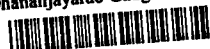


BOARD OF TRADE
AN
INDUSTRIAL SURVEY
OF
SOUTH WALES

MADE FOR THE BOARD OF TRADE BY
UNIVERSITY COLLEGE OF
SOUTH WALES AND
MONMOUTHSHIRE

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UNIVERSITY COLLEGE OF SOUTH WALES AND
MONMOUTHSHIRE.

University College,
Cathays Park,
Cardiff.

22nd December, 1931.

*To the Rt. Hon. Walter Runciman, M.P.,
President of the Board of Trade.*

SIR,

By a letter from the Board of Trade dated the 25th March, 1931, the University College of South Wales and Monmouthshire was invited to conduct an industrial survey of the South Wales area. At the same time, it was intimated that our enquiries should be directed towards the production of a report which should include—

- (a) a survey of the present industrial position of the area;
- (b) the prospects of early expansion and new developments, having regard particularly to new industrial developments within recent years, and
- (c) so far as practicable, an assessment of the prospective employment capacity of the various industries in the area as a basis for an estimate of the volume of labour likely to be surplus to the requirements of individual industries within the next few years.

We now have the honour to submit the accompanying report on the above matters.

We have the honour to be,

Sir,

Your obedient Servants,

J. F. REES,
Principal of the College.

H. A. MARQUAND,
Professor of Industrial Relations and
Director of the Survey.

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NOTE.

In presenting our report we desire to acknowledge the assistance rendered to the Staff of the University College by other collaborators. Mr. P. S. Thomas undertook the preparation of the section dealing with the metal trades. Mr. C. A. Speller wrote the chapter on Agriculture. Mr. Brinley Thomas wrote a large portion of the chapter on Coal mining, particularly the section dealing with employment. Mr. Gwynne Meara was a valued assistant at all stages of the work. Other ladies and gentlemen kindly assisted in the gathering of information and the preparation of tables. To the local officials of Government departments and the officials of the Great Western Railway Company, the Cardiff Chamber of Commerce and other bodies our thanks are also due.

AN INDUSTRIAL SURVEY OF SOUTH WALES.

CHAPTER I.

INTRODUCTION.

We have taken as the boundaries of the Industrial Region, whose industries we here survey, the River Towy on the west, and the River Usk on the east. The South Wales coalfield is a compact economic and social unit separated from the rest of Wales by the Brecknock Beacons and the Carmarthen Fan. It extends from the Afon Lwyd near Usk on the east to the valley of the Gwendraeth near Kidwelly on the west, and is surrounded by the belt of mountain limestone which marks the limit of the coal basin. The physical character of the area is clearly defined. It is a region of upland capped with Pennant grits; and the carboniferous limestone "edge" of the coalfield stands out as a special feature in the landscape, particularly on the east and south sides, presenting a sharp front to the surrounding lowlands. On the south-western side, the limestone "edge" has broken down and the sea has invaded the coalfield, but in the east the coastal plain divides the coal basin from the sea. The entire region is relatively unfertile and in this respect, too, contrasts with the surrounding agricultural valleys of Towy and Usk and the Vale of Glamorgan, the produce of which, collected at the market towns of Carmarthen, Llandilo, Llandovery, Brecon, Crickhowell, Abergavenny, Usk, Cowbridge and Bridgend, finds a sale in the coal area.

In the economic development of the South Wales coalfield, the combined influence of geology and geography has contributed to make of this region a great exporting area. The coalfield occupies a large synclinal basin but, within the basin, geological conditions are far from uniform. On the north side the "dip" of the coal seams is only slight and the deepest part of the coalfield is in the south where the strata rise sharply to the southern outcrop. Early mining, therefore, apart from outcrop workings, was mainly confined to the north. Only later did it spread towards the centre and south, but here the coal would have proved too deep for profitable working were it not for the existence of a great upfold which extends east and west across the eastern half of the coalfield, forcing upward the coal layers and bringing them within working distance of the surface. Instead of a single deep basin, therefore, we have two lesser basins, the North and the South Trough.

Again, the layers are not uniform over the whole area and the tendency is for the coal seams to diminish in number and thickness from south-west to north-east. In the western half of the coalfield there are in certain places as many as 40 seams

with an aggregate thickness of some 120 feet, but in Monmouthshire the average number falls to about 10 or 12 seams with a total thickness of about 40 to 45 feet. In view of the greater depth of the layers in the western district, mining activity has here been confined chiefly to the outcrop. But the entire region, both west and east, has been subject to a great deal of faulting and folding so that the coal mining industry in South Wales is not only costly but is attended by unusual risk.

Another feature, peculiar to the South Wales coalfield, is the tendency for the coal to become more anthracitic in character towards the north-west. In the extreme south and east, the coals are mainly bituminous. In the centre, steam coal, having a higher carbon content, predominates. In the west, the coal is mainly anthracite. No simple diagram, however, will illustrate the precise distribution of the different varieties inasmuch as anthracite may be present in the lower seams even when the upper seams consist of softer coal. A map giving a general idea of the distribution will be found in Appendix 2.

Even more important, however, in determining the lines along which the coalfield has been opened up are the physical features of the region and particularly the river valleys. The drainage of the southern slopes of the mountains of Brecon and Carmarthen traverses the coalfield in a series of "consequent" streams running fanwise from this inland watershed to the Bristol Channel. The course of this drainage bears little relation to the underlying geological strata and follows in the main a north-south direction, but having a south-easterly trend in the eastern and a south-westerly trend in the western half of the coalfield. The rivers have made for themselves deep trench-like valleys, and, in their passage through the limestone rim of the coal area, have cut narrow gorges which provide the sole lines of entry into the coal region, to-day marked by the "gap" towns of Pontypool, Risca, Machen, Tongwynlais, Llantrisant and Bridgend. The valleys have not only enabled the important "lower series" of coal layers to be reached but they have provided the main lines of transit. The economic life of the community is largely confined to these valleys, and the surrounding hill-tops are almost uninhabited. At the points of confluence of the rivers, where the railways send out their branch lines, the straggling mining village develops into a nucleated town, the distributing centre for the surrounding district. Such is the importance of Aberbyg, Bargoed, Treharris, Abercynon, Pontypridd, Porth, Tondy, and Ammanford. Communications north and south throughout the area are thus easy, but east and west they are relatively difficult. Only two natural routes follow an east-west course, viz., that extending from the Pontypool gap to the Taff valley at Treharris, and that linking up the towns of the northern outcrop, from Gilwern, near Abergavenny, by the

way of Merthyr, Hirwaun and Ystradgynlais to Ammanford. At the junction of these routes with the main valleys, a further series of nucleated centres has sprung up.

The scheme of urban development, therefore, associated with the rise of the coalfield would embrace (a) the mining villages and the distributing centres, (b) the gap towns, (c) the outlying agricultural towns, (d) the ports. Such a summary, however, would suggest a unity which the region does not possess. The coalfield, though a single geological unit, has little geographical unity. It is the longitudinal character of the communications and the comparative lack of lateral connections which are mainly responsible for this lack of unity. Not only is there division between east and west, but these two sections are themselves divided. Each port has its own "hinterland" from which the routes are close and intimate. Behind Newport are the valleys of the Lwyd, the Ebbw and the Sirhowy, further subdivided into the "Eastern Valleys" and the "Western Valleys". Behind Cardiff are the Rhymney and the Taff. Port Talbot, Swansea and Llanely share between them the western half of the coalfield.

The entire arrangement has favoured the exporting of coal rather than the development of industry. It was the finding of iron-ore in the limestone of the north and south outcrops and associated with the lower coal seams along the north-eastern fringe which led to the great expansion of the heavy iron industry, but, with the importing of ore from abroad, recent tendencies have been for the industry to develop at the ports.

The whole of the population of the Industrial Region is contained within the four counties of Glamorgan, Monmouth, Carmarthen, and Brecon. The boundaries of administrative areas for which Census figures are available do not coincide with what we may call industrial boundaries, but it is safe to say that nearly 90 per cent. of the population of the four counties is included in the Industrial Region, though only about 30 per cent. of the population of Breconshire comes within the industrial boundary.

Migration of Population.

The prosperity of the Industrial Region before the War attracted a large volume of labour from outside.* Before 1921, however, the tide began to turn, and between 1921 and 1931 a net loss by migration of 242,000 (or 12.3 per cent. of the 1921 population) has taken place in the four counties and their population has actually decreased by 70,000. This startling change is due to the depression in the industry of the region which has set in since the collapse of the post-war boom.

* *vide the Migration of Labour into the Glamorganshire Coalfields (1861-1911)* by Brinley Thomas in *Economica*, 1930, p. 294, e.g., between 1901 and 1911 the population of Glamorgan made a net gain by migration of 92,121.

The incidence of the depression upon various parts of the region is illustrated vividly by an analysis of the losses by migration which have taken place in a number of different urban and rural districts and municipal and county boroughs.* The town of Carmarthen has actually made a trifling gain in population by migration. Towns and districts in the western part of the region show losses varying between 3.8 per cent. at Llanelly and 12.4 per cent. at Burry Port. Swansea and the Pontardawe district show small losses. The loss at Barry is below the average, but when we move up into the central and eastern districts of the coalfield, we find very large losses. The Rhondda urban district has lost by migration more than 22 per cent. of its 1921 population of 162,717, Abertillery has lost 29 per cent., Mountain Ash 22 per cent., and so on. Smaller percentage losses are shown by Aberdare, Abersychan, Caerphilly, Gelligaer, and Rhymney, and by the borough of Merthyr. But all show losses well above the average for the four counties. The borough of Newport has lost only 12.5 per cent., and other boroughs, such as Cardiff, Port Talbot, and Neath, would probably show losses equal to or below the average if extensions of boundary in the inter-censal period had not made computation difficult.

Occupations of the Population.

In 1921 the population of the three counties of Glamorgan, Monmouth, and Carmarthen was 1,878,348, of whom 764,684 were occupied persons, over twelve years of age. Women formed only 17.4 per cent. of the total number of occupied persons, though in England and Wales they formed just under 30 per cent., and on Tyneside just over 20 per cent.† This small proportion of female to male workers is one of the outstanding characteristics of the industrial life of the region. So restricted are opportunities of employment for women in the mining valleys where a large proportion of the population is massed, that males outnumbered females both in 1921 and 1931, though in the latter year the proportion of females to males had increased.

Proportion of Females to 1,000 Males.

| | 1921. | 1931. |
|-----------------------|-------|-------|
| Glamorgan | 964 | 986 |
| Monmouth | 940 | 954 |
| Carmarthen | 1,019 | 1,014 |
| Three Counties | 964 | 981 |
| England and Wales ... | 1,096 | 1,087 |

The small proportion of women in the population means that the proportion of married to unmarried women is exceptionally high. Few married women go out to work, and of the unmarried women the proportion who go out to work is lower than in most parts of the country.

* See Appendix 4.

† *Industrial Tyneside* by H. A. Mess, p. 47.

Percentage of Women Occupied, 1921.

| Area. | Married women and widows per cent. of total females over 12. | Occupied married women and widows per cent. of total married women and widows. | Unmarried women occupied per cent. of total unmarried women. | Married women and widows occupied per cent. of total women occupied. | Unmarried women occupied per cent. of total women occupied. | Total women occupied per cent. of total females over 12. |
|--|--|--|--|--|---|--|
| Administrative County of Glamorgan. | 65.7 | 4.2 | 39.8 | 16.9 | 83.1 | 16.5 |
| Cardiff ... | 58.7 | 8.4 | 58.7 | 16.9 | 83.1 | 29.1 |
| Swansea ... | 59.9 | 6.2 | 49.5 | 15.6 | 84.4 | 23.5 |
| Merthyr ... | 62.7 | 4.9 | 35.6 | 18.7 | 81.3 | 16.4 |
| Aberdare ... | 62.7 | 3.8 | 31.9 | 16.3 | 83.7 | 14.2 |
| Rhondda ... | 64.1 | 3.5 | 28.6 | 17.8 | 82.2 | 12.5 |
| Administrative County of Monmouth. | 63.0 | 4.4 | 34.8 | 17.8 | 82.2 | 15.7 |
| Newport ... | 60.0 | 6.2 | 53.4 | 14.8 | 85.2 | 25.0 |
| Administrative County of Carmarthen-shire. | 56.9 | 7.5 | 42.3 | 19.1 | 80.9 | 22.6 |

An analysis of male and female occupations will be found in Appendix 5. It will be seen that more than 60 per cent. of occupied women in the region were employed either in commercial and clerical work or in personal service, in private households or hotels and restaurants. Where the tinsplate industry is found, there is considerable factory employment for women, but otherwise industrial outlets are few, and consequently an exceptionally large proportion, even of unmarried women, remain at home and occupy themselves with unpaid domestic tasks. Those who are obliged or anxious to seek employment, and fail to find it within the region, emigrate to England, mainly to London, the South-West, West-Midland, and North-Western Counties.*

Census of Production.

The occupation figures of the 1921 Census show the dependence of the inhabitants of the region upon two or three main industries, a dependence which is further illustrated by the returns of the Census of Production, 1924. In that year, coal mining employed 63.3 per cent. of the total persons engaged in directly productive industry within the counties of Glamorgan, Monmouth, and Carmarthen, and produced 53.7 per cent. of the total net output. Iron and Steel

* Brinley Thomas, loc. cit., p. 288.

Trades employed 10.9 per cent. of the total and produced 12.6 per cent. of the total net output. Tinplate employed 6.4 per cent. and produced 7.0 per cent. Public Utilities (including the productive undertakings of local authorities, gas, water and electricity concerns, and tramway, railway, dock and canal companies) employed 6.9 per cent. and produced 6.8 per cent. Thus only 12.5 per cent. of the workers and 19.9 per cent. of the net output remain to be divided between shipbuilding, non-ferrous metals, textiles, clothing, food, chemicals, paper, timber, leather, building, mining other than coal mining, and miscellaneous industries. Of a total of 383,380 persons employed by firms making returns, all but an insignificant fraction were employed by firms which normally employed more than ten persons each.

Factories and Workshops.

The annual reports of the Inspectors of Factories furnish further information of interest. The establishments within the inspectors' districts are classified by them either as workshops or as factories, the latter being establishments possessing power-driven mechanical equipment. A comparison over a number of years of the proportion of the number of factories to the total number of establishments therefore affords "a very rough but at the same time a highly significant indication of the general trend towards mechanisation since the War".* The figures in Appendix 6 show that, in the nine years 1921-1929, the percentage of factories to the total number of establishments increases steadily from 48.0 to 58.4 in Great Britain, from 42.3 to 54.1 in London, and from 37.4 to 49.5 in South Wales. This would suggest that, though mechanisation is not yet so far advanced in South Wales, where manufacturing industry is over-shadowed in importance by mining, yet the trend towards mechanisation is as pronounced as in London. The outstanding contrast, however, between the three regions is in the number of establishments. Whereas the total number in Great Britain has declined during the period by 8 per cent., and in London by less than 3 per cent., in South Wales it has declined by more than 20 per cent. In part such a decline may represent an increase in the size of the producing unit in manufacturing industry. But in the main the sharp decline in South Wales as compared with the rest of the country indicates simply a cessation of activity due to industrial depression.

Insured Workers.

Ministry of Labour returns of the numbers of workpeople insured against unemployment form the chief statistical basis of this Survey.

* *New Survey of London Life and Labour*, p. 6.

The Ministry has given us estimates of the numbers of workpeople insured within the region* and their distribution among various industries for the years 1923, 1924, 1927, 1929, and 1930, and has informed us also of the numbers wholly unemployed and "temporarily stopped"† in June and December of each year. These returns, for the principal industries, show the following changes over the period :—

| Year. | Total Nos. insured. | Percentage of total insured registered in | | | |
|-----------|---------------------|---|---|-----------------------|----------------------|
| | | Coal Mining. | Iron and Steel Melting, Rolling, Puddling, etc. | Tinplate Manufacture. | Distributive Trades. |
| 1923 ... | 503,540 | 51·8 | 5·5 | 4·5 | 6·6 |
| 1924 ... | 509,450 | 51·1 | 5·7 | 4·9 | 6·9 |
| 1927 ... | 512,120 | 47·7 | 5·5 | 5·6 | 8·7 |
| 1929† ... | 477,240 | 45·6 | 5·5 | 6·0 | 9·9 |
| 1930 ... | 478,020 | 44·8 | 5·5 | 6·0 | 10·2 |

| Dec. | Total percentage unemployed. | Percentage of Insured unemployed (counting the temporarily stopped as unemployed). | | | |
|----------|------------------------------|--|------|------|------|
| 1923 ... | 5·2 | 2·4 | 7·6 | 0·9 | 4·4 |
| 1924 ... | 14·9 | 11·8 | 31·2 | 48·7 | 5·9 |
| 1927 ... | 26·1 | 23·1 | 40·6 | 13·5 | 7·6 |
| 1929 ... | 21·5 | 22·1 | 25·2 | 25·4 | 11·1 |
| 1930 ... | 31·8 | 25·9 | 66·1 | 68·2 | 15·3 |

* Based upon the July exchange of unemployment insurance books at the Ministry of Labour Offices in Llanelly, Ammanford, Burry Port, Carmarthen, Garnant, Kidwelly, Llandilo, Tumble, Gorseinon, Pontardulais, Morriston, Clydach, Pontardawe, Ystalyfera, Swansea, Mumbles, Swansea Docks, Aberdare, Maesteg, Aberkenfig, Ogmere Vale, Pontycymmer, Neath, Resolven, Port Talbot, Bridgend, Cymmer, Porthcawl, Dowlais, Merthyr Tydfil, Treharris, Mountain Ash, Pontypridd, Ferndale, Pontyclun, Porth, Taff's Well, Tonypandy, Tonyrefail, Treorchy, Barry, Llantwit Major, Bute Docks, Cardiff, Penarth, Bargoed, Pontlottyn, Caerphilly, Tredegar, Risca, Blackwood, Newport, Newport Docks, Ebbw Vale, Brynmawr, Abertillery, Abergavenny, Usk.

† Persons who are known to be (1) working short-time, systematic or otherwise, whether or not they are actually in employment at the moment, or (2) "stood off" or suspended from work and for whom there is a definite prospect of resumption of work at the establishment from which they are suspended, within six weeks from the time of suspension from work.

‡ After 2nd January, 1928, persons aged 65 and over, who were insurable before that date, ceased to be insurable. This fact must be remembered in all comparisons of numbers insured before and after that date.

The figures speak for themselves. Nearly two-thirds of the insured population at the beginning of the period were directly employed in the basic heavy industries of coal mining and iron and steel manufacture. Since these industries in South Wales, as in the country as a whole, became depressed the resulting unemployment has caused workers to leave them in large numbers. But so deep is the depression that in spite of this exodus unemployment remains alarmingly large, and, during 1930, has even increased. Meanwhile, tinplate manufacture, a "finishing trade", in spite of sharp fluctuations, has on the whole maintained its employment, if not the profitability of its manufacture, and the distributive trades have increased their enrolment of workers, though they fail to maintain them in regular employment.

In every one of these industries and trades at every date from June, 1927, to December, 1930, the unemployed form a larger percentage of the insured in South Wales than in Great Britain.

We may measure the changing fortunes of these principal trades by comparing the increases or decreases in the numbers insured and "in employment" in them since December, 1923. By numbers "in employment" we mean the number insured minus the number unemployed. We give both the number "in employment" if the temporarily stopped are counted as unemployed and the number "in employment" if the temporarily stopped are counted as employed.

Percentage increase or decrease since 1923.

| | <i>Insured.</i> | <i>Employed (excluding temporarily stopped).</i> | <i>Employed (including temporarily stopped).</i> |
|-----------------------|-----------------|--|--|
| Coal Mining | - 17 | - 38 | - 33 |
| Iron and Steel, etc. | - 7 | - 66 | - 26 |
| Tinplate | + 26 | - 59 | + 11 |
| Distributive | + 46 | + 29 | + 30 |
| All Industries | - 5 | - 32 | - 23 |

So large a proportion of the population do the coal and iron and steel industries employ directly and so great a part of the remaining commercial activity of the region consists in importing and exporting their raw material and their products, that when they become depressed every other industry and service must languish too; except possibly tinplate manufacture, which may profit from a fall in the price of their products and exports the greater part of its own output. The distributive trades in South Wales, as in Great Britain, have employed a larger proportion of the population in recent years. The printing trades and the amusement trades and the road transport industry may have experienced a comparative prosperity. But railway transport and the docks, and the business of exporting, ship-repairing, and building have suffered. The business of shop-keepers, printers, amusement caterers, 'bus proprietors, and even the salaries and fees of local government officials, teachers and professional men

depend ultimately, in such a region, upon the spending power of miners and steel workers and the profitability of mining and steel-making to the owners of these enterprises. In succeeding chapters we examine the employment position in each of the industries in turn. Perhaps enough has been said here to indicate the general background of the picture whose detail we shall proceed to fill in. But before doing so, we must describe briefly how the depression has affected different parts of the region and how the burden of unemployment has been distributed among men, women, boys and girls.

The returns from the various Employment Exchanges within the region have been arranged in nine groups according to the district in which the Exchanges are situated. It is true that the numbers of insured and unemployed registered at any particular Exchange is not a very accurate indication of the state of employment within the immediate vicinity of that Exchange, since some men who work in the neighbourhood may not live there and may exchange their books near their own homes, and because large firms operating over extensive areas may exchange the books of their workpeople at an Exchange near the head office of the concern rather than at one near their place of work. But when the returns of a number of Exchanges within a carefully chosen geographical area are taken together, this possibility of error is almost eliminated. Accordingly, the Exchanges from which we have received returns have been grouped to correspond with certain industrial areas, and we have reason to believe that the combined returns present a fairly accurate picture of the employment position within each of those areas.

A grouping of Exchanges somewhat different from that which we have actually adopted would have given a result which would probably have been of greater economic significance. A combination of returns from Exchanges situated on the northern edge of the coalfield would have shown a heavier incidence of unemployment than a combination of returns from Exchanges situated near the southern end of the mining valleys. For, as we point out later,* the depression in the Coal industry was first felt in the northern parts of the coalfield, where supplies were earliest exhausted. It would have been of value to be able to contrast the fortune of the towns at the heads of the valleys with that of the towns lower down. But a lateral combination of Exchanges would have ignored the fact that communication, and therefore labour mobility, in the coalfield runs from north and south and not from east and west. In order to eliminate error, it seemed safer to make a longitudinal grouping.

The Western Area comprises that part of the region which lies within Carmarthenshire. Nearly half of its insured population is engaged in mining anthracite coal. During the period 1923-1930 the estimated number of insured workers increased from 36,520 to 37,310 (i.e., by 2.1 per cent.) and the numbers "in employment"

* See Chapter 2.

(counting the temporarily stopped as employed) decreased by 11 per cent. Within the period the distribution of the insured workers of the area among the various industries changed as follows:—

| | <i>Percentage of total insured in 1923.</i> | <i>Percentage of total insured in 1930.</i> |
|-----------------------------|---|---|
| Coal Mining | 47·1 | 41·4 |
| Tinplate | 14·9 | 18·9 |
| Iron and Steel, etc. | 9·1 | 7·0 |
| Distributive | 4·2 | 6·7 |
| Building | 3·2 | 3·3 |
| All other industries | 21·6 | 22·7 |

The Swansea Area includes the port of Swansea, the industrial district between the Loughor and the Tawe and the Swansea Valley. Coal mining (chiefly anthracite) is the largest employer of labour in the area, but tinplate manufacture runs it close. The area has the greatest diversity of manufacturing industry of any in the region, for besides the tinplate works, the manufacture of copper and other non-ferrous metals, iron and steel, patent fuel, and iron and steel tubes occupy substantial numbers, while many more are engaged in the transport services of docks, rail, and road, as well as in the "distributive trades" proper. This industrial diversity coupled with the comparative prosperity of the tinplate trade and the sustained demand for anthracite, explain the facts that this region during the period 1923-1930 has increased the number of its insured workers* by 10.9 per cent. from 59,630 to 66,180, and that the number "in employment" (counting "temporarily stopped" as employed) was only 7 per cent. less in December, 1930, than in December, 1923. The chief changes in the distribution of labour among its industries have been the following:—

| | <i>Percentage of total insured in 1923.</i> | <i>Percentage of total insured in 1930.</i> |
|---------------------------|---|---|
| Coal Mining | 23·4 | 18·0 |
| Non-ferrous metals | 6·2 | 5·7 |
| Tinplate | 17·2 | 20·2 |
| Patent Fuel, etc. | 2·7 | 1·5 |
| Shipping Service | 2·4 | 3·0 |
| Dock Service | 4·3 | 3·6 |
| Distributive | 7·5 | 11·8 |

The West Central Area includes the Neath Valley on the west and Aberdare on the north. It excludes the Rhondda, but includes all that lies between Ogmere and Bridgend on the east and Port Talbot and Skewen on the west. Coal mining is its main industry, but on the seaboard iron and steel and tinplate works employ between an eighth and a tenth of its insured population. It contained 77,600 insured workers in 1923 and 70,440 in 1930—not a very large decline, when it is remembered that workers of 65 and over, who were insurable in 1923, ceased to be so after January,

* In spite of the change in conditions of insurance since January, 1928, already referred to.

