973 (Price £1.55 net).

CONSTRUCTION

Annual Census of Production 1974 – construction industry

The construction industry is to be included in the annual census of production, starting with the census for 1974. The census is part of the new system of industrial statistics which has been introduced progressively over the last five years. Manufacturing and extractive industries have been covered by the annual census since 1970, and building and civil engineering firms are now to be brought into the field.

Information will be collected on the normal range of topics for the annual census of production, together with rather more detail on the cost of purchases as the construction industry will not be included in the detailed purchases inquiry for 1974. There is particular interest in the importance of sub-contracted work in the industry and information about this will be collected from each firm, both on the work which it lets out and on its own work as a sub-contractor.

All contractors with average employment of twenty or more in 1974 will be included in the census. Also, because of the importance of smaller firms in the construction industry, a sample of those employing less than twenty will be sent a simpler form containing the most basic questions. The sample field will be stratified by four employment size bands within some twenty trade groups, and variable sampling fractions will be used. The average sampling fraction within the sample field will be about 5 per cent.

Details of the questions to be asked were given in advance notices sent to firms during February–April this year. Forms for completion will be despatched early in 1975 to about 14,000 of the 100,000 firms in the private sector of the industry and to public and local authorities which carry out construction work using direct labour forces.

The census is conducted by the Business Statistics Office; a separate section will handle this work for the construction industry, specialising in its particular features and needs. The Department of the Environment will continue to make annual, quarterly and monthly inquiries into certain more detailed aspects of the industry, such as new orders and output by type of work, and the analysis of employment in the industry.

Construction industry contractors' census

The annual censuses relating to the output and employment of private contractors in the construction industry for 1971 and 1972, are expected to be published next month by Her Majesty's Stationery Office.

This publication will include seven historical tables

for the years 1965 to 1972, relating to the numbers and value of output of firms, by size of firm, and to the value of output by trade of firm, as well as to the manpower of the industry, separate details of which are available for operatives and apprentices (by craft), as well as for administrative, professional, technical and clerical staff, and for working proprietors. There will also be some thirty-four separate tables for 1971, and the same number for 1972, with details of the employment and the value of work done, by size and trade of firm, as well as by region and (where appropriate) by craft and type of work.

Reference

Private Contractors' Construction Censuses 1971/72 (HMSO) forthcoming.

AGRICULTURE

Agricultural censuses and surveys

The 1973 October Census of Vegetables and Flowers

The results of this census in England and Wales were published in a Statistical Information Notice on 6 February 1974⁽¹⁾. The total area of vegetables covered by the census showed a drop of about 10,500 acres (7.2 per cent).

The 1973 December Agricultural Census

The raised results of this sample census in England and Wales were published in a Press Notice on 18 February 1974⁽²⁾. Compared with December 1972, they show an increase in numbers of beef cows but no change in the number of dairy cows. There were more breeding sheep but fewer lambs were retained for breeding. There were more pigs in the breeding herd than a year ago, but numbers had turned down since the September 1973 peak. The egg laying flock decreased, but growing pullets and breeding fowls increased, as did broiler fowls. The acreage of wheat sown by 4 December was up by some 231,000 acres on that of 1972.

The provisional results of the December census in the United Kingdom were published in a Statistical Information Notice on 14 March 1974⁽³⁾.

The 1974 March Sample Livestock Enquiry

The results of this enquiry are expected to be published in May.

References

- (1) Statistical Information Notice (Stats: 36/74) issued by the Ministry of Agriculture, Fisheries and Food.
- (2) Press Notice No. 46 issued by the Ministry of Agriculture, Fisheries and Food.
- (3) Statistical Information Notice (Stats: 68/74) issued by the Ministry of Agriculture, Fisheries and Food.

TRANSPORT

Highway Statistics 1972

The latest issue of the annual publication *Highway Statistics*, published in February, contains detailed statistics of vehicles in use, new registrations of vehicles, distribution of traffic, road mileages and expenditure on roads. Maps of motorways in England and Wales show the average 24-hour traffic flows along the principal sections. A new feature is the inclusion of tables showing the number of driving tests conducted and the number of passes and the percentage of passes for men and women in each Traffic Area.

