

**Study 4097 - Digest of Welsh Historical Statistics :  
Coal, 1780-1975**

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PREFACE

In the last couple of decades Welsh historical studies have flourished. The present volume is not offered as part of that very welcome development: it was rather conceived with the more modest aim of providing a service for those working on the history of modern Wales. It arose from a belief that the quantitative element is a necessary and important part of the historical record; from an awareness that it was an aspect that was particularly inaccessible for scholars of Welsh history; and from a conviction that some encouragement in the use of quantitative material was necessary.

It was fortunate that my then colleagues in the Department of Economics at U.C.W. Aberystwyth sufficiently shared my views as to allow me research assistance. I am most grateful to them and also to the Social Science Research Council (as it then was) for funding a research officer. These two institutions generously provided the crucial opportunities.

None the less the vigour with which these opportunities were exploited depended entirely on how effectively the researchers used the couple of years to which funding was limited. In this report I was exceptionally lucky. The two young researchers, Rosemary Oakley (as she then was) and Trevor Boyns, did far more than could reasonably have been asked for them. They were terrier-like in their pursuit of material, meticulously painstaking in its arrangement, careful in indicating its limitations, ingenious in suggesting improvisation, and were enjoyable and stimulating colleagues. Such virtues as the work possesses derives mostly from their efforts and I am conscious that much has been lost because of the necessity to reduce, merge or manipulate much of what they had done.

For a variety of reasons this work has taken a somewhat tortuous path towards publication. It is thus with especial gratitude that I acknowledge the assistance of the Welsh Office in enormously facilitating the final stages. If, as is hoped, the work will be of some use to scholars its appearance owes much to the Welsh Office and to the enthusiastic assistance and support given by Ed

Swires-Hennessy, their survey statistician. I am grateful, too, to John Rhys of the University of Wales Press for his ready acceptance of this arrangement. If the standard of accuracy fails to reach the normal high standards of Welsh Office statistical publications the responsibility is entirely mine; as is the fault for any shortfall from the normal production standards, the copy not having been originally prepared for this form of publication.

Certainly none of the responsibility for any shortcomings would rest with those who have executed a difficult and tedious typing job with remarkable accuracy and cheerfulness. Rosemary Law, Susan Cadman and Pam Davies bore the brunt of this and, in particular, Rosemary Law gave freely of her time and skill in the final substantial task of correcting and adapting the typescript for a different mode of publication. Similarly, Dot Jones has, over a considerable period of time, sunk a great deal of effort into the enterprise not least in the demanding task of checking and preparing the typescript for publication.

#### GENERAL INTRODUCTION

The task of compiling a set of historical statistics for Wales was one which was undertaken with the greatest reluctance. It was attempted because of the continuous personal frustration induced by lengthy searches for quite basic statistical information. It was attempted because this seemed a general experience amongst those working in Welsh history. It was attempted because the preferred solution to the problem (i.e. that someone else should undertake the task) remained as remote as ever. The reluctance was reinforced by an acute appreciation of the difficulties involved and of being inadequately qualified for the task. Misgivings on these last two counts have mostly been confirmed.

The obvious model for a work of this kind is provided by the two volumes devoted to British historical statistics. (1) The general outline follows the same pattern as the British volumes. Each section has a brief introduction which is intended to provide some explanatory remarks, not on the general subject of the section, but on the particular statistical series which has been provided. These comments will not be, and are not intended to be very helpful to those who are already expert in the given area, but it is hoped that non-specialists will be able to gain some idea of the nature of the sources upon which the tables are based, obtain an indication of the reliability of the figures, and -perhaps most important-

be warned about their limitations. Each section also has a short bibliography, which is largely confined to listing those works which have been of direct use in compiling the tables and/or contain comment upon statistical material. No attempt has been made to provide a bibliography of the numerous more general works which have been consulted: interested readers are referred to the second edition of the Bibliography of the History of Wales published by the University of Wales Press in 1962 and its later supplements.