1928. The number "in employment" (including "temporarily stopped") fell by 26 per cent. between December, 1923, and December, 1930. During this period the chief decline in employment was among miners.

| | | | <i>Percentage of total insured in 1923.</i> | <i>Percentage of total insured in 1930.</i> |
|----------------|-----|-----|---|---|
| Coal Mining | ... | ... | 64.0 | 58.3 |
| Tinplate | ... | ... | 5.8 | 7.1 |
| Iron and Steel | ... | ... | 5.3 | 6.4 |
| Distributive | ... | ... | 4.3 | 7.4 |

The Merthyr Area comprises the County Borough of Merthyr Tydfil, whose population in 1921 was 80,116 and had fallen by 1931 to 71,099. Its industrial development began before the end of the eighteenth century, when iron smelting was the chief occupation. Its insured population, which was 26,430 in 1923 and had fallen to 21,480 (a loss of 18.7 per cent.) in 1930, has suffered throughout the period a heavy burden of unemployment, due mainly to the decay of coal mining, but aggravated recently by the closing down of the Dowlais steel works. The numbers unemployed formed the following proportion per cent. to a steadily dwindling number insured.

Unemployment Percentages.

| 1923. | | 1924. | | 1927. | | 1929. | | 1930. | |
|-------|------|-------|------|-------|------|-------|------|-------|------|
| June. | Dec. | June. | Dec. | June. | Dec. | June. | Dec. | June. | Dec. |
| 4.3 | 12.3 | 9.9 | 33.3 | 37.6 | 35.7 | 25.5 | 26.0 | 50.1 | 40.7 |

The distribution of workers among industries changed as follows :—

| | | | <i>Percentage of total insured in 1923.</i> | <i>Percentage of total insured in 1930.</i> |
|----------------------|-----|-----|---|---|
| Coal Mining | ... | ... | 64.2 | 58.9 |
| Iron and Steel | ... | ... | 15.1 | 13.4 |
| Distributive | ... | ... | 5.6 | 9.2 |
| All other industries | ... | ... | 15.1 | 18.5 |

The Pontypridd-Rhondda Area is that covered by the Urban Districts of Pontypridd, Mountain Ash, and Rhondda. In an area whose population in 1921 was 253,188, and in 1931 was 222,462 the only industry of any importance is coal mining. Its smokeless coal, in demand the world over, made the Rhondda before the War one of the most famous, one of the most thickly populated, and one of the most active, if one of the least lovely valleys in the Kingdom. The decline in the demand for coal, and especially for coal for marine purposes, has plunged it in recent years into depression. As we have already seen, thousands of persons have left the area between 1921 and 1931. Its insured

population, estimated at 91,130 in 1923, was estimated to be 78,370 in 1930 (a loss of 13.9 per cent.). Yet unemployment remains at a high figure per cent.

Unemployment Percentages.

| 1923. | | 1924. | | 1927. | | 1929. | | 1930. | |
|-------|------|-------|------|-------|------|-------|------|-------|------|
| June. | Dec. | June. | Dec. | June. | Dec. | June. | Dec. | June. | Dec. |
| 2.0 | 1.8 | 3.4 | 7.0 | 29.3 | 26.1 | 20.1 | 26.7 | 30.9 | 30.0 |

The coal industry accounted in 1923 for 87.2 per cent. and in 1930 for 79.7 per cent. of the insured workers, and the distributive trades for 4.1 per cent. and 6.4 per cent. in 1923 and 1930 respectively.

The Rhymney-Tredegar Area, extending from Caerphilly to Tredegar, is almost wholly devoted to coal mining. In the northern part of the area, as elsewhere at the heads of the mining valleys, exhaustion of coal measures has produced industrial depression which set in soon after 1920. The Tredegar Iron & Coal Company still employs steelworkers, mainly in the manufacture of colliery arches, which are not only used in its own pits but also sold to other colliery owners. But the Whitehead Iron & Steel Company has ceased operations in Tredegar and concentrates production in its plant at Newport. The insured population of the area, estimated at 41,100 in 1923 was put at 37,140 in 1930. This decline by 9.6 per cent. is not, however, nearly so large in proportion as that in the Pontypridd-Rhondda area, the only other area strictly comparable to it in its dependence upon coal. It is only half as large as that in the Merthyr area, where greater variety of occupation exists. The explanation is that in this area, chiefly in the southern parts, developments in coal mining have taken place, and chronic unemployment has not been so marked a feature of its industrial life as elsewhere.

Unemployment Percentages.

| 1923. | | 1924. | | 1927. | | 1929. | | 1930. | |
|-------|------|-------|------|-------|------|-------|------|-------|------|
| June. | Dec. | June. | Dec. | June. | Dec. | June. | Dec. | June. | Dec. |
| 3.0 | 2.4 | 3.7 | 5.0 | 6.9 | 22.0 | 14.4 | 13.0 | 16.9 | 27.4 |

In 1923 Coal Mining and Distributive Trades accounted for 84.9 and 3.0 per cent. respectively of the insured workers; the corresponding figures for 1930 were 82.0 and 4.9.

The Eastern Area comprises all those portions of the Monmouthshire coalfield which are not included in the Rhymney-Tredegar

area, together with Brynmawr. It extends to the Usk, but does not include Newport. Coal mining is by far the most important industry, but iron and steel and tinplate works employ between them about one-eighth of the population. The decline in demand for the bituminous coals produced in this area has not been so severe as in the case of the steam coal produced elsewhere. This factor together with the greater diversity of the industrial make-up of the area have served to prevent the depression from being so severe as in other areas. Nevertheless, chronic unemployment has existed for years in the northern districts of the area, particularly at Blaina and Brynmawr. An insured population of 70,840 in 1923 diminished by 8.6 per cent. to 64,730 in 1930, and the distribution of the insured among the chief industries changed as follows :—

| | | | <i>Percentage of total insured in 1923.</i> | <i>Percentage of total insured in 1930.</i> |
|----------------|-----|-----|---|---|
| Coal Mining | ... | ... | 68.3 | 62.5 |
| Iron and Steel | ... | ... | 9.4 | 9.2 |
| Tinplate | ... | ... | 2.5 | 3.6 |
| Distributive | ... | ... | 4.4 | 6.8 |

In the *Newport Area*, which includes the town and port of Newport, there is no coal mining. Like Swansea, it is a distributing centre for its industrial hinterland, exporting its coal and iron, sending it its food and clothing, and providing it with its newspapers and amusements, and acting as a centre for much of its local government. It has now, however, the same industrial diversity as Swansea, its only manufacturing industry of importance being iron and steel, which accounted for just over 16 per cent. of its insured population in 1923 and 1930. Its insured population has increased during the period by 1 per cent. But unemployment has been severe throughout the period, particularly among the workers at its docks, ship-repairers, seamen, dockers and trimmers, etc.

Unemployment Percentages.

| 1923. | | 1924. | | 1927. | | 1929. | | 1930. | |
|-------|------|-------|------|-------|------|-------|------|-------|------|
| June. | Dec. | June. | Dec. | June. | Dec. | June. | Dec. | June. | Dec. |
| 12.5 | 9.2 | 8.2 | 11.3 | 10.5 | 24.4 | 16.6 | 25.3 | 32.3 | 34.7 |

The chief changes in the numbers of insured workers enrolled have occurred in the following trades :—

| | | | <i>Percentage of total insured in 1923.</i> | <i>Percentage of total insured in 1930.</i> |
|----------------|-----|-----|---|---|
| Ship-repairing | ... | ... | 6.1 | 4.8 |
| Shipping | ... | ... | 5.9 | 4.9 |
| Docks | ... | ... | 9.2 | 8.2 |
| Distributive | ... | ... | 10.4 | 14.2 |

The Cardiff-Barry Area covers the remainder of the region, and, like the Newport area, contains no coal mining. The economic function of its population is primarily commercial and distributive. The largest single group of its insured workers (16.0 per cent. in 1923 and 21.6 per cent. in 1930) is enrolled in the distributive trades. Port services (ship-repairing, shipping, and docking) accounted for 27.0 per cent. of its insured workers in 1923 and for 21.2 in 1930. The services of hotels and restaurants, commerce and banking, printing, the supply of gas, water and electricity, and local government accounted for 11.3 per cent. in 1923 and 12.3 in 1930. The chief manufacturing industries, which are railway wagon building, general engineering, iron and steel, cement, bread and biscuit making, and grain milling together enrolled 10.9 per cent. of the insured workers in 1923 and only 8.9 per cent. in 1930. The remaining third of its insured workers are engaged in building, in transport, and in numerous small trades which are to be found in large towns like Cardiff. The area, it may be said, has no substantial industrial production of its own. It is the centre of government, education, commerce, and distribution for the great industrial areas which surround it. It is dependent almost entirely upon the the coal-producing areas. Between 1923 and 1930 its insured population has increased by 2.4 per cent. from 72,760 to 74,540; but the number "in employment" (including the "temporarily stopped") has fallen by 15 per cent. In a period of falling prices it is a commonplace that prices of raw materials fall faster than those of finished goods. This lag partly explains why Cardiff, Barry, and Penarth, though dependent upon the coal-producing areas, have not suffered unemployment as severe as that which has afflicted their neighbours. Many of the "Sheltered Trades" are situated in this area, and it contains a larger number of professional and retired persons than the other areas. Consequently, it has been able to maintain a comparatively high standard of living during the years of depression.

It may be useful to summarise the conclusions of this account of the different areas in the following table:—

| Area. | Percentage increase or decrease December, 1923 to December, 1930 in numbers. | |
|----------------------|---|--|
| | Insured. | "In Employment" (including "temporarily stopped"). |
| Western | + 2.1 | — 11 |
| Swansea | + 10.9 | — 7 |
| West Central | — 9.3 | — 26 |
| Merthyr | — 18.7 | — 42 |
| Pontypridd-Rhondda | — 13.9 | — 34 |
| Rhymney-Tredegar ... | — 9.6 | — 26 |
| Eastern... .. | — 8.6 | — 27 |
| Newport | + 1.1 | — 8 |
| Cardiff-Barry | + 2.4 | — 15 |

The commercial areas and those producing anthracite coal stand out as comparatively fortunate; and among them Swansea, with its diversified industry, has obviously been the most prosperous.

Changes in the Employment of Women.

We have already pointed out that, though the region is still one in which men outnumber women, the proportion of women to men in the population has shown a tendency to increase. In the pre-war period the industries of the region attracted male labour from outside. On the whole, young and unmarried men migrated in this way more readily than their seniors. At the same time, opportunities for female employment were few, and therefore many young women and girls left the region and found posts in England. These factors accounted for the large preponderance of males in the population. Now that the tide of migration has turned, similar causes produce an opposite effect within the region. It is mainly males without families who find it easy to leave the region; the excess of men in insurable employment is very great, and it is to them that the chances of transfer to alternative employment at a distance mainly accrue. At the same time, the returns of the Ministry of Labour make it quite clear that, within the contracted field of employment available to all workers in the region, the opportunities available to women have increased. Customs have changed since the War; women are more willing to enter paid employment, and employers are more willing to engage them. Increased mechanisation has facilitated the entry of women into industries where formerly a need for physical strength made their employment impossible or undesirable. Certain industries, such as the catering or distributive trades, where employment of women and girls is customary, have expanded relatively to other industries. Moreover, in the industrial depression which has overtaken the region, parents have become more anxious that their daughters should earn wages, and employers have a strong incentive to substitute, if possible, female for the more expensive male labour. Hence the natural tendency for the proportion of females to rise is reinforced by economic changes.

In the whole region, whereas the number of insured males has fallen, between 1923 and 1930, by 7 per cent., the number of insured females has increased by 13 per cent. Between December, 1923, and December, 1930, the number of males "in employment" (counting the "temporarily stopped" as in employment) has fallen by 27 per cent. The number of females "in employment" (on the same basis) has increased by 8 per cent. Throughout the industries, and in every area of the region, we find that a

smaller proportion of insured females than of insured males, is unemployed.

The proportion of females to males among insured workers is increasing in this region as it is increasing in the country as a whole, though the rate of increase in South Wales does not appear to be so great as that in the United Kingdom.

| Insured Females per 1,000 Insured Males. All Industries. | | | | | |
|--|-------|-------|-------|-------|-------|
| | 1923. | 1924. | 1927. | 1929. | 1930. |
| South Wales | 82 | 84 | 89 | 99·9 | 100 |
| United Kingdom | 348 | 353 | 354 | 376 | 384 |

Within certain industries, however, the proportion of women to men insured shows a tendency to decrease in South Wales while it increases in the whole country. This is true of the Iron and Steel (melting, rolling, puddling, etc.) industry, and, most notably, of the Distributive Trades. In the latter, the South Wales proportion of women is larger than the proportion in the country as a whole, no doubt because in the past the higher-paid coal, iron and steel, tinsplate and other organised industries have attracted male labour. In recent years, the proportion of women to men has decreased and tends to approach nearer to that in the country as a whole. The numbers of both men and women insured in these trades have increased, but the numbers of men have increased faster than the numbers of women, suggesting that some transference of male labour from the heavy industries is being effected.

| Insured Females per 1,000 Insured Males. | | | | | | |
|--|----------------------|-----------------|---------------|-----------------|--------------|-----------------|
| Year. | Iron and Steel, etc. | | Distributive. | | Tinplate. | |
| | South Wales. | United Kingdom. | South Wales. | United Kingdom. | South Wales. | United Kingdom. |
| 1923 ... | 12 | 21 | 875 | 674 | 185 | 169 |
| 1924 ... | 9 | 21 | 879 | 673 | 186 | 173 |
| 1927 ... | 7 | 22 | 734 | 643 | 153 | 141 |
| 1929 ... | 6 | 24 | 709 | 657 | 146 | 133 |
| 1930 ... | 4 | 25 | 692 | 660 | 141 | 133 |

Since the South Wales tinplate trade forms so large a part of the tinplate trade of the whole country, it seems reasonable to

conclude that the higher proportion of females employed in it is due to the fact that women in South Wales find fewer opportunities of employment available in "lighter" industries than do women in the other parts of the country where tinplate manufacture is situated.

When we proceed to analyse the extent of these changes within the various areas of the region, some striking facts emerge. The greatest increase in the proportion of females to males, between 1921 and 1931, has occurred in the large towns. Cardiff, where distributive and commercial work is all important, and where openings for female employment exist in numerous small subsidiary trades, heads the list with an increase of 64 per thousand. Newport, which contains a larger proportion of industrial workers than Cardiff, but is, nevertheless, mainly engaged in distribution, shows an increase of 33 per thousand; Llanelly, which engages in tinplate manufacture as well as distribution, shows an increase of 31 per thousand; Swansea, of 15 per thousand; Neath, of 8 per thousand. It is in the colliery districts, with their larger preponderance of men in 1921, that we should expect the proportion of females to males to have risen most, after the migration of the young men began. Yet we find that in the Pontardawe Rural District (more rural in name than in appearance), which contains several tinplate works as well as coal mines, the proportion of females to males has declined from 984 to 966; in the Gelligaer Urban District from 908 to 897; in Abertillery from 900 to 890. In the Rhondda it has remained constant at 908. The figures seem to suggest that female migration from the colliery districts is proceeding even more rapidly than male (an exception is Nantyglo and Blaina, in which the proportion of females to males has increased from 908 to 922), and that much of this female migration must be migration to the large towns of the district.*

* It is unfortunate indeed that there is no way of conveniently tracing the direction of such migrations of population until the Census returns giving the birthplaces of the population are published (usually a very long time after the census is taken). We have been shown a return prepared by the Clerk to the Montgomeryshire Insurance Committee (Ministry of Health) which shows concisely, for any period which it is desired to take, the number of insured persons (Health Insurance) who have entered Montgomeryshire from each of the other counties and towns of the country, together with the number of insured persons who have left Montgomeryshire and the names of the towns and counties to which they have gone. Such a return is made possible by departmental arrangements of the Ministry of Health whereby the Insurance Committee of the area within which he originally resided hands on the papers of an insured person who changes his abode to the committee within whose area he now lives. It is due to the zeal of the clerk to the Montgomeryshire Committee that the return exists for his county; but we are informed that no undue labour is entailed in its preparation. We should like therefore to suggest that if the Ministry were to require all Committees to prepare such returns, the work of guiding the migration of population would be greatly facilitated.

The following table indicates the changes in size of population and in the proportion of females to males which have taken place in some of the most important districts of the region :—

| District. | Percentage increase or decrease in population, 1921-1931. | Females per 1,000 males, 1921. | Females per 1,000 males, 1931. |
|-------------------------------|---|--------------------------------------|--------------------------------------|
| Cardiff C.B. | + 1.9 | 1,016 | 1,080 |
| Newport M.B. | - 3.4 | 1,000 | 1,033 |
| Llanelly M.B. | + 5.1 | 1,018 | 1,049 |
| Swansea C.B. | + 4.6 | 1,020 | 1,035 |
| Merthyr Tydfil C.B. | -11.3 | 948 | 957 |
| Neath M.B. | + 1.9 | 969 | 997 |
| Nantyglo & Blaina U.D. | -19.8 | 908 | 922 |
| Rhondda U.D. | -13.1 | 908 | 908 |
| Aberdare U.D. | -11.4 | 951 | 942 |
| Abertillery U.D. | -18.1 | 900 | 889 |
| Ogmore & Garw U.D. | -10.6 | 896 | 884 |
| Gelligaer U.D. | - 4.8 | 908 | 897 |
| Pontardawe R.D. | + 5.6 | 984 | 966 |

An analysis of the proportion of insured females to insured males by areas shows a tendency for the proportion to increase up to 1929 in every area, the increase being most marked in the areas containing the large towns. Between 1929 and 1930, however, there is either a cessation of increase or a definite drop in the proportion, the change being most marked in the Cardiff-Barry area. This decline in the proportion seems, therefore, to represent the influence of the heavy depression of 1930 upon the demand for labour in the distributive, catering, and other women's trades. Though it appeared in South Wales in 1930, this change in the demand for women's labour as compared with men's had not yet taken place in the country as a whole.

Insured Females per 1,000 males.

| Area. | 1923. | 1924. | 1927. | 1929. | 1930. |
|--------------------------|-------|-------|-------|-------|-------|
| Western | 86 | 70 | 80 | 90 | 90 |
| Swansea | 113 | 119 | 125 | 129 | 128 |
| West Central | 54 | 59 | 60 | 65 | 64 |
| Merthyr | 48 | 54 | 57 | 60 | 59 |
| Pontypridd-Rhondda... .. | 28 | 28 | 32 | 34 | 35 |
| Rhymney-Tredegarr | 29 | 29 | 27 | 33 | 32 |
| Eastern | 42 | 43 | 44 | 46 | 46 |
| Newport | 183 | 181 | 187 | 189 | 186 |
| Cardiff-Barry | 223 | 232 | 239 | 268 | 236 |
| Whole Region | 82 | 79 | 89 | 99 | 97 |

The increased demand for women's labour as compared with men's has been accompanied by an increased demand for the labour of girls as compared with that of boys. An increase in the number of girls insured has taken place in the whole region and in every area within it; whereas the number of boys insured has decreased in the whole region since 1923 and has increased only in the commercial areas of Cardiff-Barry and Swansea and in the Western and Rhymney-Tredegar areas, where developments in mining have absorbed an increased number of boys. That boys and girls are able to find employment more easily than men and women is probably true all over the country. It means that in many trades "blind alley" occupations still exist; and in some instances it indicates a substitution, during times of bad trade, of juvenile for adult labour.

Increase or decrease per cent., December, 1923—December, 1930, in numbers of boys and girls (aged 16-18) insured and "in employment" (counting "temporarily stopped" as employed).*

| Area. | Boys. | | Girls. | |
|----------------------|----------|------------------|----------|------------------|
| | Insured. | "In employment." | Insured. | "In employment." |
| Western ... | + 1 | - 4 | +70 | +63 |
| Swansea ... | + 9 | + 4 | +32 | +27 |
| West-Central ... | - 6 | -11 | + 9 | 0 |
| Merthyr ... | -16 | -20 | + 7 | + 7 |
| Pontypridd-Rhondda | -18 | -22 | +28 | +22 |
| Rhymney-Tredegar ... | +12 | + 7 | +12 | + 1 |
| Eastern ... | -18 | -22 | + 7 | - 3 |
| Newport ... | - 8 | - 9 | +20 | +17 |
| Cardiff-Barry ... | +23 | +17 | +60 | +57 |
| Whole Region ... | - 4 | - 9 | +34 | +29 |

CHAPTER II.

COAL MINING INDUSTRY.

South Wales owes its existence as an industrial region to its coalfield, and coal mining, in spite of the vicissitudes of recent years, still overshadows in importance all other industries in the area. Space in this Report, however, is not devoted to it in proportion to that importance. It is safe to say that more has been written about coal mining than about any other British industry.

* As the actual numbers are small, percentage figures are not so important as the plus or minus which precedes them.

It would serve no useful purpose to make an exhaustive account of the structure of the industry and of its varying fortunes during the last ten years. Such a description is no doubt necessary to the proper understanding of the present situation; but it has already been given in great detail by Royal Commissions and other investigators, and we shall make no attempt to give it again. Information of every possible kind is abundantly available. We shall merely draw attention here to such of it as is immediately significant for our present purpose.

Extent of Coalfield.

The South Wales coalfield, covering an area of about one thousand square miles, extends from Abersychan in Monmouthshire in the east to St. Bride's Bay in Pembrokeshire in the west, an extreme length of nearly 90 miles. Its width from north to south varies from 16-20 miles in Glamorganshire to about 2 miles in Pembrokeshire.

A considerable area of the coalfield in the west lies beneath the sea outside Swansea and Carmarthen Bay.

The coal area, divided by Counties, is as follows:—

| County. | Area in | | No. of Mines at Work. | | | |
|---------------------|------------|-------|-----------------------|-------|-------|-------|
| | Sq. Miles. | 1921. | 1926. | 1927. | 1928. | 1929. |
| Monmouthshire ... | 104 | 135 | 134 | } 639 | } 552 | } 507 |
| Glamorganshire ... | 518 | 442 | 388 | | | |
| Brecknockshire ... | 74 | 22 | 22 | | | |
| Carmarthenshire ... | 228 | 61 | 64 | | | |
| Pembrokeshire ... | 76 | 3 | 3 | | | |

Note:—It should be explained that the heading "Mines at Work" covers all pits in the coalfield and embraces equally small concerns which afford employment to half a dozen men or less as well as large undertakings providing work for 1,000 workpeople or more at one pit.

Nature of Coal.

Broadly, it may be stated that the South Wales coalfield produces three types of coal:—(a) Bituminous or house coal type; (b) Steam Coal; (c) Anthracite.

Whilst it may be relevant to note that the varieties of coal pass by almost imperceptible gradations one into another, it may for the present purpose be taken that travelling from east to west, along the northern margin of the coalfield, the coals gradually lose the greater part of their volatile matter (i.e., the constituents which are given off in a gaseous form when the coal is heated), and they change from bituminous coal in the east to anthracite in the west. A similar decrease in the proportion of volatile matter is

experienced if the coals are traced across the coalfield from south to north, or from south-east to north-west.*

The transition from bituminous coal to anthracite is accompanied by changes in the chemical character of the coals:—

(a) *Change in appearance.*—The bituminous coals are comparatively soft and friable and they soil the fingers. Anthracite, on the other hand, has a stone-like appearance, a lustre almost like that of a metal, and it may be handled without soiling the hands.

(b) Bulk for bulk, anthracite is heavier than bituminous coal.

(c) The amount of volatile matter decreases as the bituminous coal passes into anthracite.

(d) The amount of incombustible matter (ash, etc.) decreases as the bituminous coal passes into anthracite.

Steam coals occupy an intermediate position between the bituminous coals and the anthracite. Coals of the bituminous type occur principally in Monmouthshire, in Glamorganshire, east of the River Taff, and along the southern margin of the coalfield. The steam coal type is found largely between the River Taff and the Neath district, the area which produces the “Welsh Steam Coal” and “Admiralty Coal.” Anthracite occurs in the northern region of the coalfield west of Neath, and in Pembroke-shire. Between Port Talbot and Llanelly the coal measures along the southern salient of the coalfield are not anthracitic in character, and coals approach in variety the output of the eastern region.