Reference

Highway Statistics 1972 (HMSO) February 1974 (Price 90p net).

PUBLIC EXPENDITURE

Public expenditure

Increasing emphasis is now being placed on relating public expenditure to measures of need and output. One step in this direction was the inclusion in the White Paper on public expenditure, published in December 1973, of considerably more non-financial information about the determinants and outputs of expenditure programmes than hitherto. This development was in response to the recommendation of the Expenditure Committee in their report on the *Relationship of Expenditure to Need* that the Government should publish key non-financial statistics relevant in determining the level of expenditure on programmes.

Local authority expenditure is also being presented in a form more closely related to needs. In the *Teesside Finance: Annual Report 1972-73*, for example, in addition to the usual financial summaries of the services provided, information has been included on outputs of this expenditure. Thus expenditure on social services is related to the number of people using the service, the intensity of use of capital items such as old people's homes, the cost per head of total population and the cost per recipient. This can only be regarded as the first step towards relating expenditure to final output in the sense of actual benefit derived from the expenditure.

References

Eighth Report from the Expenditure Committee Session 1971-72, Relationship of Expenditure to Needs (HMSO) November 1972 (Price £1.00 net).
Public Expenditure to 1977-78 Cmnd 5519 (HMSO) December 1973 (Price 90p net).
Teesside Finance: Annual Report 1972-73.

PRICES

Retail prices index: rebasing

Following the advice of the Retail Prices Index Advisory Committee (*Statistical News* 24.22), the reference base for the index has been changed from January 1962 to January 1974. For the convenience of users, the index will be published on both the new and the old bases throughout 1974.

OVERSEAS TRADE

United Kingdom International Trade 1980

This report from the National Ports Council gives estimates of the tonnages of United Kingdom exports and imports in 1980. The forecasts cover all trade other than fuels, and are analysed by fifty commodity groups and thirteen overseas trading areas. They are based on a combination of market intelligence work and econometric modelling and particular emphasis has been placed on the effects of the enlargement of the EEC. The report includes a full description of the econometric model and commentaries on the forecasts for individual commodities.

Reference

United Kingdom International Trade 1980. Obtainable from the National Ports Council, Commonwealth House, 1-19, New Oxford Street, London WC1A, Telephone 01-242 1200. Price £25 net.

BALANCE OF PAYMENTS

The balance of payments in the inter-war period

An article in the *Bank of England Quarterly Bulletin* September 1972 compiled and assessed balance of payments statistics collected in the inter-war period. A further article in the March 1974 *Bulletin* develops this study on the basis of a comprehensive review of all available contemporary and subsequent material from official sources and from academic research. The revised estimates, summarised in tabular form, are now considered to be rather more reliable, though still subject to varying degrees of inaccuracy.

Offprints of this article may be obtained, free of charge, from the Economic Intelligence Department, Bank of England, London EC2R 8AH.

INTERNATIONAL

United States Social Indicators

In February 1974 the United States Office of Management and Budget published *Social Indicators*. The two hundred and seventy two page book, first of its kind to

be published by the Federal government, contains a selection of statistics on social conditions and trends in the United States. Its data explore eight different fields: health, public safety, education, employment, income, housing, leisure and recreation, and population.

In each case, the focus is on widely-held basic social objectives: good health, long life, and access to medical care; freedom from crime and the fear of crime; sufficient education to take part in society and make the most of one's abilities; the opportunity to work at a job that is satisfying and rewarding; income sufficient to cover the necessities of life with opportunities for improving income; housing that is comfortable within a congenial environment; and time and opportunity for discretionary activities. The status of the population relative to each concern is then measured with one or more indicators – statistical measures of the most important aspects of the concern.

The indicators describe the conditions of people, both as individuals and in families, not the institutions set up to deliver social services. They describe end-products – life expectancy, days of disability, educational attainment – rather than process measures, such as school budgets, classroom construction, or numbers of teachers.