In some respects substantial effort has been expended in an attempt to follow the model provided by the volumes on British historical statistics as exactly as possible. Naturally it would be pleasing to reach the same standards of accuracy and clarity but, more operationally, the aim was to facilitate comparisons between the figures relating to Britain. The limitations of the material, however, often frustrated such attempts but, beyond this, there are other substantial departures from the model provided by the British volumes. It might help potential users to offer some brief comments on these departures, some of which have been deliberate and some have been more or less involuntary.

The deliberate deviations are of three main kinds. In the first place, a greater attention has been given to statistics of a non-economic, or less explicitly economic nature. This is justified, if justification is needed, by the growth of the new social history and its readiness to use quantitative material and techniques; and by the extent to which economic historians and economist have increasingly recognised that most questions cannot be satisfactorily resolved simply on the basis of a small number of exclusively economic variables. Such recognition has naturally been strongest in the case of relatively long-run issues, where the assumption that 'other things remain equal' becomes increasingly questionable: but part of the justification for a volume such as the present lies precisely in the assistance it can give in tackling issues of relatively long-run nature. In the second place, more detail has sometimes been given than was contained in the British volumes. Thus, for example, a greater range of statistical information is included on the coal industry, because of its peculiar importance for Wales. Conversely, much less information (or none at all) is included for sectors of industries (like cotton manufacture) which were unimportant or non-existent in Wales. And thirdly, substantially more information has been included on a local, and especially a county, basis. For many issues

the aggregate figures for Wales, whilst communications have tended to run east-west, rather than north-south, making Wales less integrated as a national unit. It is hoped that a greater inclusion of information on a county basis will offer investigators more flexibility in using the material.

The involuntary deviations from the British model are more numerous and regrettable. Mostly they arise from the, till recently, deeply-entrenched tendency for administrators (and others) to lump Wales in with England. Scotland and Ireland are usually separately designated but the historical investigator for Wales is perpetually balked by the irritating phenomenon of 'England and Wales'. In some cases it has been possible to separate out the figures for Wales. It would be possible in many other cases to make reasonable estimates for Wales: but, in general, such calculations have not been presented here because of the intention to confine attention, apart from a few indices, to making available raw data. In other cases, the problems seem insurmountable. Thus, any reasonable approximation for the total external trade of Wales seems beyond our reach: the bulk of such trade -imports and exports- was with England and is unrecorded. Other areas are not beyond reach, but would demand a degree of fundamental research which was impossible to undertake with the time and resources available. There is a great deal of empirical evidence concerning prices in Wales. It appears as incidental material in government and other official records and reports, it recurs in a wide variety of farm, business and household accounts and manuscripts; and it appears in a wide range of local newspapers and secondary writings. But it is scattered, patchy, sporadic and unsystematic: substantial and sustained research would be needed to collect and organise it into meaningful economic trends. There is thus no separate section on prices in the present volume, but wherever a reasonably consistent series was available for a particular sector (for coal, for example, and some farm products) it has been included with the other material for that sector. A similar situation exists for wages but it was judged that, despite the gaps and shortcomings, enough usable material existed to justify a separate section (Section 3) especially since good figures exist on the topic for recent years.

The reference to recent years prompts comment upon a number of more general limitations to the present work. The starting date for some of the basic demographic tables is at the beginning of the nineteenth century and

a few isolated tables, for example dealing with iron and coal, lap back into the eighteenth century. But in most areas reasonably consistent and continuous series for Wales can only be obtained from around the middle of the nineteenth century at the earliest. Often the starting-point is much later since the figures are frequently a by-product of two late-flowering processes: the extension of government activity into new areas of social interest, and the pursuit of active regional policies. At the other end of the chronological scale the cut-off date has normally been made around 1974. This marked the re-organization of local government in Wales and it would have been impossible, as well as being historically meaningless, to have converted all the earlier data to coincide with the radically different administrative basis. A related problem concerns the decimilisation of money. Apart from some marginal readjustments in the years immediately around the change-over in 1971, the figures have normally been left as they were originally expressed.