Taking the South Wales coalfield as a whole, about 30 per cent. of the coal is bituminous, 48 per cent. steam coal, and 22 per cent. anthracite.

Generally speaking, anthracite coal is in greatest demand for the malting, baking, horticultural and cement making industries. Of the steam coals, those which approach more nearly the anthracite are specially suitable for steam raising, and as they withstand transport with a minimum amount of breakage and are practically smokeless in burning, they are in great demand for shipping. The steam coals not so anthracitic in character are used for smithy working, smelting and steel making. The bituminous coals are in demand for locomotives, etc., gas making and for domestic purposes.

Cannel Coal.—A small number of thin layers or seams of cannel coal are found in the neighbourhood of Llanharan and Llantrisant in Glamorgan, and in the Elled Valley (Pontypool) in Monmouthshire.

* A map illustrating the geographical distribution of the coals will be found in Appendix 2.

This type of coal is dull in appearance, does not soil when handled, and on ignition burns with a candle-like flame (hence the name—a corruption of "candle"). The output in South Wales of this variety of coal is not of commercial importance.*

The following table indicates the amount of coal available in the different parts of the coalfield :—

COAL RESOURCES OF SOUTH WALES.

(Based upon "The Coal Resources of the World," a Monograph prepared for the Twelfth International Geological Congress held at Ottawa in 1913).

| District. | Reserves of Coal available. | | |
|---------------------------------------|---|-------------------|---|
| | Seams to depth of 4,000 ft. including those of one ft. or more. | | Seams to depth of between 4,000 and 6,000 feet, including those of 2 ft. or more. |
| | Actual. | Probable. | Actual. |
| Monmouthshire ... | Metric Tons. 3,387,042,013 | Metric Tons. — | Metric Tons. — |
| Glamorgan, Brecknock, and Carmarthen. | 32,314,404,073 | 195,500,000 | 1,500,000,000 |
| Pembrokeshire ... | 308,603,353 | 13,000,000 | — |
| Total ... | 36,010,049,439 | 208,500,000 | 1,500,000,000 |

In this review of the coal industry we continue to exclude from consideration that part of the coalfield which lies in Pembrokeshire, outside our Industrial Region. But in order to examine in detail the industrial fluctuations of recent years, we adopt a somewhat different sub-division into areas than is convenient for the consideration of other industries and of the Industrial Region as a whole. The coalfield, then, is divided into ten sections, which correspond roughly with ten valleys. A map of these sections, showing Ministry of Labour Employment Exchanges within the sections, is appended.†

* The above account is quoted mainly from a Report made for the Ministry of Labour.

† See Appendix 3.

The Recent Contraction of the Industry.

The same general causes which account for the decline during recent years of the British coal industry as a whole explain the similar decline which has taken place in the South Wales district. Though the world demand for coal, up to 1930, was still increasing, it was increasing at a much slower pace than before the War. It has been calculated that, whereas up to 1913 world consumption had increased by about 4 per cent. annually, between 1913 and 1929 it increased by only 8 per cent., and in Europe by only 6 per cent. Since the beginning of 1930 a sharp contraction in consumption—perhaps by 10 per cent.—has taken place. In these circumstances it is not surprising that the output of coal in Great Britain in 1929 was 10 per cent. below the output in 1913. In South Wales, however, the 1929 output was 17 per cent. below that of 1913. The difference is accounted for by the fact that South Wales is primarily an exporting district, exporting on an average 50 per cent. of its own output, and accounting for more than 40 per cent. of the total coal exports of the United Kingdom.

The various causes, therefore, which have prevented Great Britain from retaining her pre-war share of the world trade in coal have been of special importance in South Wales. The appreciation of the value of the £ after the return to the gold standard in 1925 was a hindrance to the expansion of exports of special importance to South Wales because there occurred at the same time a depreciation of the value of the French franc, the currency of her most important market. The development of substitutes for coal as a source of power has affected her in two ways. The increased utilisation of electricity,* especially in Italy and Scandinavia, reduced the demand for Welsh coal in markets which were of considerable importance before the War. The substitution of petrol for coal in transport has diminished demand for Welsh coal for railway use, but has been of chief importance in its effect upon the demand for the most distinctive product of the coalfield—steam coal. In 1913, the British Admiralty took 1,750,000 tons of Welsh coal, in 1925 it took 350,000 tons, and in 1926 only 250,000 tons. Other Navies have also abandoned coal for oil; and ocean-going mercantile ships have tended, as the following table shows, to follow their example.

* It has been calculated by the British Electrical & Allied Manufacturers' Association that the saving on fuel consumption at (thermal) power stations plus the equivalent of additional water power developed has reduced the coal consumption of the world by 300,000,000 tons annually since 1913. At the same time it must be remembered that in Great Britain the demand for coal for the production of electricity has been steadily increasing.

Vessels of 100 gross tons and upwards.

| Date. | Total gross tonnage of vessels on the Register. | Gross tonnage of sailing vessels. | Tonnage of steamers fitted for burning oil fuel. | Tonnage of motor ships, including auxiliary vessels. |
|----------------|---|-----------------------------------|--|--|
| | Million gross tons. | Million gross tons. | Million gross tons. | Million gross tons. |
| July, 1914 ... | 49.1 | 3.9 | 1.3 | 0.2 |
| „ 1919 ... | 50.9 | 3.0 | 5.3 | 0.8 |
| „ 1920 ... | 57.3 | 3.4 | 9.4 | 1.0 |
| „ 1921 ... | 62.0 | 3.1 | 12.8 | 1.2 |
| „ 1922 ... | 64.4 | 3.0 | 14.5 | 1.5 |
| „ 1923 ... | 65.2 | 2.8 | 15.8 | 1.7 |
| „ 1924 ... | 64.0 | 2.5 | 17.2 | 2.0 |
| „ 1925 ... | 64.6 | 2.3 | 17.8 | 2.7 |
| „ 1926 ... | 64.8 | 2.1 | 18.2 | 3.5 |
| „ 1927 ... | 65.2 | 1.9 | 18.5 | 4.3 |
| „ 1928 ... | 67.0 | 1.8 | 19.1 | 5.4 |
| „ 1929 ... | 68.1 | 1.7 | 19.4 | 6.6 |
| „ 1930 ... | 69.6 | 1.6 | 19.9 | 8.1 |
| „ 1931 ... | 70.1 | 1.4 | 20.0 | 9.4 |

Such substitution of oil for coal has been especially serious in its consequences for South Wales. The trade in the smokeless steam coals of high calorific value has declined more than any other, and the finest coal is now the most difficult to sell.

The development of coalfields abroad has further hampered the trade of a district which relies so much upon exporting. The expansion of such producers as Russia and the United States of America has helped to satisfy a world demand which has not been increasing since 1914 as fast as it did before. But the sending of reparations coal to France and Italy, the intensified development by Germany of the Ruhr coalfield and of her lignite reserves, the expansion of the production of coal within the extended frontiers of France, the development of new coalfields in Holland, and, above all, the rapid increase of production in Polish Upper Silesia*—these, and other similar changes in Europe, have been the most important causes of the loss by South Wales of some of her principal markets.

* “ In six years, German Upper Silesia has doubled its coal extraction, increasing it from 10,900,000 tons, in 1924, to 21,996,000 tons in 1929; while Polish Upper Silesia during the same period increased its production from 23,871,000 to 34,363,000 tons. Deprived of Lorraine, of the Saar and of part of the Silesian basin, Germany is restoring its power of coal production within its new frontiers, particularly by doubling the extraction of lignite from its coal basins in the Central and Eastern Elbe districts. Including the Saar, Germany in 1913 produced within its old frontiers about 223 million tons of raw coal (lignite calculated in terms of coal). Within its new frontiers, it produced 187 million tons in 1927 and in 1928, and 202 million tons in 1929, while during 1929 the various coalfields which have been detached from Germany produced 54 million tons.” From an article in “World Trade,” April, 1931, by Pierre Parent.

Political policy in many European countries has been responsible for the increase of their coal production at the expense of their other industries or of the home consumer. Preferential rates for coal consigned to contested markets are granted by the State railways of Poland, France, Belgium and Czecho-Slovakia, and by the German railway company. According to calculations published in the *Deutsche Bergwerks Zeitung*, losses on the carriage of coal in Poland have amounted to a subsidy equivalent to £1,500,000 during 1930, and to £4,140,000 during the last three years. A levy on German coal is used to subsidise exports; Czecho-Slovakia remits her coal tax for export coal; the State has assisted Polish coal exporters by participating in the discount of Bills of Exchange upon cheap terms; it has been a deliberate part of Spanish State policy to encourage the consumption of home produced coal; Brazil has enforced a minimum percentage consumption of Brazilian coal. Such measures have seriously affected markets for South Wales coal, particularly the Scandinavian and Baltic markets, which have recently been consuming rather more than 40 per cent. of the output of Polish Upper Silesia.

Though in the year 1913 the output of the South Wales coal-field (56,830,000 tons) reached a peak unattained before or since, it was in 1923 that exports reached their maximum (30,119,942 tons). This unparalleled expansion was due to the cessation of production in the Ruhr during the French military occupation. Even in this year, however, South Wales exports did not expand as rapidly as those of the whole United Kingdom, and her output, which in 1922 was 23.3 per cent. of that of the United Kingdom, dropped in 1923 to 19.6 per cent.

From the end of 1923 there began a decline in prices and profits, and a consequent contraction in the numbers employed, the formidable extent of which has been the chief reason for making this Survey. The South Wales share of the diminishing total output of the United Kingdom dropped in 1924 to 19.1 per cent., and in 1925—the year of the return to the gold standard—to 18.3 per cent. In the same year the South Wales percentage of exports to output dropped from 50 to 48 per cent. The expansion of foreign supplies was already proceeding rapidly (especially after the French evacuation of the Ruhr), when it received an added impetus from the long stoppage in the British coal industry in 1926. During 1927, output recovered to a level higher than that of 1925, but declined again to a new low level of 43,312,000 tons (18.2 per cent. of the United Kingdom output) in 1928. The year 1929, a comparatively prosperous one for British industry as a whole, saw an expansion of output by five million tons, and the South Wales percentage of exports to output rose again to 50 per cent., the figure at which it had stood in 1924. During 1930, however, the

world slump further intensified competition and restricted demand; and South Wales output fell again by nearly two and a half million tons.

In studying the output of coal from 1923 to 1930, it is important to note that the production of anthracite was much better maintained than that of steam and bituminous coal, as a comparison of the following indices of production will show.

South Wales Coalfield.

| | <i>Output of all Coal.</i> | <i>Output of Anthracite. other than Anthracite.</i> | <i>Output of all Coal</i> |
|-------------|----------------------------|---|---------------------------|
| 1913 | 111 | 97 | 113 |
| 1920 | 91 | 85 | 91 |
| 1923 | 106 | 98 | 107 |
| 1924 | 100 | 100 | 100 |
| 1925 | 87 | 112 | 85 |
| 1926 | 40 | 51 | 38 |
| 1927 | 91 | 116 | 88 |
| 1928 | 85 | 98 | 83 |
| 1929 | 94 | 113 | 92 |

An examination of fluctuations in output, however, is not sufficient to tell the story of the industry during these years of contraction. The price of coal, like that of other raw materials, was falling, and falling especially rapidly during the latter part of the period. The following are examples, taken from the Quarterly Returns of the Ministry of Mines, of the gains or losses of the South Wales Industry:—

South Wales Coalfield.—Gain or Loss per ton of coal disposable commercially.

| Quarter ended. | Gain (+) Loss (-). | Quarter ended. | Gain (+) Loss (-). | Quarter ended. | Gain (+) Loss (-). |
|----------------|-----------------------|----------------|-----------------------|----------------|-----------------------|
| | s. d. | | s. d. | | d. |
| March, 1923... | + 2 2·92 | March, 1925 | - 0 3·97 | June, 1929 | - 4·43 |
| Sept. „ ... | + 1 2·45 | Sept. „ | - 1 4·50 | Sept. „ | - 2·66 |
| Dec. „ ... | + 1 1·88 | Dec. „ | + 1 4·27 | Dec. „ | + 10·92 |
| March, 1924... | + 2 2·24 | June, 1927 | - 1 1·74 | March, 1930 | + 7·37 |
| June „ ... | + 0 6·45 | Sept. „ | - 1 5·25 | June „ | + 0·73 |
| Sept. „ ... | - 0 8·80 | Sept., 1928 | - 1 8·07 | Sept. „ | + 3·94 |
| Dec. „ ... | - 0 6·28 | Dec. „ | - 0 6·88 | Dec. „ | - 6·06 |
| | | March, 1929 | + 0 1·74 | | |

The Export Trade.

Coal exported to foreign markets amounts normally to about 50 per cent. of the total South Wales output, and coal shipped as bunkers by ocean-going steamers accounts for a further 9 per cent. The heavy decline in South Wales output during the years 1924-1925 was entirely accounted for by a fall in exports and foreign bunkers.

From the beginning of 1927 to the later months of 1929, the improvement in output (though 1928 was a poorer year than 1927) was again mainly due to an increase in exports and foreign bunkers, though the latter failed to expand in 1929 as rapidly as the former. The fact that exports in 1929 accounted again for 50 per cent. of output, as they had done in 1924, was mainly due to an increase in the quantity of exports. But during 1930 the increase of the proportion of exports to 51 per cent. was due to the fact that home consumption slumped even more heavily than foreign: undoubtedly this reflects the acute depression in the iron and steel industry of South Wales, and in basic industries generally. It is, nevertheless, true to say that, at any rate, up to 1929 the regaining of export trade was the chief problem before the local industry.

An analysis of markets shows that France still remains the largest consumer of South Wales coal, taking 7,240,000 tons in 1913, and 7,179,000 tons in 1929. The comparison of these two figures would, however, be misleading, since France was a larger and a more industrialised country in 1929 than in 1913. In 1924 South Wales exports to France were 8,405,000 tons, and taking that year as a base (100), her exports to France may be represented by the figures 69, 26, 63, 60, 84, 85, for the years between 1925 and 1930. The heavy fall after 1924 reflects the difference in value of the appreciated £ and the depreciated franc. The improvement in the last two years measures in part the increasing prosperity of France and the growing competitive power of South Wales. But any encouragement which may be derived from the study of the figures must be mitigated by the consideration that the South Wales share of British exports to France, which was 58 per cent. in 1924, was only 54 per cent. in 1929 and 55 per cent. in 1930.

South American consumption of South Wales coal has dropped from about six million tons before the War to about four million tons. South Wales exports to these markets from 1924 to 1930 are represented by the figures 100, 94, 42, 109, 108, 112, 92. Whereas 88 per cent. of the British coal imported into South American countries came from South Wales in 1924, by 1930 other coalfields had increased their share by 3 per cent.

Italian imports from South Wales have fluctuated, and are represented from 1924 to 1930 by the figures 100, 83, 40, 94, 87, 93, 107. The recent improvement is due mainly to the Hague Agreement whereby the Italian State railways undertook to purchase one million tons of British coal yearly for three years from the 15th November, 1929. South Wales has increased its share of the British trade with Italy, the benefit of which has been felt most in the Monmouthshire collieries.

The Egyptian market has been on the whole retained. In the French Possessions some ground appears to have been lost. To Spain, exports during 1924-1930 are represented by the figures 100,

113, 50, 139, 110, 111, 100. The Portuguese consumption of South Wales coal has shown a considerable increase since 1924, and in 1930 was 26 per cent. above the figure (782,212 tons) of 1913. Exports to Malta and Goyo (579,557 tons in 1913) show a large decline of about half a million tons, which undoubtedly reflects the increase in oil consumption by the Navy. Belgian consumption has also declined considerably, save for a brief improvement in 1929. Greek demand is still below 1924 level, and so is that of Rumania, the Netherlands, Gibraltar, and the Portuguese Possessions, while German consumption of South Wales coal has declined almost to insignificance. Imports into Denmark and Sweden show a sharp decline after 1927, but a slight improvement during 1930, while Norwegian demand has increased slightly. These Baltic markets were still largely held, during 1930, by Polish coal, and have always taken the bulk of their supplies of British coal from the Northern exporting districts.

It must be remembered, in comparing the 1913 exports to these various countries with those of recent years, that their total consumption of coal has on the whole been increasing.

An analysis of exports according to classes of coal shipped reveals, as did our examination of the output of coal, a relative improvement in the position of anthracite. The following comparison of index numbers will illustrate this point :—

Coal shipped abroad from Cardiff, Swansea, Newport, and Port Talbot.

| | | <i>Anthracite.</i> | <i>Steam.</i> | <i>Household.</i> | <i>All Coals.</i> |
|------|-----|--------------------|---------------|-------------------|-------------------|
| 1924 | ... | 100 | 100 | 100 | 100 |
| 1927 | ... | 108 | 87 | 91 | 88 |
| 1928 | ... | 98 | 82 | 97 | 83 |
| 1929 | ... | 133 | 92 | 107 | 96 |
| 1930 | ... | 129 | 86 | 101 | 91 |

Labour in the Coalfield.

The contraction in the demand for South Wales coal, and particularly for certain classes of coal, has produced an enormous volume of unemployment. Whereas in December, 1923, coal miners in employment numbered 53 per cent. of the total number of insured workers in the Industrial Region, by December, 1929, they numbered only 45 per cent. of the total. In December, 1923, only 2.4 per cent. of the insured coal mining population were unemployed. In December, 1929, in spite of a heavy decline in the number of workers in the industry, this figure had risen to 22 per cent. (17 per cent. wholly unemployed and 5 per cent. "temporarily stopped"), and in 1930 to 26 per cent. (5 per cent. being "temporarily stopped").

The depression which these figures indicate has not, however, been evenly distributed over the whole region. "Roughly speaking, it is true to say that the mines which were the first to feel the effects of the various depressing causes were those situate at the

upper edge of the coal area where the coal measures were nearest to the surface, and where the industry originally started. An instance of this is the Blaina area where in 1921-1922 the great majority of the pits in the area were closed with little or no prospects of their ever being reopened".* Thus, in districts such as these, there has been chronic unemployment, which existed even in 1923 and 1924, when exports were at their maximum. As exports continued to decline, unemployment spread among the districts where the old collieries were situated, and especially among those valleys which produce steam coal, the demand for which had catastrophically diminished.

In an article published in the "Economic Journal" in June, 1931,† Mr. Brinley Thomas has examined the mobility of the coal mining population within the South Wales coalfield from 1923 to 1930. His examination shows that labour has tended to leave the more depressed parts of the coalfield and migrate in search of work to those valleys where the class of coal produced or the natural conditions of production made for comparative prosperity. Such an enquiry is made possible by the fact that an unemployment insurance book retains the number representing the office where it was first issued, in spite of the possible migration of its bearer. A book which is exchanged in an office other than that in which it was originally issued is called a "foreign" book; and it is on an analysis of "foreign" books that Mr. Thomas has based his conclusions. Satisfactory reasons are given in the article for believing that the conclusions derived from the statistics are warranted.

Table† I. exhibits the dispersion of books originally issued within each of the ten valleys. For example, column 1 shows the present location of books born in the Monmouth East Valley; column 2 gives similar information for books which began their career in the Monmouth West Valley, and so forth. This table taken together with Table V. may be interpreted as follows:—We may compute for each valley the aggregate of books collected and the number of non-local "foreign" books (i.e., "foreign" books other than those bearing the mark of origin of an office within the valley), and express the latter as a percentage of the former. The results, set out in Table II., demonstrate a decided range, from 3.8 per cent. in the Rhondda to 15.2 per cent. in the Neath Valley. The lowest proportions of non-local "foreign" books are found in the four valleys situated in the heart of the coalfield—Merthyr Vale, Aberdare, Rhondda and Port Talbot—which cover districts producing steam coal largely for export. This was to be expected in view of the extremely rapid expansion which characterised this part of the basin

* Evidence before the Royal Commission on Unemployment Insurance given by W. R. L. Blakiston, Esq., Divisional Controller, Wales Division, Ministry of Labour.

† We are indebted to the Editor for permission to quote extensively and to reproduce Tables from this article. (See Tables at end of this Chapter, pp. 48-52).

before the War, and its great susceptibility to the changed situation in the international market. The two Monmouthshire valleys on the extreme east reveal only a slight improvement—6.4 and 5.5 per cent. Here again the incidence of the post-war contraction has been most severely felt, and only recently mitigated to some extent by the provision in the 1929 Hague Agreement, whereby the Italian Government undertook on behalf of the Italian State Railways to purchase one million tons of British coal annually for three years. The export of Monmouthshire coals has benefited most from this undertaking. The remaining four valleys show a distinct superiority—Rhymney 11.6 per cent., Swansea 9.9 per cent., Amman 9.2 per cent., and Neath 15.2 per cent. The last three comprise the anthracite area on the west, which exhibits far more virility and promise than the remainder of the field. The Rhymney Valley in Monmouthshire has witnessed new developments since the War,* and, being situated between two extremely depressed sections, it has drawn on the abundant supplies of surplus labour near at hand, mostly from the two valleys on the eastern side.

In Table III. the data of Table I. are set out in such a way as to reveal the net gain or loss of books in each valley. For instance, in the first column we note the number of books absorbed by Monmouth East from other valleys, whereas in the second column we are informed how many Monmouth East books have been dispersed to other valleys. These figures throw an interesting light on the direction of the currents of mobile labour. There has been a distinct net absorption of over 1,000 each in the anthracite valleys (Amman, Neath), and in Rhymney, with corresponding net losses in the four steam coal valleys (IV., V., VI., and VII).† We may conclude that, to the extent indicated, labour has been moving out of the most depressed localities into the three sections which have been the least affected by the force of the depression. This of course does not mean that all the holders of these transferred books have necessarily changed their domiciles; but it is clear that they have gone some distance to obtain work.

It remains to comment on the information contained in Table IV., which classifies the "foreign" book which immigrated from outside the colliery districts, according to the geographical areas where they were first issued. The total number of books originating outside the actual coal mining localities is only 2,504, or about one per cent. of the insured coal mining population in July, 1930. Of these no less than 1,205 are books which were issued from Kew to men discharged from the Forces. There was

* The Tredegar Iron and Coal Company, the owners of the new Oakdale and Wylie Collieries, have built two villages at Blackwood, and this has greatly facilitated migration into this valley. It is estimated that about 1,500 of the men holding "foreign" books at the Blackwood Exchange now reside in the area.

† See Map, Appendix 3.

only a slight movement northwards from the ports of Cardiff, Newport and Barry; while the streams from the south-west of England, mid-Wales and Pembrokeshire which formerly flowed strongly into this coalfield have now almost dried up.

It is clear from the analysis that, although the demand for labour in the newer and more promising districts has been feeble compared with the enormous supply of surplus labour in the coalfield, a natural process of redistribution has been operating. This may serve to show that the labour force within the coal industry is not as immobile as some people tend to think; and it also provides a useful indicator as to the type of equilibrium which the coalfield can expect to maintain in the future.

The natural disinclination of the Welsh miner to leave his native district is not pronounced when it is a matter of going to live in another part of the coalfield: the physical configuration of the area, however, has militated against easy movement from one valley to another,* except in those places where it has very recently been possible to build inter-valley roads.

A study of the course of employment in the valleys from 1923 to 1930 will make clearer the effects of the depression upon labour supply and demand in the coalfield as a whole and in its different sections.

The annual unemployment percentage in Table V. represents the proportion which the mean of the unemployment figure (excluding women and boys) returned in March, June, September and December bears to the total number of miners' books (excluding women and boys) exchanged in July. The artificial prosperity due to the occupation of the Ruhr was also responsible for the low unemployment rate in 1923, in which year the total number of men out of work in the coalfield was 5,717. By 1924, in Merthyr Vale 13 per cent. of the insured miners were unemployed, while about 11 per cent. were out of work in the Monmouthshire Valleys and in the Port Talbot district. In the Amman and Rhymney Valleys, however, the proportion remained relatively very low.