In most cases, the indicators are statistical series showing national totals over time. Life expectancy at birth is shown from 1900 to 1970; the unemployment rate, an indicator of employment opportunity, is shown for 1948 to 1972. In addition, the national totals are broken down to show the age, sex, and racial characteristics of the population, thus making comparisons possible over time and between groups.

The United Kingdom led the field with this type of publication when it published the first annual issue of *Social Trends* in 1970. *Social Indicators 1973* is the first major contribution by the United States in a growing worldwide movement. The Japanese recently released their contribution, *Whitepaper on National Life, 1973* and the French and West German governments have produced similar documents. In the international field the Organisation for Economic Co-operation and Development is developing a programme of social indicators; this was described in a previous issue of *Statistical News* (23.27).

The United States Social Science Research Council Centre for Co-ordination of Research on Social Indicators held a symposium in Washington from 21–23 February 1974 to discuss the United States publication. It brought together leading experts in social indicator development work and Mrs Muriel Nissel, Editor of *Social Trends* and a Chief Statistician

in the Central Statistical Office, attended from the United Kingdom.

EUROPEAN COMMUNITIES

Statistics Users Conference

The 1974 Statistics Users Conference was arranged for the Social Science Research Council by the Organisation of Professional Users of Statistics and held on 19 March at the Royal Society. The theme for the conference was 'Statistics and the European Communities with sessions on: Progress and problems in international statistics; case studies of the use of statistics at Community level; statistics for social planning in the Communities; the work of the Statistical Office of the European Communities; and the steps being taken by the Government Statistical Service as a consequence of United Kingdom membership of the Communities.

Structure and distribution of earnings in distribution, banking and insurance

The Council of the European Communities adopted regulation in January on the organisation by the Commission of a survey of the structure and distribution of earnings in wholesale and retail distribution, banking and insurance. This was based on proposals (*Statistical News* 21.32) prepared by the Statistical Office of the European Communities, largely before the United Kingdom joined the Communities, to give effect to decisions taken by the Council in October 1971. These proposals would have required employers to provide a wide range of information about each of a large sample of employees in these sectors in the United Kingdom. These represented about 20 per cent of a sample of employees in wholesale distribution, about 8 per cent of employees in retail distribution and about 4 per cent in banking and some other financial businesses and insurance; the information included earnings in one month, preferably October 1974, and in the whole year.

This would have been a major addition to the burden of form-filling. In view of the fact that, in the United Kingdom, the New Earnings Survey is already carried out for national purposes, the Council agreed that the obligations under the Regulation would be met by the provision of data obtained from the New Earnings Survey in the United Kingdom, without increasing the size of the Survey sample but with the addition of supplementary questions. Accordingly additional information will be obtained about employees in these sectors in the New Earnings Survey 1975.

These survey results will complement those obtained from the survey of labour costs in these sectors which

is being made under another Council regulation (*Statistical News* 24.25).

Reference
Regulation (EEC) No. 178/1974 of the Council of 21 January 1974; *Official Journal of the European Communities* Vol. 17 No. L21 25 January 1974 pages 2 and 3. English edition obtainable from HMSO.

Publications of the European Communities

These publications are in addition to those already notified in previous issues of *Statistical News*.

Agricultural Statistics (Statistique agricole)

Internal information on agricultural statistics: agricultural prices

(Informations internes de la statistique agricole: prix agricoles)

From January 1974 the publication has been subdivided into two volumes:

Volume 1 Agricultural prices – selling price of agricultural products – monthly

Volume 2 Agricultural prices – purchase price of agricultural products – quarterly

Internal information on agricultural statistics: agricultural statistical studies

(Informations internes de la statistique agricole: études de statistique agricole)

1973
No. 14 Volumes I and II. Statistics of pig breeding in the member states 1968–1971 (d)

Statistical Studies and Surveys (Etudes et enquêtes statistiques)

1972
No. 2 Annual investment in fixed assets in industrial enterprises of the member states 1964–1970 (d, f, i, n, e).

No. 3 Part 1. A system of integrated price and volume measures (indices) by T. P. Hill (e).
Part 2. 1972 enquiry into retail prices and construction of purchasing power parities (d, f, i, n).