Another significant limitation is that there are occasional gaps and omissions in the tables. For example, table 8 in the section on education gives information on school leavers but there are gaps for 1923 and 1924 because the volume relating for Wales was not published in those years and the department was unable to provide the figures or to give information from which they could be calculated. A number of such gaps have been filled often with the help of the appropriate government department, and most of the remaining gaps of this kind are irritating rather than serious. That they are more or less unavoidable if Wales is the unit arises from the fact, already mentioned, that in some cases the total for Wales can only be obtained by extracting and aggregating more detailed figures; and if the details are not available for any particular year no total can be provided. It is this aspect which largely accounts for the two more serious periods of omission covering the two world wars. Very little was published on a county or regional basis during these periods, and the level of detail required it seems that much of the necessary information was either not collected at all or has not been retained.

A more general point concerns the kind of statistics which have been on the collection of 'raw' statistics. In general, therefore, the aim has been to avoid processing or manipulating the basic data in order to construct indices of various kinds or to convert the collected figures into indicators of concepts (like national

income) for which no consciously-constructed contemporary figures exist. Of course, it is not meant to imply by this that each statistic given existed in exactly that form in the original document or report from which it was constructed. On the contrary, one of the persistent obstacles to be overcome was that there was no figure for Wales directly available. In many cases such a figure was only reached by summing up figures which could be obtained for, say, each Welsh county, or -to cite a particularly tricky case- each Welsh railway (raising the ultimately unanswerable question of 'What is a Welsh railway?'). Where any substantial aggregation of this sort has been undertaken it has been noted in the introduction to the particular section since it obviously involves an additional source of possible error. But the general point remains: the statistics have not normally been processed in a way which would alter their original form. It was felt that the over-riding priority was to present the basic figures: partly, indeed, to provide material but part of the motivation for, and justification of, such enterprises was precisely to aid - and perhaps even encourage those who wish to process the statistics, and adapt them so that a wider range of social and economic concepts can be brought to bear upon Welsh history.

#### Notes

1. Mitchell, B. R. and Deane, P., *Abstract of British Historical Statistics*, 1962; and Mitchell, B. R. and Jones, H. G., *Second Abstract of British Historical Statistics*, 1971.

#### Chapter 5 Coal. Introduction.

In looking at the industries of Wales, it is natural to take agriculture first and equally natural then to turn immediately to coal. These two extractive industries have until very recent times dominated the economic development of Wales. In the pre-statistical era (which for Wales for most purposes means at least until 1800) it is tolerably certain that agriculture was overwhelmingly the major source of employment. With the onset of industrialisation, mining became increasingly important. Certainly, by the time that reasonably reliable figures

on occupational distribution became available in 1851 (see above, Ch. 2. Labour, Table 1) agriculture and mining already dominated the occupational structure for men in

Wales. And this dominance, although fluctuating in its degree, lasted essentially for a full century, despite the fact that the number of men occupied in agriculture was already declining in 1851 and the number occupied in mining began to fall after 1921.

In many respects, indeed, mining has been of more importance

than agriculture. In particular, mining has played a central role

in the changes which have occurred in the economy of Wales over the

last century and a half. It was mining which was the main vehicle

by which industrialism was introduced to Wales, and the rapid

development of mining - especially of coal mining in south Wales -

dictated the course of such crucial variables as the pattern of

migration. Equally the decline of mining over the last half century

has strongly coloured the economic experience of Wales. Much is

rightly made of the impact upon economic, social and cultural values

because of the absolute and relative decline in agriculture, but in

modern times many more Welshmen have been much more dramatically

affected by the eclipse of mining: in the 120 years after 1851

agriculture shed 90,000 men from its occupational workforce; in

the 50 years after 1921 mining shed almost a quarter of a million.