During 1925, the volume of unemployment in the whole coalfield was nine times that of 1923. Merthyr Vale again had a clear superiority with a rate of 38 per cent., and Amman and Rhymney were least affected. The years 1927 and 1928 saw a levelling up of the percentages, and even in the anthracite districts the number out of work became abnormally large. The improvement in output and exports in 1929 is reflected in a decline in the unemployment percentages. But in 1930, when world consumption of coal declined

* See Evidence before the Royal Commission on Unemployment Insurance, p. 219, Mr. Blakiston's answer to Question 1,664: "The genuinely seeking work clause was a very difficult clause to operate (in South Wales) because of the physical difficulties of actually seeking work in going from one valley to another."

heavily, when foreign Governments intensified their policy of stimulating exports and checking imports of coal, and when British coal-using industries were almost all depressed, the figures once again leap up. The rate in Merthyr Tydfil, which has consistently maintained the lead, reached 54.1 per cent., and the Rhondda, with its insured adult mining population of 50,000, had no less than 36.4 per cent. out of work. The Amman, Neath, Rhymney, and Monmouth West Valleys had relatively low rates.

We observe that the general tendency has been for the degree of unemployment in the steam coal valleys—Merthyr Vale, Rhondda, and Port Talbot—to be consistently high relatively to the more moderate rates prevailing in the anthracite sections—Amman and Neath—and the Rhymney. It is also noticeable that, with the exception of the year 1929, the Swansea valley has been badly hit during the last four years, and in the first half of 1930 had the third highest unemployment percentage in the coalfield. The reason for this rapid degeneration is that, although the anthracite portion in the north of this section has not suffered more than the rest of the anthracite west, the bituminous collieries in the south of this valley have been very severely affected.

Another view of the situation is afforded by Table VI., which shows the spread of unemployment as between the different valleys since 1923. The annual unemployment estimate is the same as that used in the previous table. Again we note that during the years 1924-5, when the position of the industry was worsening, the incidence was heavily felt in the steam districts. It is of interest in commenting on the last four years to compare these percentages with Table III., showing net gains and losses of "foreign" books. The three valleys (Amman, Neath and Rhymney), whose shares of the total volume of unemployment diminished most during the years 1928-30, are also the areas which exhibit the highest net gains of "foreign" books according to the July, 1930, return.

Table VII represents an attempt to estimate variations in the amount of effective employment during the period. The computation least open to criticism is obtained by subtracting the total of books lodged in June (i.e., the unemployment figure), from the aggregate number of books exchanged at the annual collection in July: this supplies an approximate estimate of the number of men actually in employment in June of each year. For this purpose the ten valleys of the coalfield have been arranged in four groups—

- I. Monmouth East and West :
- II. Rhymney, Merthyr Vale, and Aberdare :
- III. Rhondda and Port Talbot :
- IV. Neath, Swansea and Amman.

This division is adopted in order to minimise any error that might arise owing to transferences of books from one valley to the next.

Our data thus furnish us with two series for each of these divisions, (a) the number of miners (excluding boys and women) insured in July of each year, and (b) the number of miners (excluding boys and women) in actual employment in June of each year. We may regard (a) as being roughly the supply, and (b) the demand for adult mining labour. The position will be clarified by expressing the two series in the form of index numbers, taking 1923 as the base in each case. But in order that these indexes should be established on a comparable basis, some method must be adopted of allowing for the fact that under the provisions of the Widows', Orphans' and Old Age Contributory Pensions Act, 1925, all persons aged 65 and over ceased to be insured under the Unemployment Insurance Acts as from 2nd January, 1928.* The figures in Table VIII are the result of a process similar to that applied by the Ministry of Labour: the index numbers of each series may thus be said to be comparable throughout the period and we shall refer to them as the Insured Index and Employment Index respectively.

The extent of the disparity between the two indexes reveals, roughly speaking, the degree of maladjustment between the supply of and the demand for adult mining labour. It must be emphasised that the employment index relates only to the position at a certain point of time each year, viz., a date in the latter part of June. This means that the employment in a given locality might be underestimated in any particular year, owing to the unemployment figure in June being abnormally swollen on account of temporary factors. But by studying the employment index for the same month over a series of years, a more reliable idea can be obtained concerning the real state of the labour market in the area.

* "This change would have made a serious breach in the series of statistics of employment and unemployment derived from the working of the Acts, but for the fact that as a result of an Inquiry made in April, 1926, on a sample basis, into the industrial and insurance history of the whole body of persons then within the scheme, it has been possible to obtain comparable figures showing the estimated number of insured persons aged 16-64 inclusive in each industry, as at July, 1926, and July, 1927. While it has not been considered advisable to apply the results of the April, 1926 inquiry to the figures for earlier years, it has nevertheless been possible, by the use of index numbers, to obtain a rough measure of the growth or decline of each industry from 1923 to 1928. For this purpose the number insured in each industry at July, 1923 (aged 16 and over) have been given the index number of 100 and on that basis index numbers have been computed for the corresponding figures of 1924 to 1927 inclusive. The percentage change between 1926 and 1928 in the numbers of insured workers aged 16-64 was then computed and by this means a comparative index number for 1928 was obtained."—Ministry of Labour Gazette, November, 1928, p. 388.

On account of the coal stoppage of 1926 it has been necessary to use the year 1927 instead of 1926 in making our computation. Moreover, in applying the sample percentage of insured over 65 uniformly to the four divisions of the South Wales coalfield, we are making the justifiable assumption that the incidence of old-age in each of these divisions does not diverge to any appreciable degree from what is normal in this industry.

The scope for employment in Division I—the two Monmouthshire Valleys—declined by 33 per cent. between June, 1923, and June, 1931: the falling-off in the supply of labour during the period was 21 per cent. In the Merthyr—Aberdare—Rhymney valleys, the insured index has not fallen as much as in Division I, but the employment index has slumped considerably in recent years, being 50.8 in June, 1931, compared with 100 in June, 1923. Although the employing capacity of these valleys has thus been rapidly shrinking, their labour supply in June, 1931, is only 17.7 per cent. below what it was in 1923.

Turning to the third Division, comprising the Rhondda and Port Talbot valleys, we observe an even worse state of affairs. The average June employment index in this district during the last five years is only 55.4 compared with 100 in June, 1923; whereas the insured index in the same period averages 84.2. Even as early as June, 1927, employment had been curtailed by practically 40 per cent. compared with 1923. A slow improvement took place to 1929, subsequently to which there has been a precipitate fall. The employment index for June, 1931, stands at the alarmingly low level of 37.9 per cent., while the volume of the insured labour in the area is still 78.6 per cent. of the 1923 figure.

The position revealed by the figures for the Neath—Swansea—Amman Division is not quite so depressing. Here the labour supply in 1927 was as high as it was in 1923: by June, 1931, it had diminished by 11.7 per cent. Meanwhile the average employing capacity during the period 1927-31 stood at 72.5 per cent. of the 1923 level. It is quite conceivable that had it not been for the overwhelming influence of the world slump in 1930-31, the demand for labour in this area would have gone much farther to absorb the available supply.

The averages of the employment index figures for each Division over the years 1927-31 are as follows:—

*Average Employment Capacity (in June)
1927-31 as percentage of June, 1923.*

| | | | | <i>Percentage.</i> |
|-----------------------------------|-----|-----|-----|--------------------|
| I. Monmouth East and West | ... | ... | ... | 67.0 |
| II. Rhymney, Merthyr and Aberdare | ... | ... | ... | 64.8 |
| III. Rhondda and Port Talbot | ... | ... | ... | 55.4 |
| IV. Neath, Swansea and Amman | ... | ... | ... | 72.5 |

There is a distinct difference between the average employment experience of the three Western valleys (mainly anthracite) and the Rhondda and Port Talbot area. The latter in particular has suffered severely from the world depression of 1930-31. The force of the prolonged slump is effecting a distinct change in the relative economic significance of different parts of the basin.

The number of men in employment expressed as a percentage of the total number employed in the coalfield.

| Date. | Anthracite Valleys (Neath, Swansea and Amman). | Anthracite Valleys (Neath, Swansea and Amman) together with Rhymney. |
|------------------|--|--|
| | Percentage. | Percentage. |
| June 1923 | 16.7 | 28.8 |
| " 1928 | 17.8 | 33.4 |
| " 1929 | 18.2 | 32.6 |
| " 1930 | 20.6 | 36.6 |
| " 1931 | 21.6 | 37.4 |
| | | Average 1928-31 = 35.0 per cent. |

These figures show that throughout the last four years of depression, while the absolute volume of employment available in the whole coalfield has been rapidly diminishing, the relative share taken by the anthracite valleys has been steadily increasing. Of the non-anthracite area, the Rhymney valley has been least unfortunate. Striking an average of the June figures of employment for 1928-31, we observe that the anthracite valleys, together with Rhymney, employed 35 per cent. of the men actually at work in the coalfield, compared with a corresponding proportion of 28.8 per cent. in June, 1923.

The absolute figures of the numbers insured and in employment and the index numbers based on them serve to summarise the situation. The degree of adjustment in the adult male labour supply of the industry between June, 1923, and June, 1931, is 18 per cent. The extent of the contraction in the demand for adult male labour in the same period is no less than 47 per cent.

The number of insured men unemployed at a date in June of each year during the last four years is as follows:—

| <i>Men and Young Men Unemployed.</i> | | | | |
|--------------------------------------|-----|-----|-----|--------|
| June 1928 | ... | ... | ... | 67,200 |
| " 1929 | ... | ... | ... | 41,100 |
| " 1930 | ... | ... | ... | 57,400 |
| " 1931 | ... | ... | ... | 71,500 |

Although the number of men insured in the industry declined by about 9 per cent. between July, 1928, and July, 1931, the number recorded as unemployed at the end of June, 1931, was no less than 71,500, compared with 67,200 in June, 1928: an unemployment rate of 32 per cent. at the beginning of this period became 37 per cent. at the end.

Rationalisation.

The greater part of the unemployment in the coal industry must obviously be attributed to those general causes of depression in the trade which we have already described. But the coal industry, like all others, tends continuously to improve its methods of operation and thereby increase the quantity of output which may be

obtained from a given exertion of labour power. During the recent years of slump and intensified competition, the stimulus to obtain lessened costs of production has been especially keen. Natural conditions of depth of seam and character of "floor" make the introduction of coal-cutting machinery more difficult in South Wales than in other parts of Great Britain. But the quantity of coal cut by machinery has tended steadily to increase, as the following figures show :—

Percentage of Total Output of Coal Cut by Machinery.

| | <i>South Wales.</i> | <i>Great Britain.</i> |
|-------------|---------------------|-----------------------|
| 1922 | 4 | 15 |
| 1923 | 4 | 17 |
| 1924 | 5 | 19 |
| 1925 | 6 | 20 |
| 1926 | 7 | 22 |
| 1927 | 7 | 23 |
| 1928 | 8 | 26 |
| 1929 | 9 | 28 |

But it is not merely by introduction of cutting machinery that appliances can be made to help the coal industry. The introduction of mechanical haulage, the use of electric power, and other engineering improvements, all play their part. The tendency has been to reduce to the minimum the number of workers not actually employed in getting coal. Consequently, the output of coal per manshift has tended to increase.

Coal Output, in Cwts., per Manshift.

| <i>Quarter ended</i> | <i>South Wales.</i> | <i>Great Britain.</i> |
|----------------------|---------------------|-----------------------|
| March, 1927 ... | 19·93 | 20·66 |
| June, " ... | 19·42 | 20·47 |
| September, " ... | 19·10 | 20·47 |
| December, " ... | 19·60 | 20·82 |
| March, 1928 ... | 20·13 | 21·24 |
| June, " ... | 19·87 | 20·98 |
| September, " ... | 20·04 | 21·13 |
| December, " ... | 20·88 | 21·80 |
| March, 1929 ... | 20·78 | 22·13 |
| June, " ... | 20·38 | 21·45 |
| September, " ... | 20·16 | 21·40 |
| December, " ... | 20·53 | 21·78 |

The annual output per person employed in the industry in Glamorgan was 243 tons in 1927, 258 tons in 1928, and 271 tons in 1929; and for the whole coalfield 238 tons in 1927, 261 tons in 1928, and 280 tons in 1929. The more recent figures of output are not comparable with those of 1927-1929 because of the decrease in the length of the working day introduced by the Coal Mines Act, 1930.

Accordingly, the decline in the cost of production has not been entirely due to reductions in wages.

Index numbers of wages cost per ton, earnings of coal miners, and cost of production in the coal industry.

| Date. | South Wales. | | | Great Britain. | | |
|--------------------|-----------------------------------|-----------------------------------|---|-----------------------------------|-----------------------------------|---|
| | Total cost of production per ton. | Wages cost of production per ton. | Annual average quarterly earnings of coal miners. | Total cost of production per ton. | Wages cost of production per ton. | Annual average quarterly earnings of coal miners. |
| 1924 ... | 100 | 100 | 100 | 100 | 100 | 100 |
| 1927 ... | 81 | 79 | 89 | 84 | 80 | 89 |
| 1928 ... | 74 | 71 | 90 | 76 | 71 | 82 |
| 1929 ... | 71 | 70 | 93 | 73 | 69 | 86 |
| 1930 ... | 74 | 72 | 88 | 74 | 71 | 82 |
| Jan.—July 1931 ... | 73 | 70 | — | 74 | 70 | (3 quarters) |

Notes.—The annual average total cost of production (including royalties) in 1924 was 20s. 9d. per ton in South Wales and 18s. 7½d. per ton in Great Britain as a whole.

The average wages cost per ton in 1924 was 14s. 3d. for South Wales and 13s. 3d. for Great Britain.

The average of the earnings of coal miners in the four quarters of 1924 was £34 16s. 4d. in South Wales and £34 11s. 2d. in Great Britain.

An output which was produced by a given number of workers in 1913 can, therefore, be produced by a considerably smaller number to-day. Even within the last two years, improvements have been such that the output of 1929 could be produced in 1932 with substantially fewer than the 159,933 workers who were "in employment" in that year. It is, however, impossible to calculate with accuracy what has been the displacement of labour caused by the introduction of machinery, mechanical haulage, electric power and lighting, and the other improvements introduced into colliery operation, and by the reduction of the proportion of other workers to coal getters. The increase in output per person employed, or even in output per man per shift, has been due not only to these changes but to the change of working hours from seven to eight in 1927 (and then again to 7½ in 1930), and to the strong tendency in recent years—natural in a period of intense competition—to concentrate upon the extraction of coal from the most easily worked seams and pits. For example, the improvement in output per shift is greater between 1927 and 1928 than between 1928 and 1929, though the eight-hour day obtained in these years, because the total output of the coalfield fell by three million tons between 1927 and 1928, whereas it expanded by nearly five million tons

between 1928 and 1929. A fall in output means that, on the average, the coal cut after the fall will be more easily worked than that cut before the fall; for the pits with the highest costs of production tend to be closed down. An expansion of output implies an extension of the margin of production to include less favourably situated pits.

There is no doubt whatever that the depression in the South Wales coal trade has produced a tendency towards concentration of production. As early as 1921, for example, when falling demand first affected the Blaina district, several of the older collieries were closed and one central colliery was sunk, from which practically the whole of the coal of the district is now worked. This colliery is electrically equipped and has up-to-date machinery. Concentration of this kind is one of the main economies expected to result from recent amalgamations of colliery companies. In the Western area, the formation in 1927-28 of Amalgamated Anthracite Collieries, Ltd., brought under one control 49 pits producing more than 80 per cent. of the South Wales output of anthracite. In 1930, a further consolidation of interests already associated combined, under the name of Welsh Associated Collieries, Ltd., the ownership of 58 pits, mainly in the central part of the coalfield, the Aberdare, Merthyr, and Rhondda valleys. Other consolidations, such as the Powell-Duffryn Co., Ltd., have extended their interests. When the holdings of iron and steel concerns are taken into account, it is seen that a very substantial portion of the output of the coalfield is under the control of large combines. It has been calculated that in 1929 the seven largest groups produced 33 million tons out of the total of 48 million tons extracted.

Part I of the Coal Mines Act, 1930, was designed to encourage further concentration, while stabilising output and limiting inter-district competition by British producers. It is too early yet to speak with any confidence upon the effect of the limitation of output by the "quota" system upon employment. The Report of the Mines Department on the working of schemes under this part of the Act during the first quarter of 1931 concluded that little, if any, of the increase in unemployment could be attributed to the regulation of output.* In the long run, however, in the absence of any striking improvements in market conditions, the existence of output regulation, coupled with a system of minimum prices,† must surely operate to encourage concentration. The first year of the operation of the Act has happened to have been the worst year in the coal trade's history in modern times. Such

* Cmd. 3905, Mines Dept.

† South Wales was the first district to fix such prices under the Act, and has maintained them throughout its operation.

transfer of "quotas" as has taken place has been effected at nominal prices for short periods; but under more stable conditions, "quotas" may be bought outright, the pits for which they were granted may be closed down, and an increased production obtained from another pit already belonging to the purchaser. In any case, if and when the Reorganisation Commission, set up under the Act, puts its powers into operation and compels concentration of ownership and operation, the demand for labour must be reduced. There can be no doubt that many pits and shafts now at work could be dispensed with without reducing total output, and that there is still abundant room for improvement in the equipment of many South Wales collieries.

Increasing concentration may be expected, in our judgment, to increase the competitive power of South Wales producers in world markets. Not only should costs of production be lowered, but marketing should be improved. A feature of the large colliery amalgamations in recent years has been their absorption of firms of coal exporters and their decision to operate their own marketing agencies at home and abroad. In the more prosperous times, South Wales colliery owners were content to produce their coal, and were put into contact, through the agency of numerous independent firms of exporters which grew up round the various docks, with foreign buyers who were eager to obtain their product. To-day the foreign buyer is no longer eager. It is useless to wait for orders; markets must be sought and maintained by contacts overseas. In the establishment of agencies in every possible market abroad, the new amalgamations have an undoubted advantage over the smaller independent exporting firms. The competition of the latter may well have been an important factor in preventing that inertia which often overtakes large concerns. However that may be, there does seem to have been a definite improvement in marketing enterprise during recent years. Such an improvement, by expanding sales, may to some extent offset the decline in demand for labour produced by concentration.

We see little reason, however, in the recent history of the coal trade of this area to anticipate that demand, even supposing that trade as a whole revives considerably, will rise, during several years to come, above the 1929 level. Apart from a general improvement in trade, that year happened to be a particularly good one for producers of coal, because early in the year an unusually heavy frost affected many parts of Europe. In 1929 the total number of adult miners "in employment" was about 159,000, to which may be added a further 12,000 boys. In June, 1931, the number of insured adult miners was roughly 191,000, and of insured boys in the industry 12,500. Before the recent Royal Commission on Unemployment Insurance, Mr. W. R. L. Blakiston, speaking of

the Welsh coalfield, said: "30,000 is somewhere in the neighbourhood of the surplus to the industry. Possibly you ought to put it at a little less than that to allow for fluctuation." In view of the considerations we have advanced above, particularly that conditions were unusually good in 1929, that a smaller labour force could produce in 1932 what was produced then, and that concentration will continue, *not only in South Wales but in the competing export areas in Great Britain and abroad*, we must conclude that even 30,000, while allowing for fluctuation, may prove to have been an underestimate of the surplus. Entry into the industry is now restricted by an agreement whereby colliery managers regularly notify the Employment Exchanges when they require the services of men not already on their books. The Exchanges send unemployed miners from neighbouring districts to fill such vacancies, and thus virtually prevent the entry into mining of labour from other industries. But mere restriction of entry is not sufficient to deal with a surplus of such magnitude.

Industries using Coal as their principal raw material.

The development of coke-ovens and coke-oven by-products has been one of the more encouraging features of the mining industry during recent years, and certain South Wales undertakings were able to increase the number of their employees up to the middle of 1930. The total number of insurance books exchanged within the industrial region by coke-oven workers was 824 in 1929 and 1,164 in 1930. Plants are established at or near Aberkenfig, Port Talbot, Dowlais, Pontypridd, Tonyrefail, Caerphilly, Ebbw Vale, Blaenavon, and Pontnewydd. Prospects of improvement in the general state of trade might reasonably be expected to lead to further expansion in this industry, particularly if good markets can be found for new products such as "Presotim" and "Presomet," produced by the Powell-Duffryn Company. Depression in the iron and steel industry, however, affected employment adversely towards the end of 1930 by causing a slackening in demand for coke.

Patent Fuel.

The manufacture of patent fuel is situated chiefly around Cardiff, Newport, Port Talbot, and Swansea. Briquettes are made by mixing coals with some binding material, such as pitch; small coal is purchased from the collieries and turned into patent fuel at works near the seaboard. South Wales is said to manufacture about 90 per cent. of the patent fuel output of the United Kingdom, the bulk of which is exported—chiefly to France and Italy.

Patent fuel, a substitute for coal, has suffered, like coal itself, from the increased utilisation of other substitutes and from the post-war development of home supplies of coal by continental countries. Swansea, Cardiff, and Port Talbot are the chief exporting ports (in that order). The tonnage exported from them in 1913 was considerably in excess of any that has since been reached. Since 1927, when exports from the three ports totalled 1,157,072, the tonnage exported has been declining, save for a small improvement in 1929. In 1930, their exports totalled only 887,948 tons.

The numbers employed in the industry have, as a result of this diminishing trade, fallen considerably. Works have been closed down and, as the result of amalgamation, one firm, British Briquettes, Ltd., now controls the industry. Patent fuel workers are classified by the Ministry of Labour together with workers in artificial stone, concrete, ballast crushing, and other such occupations. It is therefore difficult to estimate with accuracy how many of them are now employed; but it is probably safe to say that some hundreds of workers, formerly employed by the Patent Fuel industry, are now surplus to its needs.

The Prospects of Scientific Treatment of Coal.

A survey of the prospects of an expansion in the demand for coal along the old channels in domestic and export trade leaves a pessimistic impression. It is natural to ask whether there is a real hope of a considerable net increase in the demand in the event of the scientific utilisation of coal being applied on a large scale. An area like South Wales, the very economic sustenance of which is irrevocably bound up with the fate of the coal industry, is peculiarly interested in the answer to this question.

Much has been written in recent years concerning the merits and defects of different processes for treating coal, and it is unfortunate that false hopes have sometimes been raised as to the success with which some of them can be operated. Two broad classes of processes present themselves for consideration, viz., (a) Low Temperature Carbonisation; (b) Hydrogenation. The products of the former are smokeless fuel (the solid residue), tar, gas, and ammoniacal liquor; while the latter converts a large proportion of the raw product into distillable oils. To some extent low temperature carbonisation has obtained a footing in the commercial world: the Report of the Fuel Research Board for the year ended March, 1929, pointed out that there were then in existence in this country a number of companies with a nominal capital of over £5,500,000 engaged in developing 26 different processes. Since then, however, several of the undertakings have encountered serious difficulties, and it would be idle to suggest

that the commercial exploitation of this means of treating coal has met with anything like the success anticipated.

It is difficult at this stage to make any useful statements concerning the economic aspect of low temperature carbonisation, because the profitable development depends on so many variables. In the words of the Report of the Fuel Research Board for 1928-9, "it is still too early to say whether low temperature carbonisation of coal will eventually prove an economic success on a really large scale or to say which of the various processes are most likely to prove successful. Some of the processes are, at the present time, doubtless working at a profit, but it does not necessarily follow that they could do so if the scale of working were greatly increased, or if the same process were applied to other coals, or under different conditions Every individual undertaking must be considered on its merits, with due regard on the one hand to the nature of the coal it is proposed to treat, and the available supply, and on the other, to the outlets of coke, tar and gas. On these factors will depend the type of plant and the site for the plant that is most likely to be capable of working at a profit."

Whether we are thinking of low temperature carbonisation or hydrogenation, we are faced with a paucity of reliable information on three important issues :—

- (a) the specific types of coal which are to be regarded as most suitable for the different processes.
- (b) the precise location of the requisite coals and a detailed knowledge of the properties of the same seams in different districts.
- (c) the circumstances under which a given process applied to a certain type of coal can be made to operate profitably.

Order and definiteness are gradually being introduced into this sphere of uncertainty by the work of the Fuel Research Board. The Physical and Chemical Survey of the national coal resources of Great Britain, which began in the Lancashire and Cheshire area in 1922, is now proceeding in most of the coalfields. Its objects are :—

- (i) "To obtain exact knowledge as to the properties of the coal seams
- (ii) To bring the available geological information into relation with physical and chemical data and to indicate the variations in properties which occur in the seams of each coalfield when passing from one locality to another.
- (iii) To suggest the most suitable methods of utilisation of the seams, or portions of seams, in view of the properties disclosed by investigations under (i) and (ii).
- (iv) To devise new methods for the examination of coal so as to be able accurately to determine certain properties of the seams which are at present incompletely understood, e.g., the caking property, friability or hardness, the melting point of the ash, etc.
- (v) To record and publish information as it becomes available."