SURVEY CONTROL

Survey Control Unit

Surveys assessed

A brief article in *Statistical News* 21.15 described the assessment work of the Survey Control Unit, and the grading system used. The table below shows that the number of surveys assessed in the first quarter of 1974 was one hundred and fifty two, an increase of one hundred and seven in the number assessed during the first quarter of 1973.

Surveys assessed during the first quarter 1974

Type of survey	Initial grading				No grading given	Total
	Un-recognised	Under consideration	Provisional recognition	Full recognition		
Small <i>ad hoc</i> ...	1	5	22	76	14	118
Other <i>ad hoc</i> ...	–	1	2	9	1	13
Continuous ...	–	–	1	18	2	21
Total ...	1	6	25	103	17	152

Of the total, eighty two were surveys newly in the field, of which 23 per cent came from the Central Office of Information, 15 per cent from the Department of Employment, 24 per cent from the Department of the Environment, and 13 per cent from the Ministry of Agriculture, Fisheries and Food. Many regular surveys were running before the unit's assessment work began in 1972 and the remaining seventy of the surveys examined this quarter included some of these. 59 per cent of the seventy came from the Scottish Office, 21 per cent from the Ministry of Agriculture, Fisheries and Food, and 10 per cent from the Department of Trade and Industry.

GOVERNMENT STATISTICAL SERVICE

Department of Trade and Industry

As announced in March, the Department of Trade and Industry has been replaced by three new Departments – the Department of Industry, the Department of Trade and the Department of Prices and Consumer Protection. The Economics and Statistics Divisions of the former Department of Trade and Industry are now located in the Department of Industry and provide a common service to all three departments.

Retirement

Mr R. F. L. Sims

Mr Sims who was Head of Administration at the Business Statistics Office from its inception at Newport in January 1969, retired on 8 February 1974.

For most of his career Mr Sims worked on the Censuses of Distribution, helping to produce the results of the first Census for 1950. He later had responsibility, along with a statistician, for the sample Census for 1957 and for the full Census for 1961.

On promotion to Senior Principal in 1964, he took charge of administration at the Census Office at Eastcote and played a large part in the complicated movement

of the newly formed BSO to Newport, the success of which owed much to his flair for organisation and skill in staff relations.

Appointments and changes

DEPARTMENT OF ENERGY

Mr T. A. Kennedy has been appointed Director of the Economics and Statistics Division of the Department of Energy.

CENTRAL STATISTICAL OFFICE

Mr M. J. G. Lockyer, Chief Statistician, Business Statistics Office, has been transferred to the Central Statistical Office.

BUSINESS STATISTICS OFFICE

Dr R. H. S. Phillips, Statistician, Department of the Environment, has been promoted Chief Statistician and will fill the vacancy caused by the move of Mr Lockyer.

Mr R. W. Makepeace, Principal, has been promoted to Senior Principal and is Head of Administration Branch in succession to *Mr R. F. L. Sims* who has retired (see note above).

The BSO is making a name for itself in the field of vital statistics. Mrs Angela Taylor (35-24-35) who works in the magnetic tape library was elected Miss DTI 1974 at the annual DTI dinner and dance on Friday, 22 February. To underline the excellence of BSO figures, Miss Carol Scott (36-25-37) a clerical officer on construction statistics took third place in the contest.

LATE ITEM

Economic Trends May 1974

The May issue of *Economic Trends*, published at the end of this month will contain the following articles

World commodity prices

Two regularly published world commodity price index numbers are compared and are related to the United Kingdom context. The article introduces a new service from the Department of Industry which will regularly publish a more up-to-date estimate of one of the two world series alongside its monthly index numbers of wholesale prices.

Summary input-output tables 1970

Tables distinguishing thirty five industries and commodities are published in this article together with a brief description of the method used for updating them from the firmly-based 1968 tables.

Surveys of Conveyancing

Description and results of the October 1973 and earlier surveys into conveyancing which was mentioned in the February 1974 issue of *Statistical News* (24.27).

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Annual Estimates of the Population of England and Wales and of Local Authority Areas

Delete 20p (1972). Substitute 22½p (1973).