There are no reasonably reliable figures for the numbers occupied in mining before the census of 1851. Similarly, basic

output figures date from about the same time with the publication

in 1854 of the first edition of *Mineral Statistics* compiled by

Robert Hunt and published by the Geological survey. Table 1 is

based on Hunt' s figures, either directly or as presented to the Royal Commission on coal in 1871. The results must necessarily be treated with some caution because they were derived from voluntary returns from the collieries, and there is also some doubt as to whether they included coal used at the collieries themselves or provided (cheap or free) to mine-workers. However, a substantial number of colliery firms did take part and there is little doubt that the series faithfully reflects the general trends. Moreover, confidence in them is further increased because of their close agreement (where they overlap) with the figures later obtained through compulsory returns. These returns - obtained first through the Inspectors of Mines and later from the Department of Mines and the Ministry of Fuel and Power - form the basis of Table 2. Beside the overall output this table also gives information on the numbers employed and on output per head. This last statistic is, it should be noted, only a fairly crude indicator of productivity because it is based on annual averages which conceal many variations in the number working and in the regularity of employment; the material is not, however, available to compile a more reliable indicator based on output per man shift. For south Wales, the information in Table is also (up to 1938) given on a county basis.

Table 3 is essentially a continuation of Table 2 for the period since 1945. It is presented as a separate table partly because the basis of some of the figures changes (output is of 'saleable' coal and there is a much more reliable indicator of productivity in the form of output per man-shift) , and also partly

because - perhaps surprisingly - the information available in recent years is often much less full than it was in the past. It is, for example, not possible to give information on a county basis after 1945 but, with the over-all decline in the size of the coal-mining industry, this break-down perhaps becomes less necessary. One of the most important characteristics of the south Wales coalfield is that it contains virtually the full range of qualities of coal, from highly bituminous to almost pure anthracite. Most of these qualities are, of course, available in one or more of the other British coalfields but in the case of anthracite south Wales has long been the dominant source of supply. Table 4 attempts to indicate this and it can also be used as a measure of the increasing relative importance of anthracite production to the total production of south Wales. The more recent emergence of open-cast working is traced in Table 5 and, comparison with Table 3 makes it clear that this, often controversial, type of production has at times represent a significant proportion of the output of the coalfield.

For many purposes, it is helpful to see the trends in the Welsh coal industry in relation to those for the British coal industry as a whole. Table 6 does this for South Wales for the major variables of output and man-power. In the case of coal coke and patent fuel shipments the figure indicating the relative size of the south Wales trade is included in the tables (Tables 9 and 9) dealing with that topic.

The shipment of coal was, until recently, an especially important feature of the Welsh coal industry. Tables 7 to 10 record various aspects of trade from South Wales. In addition to the overall

figures, the trade has been considered to be sufficiently central to the economy and development of the region to justify giving separate figures for the coal trade of each of the main ports.(Table 10)

The coal miners' craft is invariably dangerous : and in South Wales these dangers have tended to be especially marked. Table 11 gives some indication of both these aspects. Public imagination and concern is naturally most aroused by dramatic pit explosions, floodings etc., but most of the deaths recorded in the table resulted from isolated incidents, a roof fall or a waggon accident crushing out a life here and another there. South Wales miners were heavily at risk from each of these broad types of accident: the mines, especially those working steam coal, were fiery and the roofs and floors unstable. The table much under-estimates the danger as it does not give, because the information is only available for very recent years, any indication of the non-fatal accidents and of the illnesses attributable to such mining diseases as pneumoconiosis.

Some measure of the spread of mechanisation in coal-mining since 1900 is given in Tables 12 and 13. These should not, however, be taken as a general measure of innovation in the industry. Some important improvements, like the use of compressed air for underground haulage, largely preceded 1900, and the range of innovation was not limited to increased mechanisation. Innovation was one of the factors influencing, and influenced by, the trend of prices. (Table 14)

Besides the pit-head price information is also given on the f.o.b.prices since, especially for the important steam-coal trade, a high proportion of Welsh coal was sold in this way (i.e. with the coal loaded in ships at the South 'Wales ports) , whilst it was the f.o.b price which, formally or informally, was the main determinant of colliery wage rates. Since the first world war it is

possible to bring together the average costs and proceeds in the industry.

(Table 15)

The last three tables in this section deal with a diversity of less central topics : the development of the Coal Owners' Association (Table 16) ; the earliest continuous, and reasonably reliable, output series for the parish of Aberdare, and the quantity of coal carried on the oldest and the most important of the railway lines primarily built to serve the coalfield (Table 17) ; and the output of coke (Table 18).

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