The work of the Survey Committee in South Wales began in 1928: it has its laboratory at the School of Mines, Treforest. The

first seam chosen for investigation was the "Nine Foot," and a number of sections at different points in the coalfield are being taken for detailed analysis. The extreme importance of proceeding as rapidly as possible with this expert investigation can hardly be over-estimated. The basic data thus furnished will be very valuable as a foundation for serious developments in the direction of the scientific treatment of coal.

The actual progress made along these lines in the South Wales coalfield has been negligible. Apart from the manufacture of metallurgical coke and patent fuel, there are only the Bedwas plant and the Illingworth plant at Pontypridd. Depression in trade has prevented the expansion at these works from being as large as was hoped; and in the circumstances it is on the whole impossible to base any generalisations upon this experience.

So far the commercial application of low temperature carbonisation has hardly touched South Wales.

Some of the general "pros and cons" from the point of view of the coalfield merit brief consideration. In the first place, since the yield of smokeless fuel by this kind of process amounts to about 14 cwts. per ton carbonised, the solid residue will be sold to some extent in direct competition with the natural product mined in the area. It is important to note, however, that in so far as "slacks" will be utilised for carbonisation, it will tend to add value to a product which in South Wales in particular has often been an embarrassing drug on the market. Most of the "slack" produced in this coalfield can be "up-graded" with advantage and the proceeds of the industry would correspondingly benefit.

South Wales is a richly-endowed coalfield and it contains, more especially along the southern outcrop and in the eastern section in Monmouthshire, several excellent caking coals and steams having a volatile content of over 20 per cent., e.g., seams like the No. 2 Rhondda, the "Two Feet Nine," the "Big Rock," which can be made to yield first-rate smokeless fuel. Adequate information about the location and properties of these coals is no doubt available at the present time, if low temperature carbonisation were taken up seriously.

Meanwhile it would be foolish to ignore the fact that South Wales supplies admirable coals of the smokeless variety which might well be sold on the domestic market at a price with which low-temperature coke will not be able to compete for some time. An expert on low-temperature carbonisation has declared that he "has never yet come across any manufactured smokeless fuel which is equal to the natural smokeless fuel which can be obtained in South Wales and which can be burned in the open grate."* It would

* John Roberts, D.I.C., in discussion on a Paper by R. A. Burrows on "Self-help in the Coal Industry." *Journal of Institute of Fuel*, June 1931, p. 387.

appear that a good purpose would be served in educating the domestic consumer regarding the unquestioned advantages of these Welsh coals and thereby expanding the present outlet for them. This should have the additional advantage of fostering smoke-abatement in our cities without asking the consumer to pay an unreasonable price for his fuel. The application of low temperature carbonisation on a sure economic basis will probably take some time to materialise : South Wales out of its incomparable natural resources has in its power now to provide a commodity equivalent to if not better than the fuel into which inferior coals can be converted by the aid of science.

Commercial initiative should be directed towards placing the relevant grades of Welsh smokeless coals on the domestic market.

The question of price relationships has much to do with the profitability of the low temperature process and it is difficult to know what tendencies will reveal themselves in the near future. In any case, the extent to which such a development in its early stages can solve the problem of surplus labour can well be exaggerated. Labour cost in these plants is a comparatively small item ; while, as the solid residue must compete with natural coals, the net addition to employment will be problematic.

The other class of treatment, viz., hydrogenation, would seem to offer a better long run prospect for the coal mining industry. Unfortunately, it is impossible to say anything useful in the present stage. Hydrogenation is the subject of bewildering controversy ; and the layman finds it difficult to judge the situation with any confidence.

The fact that oil from coal cannot compete with liquid oils at their present values is a major difficulty : and there is no likelihood that liquid oil prices will rise in the near future. The hydrogenation process itself is also in the experimental stage. Future developments, however, will have an important bearing on the coal industry. Hence the supreme urgency of having a complete and reliable survey of the location and properties of Welsh coals. South Wales can present as strong a case as any coalfield for the initiation of this activity as soon as the perfecting of the process, on the one hand, and a favourable change in relative market prices on the other hand, have made it an economic proposition. Perhaps nothing can in the long run do more to add to the wealth of the area by raising the value of its leading product : such an orientation would also help to rectify the ultra-specialisation and geographical concentration in the valleys which have been an evil feature of the economic growth of the basin, for it would probably bestow increasing economic significance on bituminous coals of the southern outcrop and the eastern portion of the field.

SOUTH WALES AND MONMOUTHSHIRE COAL INDUSTRY.

EXCHANGE OF UNEMPLOYMENT INSURANCE BOOKS, JULY, 1930.

TABLE I.—Origin and Dispersion of Coalfield "Foreign" Books.

| Valley where Books were exchanged in July, 1930. | Valley in which Books were originally issued. | | | | | | | | | | Total. |
|--|---|----------------------|-------------|------------------|--------------|-------------|-----------------|-----------|-------------|------------|--------|
| | 1. Monmouth Eastern. | 2. Monmouth Western. | 3. Rhymney. | 4. Merthyr Vale. | 5. Aberdare. | 6. Rhondda. | 7. Port Talbot. | 8. Neath. | 9. Swansea. | 10. Amman. | |
| 1. Monmouth E. | 184 | 540 | 24 | 18 | 14 | 15 | 9 | 1 | 3 | 6 | 814 |
| 2. Monmouth W. | 149 | 3,415 | 1,309 | 9 | 21 | 33 | 20 | 5 | 4 | 1 | 4,966 |
| 3. Rhymney* ... | 114 | 641 | 3,194 | 928 | 353 | 777 | 44 | 20 | 17 | 15 | 6,103 |
| 4. Merthyr Vale... | 2 | 18 | 89 | 1,513 | 306 | 81 | 17 | 24 | 12 | 16 | 2,078 |
| 5. Aberdare ... | 11 | 50 | 107 | 194 | 578 | 240 | 21 | 67 | 5 | 18 | 1,291 |
| 6. Rhondda ... | 18 | 135 | 242 | 104 | 110 | 3,700 | 972† | 26 | 17 | 53 | 5,377 |
| 7. Port Talbot ... | 9 | 39 | 41 | 34 | 29 | 413 | 2,056 | 48 | 20 | 22 | 2,711 |
| 8. Neath* ... | 5 | 37 | 26 | 380 | 322 | 276 | 341 | 2,196‡ | 88 | 44 | 3,715 |
| 9. Swansea ... | 1 | 19 | 26 | 51 | 36 | 71 | 125 | 167 | 606 | 160 | 1,262 |
| 10. Amman ... | 19 | 34 | 33 | 42 | 77 | 272 | 133 | 88 | 845 | 1,871 | 3,414 |
| Total ... | 512 | 4,928 | 5,091 | 3,273 | 1,846 | 5,878 | 3,738 | 2,642 | 1,617 | 2,206 | 31,731 |

* The non-local "foreign" books exchanged at the Blackwood office in the Rhymney Valley and the Resolven office in the Neath Valley have been allocated in round figures to the surrounding valleys according to supplementary information received. This was made necessary as these two offices were not included in the detailed Return. The margin of error on this account can only be slight.

† The surprisingly large number of books absorbed by the very depressed Rhondda Valley from the Port Talbot district is to be explained by the fact that there is easy access between the Avon Valley (in the Port Talbot section) and the top of the Rhondda Valley by means of a tunnel. Some of these 972 "foreign" books are held by workmen who travel the short distance from one valley to the other by train every day.

‡ There are only two offices in the Neath Valley, viz., Neath and Resolven. It is impossible to obtain a genuine figure of local "foreign" books for Resolven because, since there was no Branch office at the place in 1920 and the books of Resolven workers had to be issued at Neath, the "foreign" books now found at the Resolven office include (a) those held by workmen who have come from other Exchanges, and (b) those belonging to Resolven workmen which were transferred from Neath when a new office was opened at Resolven. The total of 2,196 includes the "foreign" books exchanged at Resolven minus those which are known to have been originally issued outside the valley. Most of them, of course, belong to category (b) as defined above.

TABLE II.—*Proportions of Non-local " Foreign " Books (including Immigrant Books).*

| Valley. | Total Number of Books exchanged. | Number of " Foreign " Books exchanged. | Number of Non-local " Foreign " Books (i.e. excluding those originally issued in the Valley concerned). | Proportion of Non-Local " Foreign " Books to the Total exchanged. |
|-----------------|----------------------------------|--|---|---|
| | | | | Percentage. |
| 1. Monmouth E. | 10,605 | 867 | 683 | 6·4 |
| 2. Monmouth W. | 33,214 | 5,241 | 1,826 | 5·5 |
| 3. Rhymney ... | 30,528 | 6,735 | 3,541 | 11·6 |
| 4. Merthyr Vale | 13,280 | 2,214 | 701 | 5·3 |
| 5. Aberdare ... | 20,422 | 1,500 | 922 | 4·5 |
| 6. Rhondda ... | 58,306 | 5,929 | 2,229 | 3·8 |
| 7. Port Talbot | 20,462 | 2,887 | 831 | 4·0 |
| 8. Neath ... | 10,558 | 3,799* | 1,603 | 15·2 |
| 9. Swansea ... | 7,291 | 1,325 | 719 | 9·9 |
| 10. Amman ... | 20,346 | 3,738 | 1,867 | 9·2 |
| Coalfield Total | 225,012 | 34,235 | 14,922 | 6·6 |

* As a result of the circumstances explained in note † to Table I, this figure contains some books which are not strictly speaking " foreign " ; but this does not affect the number of non-local " foreign " books.

TABLE III.—*Net Gain and Loss of Books.*

| Valley. | Books absorbed from other valleys. | Local Books exchanged in other valleys. | Net Gain (+), or Loss (-). |
|---------------------|------------------------------------|---|----------------------------|
| 1. Monmouth E. | 630 | 328 | + 302 |
| 2. Monmouth W. | 1,551 | 1,513 | + 38 |
| 3. Rhymney ... | 2,909 | 1,897 | + 1,012 |
| 4. Merthyr Vale ... | 565 | 1,760 | - 1,195 |
| 5. Aberdare ... | 713 | 1,268 | - 555 |
| 6. Rhondda ... | 1,677 | 2,178 | - 501 |
| 7. Port Talbot ... | 655 | 1,682 | - 1,027 |
| 8. Neath ... | 1,519 | 446 | + 1,073 |
| 9. Swansea ... | 656 | 1,011 | - 355 |
| 10. Amman ... | 1,543 | 335 | + 1,208 |

TABLE IV.—Origin of "Foreign" Books which were first issued outside the Coalfield.

| Valley in which the Books were exchanged in July, 1930. | Area in which the Books were originally issued. | | | | | | | | | | | Total. | |
|---|---|--------------|------------|--------------------------|----------------------|-------------------------|-------------------------|-------------------------|-------------------|-------------------------|-----------|--------|-------------|
| | Pembrokeshire. | North Wales. | Mid-Wales. | Cardiff, Newport, Barry. | Brecon and Chepstow. | North-Western Division. | South-Western Division. | South-Eastern Division. | Midland Division. | North-Eastern Division. | Scotland. | | Kew, H.M.F. |
| 1. Monmouth E.... | Nil | Nil | Nil | 4 | 6 | 13 | 10 | 3 | 7 | 2 | Nil | 8 | 53 |
| 2. Monmouth W. | 1 | Nil | 4 | 81 | 16 | 10 | 27 | 9 | 14 | 15 | Nil | 98 | 275 |
| 3. Rhymney* ... | 5 | 6 | 4 | 80 | 8 | 11 | 41 | 15 | 29 | 14 | Nil | 419 | 632 |
| 4. Merthyr Vale... | 4 | 6 | 6 | 18 | 2 | 4 | 7 | 7 | 5 | Nil | Nil | 77 | 136 |
| 5. Aberdare ... | 11 | 6 | 5 | 21 | 2 | 6 | 12 | 12 | 6 | 7 | 1 | 120 | 209 |
| 6. Rhondda ... | 16 | 13 | 16 | 48 | 5 | 16 | 62 | 48 | 19 | 11 | 7 | 291 | 552 |
| 7. Port Talbot ... | 5 | 8 | 3 | 17 | 5 | 9 | 19 | 12 | 9 | 7 | 4 | 78 | 176 |
| 8. Neath† ... | 5 | 5 | 3 | 5 | 6 | 3 | 8 | 4 | 5 | 2 | 2 | 36 | 84 |
| 9. Swansea ... | 4 | 1 | 5 | 3 | 8 | 4 | 8 | 4 | 7 | 1 | 1 | 17 | 63 |
| 10. Amman ... | 92 | 9 | 93 | 12 | Nil | 11 | 13 | 11 | 9 | 6 | 7 | 61 | 324 |
| Total ... | 143 | 54 | 139 | 289 | 58 | 87 | 207 | 125 | 110 | 65 | 22 | 1,205 | 2,504 |

* Excluding Blackwood office.

† Excluding Resolven office.

TABLE V.—Average Annual Unemployment* in Various Sections of the South Wales Coalfield as Percentage of the Number of Insured Coal Miners (excluding boys and women) returned in July of each year.

| Valley. | 1923 (June and Dec.) | 1924. | 1925. | 1927. | 1928. | 1929. | 1930 (March and June). |
|----------------------|-------------------------------|------------------|------------------|------------------|------------------|------------------|---------------------------------|
| | Per- centage. | Per- centage. | Per- centage. | Per- centage. | Per- centage. | Per- centage. | Per- centage. |
| 1. Monmouth E. | 2·2 | 11·7 | 30·2 | 36·5 | 48·5 | 28·6 | 30·5 |
| 2. Monmouth W.† | 6·1 | 11·4 | 25·0 | 21·2 | 28·3 | 23·9 | 17·0 |
| 3. Rhymney | 1·4 | 2·9 | 13·4 | 13·1 | 26·6 | 16·2 | 16·8 |
| 4. Merthyr Vale | 4·4 | 13·0 | 38·0 | 40·6 | 43·1 | 29·2 | 54·1 |
| 5. Aberdare | 1·7 | 5·2 | 27·5 | 33·9 | 32·5 | 20·2 | 24·4 |
| 6. Rhondda | 1·2 | 4·4 | 20·1 | 34·2 | 29·5 | 25·0 | 36·4 |
| 7. Port Talbot | 2·6 | 11·0 | 24·8 | 29·7 | 37·6 | 26·0 | 32·6 |
| 8. Neath ... | 1·8 | 9·1 | 19·3 | 20·0 | 38·4 | 18·3 | 16·1 |
| 9. Swansea | 0·6 | 6·8 | 12·6 | 36·4 | 34·9 | 16·7 | 34·6 |
| 10. Amman ... | 0·6 | 3·3 | 8·2 | 33·0 | 27·7 | 14·0 | 14·2 |
| Coalfield Average | 2·3 | 6·9 | 21·0 | 30·0 | 31·8 | 21·9 | 26·6 |

* i.e., the mean of the number returned as unemployed in March, June, September and December.

† Excluding Brynmawr office which is in Brecknockshire.

TABLE VI.—The Incidence of Unemployment in Different Sections. Proportion of Coalfield Unemployment found in each Valley.

| Valley. | 1923 (June and Dec.). | 1924. | 1925. | 1927. | 1928. | 1929. | 1930 (March and June). |
|---|--------------------------------|------------------|------------------|------------------|------------------|------------------|---------------------------------|
| | Per- centage. | Per- centage. | Per- centage. | Per- centage. | Per- centage. | Per- centage. | Per- centage. |
| 1. Monmouth E. | 4·5 | 8·3 | 7·0 | 5·9 | 7·2 | 6·2 | 5·3 |
| 2. Monmouth W.* | 38·4 | 22·1 | 17·0 | 15·0 | 12·5 | 15·6 | 9·0 |
| 3. Rhymney | 7·0 | 5·4 | 8·3 | 5·6 | 11·3 | 9·8 | 8·7 |
| 4. Merthyr Vale. | 12·3 | 11·3 | 10·1 | 7·6 | 8·0 | 7·9 | 12·0 |
| 5. Aberdare | 7·1 | 7·3 | 12·2 | 10·6 | 9·2 | 8·3 | 8·3 |
| 6. Rhondda | 13·8 | 17·9 | 25·0 | 28·5 | 23·5 | 28·9 | 33·9 |
| 7. Port Talbot | 10·3 | 15·3 | 10·6 | 9·2 | 10·7 | 10·6 | 10·3 |
| 8. Neath ... | 3·3 | 5·3 | 3·8 | 3·0 | 5·6 | 3·9 | 3·0 |
| 9. Swansea ... | 0·9 | 3·0 | 2·5 | 4·8 | 4·0 | 2·7 | 4·5 |
| 10. Amman ... | 2·4 | 4·1 | 3·5 | 9·8 | 8·0 | 6·1 | 5·0 |
| | 100·0 | 100·0 | 100·0 | 100·0 | 100·0 | 100·0 | 100·0 |
| Total Unem- ployment in Coalfield (ex- cluding boys and women)... | 5,717 | 16,814 | 50,951 | 68,285 | 67,796 | 44,427 | 53,649 |

* Excluding Brynmawr office which is in Brecknockshire.

TABLE VII.—Number of Coal Miners (excluding boys and women) insured (July) and estimated number in employment* (June) each year.

| Division. | | 1923. | 1924. | 1925. | 1926. | 1927. | 1928. | 1929. | 1930. | 1931. |
|--|--------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Monmouth E. and W.† | Insured ... | 47,476 | 47,551 | 46,468 | 45,802 | 43,867 | 39,938 | 38,578 | 37,998 | 36,398 |
| | Employed ... | 44,540 | 43,610 | 37,140 | — | 33,703 | 22,794 | 31,807 | 28,249 | 28,839 |
| 2. Rhymney, Merthyr Vale, Aberdare ... | Insured ... | 68,900 | 69,957 | 67,709 | 65,139 | 63,326 | 60,623 | 57,218 | 57,576 | 54,865 |
| | Employed ... | 67,713 | 66,820 | 50,296 | — | 48,679 | 44,656 | 46,236 | 40,393 | 33,315 |
| 3. Rhondda and Port Talbot | Insured ... | 86,286 | 91,153 | 85,104 | 83,595 | 78,064 | 73,320 | 69,635 | 67,979 | 65,765 |
| | Employed ... | 84,963 | 88,157 | 67,972 | — | 51,587 | 50,820 | 52,802 | 44,060 | 31,244 |
| 4. Neath, Swansea, Amman | Insured ... | 39,614 | 38,821 | 41,593 | 41,184 | 39,686 | 37,235 | 35,633 | 35,780 | 33,936 |
| | Employed ... | 39,423 | 35,491 | 32,880 | — | 29,371 | 25,689 | 29,088 | 29,237 | 26,056 |
| Coalfield Total ... | Insured ... | 242,276 | 247,482 | 240,874 | 235,720 | 224,943 | 211,116 | 201,064 | 199,333 | 190,964 |
| | Employed ... | 236,639 | 234,078 | 188,288 | — | 163,320 | 143,959 | 159,933 | 141,939 | 119,454 |

| TABLE VIII.—Index Numbers.‡ | | | | | | | | | | |
|--|--------------|-------|-------|-------|-------|-------|------|------|------|------|
| 1. Monmouth E. and W.†... | Insured ... | 100·0 | 100·2 | 98·0 | 96·4 | 92·4 | 86·9 | 83·9 | 82·6 | 79·0 |
| | Employed ... | 100·0 | 97·9 | 83·5 | — | 75·7 | 53·0 | 73·9 | 65·6 | 67·0 |
| 2. Rhymney, Merthyr Vale, Aberdare ... | Insured ... | 100·0 | 101·5 | 98·3 | 94·5 | 91·9 | 90·7 | 85·7 | 86·2 | 82·3 |
| | Employed ... | 100·0 | 98·7 | 74·3 | — | 71·9 | 68·0 | 70·4 | 61·5 | 50·8 |
| 3. Rhondda and Port Talbot | Insured ... | 100·0 | 105·6 | 98·6 | 96·8 | 90·5 | 87·6 | 83·2 | 81·3 | 78·6 |
| | Employed ... | 100·0 | 103·7 | 80·0 | — | 60·7 | 61·7 | 64·1 | 52·9 | 37·9 |
| 4. Neath, Swansea, Amman | Insured ... | 100·0 | 98·0 | 105·0 | 104·0 | 100·1 | 97·2 | 92·9 | 93·2 | 88·3 |
| | Employed ... | 100·0 | 90·0 | 83·4 | — | 74·5 | 67·2 | 76·1 | 76·4 | 68·2 |
| Coalfield Total | Insured ... | 100·0 | 102·1 | 99·4 | 97·3 | 92·8 | 90·0 | 85·7 | 85·0 | 81·4 |
| | Employed ... | 100·0 | 98·9 | 79·6 | — | 69·0 | 62·8 | 69·8 | 62·0 | 52·3 |

* The estimated number in employment is obtained by subtracting the June unemployment figure from the number insured according to the July exchange of books.

† Excluding Brynmawr Office.

‡ To allow for the fact that persons over 65 ceased to be insured after January, 1928, the index numbers for the years 1928-31 have been adjusted in the manner explained in the footnote to the text.

CHAPTER III.

METAL INDUSTRIES.

The rapid and profitable exploitation of the coal measures of the South Wales coalfield in the latter part of the nineteenth and the early part of the twentieth centuries has served to dwarf the significance of the metal industries of the locality; but the intractable nature of coal mining problems, and the vicissitudes of that great industry in the post-war years are now causing attention to be attracted to the possibilities of expanding those metal industries which remain.

The migration of the iron and steel industries to the sea border from populous areas on the northern outcrop of the coal measures was bound sooner or later to present the problems which have now to be faced in South Wales. Left without the alternative of a manufacturing industry, it was inevitable that considerable populations, permanently settled, and entirely dependent upon a purely extractive industry such as coal mining, would eventually be left stranded, as the older mines became exhausted, and the rate of output became accelerated.

Thus the problems of the metal industries differ considerably from those of the coal mining industry. While, for reasons which have been stated many times, the demand for coal has contracted, the effectual demand for iron and steel products has expanded, and the existence of a considerable potential demand for them is unquestionable.

Owing to the prominence given to the discussion of coal mining questions in recent years the fact is frequently overlooked that South Wales is still a metallurgical centre of considerable importance.

Steel Industry.*Location and General Structure of the Industry.*

Owing to the diversity of the products of the different branches of the steel manufacturing industry, it will make for clarity if we describe the industry in groupings according to the nature, and the destination of the finished products. Fortunately for the purposes of description, these groupings tend to fall into natural geographical areas.

Thus within a fairly compact and thickly populated area, which may best be described perhaps as a semi-circle of a radius of twelve to fifteen miles with Swansea as the centre, there are situated as many as fifteen steelworks capable of producing about one-seventh of the total steel production of the country.

Llanelly on the west, Pontardawe on the north, and Port Talbot on the east, may be taken as the boundaries of this area.

These fifteen steelworks are :—

- | | |
|---|--|
| 1. <i>Llanelly Steelworks</i> , Llanelly, Carm. | 9. <i>Cwmfelin Steelworks</i> , Swansea. |
| 2. <i>South Wales Steelworks</i> , Llanelly, Carm. | 10. <i>Landore Steelworks</i> , Swansea. |
| 3. <i>Bynea Steelworks</i> , Loughor, near Llanelly. | 11. <i>Messrs. Gilbertsons' Steelworks</i> , Pontardawe. |
| 4. <i>Grovesend Steelworks</i> , Gorseinon, Glam. | 12. <i>Briton Ferry Steelworks</i> , Briton Ferry, Glam. |
| 5. <i>Bryngwyn Steelworks</i> , Gorseinon, Glam. | 13. <i>Albion Steelworks</i> , Briton Ferry, Glam. |
| 6. <i>Elba Steelworks</i> , Gowerton, Glam. | 14. <i>Port Talbot Steelworks</i> , Port Talbot, Glam. |
| 7. <i>Dyffryn Steelworks</i> , Morryston, Swansea. | 15. <i>Margam Iron and Steel Works</i> , Port Talbot. |
| 8. <i>Upper Forest and Worcester Steelworks</i> , Morryston, Swansea. | |

With the exception of the Port Talbot Steelworks, and the Margam Iron and Steel Works, the remaining thirteen works are engaged almost exclusively in the production of steel bars, generally known as "Siemens Steel Tinsplate and Sheet Bars"; that is, they specialise in producing a mild, soft and yet a tough variety of steel suitable for the purposes of rolling into tinsplate and galvanized sheets. Although the British iron and steel industry generally is in a large measure dependent upon an export trade, strictly speaking, the activity of these thirteen steelworks can best be described as a home industry; the output consists of "producers' goods," or perhaps more accurately as "intermediate" products forming a link in a chain of productive processes.

The entire output is consumed in the local tinsplate and sheet works, and this steel bar is thus the raw material of the next stage of manufacture.