Annual Estimates of the Population of Scotland

Delete 12½p (1972). Substitute 13½p (1973).

Annual Report of the Registrar General N. Ireland

Delete (1971). Substitute (1972).

Annual Review of Agriculture

Delete 24p (1973). Substitute 26p (1974).

Appropriation Accounts (N. Ireland)

Delete £1.72 (1971-72). Substitute £2.20 (1972-73).

British Aid Statistics

Delete (1967-71). Substitute (1968-72).

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Business Monitors Production Series**Food, Drink and Tobacco**

Add after PQ217 Cocoa, chocolate and sugar confectionery

PQ221 Vegetable and animal oils and fats

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PQ232 Soft drinks

Quarterly

Chemicals and Allied Industries

Amend P11 to read PQ273

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Amend P64 to read PQ332

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Add after PQ363 Telegraph and telephone apparatus and equipment

PQ364 Radio and electronic components

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Amend P147 to read PQ366

Delete P77 Hearing Aids

Substitute PQ367 Radio, radar and electronic capital goods

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Shipbuilding and Marine Engineering

Delete P82/82A Merchant shipbuilding/ships, boats and marine engineering

Substitute PQ370 Ships, boats and marine engineering

Metal Goods

Add after PQ393 Bolts, nuts, screws, rivets, etc.

PQ394 Wire and wire manufacture

Quarterly

Textiles

Add after PQ429.1 Asbestos

PQ429.2 Miscellaneous textiles

Quarterly

Leather, Leather Goods and Fur

Amend P105 to read PQ431

Bricks, Pottery, Glass, Cement etc.

Add after PQ464 Cement,

PQ469.1 Abrasives

Quarterly

PQ469.2 Miscellaneous building materials and mineral products

Quarterly

Paper, Printing and Publishing
Add after group heading PQ480 Packaging products
Delete P69/74 Newspapers and periodicals
Substitute PQ485 Newspapers
P74 Periodicals

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Quarterly
Quarterly
Quarterly

Other Manufacturing Industries
Amend P95 to read PQ496

Civil Appropriation Accounts (2 Volumes)
Delete 1971/72 Classes I-V £2.65; Classes VI-XI £2.10.
Substitute 1972/73 Classes I-V £2.85; Classes VI-XI £2.25

Digest of Port Statistics
Delete (1972). Substitute (1973).

Family Expenditure Survey Report (N. Ireland)
Delete 74p (1971). Substitute 68p (1972).

First Employment of University Graduates 75p (1970-71).
Delete and substitute First Destination of University Graduates 85p (1971-72).

Financial Statement and Budget Report
Delete 52p (1973-74). Substitute 57p (1974-75).

Highway Statistics
Delete £1.12 (1971). Substitute 90p (1972)

Housing Return for N. Ireland
Delete 18½p. Substitute 20p.

Housing Return for Scotland
Delete 20p. Substitute 15p.

Land Revenue Statistics
Delete (1972). Substitute (1973).

Local Authority Financial Returns, N. Ireland
Delete (1970-71). Substitute (1971-72).

Passenger Transport in Great Britain
Delete (1971). Substitute (1972).

Preliminary Estimates of National Income and Balance of Payments
Delete 32p (1967 to 1972). Substitute 34p (1968 to 1973).

Statistics of Education
Volume 2 School leavers, GCE and CSE
Delete (1971). Substitute (1972).

Alphabetical Index

The index to *Statistical News* covers the last nine issues. Page numbers are prefixed by the issue number e.g. 19.31 signifies issue number 19, page 31.

Generally speaking articles relating to United Kingdom, Great Britain, England and Wales or covering several geographical groups are not indexed under these groups, but topics with a significant regional interest are indicated e.g. regional earnings. Articles and notes dealing particularly with Scottish statistics are indexed under 'Scotland' as well as the topic, e.g. 'Scotland, population projections', and similarly for Wales and Northern Ireland.

The following conventions have been observed in printing this index: references to items appearing in articles are shown by (A); italics are used for the titles of published books or papers.

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