It may be of interest to observe at this point that within the locality described above, there are approximately sixty tinsplate works, and eight sheet works. The close and intimate relationship of these industries has led naturally to the growth of a considerable amount of vertical integration, that is, the combination of firms at different levels of production, and also to a certain degree of horizontal combination. It is unnecessary here to distinguish whether this vertical integration started from the original means of production and then moved upwards, or whether it commenced with consumers' goods and proceeded downwards, or whether the initiative in this combination movement was taken by the producers of the intermediate products. It will be sufficient for our purposes to state that about eighty per cent. of the steel, tinsplate and sheet industries, and in some instances collieries and brickworks, have been affected by these industrial combination tendencies.

The following table will serve to illustrate the extent to which this tendency has developed.

TABLE I.

| Firm. | Steelworks. | Tinplate Works and Sheet Works owned by or associated with Steelworks. |
|---|---|---|
| Messrs. Richard Thomas & Co., Ltd. | South Wales Steelworks, Llanelly. | 22 Tinplate Works (with a total of 160 Mills). |
| and The Grovesend Steel & Tinplate Co., Ltd. | Cwmfelin Steelworks, Swansea. Grovesend Steelworks, Gorseinon. | 3 Sheet Works (with a total of 21 Mills). |
| The Briton Ferry Steel Co., Ltd. | Bryngwyn Steelworks, Gorseinon. Dyffryn Steelworks, Morriston, Swansea. | 8 Tinplate Works (with a total of 46 Mills). |
| Messrs. Baldwins Ltd., | Briton Ferry Steelworks, Briton Ferry. Albion Steelworks, Briton Ferry. | 2 Sheet Works (with a total of 9 Mills). |
| Messrs. W. Gilbertson & Co. Ltd. | Elba Steel Works, Gowerton. Landore Steelworks, Swansea. Port Talbot Steelworks, Port Talbot. | 8 Tinplate Works (with a total of 56 Mills). |
| The Upper Forest and Worcester Steel & Tinplate Works, Ltd. | Pontardawe Steelworks, Pontardawe. | 3 Tinplate Works (with a total of 16 Mills). 1 Sheet Works (with a total of 16 Mills). |
| The Llanelly Steel Co. Ltd. | Upper Forest Steelworks, Morriston, Swansea. | 1 Tinplate Works (with 16 Mills). 1 Sheet Works (with 5 Mills). |
| The Bynea Steelworks, Ltd. | Llanelly Steelworks, Llanelly, Carm. | 12 Tinplate Works (with a total of 71 Mills). 1 Sheet Works (with 6 Mills). |
| | Bynea Steelworks, Loughor, Glam. | 4 Tinplate Works (with a total of 24 Mills). 2 Sheet Works (with a total of 8 Mills). |

These associated concerns, sometimes referred to as "mixed" or "composite" firms, may therefore be taken as being the most representative of the steel-cum-tinplate industry, but in addition to these firms there are others which have to be taken into account. There are, for example, a number of independent tinplate firms having no financial interest in steelworks, and again other tinplate firms with some part of their capital invested in steel producing works.

As would naturally be expected, the composite firms aim at becoming more or less self-contained, which aspiration has supplied the motive for the vertical integration. Thus the requirements of the associated sheet and tinplate works are met by the steelworks within the group.

The independent tinplate firms, however, do not all adopt a uniform policy; a few of them take the bulk and in some instances the whole of their bars from the local steelworks, but in other instances they depend almost entirely upon the importation of their bar requirements from abroad.

Tinplate firms with a partial financial interest in steel producing works also adopt a variable policy. At times they draw their bar supplies from the steel works in which they are financially interested, but at other times they rely upon importation from abroad.

In addition to the thirteen steelworks engaged in the production of tinplate bars, there are also within this area two large modern works whose products are destined for other uses. These works form a branch of The British (Guest, Keen, Baldwins) Iron and Steel Company, Ltd., but are divided into two distinct plants, namely, the Port Talbot Steelworks and the Margam Iron and Steel Works.

The Margam Works are chiefly concerned with the production of pig iron, coke and by-products, thus supplying the melting shops of the Port Talbot Steelworks, and other South Wales branches of the Company, together with other steelworks in the neighbourhood, with quantities of iron.

The Port Talbot Steel Works, dating from 1907, are engaged exclusively in the manufacture of open hearth steel, both acid and basic, and also in the manufacture of steel sections, billets, slabs, blooms and plates.

The Process.

In order to facilitate the explanation of the labour problems of the industry, a rough outline of the process of manufacture of the steel bar may be of interest. The raw material of the steel bar industry of this locality consists of scrap metal or pig iron. It has been the practice in this area for some considerable time prior to the War to use very much more scrap metal than pig iron—so much so that it is usual to state that the ratio is about 70 scrap metal to 30 pig iron.

The scrap metal or pig iron is first loaded into charging boxes worked by means of magnets which are nowadays electrically-driven. These charging boxes are then caught and charged into the furnace, the older practice of hand charging now almost entirely having been superseded by mechanical chargers.

The furnaces in these steelworks have an average capacity of about fifty tons. While the charge is within the furnace, it is attended to by three operatives, the first, second and third hand melter, and these furnacemen are supervised by an official known as the "sample passer."

The furnaces are heated by gas generated by a gas producer plant. The charge, having been brought to the necessary heat pitch, is tapped into a ladle, and then teemed into ingot moulds by operatives usually referred to as "teemers" and "pitmen." Ingots formed in this way are then placed in a re-heating furnace, having first been conveyed by overhead cranes, and when sufficiently heated are placed upon "live" rollers and rolled into steel bar.

These bars are for the most part long flat strips of steel, usually about fifteen feet in length, about seven to ten inches in width, and from three-eighths to seven-eighths inches in thickness. The actual process varies from works to works to such an extent that it might safely be said that no two works actually follow identically the same methods.

Changes in the methods of production made possible by the progress of scientific and technical knowledge have been a feature of the steel industry for more than twenty-five years. The masses of material handled in the works having gradually become so bulky, it became impossible to perform many of the tasks by hand, and the introduction of mechanical contrivances became inevitable.

Hand charging of furnaces has been replaced by mechanical charging; and the universal adoption of magnets for moving large masses of metal from one part of the works to another, the utilisation of waste heat from boilers, and the modernisation of gas producer plants, may be cited as a few of the innovations introduced into the works in recent years.

Even prior to the War, the tendency to replace men by machines had shown itself, and this tendency, accelerated during the War period, has continued to the present time. Although it is extremely difficult to estimate with any degree of precision the actual number of men displaced by these innovations, there is no doubt whatever that the tendency is quite pronounced in all these works. It is only to be expected that a certain amount of resistance is offered by the men to these processes, but it is of little avail against the progress of technical knowledge and the application of all kinds of scientific ingenuity to the plant.

The hardship on the workers thus finding their acquired skill superseded by a mechanical device is to some extent lessened by the retention of their services in other capacities. As a general rule it is found that the volume of employment remains fairly stable, in spite of an increasing output, but the men find that avenues to

promotion to relatively well paid work become closed, and large numbers remain for considerable periods doing jobs which require little skill, and which might be performed by younger men satisfied with lower wages.

Production.

Confining our attention to the thirteen steelworks engaged in the production of the steel bar, it is stated that the productive capacity as compared with 1913 has increased by about thirty per cent. In the post-war years the output returns show a somewhat zig-zag course, and in no year does the actual output strain the capacity of the works.

The figures are :—

| <i>Year.</i> | | | | <i>Tons.</i> |
|--------------|-----|-----|-----|--------------|
| 1923 | ... | ... | ... | 1,375,285 |
| 1924 | ... | ... | ... | 1,333,385 |
| 1925 | ... | ... | ... | 1,092,536 |
| 1926 | ... | ... | ... | 844,784 |
| 1927 | ... | ... | ... | 1,011,380 |
| 1928 | ... | ... | ... | 1,205,580 |
| 1929 | ... | ... | ... | 1,323,209 |
| 1930 | ... | ... | ... | 1,058,963 |

The greatest output of the industry in the post-war years was thus attained in 1923, declining slightly in 1924, and again in 1925, reaching its lowest point in 1926, the year of the General Strike. It is significant to observe that as the production declines, the imports of tinplate and sheet bars into the South Wales Ports increase; for example, the importation in 1923 amounted to 62,204 tons; in 1924 to 136,490 tons; in 1925 to 175,396 tons; and in 1926 to the comparatively large total of 303,081 tons. From 1926 to 1929 the industry began to revive until 1929, when it was overtaken by the world slump. Again the importation of bars begins to fall away from the high total reached in 1926. In 1927 the imported bars amounted to 294,903 tons, in 1928 to 140,373 tons, and in 1929 to 107,375 tons.

When the year 1929 is examined it is found to be a year of increased activity in many British industries, and—in sharp contrast to 1928—the trades which made the greatest headway were those engaged in making capital or producers' goods. The steel industry shared in this recovery and continued to advance until the month of November of that year. If the consumption of iron and steel for the year 1924 is taken as a base (100), the consumption of iron and steel for each month of the year 1929 was: January 72, February 66, March 70, April 83, May 96, June 106, July 105, August 114, September 118, October 119, November 122, and December 120.

Labour and Employment.

The number of persons employed at the thirteen steelworks at the end of 1930 was approximately 7,200. The Landore Steelworks employed 325 persons, but closed down in December, 1930; these works had previously employed more than 600 persons. The Elba Steelworks, Gowerton, owned by the same firm (Messrs. Baldwins, Ltd.), has been worked fairly regularly for a number of years, and the numbers of persons employed show a progressive increase from 369 in 1925 to 458 in 1930. The Briton Ferry Steelworks are capable of employing about 400 persons, and the Albion Steelworks about 450, but both these works have experienced extended periods of idleness. The Bynea Steelworks, Loughor, has in recent years employed more than 500 persons, but at present the number is somewhat less; in 1930 these works employed 470 persons. Messrs. Gilbertson, Pontardawe, employ about 395 steel workers, but including the tinplate and sheet workers they have in recent years employed more than 1,700 persons. The group of works known as the Grovesend Steel and Tinplate Company, with works at Grovesend, Bryngwyn (both situated in Gorseinon), and the Dyffryn Steelworks, Morriston, has a combined employment capacity embracing about 1,050 persons. At the present time the Bryngwyn works are only partially worked, and for the time being the rolling of bars alone is being done.

The South Wales Steelworks, Llanelly, normally employs about 482 persons, but a slightly higher figure of 516 was employed in 1928. The Llanelly Steelworks employs about 770 persons on the steel production plant, but including those engaged in the sheet works, over 1,000 persons are employed. The employment returns, including the sheet workers, show a rising tendency from 1927, when 1,002 persons were employed to 1,071 in 1929.

The Upper Forest and Worcester Works, Morriston, include steel, tinplate and sheet works, the steel plant employing about 397 persons, but the whole of the works employ an average number of 1,500 persons. The tendency in employment as shown by the employment returns has been slightly in a downward direction, falling from 1,682 persons employed in 1925 to 1,465 in 1930.

The Cwmfelin works of Messrs. Richard Thomas & Co., situated within the Borough of Swansea, combined the manufacture of steel and tinplate, in 1929 employed 1,846 persons and in 1930 about 1,320, but are now definitely closed down with very little prospect of reopening owing to the construction of a large works owned by the same group in another part of the country.

Although the Port Talbot Steelworks are not engaged in the production of the tinplate bar, it may be conveniently stated at this point that the works are capable of employing an average of about 1,395 persons. The employment figures show a rapid fall from the 1925 total, which was 1,509, to 461 in 1926, then gradually

improving until 1930, when the average total of persons employed reached 1,548.

Taking the thirteen steelworks engaged in producing the tinplate bar together with the Port Talbot Steelworks, the total average number of persons employed, excluding the managerial and clerical staffs, is about 7,000 persons—men and boys, since there are no women or girls employed.

Of this total of 7,000, there were in 1929 only eleven persons under the age of fifteen years employed in these fourteen steelworks; under the age of eighteen years there were 312. Between the ages of 60 and 65 years, there were stated to be 235 persons; 166 persons between the ages of 65 and 70 years, and as many as 50 persons over the age of 70 years. Of the 220 men who were over 65 years of age, it is said that a considerable number of them occupied well paid jobs at which they had been engaged for a considerable number of years, thus retarding the promotion of younger men to these positions, and involving a consequent slowing down of the rate of promotion throughout the process. Increasing mechanisation, with its tendency to lessen physical strain on the process worker, has enabled him to continue at his work much longer than formerly, and is another factor contributing to the retardation of promotion in the steelworks.

An examination of the employment returns for the iron and steel industry for the whole of South Wales for the period 1924 to 1929 shows a decline of 8.9 per cent. in the number of men employed and a decrease of 26.8 per cent. in the number of boys.

Thus the general tendency seems to be a greater degree of stringency upon the employment of juvenile labour rather than a severe contraction in the employment of adult men who have already obtained a footing within the industry.

The number of boys employed in the whole of the steel industry of South Wales declined from 1,620 in the year 1923 to 1,040 in the year 1930, whereas the number of men employed declined in the same period from 25,990 to 24,940. This general tendency is to be expected from the operation of the "seniority rule" whereby the men displaced by the introduction of mechanical processes generally fall back to some lower paid grade of occupation rather than be dismissed from the works.

The effects of increased mechanisation and the general improvement in the processes of production are not directly reflected in the returns from the Employment Exchanges in the fluctuations of the numbers employed within the industry, but indirectly there appears to be an increasing difficulty in obtaining openings for juvenile workers.

An examination of the employment returns for the whole of the South Wales area, which would include steelworks other than those producing tinplate bars, reveals a percentage of unemployment of 21.4 for June, 1929, and 25.2 per cent for the second week of

December of the same year. In 1930, the returns show an unemployment percentage of 45.1 in June, and 66.1 per cent. in December of that year.

It should, however, be observed that this total percentage of unemployment is obtained by adding the percentage of temporarily stopped workers to the percentage of wholly unemployed.

The wholly unemployed percentages were 5.7 and 5.8 in June and December of 1929, and 14.4 and 26.3 in June and December of 1930. These average percentages of unemployment need to be interpreted with a certain degree of circumspection if false conclusions are to be avoided.

There can be little doubt that these high average percentages of unemployed tend to present a more depressing picture of the industry than is warranted by the facts; indeed the steel industry and the tinplate industry are included with industries suffering from chronic unemployment in the First Report of the Royal Commission on Unemployment Insurance for the period 1928-29. As we shall see later, 1929 is regarded as the "peak" year of the tinplate industry.

The practice of combining the temporarily stopped workers with the wholly unemployed in a general average percentage unemployment for the whole industry might conceivably give the curious anomaly of a hundred per cent. unemployment with works operating at least to the extent of thirty or forty per cent. of their productive capacity.

These returns have therefore to be interpreted in the light of existing Unemployment Insurance legislation particularly of the continuity rule, which lays down "that a day of unemployment shall count for benefit purposes if it is one of at least three days of unemployment occurring within a period of six consecutive days."

If the condition of the steel industry were interpreted solely from the unemployment returns, it would appear at times as if the industry had reached the final stages of exhaustion, whereas in reality it means that short-time working has coincided in point of time with a large number of works, thus helping to swell the "live register" of the Employment Exchanges.

Probably the average percentage of "wholly unemployed" persons would afford a more reliable index of the fluctuations of the industry rather than the total average percentage of unemployment as now presented.

Competition from Abroad.

It has already been stated that the welfare of this section of the steel producing industry is directly dependent upon the fluctuations

of the Tinplate and Sheet trades; consequently a considerable amount of discussion has arisen on the question of the necessity for any of the Sheet and Tinplate Works meeting their requirements of tinplate and sheet bar from outside sources.

The price of the bar is stated to be the governing factor in the manufacture of tinplates and sheets, and accounts for nearly 40 per cent. of the total costs of manufacture. The quantities of bars imported vary from time to time and are clearly correlated with the respective prices of the imported and Welsh bar.

As already indicated, the works associated in composite groups are more or less bound to the utilisation of the locally produced product, but there is no such obligation upon the independent tinplate manufacturers, who are free to use either the home or imported bar as they desire.

To some extent the Tinplate firms with a partial interest in steelworks also adopt a variable policy.

The extent of this importation of bars into the South Wales Ports of Newport, Swansea, Cardiff, Llanelly and Port Talbot may be illustrated by the following Table:—

TABLE II.

| Year. | Im-ported Bars. | Output of ingots converted into Tinplate and Sheet Bars (excluding Port Talbot Steel Works). | Average price | | Differ-ence. |
|----------|-----------------|--|--------------------------|-----------------------|--------------|
| | | | per ton of imported bar. | per ton of Welsh bar. | |
| | Tons. | Tons. | £ s. d. | £ s. d. | £ s. d. |
| 1927 ... | 294,903 | 1,011,380 | 4 17 6 | 5 15 0 | 0 17 6 |
| 1928 ... | 140,373 | 1,205,580 | 5 3 6 | 5 17 6 | 0 14 0 |
| 1929 ... | 107,375 | 1,323,209 | 5 13 6 | 6 4 3 | 0 10 9 |
| 1930 ... | 235,503 | 1,058,963 | 5 0 9 | 5 18 11 | 0 18 2 |

It will be observed that as the price margin between the locally produced and the imported bar is narrowed so the importation of foreign bar declines.

This disparity of price between the imported and the local bar has given rise to a considerable agitation on the part of the steel makers for a measure of safeguarding against the importation of foreign bar, which invariably falls below the price of the locally produced commodity. It is maintained that the pressure from foreign importation is particularly felt with a falling tinplate market. In this connection it may be interesting to quote the average selling price of tinplates per basis of box (there are approximately 22 boxes of tinplate to the ton). In 1927 the average selling price was 19s. 5d.; in 1928 the price was 18s. 1d.; and in 1929 18s. 3d.

An attempt was made in 1923 to meet this form of competition by the offer of a rebate of 7s. 6d. per ton on steel bars to all tinplate and steel makers who agreed to use the Welsh bar to the exclusion of the imported. This arrangement worked satisfactorily

for a time, but eventually broke down in the face of increased competition from abroad and the competition among tinplate makers, the pace being set by the independent firms who could not be controlled by the steel making interests.*

The attitude of the workpeople in the steel industry to this question of importation from abroad tends to conform to that of their employers. Their opinions are perhaps more cautiously expressed than those of their employers, owing to a desire to avoid becoming involved in a controversy of a political character. Whatever differences may exist between the employees and the makers as to the treatment of this problem, the workers through their representatives definitely state that "foreign competition could not be permitted to continue unregulated or unchecked, irrespective of whatever might be its nature or whatever its effects upon the conditions of employment or the standard of life of the workpeople."†

The independent tinplate firms, who are the largest users of imported bar, maintain that the quantity of imported material is only a moderate percentage of the total amount used in the trade, and therefore, its importation acts as a salutary check against their exploitation from a completely monopolised steel bar industry.

Approximately one million tons of steel bar are used each year in the tinplate industry. Foreign imports at times amount to a little over one hundred thousand tons, but on the other hand it may be noted that importation has risen at times to nearly three hundred thousand tons. If they were prevented from using the imported bar, they contend that they would be at the complete mercy of the large composite firms of steel and tinplate makers who are their great competitors in the tinplate trade. They fear lest their interests would be sacrificed in favour of those tinplate works forming part of the composite groups. They further maintain that the continued importation of Welsh tinplates by certain tariff countries is due to a special proviso in the Customs Regulations of those countries that since the tinplates are destined to be re-exported, they are admitted duty free. The same principle, they say, should apply to the importation of bars into this country since they are destined to be re-exported in the form of tinplates.

The bars are imported principally from Belgium, France and Germany, and it may be of interest to note the importation of Welsh tinplates into these countries in recent years.

* Since the Autumn of 1930 at least one important steel and tinplate producing firm (Messrs. Richard Thomas & Co.) has curtailed its production of steel in Wales and decided to import a considerable quantity of foreign bar. See report of Ordinary General Meeting, The Times, 18th December, 1931.

† Statement of Evidence to the Sub-Committee of the Committee of Civil Research: Iron & Steel Trades Confederation.

TABLE III.*

Importation of Welsh Tinplates (including terne and blackplate).

| | 1913. | 1923. | 1924. | 1925. | 1927. | 1928. | 1929. | 1930. | 1931. |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| | Tons. | Tons. | Tons. | Tons. | Tons. | Tons. | Tons. | Tons. | Tons. |
| Germany | 34,739 | 22,477 | 15,487 | 17,193 | 20,941 | 21,096 | 18,501 | 7,143 | 8,604 |
| Belgium. | 13,363 | 22,161 | 17,641 | 14,504 | 20,701 | 18,919 | 23,366 | 20,823 | 9,790 |
| France .. | 21,332 | 37,524 | 33,245 | 13,448 | 11,514 | 14,762 | 26,472 | 19,816 | 8,800 |

* Board of Trade Returns up to 1929. 1930 et seq., from Tinplate Association statistics.

The question is one which bristles with complexities and cannot be treated in a Survey of this kind, but since it has been one of the main questions of controversy in the industry during the past few years, it is necessary to mention the main points of difference between the contending parties.

The Tinplate Industry.

With the exception of three works, one of them a small works of two mills, the manufacture of tinplate is confined to the area of the South Wales coalfield. There are in all about seventy-eight separate works of varying output capacity, ranging from small works of a two mill capacity, employing about eighty to ninety persons, to fairly large works of a sixteen to eighteen mill capacity, employing from 700 to 900 persons.

The productive capacity of a tinplate works is usually represented by so many mill units, and in all including tinplate, terneplate and blackplate, there are stated to be 496 mills in the trade. These mills represent a productive capacity of about 1,000,000 tons of tin, terne, and blackplate, and directly employ about 27,000 persons including men, women, boys and girls.

The Process.

It has already been explained that the finished product of the steel makers, namely the tinplate bar, is the raw material of the tinplate industry. In the tinplate works these bars are now cut into shorter lengths of sixteen to twenty inches, and a number of these shorter bars, commonly called a "heat", are placed into the mill furnaces, which are fired either by gas or by coal.

On being heated to the required temperature, these bars are then removed two at a time from the furnaces and passed singly through rolls for the purpose of "breaking" or "roughing", as it is called, to the required lengths. They are then placed in another furnace for re-heating.

When all the bars have been treated thus, the "singles", that is the product of the next rolling operation, are then rolled out to twice their original length and replaced in the furnace for another re-heating.

They are again rolled and "doubled" into what are termed fours and again returned to the furnace for re-heating. The process is

again repeated with the "fours", that is, they again get rolled and "doubled" into eights. A final re-heating now takes place, and the "eights", now known as "common substance" are laminated into plates of the required length and thickness.

The plates are then sheared and separated preparatory to the pickling process, where each plate is dipped into an acid solution in order to remove any scale adhering to the surface of the plate.

They are then placed in an annealing furnace, the plates being arranged in stacks covered with pots. From the annealing furnace, they are sent to the Cold Rolls Department, where they are passed several times through the rolls in order to obtain the necessary smooth surface preparatory to the tinning process. The plates are again annealed and "pickled", and finally dispatched to the Tinning Department to be coated with tin.

It may be necessary to mention that "blackplate" is really uncoated plate: that is, the process of manufacture stops before the second "pickling" (or cleansing) operation. Terneplates are coated with a mixture of tin and lead.

Some few works confine themselves exclusively to the manufacture of blackplates, others produce black and terneplates, some others produce all three—but the bulk of the output of the industry finds its way to the market in the form of tinplate.

The galvanised sheet process is almost identical with that of tinplate manufacture, except that the sheet is larger and is coated with zinc (or spelter).

The pre-war volume of production of tinplate has been regained, but it cannot be said that it has been exceeded to any great extent in the post-war years.

It will be observed from the following table that 1929, with a total production of 879,844 tons of tinplate, represents the "peak" year of the trade. The exact total of tinplate consumed at home is difficult to ascertain, owing to the prevailing habit of lumping together the tinplates "in stock" with the actual tinplate consumed at home.

The Welsh tinplate industry has practically a monopoly of the home market for tinplates as such, and is therefore not subject to direct competition from outside sources.

TABLE IV.

| Year. | Production. | Exports. | Home Consumption |
|-------------|-------------------------------------|----------|------------------|
| | | | and Stocks. |
| | Tons. | Tons. | Tons. |
| 1913 | 822,500 | 495,162 | 327,338 |
| 1924 | 824,914 | 599,805 | 225,109 |
| 1925 | 695,320 | 545,788 | 149,532 |
| 1926 | (General Strike and Coal Stoppage). | | |
| 1927 | 800,000 | 509,196 | 290,804 |
| 1928 | 864,731 | 562,527 | 302,204 |
| 1929 | 879,844 | 604,726 | 275,118 |
| 1930 | 814,404 | 525,795 | 288,609 |

Foreign Trade.

About two-thirds of the tinsplate production of South Wales has to be sold overseas: 25 to 30 per cent. of the total exports of tinsplates are destined for British Dominions, and the remainder are divided between European and non-European countries, the former importing slightly more than the latter.

Prior to the War, there was no serious competitor with the Welsh tinsplate export trade in the world markets, but in recent years American production, having more than doubled from pre-war days owing to an enormous increase in home consumption of canned goods, has made it possible for America to export nearly 250,000 tons of tin and terneplates in the past few years.

Under the influence of post-war economic nationalism, and the prevailing notion that the establishment of manufacturing industry without regard to natural disadvantages is a source of national strength and prestige, tinsplate manufacture has been undertaken with varying degrees of success in a number of European countries.

It has been stated that up to the present these European manufacturers have experienced considerable difficulty both with regard to the quality of the product and the working costs, but although they have been protected by high import duties, their home customers have been very dissatisfied with the quality and the lack of variety in the tinsplates produced in these new centres.

The following table illustrates the growth of tinsplate manufacture in the various countries.

TABLE V.*
World Production of Tinsplate (Tons).

| Year. | South Wales. | U.S.A. | France. | Germany | India. | Spain. | Czecho-Slovakia. | Italy. | Russia. | Saar. | Nor |
|-------|--------------|-----------|---------|---------|--------|--------|------------------|--------|---------|--------|-----|
| 1913 | 822,500 | 762,583 | 33,630 | 57,830 | — | — | — | — | — | — | - |
| 1924 | 824,912 | 1,328,228 | 46,580 | 77,229 | 26,673 | — | — | — | — | — | - |
| 1925 | 695,320 | 1,544,007 | 60,350 | 89,637 | 29,550 | 26,170 | 10,000 | 50,000 | — | — | - |
| 1926 | 571,200 | 1,674,322 | 56,370 | 98,788 | 35,000 | 26,577 | 10,000 | 50,000 | — | — | - |
| 1927 | 800,000 | 1,583,383 | 52,900 | 126,303 | 36,000 | 24,000 | 10,000 | 50,000 | 8,500 | 22,000 | 8. |
| 1928 | 864,731 | 1,714,990 | 78,720 | 134,593 | 37,000 | — | — | — | — | — | 12. |
| 1929 | 879,844 | 1,816,223 | 84,624 | 141,674 | 33,113 | 20,760 | 9,000 | — | — | — | 16. |
| 1930 | 814,404 | 1,660,325 | 88,560 | 124,472 | 38,482 | 19,462 | 9,000 | — | — | — | 17. |

It was not until 1923 that the export trade in Welsh tinsplates had recovered from the after-effects of the war period, and the volume of exports began to reach pre-war dimensions. But the period of recuperation from 1920-25 coincided with an enormous development of internal demand in the United States of America, with a consequent falling off in American export of tinsplates.

* Production figures for Wales, U.S.A., France and Germany are fairly accurate, but those for other countries must be considered as approximate.

In 1928 it was possible for the South Wales Tinsplate Manufacturers to enter into an agreement with the American Tinsplate Manufacturers, under which the Welsh manufacturers were allocated 70 per cent. and the American manufacturers 30 per cent. of the combined exports of both countries.

Immediately following this arrangement, the exports of Welsh tinsplate expanded in 1928 and 1929 as compared with the preceding two years. It was further claimed for the scheme that it removed the danger of competition by American tinsplate. Such competition, owing to the great producing capacity of works in the United States, is always latent.

Since 1926 the American exports seem to have fluctuated about the figure of 250,000 tons.

TABLE VI.
*United States Exports of Tinplates and
Terneplates 1926-30.*

| | | | | | | <i>Tons.</i> |
|------|-----|-----|-----|-----|-----|--------------|
| 1926 | ... | ... | ... | ... | ... | 250,736 |
| 1927 | ... | ... | ... | ... | ... | 254,131 |
| 1928 | ... | ... | ... | ... | ... | 249,965 |
| 1929 | ... | ... | ... | ... | ... | 258,965 |
| 1930 | ... | ... | ... | ... | ... | 225,635 |

The readiness of the American makers to concede 70 per cent. of the combined exports to the Welsh manufacturers, together with the extraordinarily high tariff levied in the United States against Welsh tinplates, seem to indicate a great fear on the part of the American producers of the competition from Welsh tinplates.

The year 1931 has so far witnessed a considerable decline in the trade: the export trade for the first six months of the year averaged about 30-35,000 tons per month as against an average monthly export of 45-50,000 tons in the preceding two years. The home consumption has been reduced to about 16,000 tons a month, a reduction on an average of about 4,000 tons a month on the previous years. In the peak years of 1928-29-30, the volume of trade was such that it enabled the industry to work to 75-80 per cent. of its capacity. With the 1931 trade, the industry has only been working to about 50 per cent. of its capacity.

Taking the first five months of the year, the exports declined by about 75,000 tons as compared with the previous year. European countries accounted for a decline of 32,000 tons, the Far East for 27,000 tons, Australasia for 11,000 tons, and South America for 4,000 tons. This decline in the export trade must be ascribed to the prevailing world economic situation since, generally speaking, none of the markets has increased its importation from other producing centres.

Possibilities of Expansion in the Home Trade.

The variety of uses to which tinplate can be put is so great that it is not possible to give a complete catalogue of them. Its best

Foreign Trade.

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Under the influence of post-war economic nationalism, and the prevailing notion that the establishment of manufacturing industry without regard to natural disadvantages is a source of national strength and prestige, tinplate manufacture has been undertaken with varying degrees of success in a number of European countries.

It has been stated that up to the present these European manufacturers have experienced considerable difficulty both with regard to the quality of the product and the working costs, but although they have been protected by high import duties, their home customers have been very dissatisfied with the quality and the lack of variety in the tinplates produced in these new centres.

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|-------|--------------|-----------|---------|---------|--------|--------|------------------|--------|---------|--------|--------|
| 1913 | 822,500 | 762,583 | 33,630 | 57,830 | — | — | — | — | — | — | — |
| 1924 | 824,912 | 1,328,228 | 46,530 | 77,220 | 26,673 | — | — | — | — | — | — |
| 1925 | 695,320 | 1,544,007 | 60,350 | 89,637 | 29,550 | 26,170 | 10,000 | 50,000 | — | — | — |
| 1926 | 571,200 | 1,674,322 | 56,370 | 98,788 | 35,000 | 26,577 | 10,000 | 50,000 | — | — | — |
| 1927 | 800,000 | 1,583,383 | 52,900 | 126,303 | 36,000 | 24,000 | 10,000 | 50,000 | 8,500 | 22,000 | 8,500 |
| 1928 | 864,731 | 1,714,990 | 78,720 | 134,593 | 37,000 | — | — | — | — | — | 12,000 |
| 1929 | 879,844 | 1,816,223 | 84,624 | 141,674 | 33,113 | 20,760 | 9,000 | — | — | — | 16,962 |
| 1930 | 814,404 | 1,660,325 | 88,560 | 124,472 | 38,482 | 19,462 | 9,000 | — | — | — | 17,786 |

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Since 1926 the American exports seem to have fluctuated about the figure of 250,000 tons.

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Terneplates 1926-30.* Tons.

| | | | | | | |
|------|-----|-----|-----|-----|-----|---------|
| 1926 | ... | ... | ... | ... | ... | 250,736 |
| 1927 | .. | ... | ... | ... | ... | 254,131 |
| 1928 | ... | ... | ... | ... | ... | 249,965 |
| 1929 | ... | ... | ... | ... | ... | 258,965 |
| 1930 | ... | ... | ... | ... | ... | 225,635 |

The readiness of the American makers to concede 70 per cent. of the combined exports to the Welsh manufacturers, together with the extraordinarily high tariff levied in the United States against Welsh tinplates, seem to indicate a great fear on the part of the American producers of the competition from Welsh tinplates.

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Taking the first five months of the year, the exports declined by about 75,000 tons as compared with the previous year. European countries accounted for a decline of 32,000 tons, the Far East for 27,000 tons, Australasia for 11,000 tons, and South America for 4,000 tons. This decline in the export trade must be ascribed to the prevailing world economic situation since, generally speaking, none of the markets has increased its importation from other producing centres.

Possibilities of Expansion in the Home Trade.

The variety of uses to which tinsplate can be put is so great that it is not possible to give a complete catalogue of them. Its best

known use is as a container for perishable goods, and the rapid increase in American production has been caused by the great development in recent years of the canning of foodstuffs, both for home consumption and export purposes.

In the United States this development has made possible an internal consumption of about 1,500,000 tons of tinsplate per annum, representing about 85 per cent. of the total output, whereas in the United Kingdom the home consumption is on an average about 250,000 tons per annum, representing about 25 per cent. of the total production.

It must be borne in mind, however, that the United Kingdom is a large consumer of canned goods imported from outside sources and that 100,000 tons per annum of tinsplate of foreign make enter this country in the form of containers of canned goods.

The possibilities of a similar development in this country are now engaging the attention of tinsplate manufacturers, and a campaign has been inaugurated for the encouraging of the food canning industry in Great Britain.

Prior to this campaign, there existed a few manufacturers of jams who canned fruit as a side line to their main business, utilising to the best of their ability the jam manufacturing plant for this purpose. These products were treated as specialities for which special prices were asked. In some instances the cans were made by the fruit packer himself or bought from outside makers who, as a rule, used somewhat old-fashioned plant. The industry served mainly as a means of disposing of surplus fruit.

In order to establish a successful canning industry in this country comparable to that existing in other countries, it is said that the essential conditions are: the installation of mass production canning plant, modern automatic methods of can production, the establishment of confidence amongst growers of perishable produce, and the sale of the produce at prices comparable with imported products.

Since 1924 a number of new factories with the required mass-production plant have been erected, and have met with a fair degree of success. The older factories have continued to expand, and it is claimed that during the last five years as many as thirty new canning factories with the most modern equipment have come into being in this country.

The manufacture of cans for food and other canning is continuing to improve. In 1924 the output of cans was very small, but in the years following it mounted steadily from one million to a total of thirty million cans, and is still increasing. The National Canners, Ltd., estimate that their output in 1931 would reach a total of twenty million cans.

There can be little doubt that the home market for tinsplate affords great scope for expansion, and that the potential demand for canned products is very great. These potentialities, if realised, would be of considerable benefit not only to the steel and tinsplate industries

of South Wales but also to agriculturists in various parts of the country.

The National Food Canning Council has now turned its attention to the possibilities of canning fish, cream, and cheese.

It is estimated that even with the actual existing consumption, the importation of canned products into this country in the form of canned fruit, meats and fish, represents about one-third of the present home consumption of Welsh tinsplate.

There seems to have been no suggestion of the establishment of canning factories in South Wales in close proximity to the tinsplate works, power, suitable labour, agricultural regions, and fisheries.

Rationalisation.

Attempts have been made in the tinsplate industry to regulate production, and to equate productive capacity with the effectual demand of the market. In order to eliminate what has been termed the "tooth and claw" competition between manufacturers, an agreement, applying only to tinsplates, was reached, that in order to maintain economic prices, over-production in relation to existing market requirements was to be prevented. Each works was therefore requested to close down for at least three weeks in every three-monthly period. This closing down arrangement was very soon replaced by a "Conference and Pooling Scheme" very similar to the German Sales Associations or *Kartells*, with their participations, quotas, rebates, and fines.

A majority of the tinsplate firms controlling about 398 mills were associated in this pooling scheme, but the independent firms, owning some 47 mills, were not included in these arrangements.

Each manufacturer was granted a quota of the ascertained market demand, proportionate to his average actual output estimated over the past three years. Those who exceeded their quota paid a heavy fine into the Pool for each box of tinsplate manufactured in excess of the quota; those producing less than the quota were reimbursed by a rebate from the Pool.

So long as the demand enabled the productive capacity to be employed up to 75-85 per cent., the scheme seemed to have worked quite satisfactorily, but with a falling off of the demand until only 50 per cent. of the capacity was required, the extra costs involved in working the Pool became exceedingly onerous. Companies very soon gave notice of leaving the Pool, with the result that in a very short time 20 per cent. of the firms were acting independently, and the competition of these firms outside the Scheme became the dominant factor in determining the market prices of tinsplate.

We have already seen that the year 1929 represents the "peak" year of production in the post-war period, yet even during that year the tinsplate firms worked only to 75-80 per cent. of their capacity.

In the second quarter of 1930, production reached its highest point for any single quarter, and productive capacity was utilised until about 80 per cent. of the total mill capacity was in operation.

Altogether about 445 mills were in operation in order to produce this output; and, account being taken of the pooling arrangements then in existence, there seem to be some 90 mills redundant to the existing requirements of the trade. With an employment of 75 per cent. capacity, there would be a surplus of some 110 mills.

Thus during a period of brisk trading on an expanding market, the existence of independent firms outside the Pooling Scheme seems to have exercised an almost negligible influence. But with a contraction in the market, until it becomes necessary to work to about 50 per cent. of the total capacity, the competition from the "independents" jeopardises the existence of such a scheme. The fluctuating nature of the demand meant that at the lowest points of demand, firms within the Pool area were only allowed to produce to about 40 per cent. of their capacity, while those outside the scheme, fixing their own prices, were in some instances able to work to their fullest capacity. The firms within the Pool were bound to the scheduled sale prices; the outside firms being bound by no such restriction as to prices, tended to attract the existing orders to the disadvantage of the firms adhering to the Scheme.

The Pooling Scheme has therefore been brought to an end, and a certain amount of price cutting between the different firms has been embarked upon within the industry. Thus the price of tin-plates has continued to fall with a resulting decline in profits, and owing to the operation of sliding scale methods of wage payments, a loss in wages to the operatives.

It might be further indicated that owing to periodical stoppages of the works under the Pooling Scheme, there was in some instances an inducement to accelerate the rate of output, with the result that a 75 per cent. output of the entire pool meant in some cases an actual employment of plant of about 65 per cent. capacity. On this account, it is probably true to say that at no period during the existence of the Pool did the mills exceed 75 per cent. of their capacity, the majority probably working approximately less than 65 per cent. of their capacity.

As an average, it might be said that even in its "peak" year (1929), the entire industry did not employ above 70 per cent. of its productive capacity.

In the pre-war period, the peak of production was reached in 1913 with a total output of 822,500 tons: in 1929 the total output reached 879,844 tons, an increase of 57,344 tons, or approximately 7 per cent. Bearing in mind the increased output capacity of each mill owing to the adoption of the additional helper scheme, and the various technological improvements in other departments, such as the annealing and the tinning processes, there appears to

be a sufficiency of plant to cope with the existing effectual demand for tinplates.

The history of this pooling arrangement seems to show that so long as a minority of efficient and up-to-date firms remain outside the scheme, during periods of acute trade depression the attempt at regulating the productive capacity to the prevailing demand is not very successful.

The hope of the tinsplate industry seems to lie therefore in making effectual the existing potential demand, and if this is done there is very little doubt of the supply side responding immediately to the new demands. The tinsplate industry has the additional advantage that the capital outlay in the erection of new plant is not high as compared with steel producing and other industrial plant.

Labour and Employment.

The seventy-eight tinsplate works are capable of employing about 29,000 workers, including men, women, boys and girls.

The men are engaged for the most part in operations such as bar-cutting, furnace work and doubling, rolling and behinding, shearing and bundling, annealing and tinning, also as subsidiary workers such as mechanics, enginemen and labourers. Boys are employed in the shearing and bundling, cold rolling, and the tinning processes. Women and girls are engaged principally in opening plates, pickling (black and white), and a few in the tinning process. The vast majority of the workers are paid on a piece-work basis, the payment being made not on the direct weight but upon a unit of a dozen boxes of tinsplate.

Tinsplate works are operated on a continuous principle of three rotating shifts of eight hours, usually from 6 a.m. to 2 p.m., 2 p.m. to 10 p.m., and 10 p.m. to 6 a.m. The men engaged on each shift rotate each week.

Process workers, except in the case of new works or considerable extensions to existing plant, are not engaged from outside the works. Each process worker while performing his own job is expected to acquaint himself with the job immediately in advance of his own. Thus when a job becomes vacant through sickness, retirement or death of the holder, the next man below is promoted.

It is not easy to correlate statistics of employment with statistics of output in this industry, and the dictum that "statistics of output indicate what employment has been, while statistics of employment indicate what output will be", unless there is some esoteric theoretical meaning to it, is very difficult to reconcile with existing practice.

The improvement in technical processes, and the distinct tendency to replace human labour by mechanical devices, mean that it is now possible to obtain an expansion in an industry in the sense of an

increasing output, with a stable or even a diminishing labour force. In other words, it has now become possible to produce more and more goods, with fewer and fewer men employed.

It is almost impossible to make an estimate of the amount of unemployment arising from technological improvements, owing to various practices adopted in the different works, and the difficulty is further aggravated by the prevailing method of registration for the purposes of payment of unemployment benefit. Thus if we take 12.2 per cent. to represent the average unemployment or mean, as recorded at the end of each month since December, 1920, representing nearly one-and-a-half million unemployed persons, the total percentages of unemployment returned for the tinplate industry from 1924 have been—

| | <i>Per cent.</i> | | |
|-------------|------------------|-----|------|
| 1924 | ... | ... | 8.5 |
| 1925 | ... | ... | 23.0 |
| 1926 | ... | ... | 39.9 |
| 1927 | ... | ... | 17.7 |
| 1928 | ... | ... | 19.7 |
| 1929 | ... | ... | 23.8 |
| 1930 | ... | ... | 30.5 |

With the exception of 1924, it will be observed that an interpretation of the development of the industry based exclusively upon these returns would place the tinplate industry among those suffering from chronic unemployment, that is, with those industries having a percentage of unemployment considerably above the 12.2 per cent. mean.

Output in the later years from 1928 reached a record for the industry, and therefore it is necessary to look closer into the industry for this seeming exaggeration of unemployment returns in a period of comparative prosperity.

A number of explanations may be given as to why the error should have been made of classifying the tinplate industry with the most depressed industries in the country even in those two years when its output exceeded all those previously recorded.

In the first place, these high percentages of unemployment have been created by the "temporarily stopped" rather than the "wholly unemployed". The wholly unemployed percentages fall well below the 12.2 per cent. mean, for example—

| | <i>Per cent.</i> | | |
|-------------|------------------|-----|-----|
| 1927 | ... | ... | 5.1 |
| 1928 | ... | ... | 3.2 |
| 1929 | ... | ... | 4.4 |
| 1930 | ... | ... | 7.6 |

The prevalence of high percentages of temporarily stopped has been caused by the arrangements for the systematic sharing of the work and the operation of the Pooling Scheme.

It has already been stated that under the Pooling Scheme each works would be allocated a quota based roughly upon its mill capacity and the average output of the works for the three years prior to the inception of the scheme.

The time taken to produce the quota, and the methods adopted, would vary from works to works. In works "A" of six mills, for example, it might be decided to close down two or sometimes three of the mills and work off the quota from the remaining four or three mills. In this particular case there would be no dismissals of workmen, the services of the entire complement of workpeople required to man the whole of the six mills being retained, but the work would be shared between them. There would be an inducement to spread out the work over a longer period than would be the case if the plant had been worked up to its fullest capacity. In works "B" again, the procedure adopted might be quite different. This time it may be decided to work off the quota employing the whole of the plant to do it. The quota would be produced in a much shorter period of time, with the resulting closing down of the works from one to three or more weeks.

Thus the employment returns from these two similar works producing the same quota would produce very different results. These divergent practices in the various works would be governed largely by the changing nature of the quota, decisions of the managers of the works, and the facilities available at the time for coping with the output. It might therefore happen that during certain periods, numbers of works adopting the same procedure would fortuitously coincide with these "stop" weeks, and thus affect the employment returns of the Exchanges.

A certain degree of circumspection should therefore also be used in interpreting the figures of unemployment for this industry.

Again, the systematic working of short-time when there is a scarcity of orders should also be taken into consideration in interpreting the statistics of employment in this industry. The usual practice is to reduce the working time from the normal three eight-hour shifts to four six-hour shifts. This would have the effect of increasing the total number of persons employed relatively to the output required from particular works.

In the mill department of a tinplate works on an eight-hour shift there would be employed about 25 operatives per three shifts to the mill, namely, rollers, 3; doublers, 3; furnacemen, 3; first helpers, 3; second helpers, 3; behinders, 3; shearers, 1; openers, 3; bundlers (hot and cold), 1.5; polishers, 0.5; gantry operating and sticker opening, 0.5; spare hands, 0.5; making a total of 25.0. In addition there would be 3.25 subsidiary workers and 2.5 persons per mill in the Cold Roll Department, making a total of 30.75.

On reducing the working time from an eight-hour shift to a six-hour shift, there would be required an additional rollerman, doubler,

furnaceman, first helper, second helper, and a behinder: the subsidiary grades and cold rolls would remain unchanged. Thus on a six-hour shift there would be 36.75 persons per mill employed.

The influence exerted by technological changes upon the statistics of industrial employment in the tinplate industry is not so clear or so well defined. It is a commonplace that a degree of "technological unemployment" does exist, but it is exceedingly difficult to trace through the usual channels. Possibly the best way to approach the problem will be to describe one or two of the innovations, and then estimate the number of persons displaced as the result of their introduction.

If tinplate works are taken as a whole, it will be found that as compared with pre-war practice, the number of persons employed per mill unit has increased from approximately fifty persons per mill to about fifty-five per mill in recent years. This increase in the works complement can be accounted for partly by the extension of the eight-hour principle to several departments previously working a longer shift, and also to the addition of twenty-five per cent. (the addition of the first and second helper) to the mill complement in the year 1919.

This increase in the number of persons employed per mill unit would have been more pronounced had it not been neutralised to some extent by the reduction in the number of workers engaged in other departments through the introduction of improved methods of production.

In the mill department of the works there has been very little change in the past few years, apart from the addition of the two helpers per shift already mentioned. In the annealing process, new types of furnaces and the introduction of gantry annealing have caused displacements of men from occupations where formerly hand labour was largely employed.

Most of the recent innovations have been introduced into the Tinning Departments of works, where a number of improved machines, combining in one continuous process the former separate operations of white pickling, tinning and cleaning of plates, have displaced numbers of workers. The best known of these are the Melingriffith and the Poole Davies tinning machines. The former machine is at present operating in about six tinplate works, namely, at Lydney, Abercarn, Llantrisant, Burry Works, Llanelly, the Melingriffith Works, Cardiff, and the Dowlais Tinplate Works, Pontardulais.

The older process is known in the industry as the Abercarn process, but in some instances this process can be brought up to date and made comparable with the new processes mentioned.

Comparing the Melingriffith machine with the original Abercarn process, the former would require one operator, and one sander, that is, two operatives on each shift of eight hours, together with

an attendant for purposes of oiling the machine. The total complement of workers in the tinning process for an average output of 3,000 boxes of tinplate per week would be seven. The Abercarn process, producing three sheets, would require three tinning pots with an average output of 1,000 sheets each for an equivalent output of 3,000 boxes. On each of the Abercarn pots there would be required three tinmen for each shift of eight hours, making a total of nine operatives. For each of the three pots there would be two attendants, making an additional six operatives for the three shifts. The white pickling for the three pots would require an additional five persons. The total number of operatives on the older process would be twenty, as compared with seven persons on the newer process, thus causing a displacement of thirteen persons.

Other types of improved processes are the Aetna Cleaning Machines and the Poole Davies Pot. The Aetna machines have not been generally introduced into the older works, but were installed in a comparatively new works in Swansea before the workpeople were engaged; therefore the problem of displacement of men by machines does not arise.

With regard to the Poole Davies Pot, a certain amount of labour displacement has taken place. This machine is worked by a unitman, a fireman, and two boshmen, that is, four men per unit. For an approximate output of 5,000 boxes of tinplate per week, there would be needed a total of twelve operatives. On the Abercarn pot, with an output of 1,000 boxes per week, there would be required five pots, manned by 22.5 (the .5 being due to there being one attendant to two pots) for an equivalent output of 5,000 boxes per week. The total displacement of operatives caused by the introduction of this machine would be 10 persons.

The introduction of these machines has been uneven, and up to the present time is not very widespread over the whole industry, and even in the works where they have been introduced, the older processes continue to be employed alongside the newer. As an example of this, we may cite the Tinning Department of a well known South Wales works where there are four Abercarn type Tinning Pots, four Melingriffith Automatic Pickling and Tinning Pots, two Poole Davies Automatic Magnetic Feed Single Sweep Tinning Pots. All these Tinning Machines are again equipped with Aetna Cleaning Machines.

Tinmen displaced by the introduction of these machines are not immediately dismissed from the works, since arrangements have been made to retain in the employment of the firm as many as three displaced tinmen per machine. These men are regarded as being next in line of promotion to the position of operators of the new machine, provided they remain in the employ of the firm operating the machine. In the meantime they are expected to carry

out any reasonable task allotted to them by the management, in any part of the works.

There is therefore no immediate and visible displacement of workers on anything like a large scale, but the indirect effects are fairly discernible. Avenues of promotion to better paid jobs become closed, and younger men remain for longer periods at certain jobs than formerly used to be the case. Increasing numbers find themselves in unprogressive employment with the well known effects of blind-alley employment.

It is significant that from 1923-30 the number of insured men attached to the industry increased from 16,830 to 22,330, an increase of 5,500, or approximately 32 per cent., the number of boys from 1,690 to 1,940, an increase of 250, or approximately 15 per cent. Women decreased from 2,870 to 2,830, a decrease of 40, and the employment of girls from 550 increased to 600—an increase in seven years of only fifty girls.

Although these figures are somewhat inconclusive, they do tend to show that the effect of the introduction of new processes under present conditions tells mostly against the employment of women, girls and boys.

Metal Industries in the Eastern Districts.

Consideration so far has been given mainly to that portion of the Iron and Steel and Tinplate trades which is situated in the neighbourhood of Llanelly, Pontardawe, Swansea, Neath and Port Talbot. But important sections of the industry exist also on the eastern side of the coalfield: indeed during the early part of the last century the iron manufacture of Merthyr Tydfil and parts of Monmouthshire was the principal industrial activity of the region.

Tinplate.

The manufacture of tinplates is undertaken in the Monmouthshire Valleys (Caerleon, Pontnewydd, Pontypool, Pontymister, Crumlin, and Abertillery) and in the neighbourhood of Treforest and Pontypridd. The following table of exports affords an indication of the magnitude of the output of these works.

| Year. | <i>Exports of Tinplates. (Tons).</i> | | | | Total. | <i>Total exports of four ports as percentage of Total British Exports.</i> |
|----------------|--------------------------------------|-----------------|---------------------------|--------|--------|--|
| | <i>Newport.</i> | <i>Cardiff.</i> | <i>Barry and Penarth.</i> | | | |
| 1924 | 44,624 | 19,751 | 3,740 | 68,115 | 11·4 | |
| 1925 | 38,620 | 18,444 | 2,225 | 59,289 | 10·6 | |
| 1926 | 37,516 | 13,843 | 1,086 | 52,445 | Strike | |
| 1927 | 53,919 | 12,485 | 2,262 | 68,666 | 13·4 | |
| 1928 | 50,482 | 18,257 | 1,804 | 70,543 | 12·5 | |
| 1929 | 58,043 | 19,061 | 2,034 | 79,138 | 13·8 | |
| 1930 | 65,179 | 17,229 | 2,028 | 84,436 | 16·0 | |
| 1931 Jan.-Oct. | 41,589 | 11,490 | 510 | 53,589 | — | |

It will be noticed that exports from the eastern ports of the region have increased more rapidly during recent years than the total exports of the industry as a whole. In this connection it may not be without significance that some of the chief firms of the eastern districts are importers of foreign bar and do not make their own steel.

The same general remarks concerning labour which were applicable to the western section of the tinplate trade may be applied to the eastern, and we may therefore pass to a consideration of the iron and steel trade proper.

Iron and Steel.

The iron and steel industry in South Wales is passing through a period of transition and it is difficult to speak with certainty concerning its probable future. A few years ago it was true to say that there were two distinct manufacturing districts—the inland ore fields and the ports. But recently a strong tendency to concentrate manufacture near the sea has shown itself. The famous works at Dowlais near Merthyr were established originally because of the local iron ore, timber, and water power. They continued to be operated, with Spanish ore, long after these local resources had been exhausted or were no longer useful. But the acid furnaces of Dowlais could only be operated with the high-grade non-phosphoric Spanish ores, whose transport to Merthyr became very expensive as prices fell and competition increased after the War. Consequently, it was not surprising that after the formation of the British (Guest-Keen-Baldwins) Iron and Steel Company, production ceased at Dowlais. At Ebbw Vale, Newport and Pontypool, too, the manufacture of Bessemer steel has within recent years been abandoned; so that at the time of writing neither acid nor basic steel is being produced anywhere within the region by the Bessemer process. The Whitehead Iron and Steel Company has also decided to close down its works in Tredegar and, in order to reduce transport and administrative costs, to concentrate production at its Courtybella works, near the Alexandra Dock, Newport. The balance of importance has therefore definitely shifted during recent years from Dowlais, Tredegar, Ebbw Vale and Blaenavon to Cardiff, Newport and the southern end of the Monmouthshire valleys (Pontymister, Panteg, Pontnewydd and Pontnewynydd).

The production of pig iron has been greatly curtailed during 1930 and 1931, the Cardiff blast furnaces being the only ones to be much operated recently. At the same time the earlier stages in the manufacture of steel have tended to become unprofitable, especially where acid furnaces are the only type available. Consequently, much of the raw material for the finishing processes is now being sent into South Wales from other parts of the country. The Blaenavon Tyre Mill, for example, obtains steel ingots from Sheffield; and the sleeper plant of the Ebbw Vale Company at Newport obtains sleeper bar from Workington. In short in South Wales, as in the rest of

the country, the iron and steel industry, expanded by war-time demand, is still in process of adjustment to the post-war changes. There is no need to describe once again a situation which has been analysed by the Committee on Industry and Trade and other investigating bodies of great authority. It is sufficient to indicate that in South Wales the inevitable contraction in demand for some of the products of the industry, the rapid technical advances which have greatly increased the output obtainable from a given labour force, and the shifting of location from the hills to the sea have produced in the eastern districts a surplus of workers which does not exist in the west where the production of tinplate can absorb the bulk of the output of steel.

The tonnage of the imports and exports of the four eastern ports reflects the general depression of the industry since the end of 1927. The steady decline of exports indicates that South Wales steel producers have found it increasingly difficult to compete in world markets; while the fluctuations in imports are accounted for mainly by the tendency of the finishing trades, especially manufacturers of tinplates, to obtain their raw material in increasing quantities from outside the region.

Newport, Cardiff, Barry and Penarth.

Iron and Steel (pig iron billets, bars, etc.) Imports and Iron and Steel (rails, ironwork, etc.) Exports.

| | <i>Imports.</i> | <i>Exports.</i> |
|--------------------|-----------------|-----------------|
| | <i>Tons.</i> | <i>Tons.</i> |
| 1924 | 648,561 | 285,725 |
| 1925 | 647,038 | 323,446 |
| 1926 | 844,116 | 246,536 |
| 1927 | 895,964 | 426,630 |
| 1928 | 479,343 | 353,478 |
| 1929 | 520,639 | 336,465 |
| 1930 | 607,528 | 230,653 |
| 1931 Jan.-Oct. ... | 475,846 | 131,685 |

Employment.—The great majority of the Iron and Steel workers in the eastern districts are registered on the books of the Exchanges situated in our Merthyr, Cardiff-Barry, Newport and Eastern areas. In these four areas together, the number of iron and steel workers insured was estimated at 16,490 in 1923 and at 13,720 in 1931. In spite of this decline in numbers insured, however, there still exists a considerable surplus of workers for whom there is no reasonable prospect of reabsorption in these trades. The percentage of workers unemployed during recent years suggests, as the following tables show, that the number of insured workers is considerably greater than the industry needs.

Iron and Steel Rolling, Melting, Puddling, etc. Unemployment Percentages.

(W.U.=Wholly Unemployed. T.S.=Temporarily Stopped.)

| Date | CARDIFF-BARRY | | | NEWPORT. | | | MERTHYR. | | | EASTERN. | | |
|---|-----------------|----------------|-----------------------|-----------------|----------------|-----------------------|-----------------|----------------|-----------------------|-----------------|----------------|-----------------------|
| | Number Insured. | Per cent. W.U. | T.S. & W.U. Per cent. | Number Insured. | W.U. per cent. | W.U. & T.S. per cent. | Number Insured. | W.U. per cent. | W.U. & T.S. per cent. | Number Insured. | W.U. per cent. | W.U. & T.S. per cent. |
| 1929 June | 1,510 | 8.8 | 14.4 | 4,420 | 4.0 | 15.1 | 2,940 | 8.6 | 24.4 | 6,180 | 5.2 | 15.3 |
| Dec. | | 8.7 | 14.5 | | 5.5 | 47.3 | | 9.9 | 17.7 | | 4.4 | 10.4 |
| 1930 June | 1,300 | 70.7 | 75.3 | 4,670 | 5.7 | 70.2 | 2,880 | 10.6 | 45.9 | 5,970 | 26.6 | 45.5 |
| Dec. | | 53.9 | 64.7 | | 10.8 | 72.5 | | 72.2 | 80.3 | | 24.2 | 69.0 |
| 1931 June | 1,360 | 46.7 | 47.4 | 4,600 | 13.1 | 53.9 | 2,590 | 65.9 | 87.5 | 5,170 | 30.9 | 68.9 |
| Sept. | | 58.8 | 63.8 | | 9.5 | 59.0 | | 77.9 | 88.8 | | 27.6 | 56.2 |
| Number "in employment" in September, 1931 (counting "temporarily stopped" as employed). | | | | | | | | | | | | |
| Sept. 1931. | 560 | | | 4,163 | | | 573 | | | 3,743 | | |

It seems reasonable to conclude that the workers now resident in and about Newport are sufficient in number to supply the needs of the undertakings in that area, while at Cardiff, even if considerably increased activity should take place after a revival in trade, improvements in productive efficiency have been so considerable and the number of unemployed in the city is still so great that it would be very optimistic to expect any considerable absorption of steelworkers from outside. In the Merthyr area, the almost complete cessation of activity has created a surplus of some 2,000 workers, while in the northern parts of the Eastern area and in Tredegar, large numbers are also unemployed with little hope of again pursuing their calling near their present dwelling places. There is still room for considerable savings of labour power by the introduction of new processes and new plant. Moreover, even if the long delayed reorganisation of the industry is not so complete, when it comes, as has sometimes been hoped, some further concentration of control and closing down of redundant undertakings may be expected. It seems not unreasonable, therefore, even in the present uncertainty, to estimate the number of iron and steelworkers in this part of the region for whom employment should be found in other industries at about four thousand.

Tubes.

Swansea and Newport are the centres of iron and steel tube manufacture, and the industry in both places has not escaped the depression, which has shown itself in a large percentage of temporarily stopped workers.

| | No. | Per cent. Wholly | Per cent. |
|-----------------------|----------|------------------|---------------|
| | Insured. | Unemployed. | W. U. & T. S. |
| <i>Newport.</i> | | | |
| December, 1923 | 870 | 10.5 | 10.5 |
| December, 1930 | 1,140 | 4.3 | 42.0 |
| September, 1931... .. | 1,090 | 5.7 | 62.1 |
| <i>Swansea.</i> | | | |
| December, 1923 | 1,340 | 1.2 | 1.2 |
| December, 1930 | 1,500 | 12.4 | 24.2 |
| September, 1931... .. | 1,370 | 17.5 | 84.4 |

In neither area are the mills or finishing departments working to full capacity.

General Engineering.

There are numerous firms engaged in "general engineering" in the region, "general engineering" being a miscellaneous category including such activities as colliery engineering, iron and brass founding, the manufacture of railway material, pattern making, agricultural implement making, and so on. The majority of the firms are small, many employing less than ten workpeople, and the most important centres of the industry are Llanelly, Swansea, Neath, Bargoed, Cardiff, Newport, and the Eastern area. In the whole region the number of books exchanged slightly increased between 1929 and 1930 (4,847 in 1928-29 and 4,927 in 1929-30). But it is obvious from detailed Ministry of Labour figures relating to the Cardiff-Barry and the Newport areas that unemployment has shown a tendency to increase. In these two areas there were in 1931 1,790 workers insured as compared with 1,940 in 1923. In Newport 4.3 per cent. were wholly unemployed in December, 1923, and 20.8 per cent. in September, 1931; in Cardiff the corresponding figures were 16.6 per cent. and 18.5 per cent. The proportion of workers temporarily stopped is relatively smaller than in other branches of the iron and steel industry.

Miscellaneous Iron and Steel.

At Newport, Cardiff and Pontnewydd, wire, wire netting and wire rope is made, and altogether some three to four hundred men are involved. The industry has within recent years shown signs of contraction.

Bolts, nuts, screws, etc., are made solely at Newport and Pontnewydd, and about 500 workers are employed.

Other metal industries within the region include the manufacture of tin boxes, decorative and plain, copper boilers and cylinders, enamelled hollow-ware, anchors, cables, etc., wire mattresses, etc. A considerable number of persons find employment in these industries, though the firms are, for the most part, small, many employing two, five or six men and boys. It may be estimated that about 2,000 people (mainly men) are employed in these miscellaneous industries. As far as we can judge, the employment position has remained fairly stable. The industries are centred in Swansea, Llanelly, Neath, Newport, Cardiff and Pontnewydd.

Spelter.

The Swansea Vale Spelter Works, erected in 1876, are at present the only Works of this kind remaining in this district. They are situated at Llansamlet within the Borough of Swansea, and are a branch of the National Smelting Company, Ltd., a subsidiary Company of the Imperial Smelting Corporation.

Spelter (or zinc) is produced from sulphide ores, the manufacture being divided into two main operations—the roasting or sintering for the expulsion of the sulphur, and zinc distillation: that is, the sintered ore, now an oxide of zinc, is then distilled in retorts. The existing distillation furnaces erected during the war period are of a fairly modern type.

In 1924 the Swansea Vale Works were incorporated with the National Smelting Company, and both the roasting and acid plants have since been brought up to date. Ores are imported mainly from Australia and arrive in the form of fine flotation slimes and concentrates.

There are eleven zinc furnaces, each of 216 horizontal furnaces, having an output capacity of seven tons of spelter per furnace per day.

Since 1925 the employment at these Works has shown a tendency to increase.

Spelter is used chiefly in the manufacture of galvanized sheets, yellow metal (brass and bronze), zinc sheets, zinc oxides and pigments.

The spelter industry has been adversely affected by the decline in the past two years of the exportation of galvanized sheets; these exports declined from 773,000 tons in 1927 to about 431,654 tons in 1930—a falling off of over 341,000 tons.

Up to 1929, the sheet industry was decidedly on the up-grade, but has experienced a serious set-back as the result of the disturbed economic conditions of primary producing countries. The chief galvanized sheet importing countries are India, China, Australia, Canada, and the South American Republics.

The economic and financial difficulties of these countries are now so well known as to need no elaboration beyond mentioning the main causes, namely, the general collapse in the prices of agricultural products with the subsequent limitation of purchasing power: the financial tribulations of debtor countries owing to the inability of the creditor countries either to lend or to buy: the fall in the price of silver, and political disturbances in such countries as India, China and Japan.

Australia furnishes, perhaps, the extreme instance of this reaction. For some years Australia represented a large and expanding market for galvanized sheets, and in 1926-27 imported some 104,000 tons. These imports have now dropped to zero, owing to a complete embargo having been put upon their importation.

Apart from the prevailing world economic depression, there is no evidence that zinc is being replaced by any substitute product, and from all indications there are possibilities of expansion in its uses, subject, of course, to a recovery in the world economic situation.

Nickel Extraction.

The Nickel Refinery of The Mond Nickel Company is situated at Clydach, on the north east boundary of the Borough of Swansea. In 1929 this Company was merged into the International Nickel Corporation of Canada, but despite its association with an international combine, it continues to operate as a distinct and separate entity. Through inter-locking Directorates, it is only indirectly linked up with other associated enterprises.

These Works concentrate mainly upon the production of nickel, nickel sulphate, nickel ammonium sulphate, and copper sulphate.

Smelting of the copper-nickel sulphide ores to a kind of bessemer matte is now done in Canada in close proximity to the nickel mines, and this bessemer matte, which is composed of copper, nickel, sulphur and a small percentage of iron, is then shipped to these Works for treatment.

The refining process at the Clydach Works consists of calcination, copper extraction, reduction (that is, reducing the nickel oxide to an impure nickel powder), volatilisation, and decomposition. Copper sulphate, nickel sulphate, and nickel ammonium sulphate are the principal by-products of the manufacturing process.

For many years it was only with difficulty that appropriate uses could be discovered for the refined metal extracted from the ores, these uses being confined for a long time to nickel silver, electroplating and a small quantity of nickel coinage. In the immediate pre-war period the progressive growth of armaments among the Great Powers opened up possibilities of utilising the nickel ore deposits of Canada on a greatly extended scale. As would naturally be expected, the actual outbreak of war between these Powers meant a further considerable expansion in the use of nickel for protective armour and other war usages.

The end of the War witnessed a sharp contraction in the market and it is usual to state that the industry lost approximately five-sixths of its markets by this event.

Thus the main problem of the industry in the course of the past ten years has been the utilisation of its products in peace-time activities so as to employ a plant expanded to meet a war-time demand.

In this respect the industry has been fortunate in that one of the most rapidly expanding industries of the post-war period, the automobile industry, has created a demand for nickel steel for highly stressed parts of motor vehicles and cars. This expansion

has continued as a concomitant of the improvement of the design and make of motor cars. The increasing mechanisation of other industries wherein hand labour formerly predominated, such as agriculture and mining, has caused increasing demands to be made not only for nickel but for chromium nickel and alloy steels in order to manufacture machinery for such industries.

Railway Companies, particularly in Canada, have found new uses for nickel in constructive work. Aeroplane and airship engines have most of their crankshafts and connecting rods made of nickel alloy steel.

It would be difficult to record the whole list of the uses to which nickel products are now applied, but it is interesting to observe that they are being applied mainly in the newer industries which have developed since the War and from which an even greater degree of expansion can be expected. Thus in the past decade the war-time uses of nickel have been replaced by industrial uses to such an extent that the present output of nickel products approximates very closely to the war-time consumption and there is every possibility of this amount being surpassed in the near future. Ore resources exist which are quite adequate to meet any extension in the uses of this metal and its alloys for many years to come.

According to the returns of the Ministry of Labour, the numbers of unemployment insurance books exchanged by persons employed at these Works have been returned as follows :—

| <i>Year.</i> | <i>Number of Insured.</i> | | |
|--------------|---------------------------|-----|-------|
| 1928 | ... | ... | 1,020 |
| 1929 | ... | ... | 1,099 |
| 1930 | ... | ... | 1,191 |

But as is well known, these figures merely indicate the workers on the books of the firm, whose cards are handed in as employees at these Works, and are therefore a somewhat uncertain index of the number of workers afforded regular employment. At the present time it would probably be nearer the truth to state that there are no more than from 650 to 700 workers in constant employment at these Works. The remaining 3/400 recorded at the Exchanges form a reserve of labour intermittently called upon to work according to the needs of the firm.

There is little evidence of the existence of technological unemployment and there has been no outstanding mechanical innovation displacing man power in recent years.

No inherent difficulties appear to be present in this industry; in fact, as we have shown, there are possibilities of considerable expansion owing to the diversity of uses to which nickel products can be applied.

Apart from the existing generally depressed condition of world trade, there is every indication of improvement in this industry.

Copper Industry.

In the past twenty years, the once renowned copper smelting and refining industry of Swansea has undergone an almost complete transformation. The nature of the industry has been changed, and in recent years its activities have contracted considerably.

The main reason for this change has been the changing quality of the ores, which at one time were shipped to the district from all parts of the world for the purposes of smelting and refining. These ores gradually became less rich in their copper content, and with the increasing cost of freights, it was found more profitable to do the smelting in close proximity to the copper mines. Consequently this branch of the industry disappeared from the Industrial Region.

In the hey-day of the smelting industry, a fairly extensive copper manufacturing industry developed in conjunction with it, the principal products of the manufacturing side being copper plates, rods, tubes for locomotives, and copper sheets used for various purposes in the chemical and brewing industries.

The copper manufacturing industry still remains, but its activities have been restricted to some extent in recent years. Owing to the progress of industrial combination, amalgamations of firms have taken place, redundant works have been closed down, and production has been concentrated in those places possessing differential advantages for the making of copper products. Swansea (Morfa Copper Works, Landore) and Port Talbot are the only two places in South Wales where the industry continues.

These works, conducted under the title of the British Copper Manufacturers, are incorporated with the Imperial Chemical Industries, Ltd.

The employment capacity at the Morfa Copper Works, Landore, has tended to decline in the past three years.

The production of copper products at the Swansea Works in recent years has fluctuated from 15,000 to 20,000 tons per annum. Copper Sulphate is also produced as a by-product and is exported, mainly to France and Italy, for the purpose of spraying in vineyards.

The key to the history of the copper industry in the past few years is to be found in the collapse of the price of raw copper, which at times has fallen below its cost of production. Consumers' demand has been inelastic in the face of this increased production and a falling price. Consequently, the manufacturing side has also become affected by this downward movement. The rigid nature of the costs has thus brought about a close approximation between costs and prices which makes for difficulty within the industry.

This industry, in common with other export industries, is now suffering from the effects of the economic, financial, and political troubles in such markets as Australasia, India, Egypt, and the Near East.

A considerable amount of scientific research is being done by individual firms who, in addition, co-operate with the Non-Ferrous

Metal Research Association, and as a result of this research work, aided by the prevailing low price of copper, the products of these works have now entered into competition with other metallic products which formerly held the market in virtue of their cheapness rather than their suitability for the purposes for which they were used. Copper products are being used more and more in the building trades for domestic water installation, and for roofing purposes.

It is felt that there is a good future for the industry, the great need of the moment being a greater degree of stability in the price of raw copper and an improvement in the world situation.

CHAPTER IV.

TRANSPORT AND ITS ANCILLARY SERVICES.

Because of its geographical characteristics, the Industrial Region would form a very convenient area for the operation of a unified transport system; and during the years since the War, much unification has taken place. Since 1921, all the ports have come under the control of the Great Western Railway. Almost the whole of the railway system is owned by the same Company, a few miles of profitable track, mainly used for coal and metal traffic, having been retained by the L.M.S. Company. On the roads, of course, fierce competition still prevails; but the provisions of the recent Road Traffic Act should do much to eliminate unfair competition and induce some measure of co-ordination. A brief review, under the separate heads of docks, rail, and road will best explain the existing situation.

The Ports.

Six chief ports serve the Industrial Region. Cardiff and Penarth closely adjoin each other, and in statistical returns their trade is usually treated as the trade of one port. Cardiff is the largest port of the area, and its docks cover 165 acres of deep water. A few miles away is Barry, a smaller port than Cardiff, but dealing with a total tonnage of imports and exports not much inferior to that of its larger neighbour. These three ports between them handle the bulk of the coal from the thickly populated steam-coal valleys. Newport, farther up the Bristol Channel, on the estuary of the Usk, deals more with the exports of the Monmouthshire section of the coalfield. Its exports of tinplate have tended to increase during recent years. Farther down the Channel are Port Talbot and Swansea. The chief imports of the former are iron ore, for the use of the local steel and tinplate industries. Its chief export, like that of all the South Wales ports, is coal, which comes mainly from its own hinterland, the Llynfi, Garw, Ogmere, Duffryn, and Avon valleys, though it also handles coal from the Rhondda, Aberdare and Vale of Neath districts. Swansea is the

furthest west of the large ports. Both its imports and its exports are on the whole more varied than those of the other ports. For example, copper and other non-ferrous ores, and oil, form a substantial part of its imports, as well as the iron and steel and timber which bulk largely in the returns of all the ports. Anthracite is the chief coal exported; and tinplates, iron and steel rails and iron-work and oil form a larger proportion of its total exports than they do in the case of the other ports.

At all the ports there is, of course, a number of firms engaged in exporting and importing, providing ships and provisioning and equipping them, marketing securities, and all the multifarious activities of commerce. But the most important centre of this work is Cardiff, where the offices of many of the largest coal and shipping concerns, as well as important Merchants' and Stock Exchanges are found.

The number of persons (including clerks and typists) engaged in commercial work in all parts of the region increased considerably between the Census of 1911 and that of 1921. This increase was particularly marked in the case of women. In Cardiff, in 1921, no less than 29 per cent. of the total occupied females were engaged in this type of occupation, and 16.6 per cent. of the occupied males. The occupation figures of the 1931 Census are not yet available, so that it is impossible to say what changes in the numbers of persons engaged in commercial work may have taken place. A comparatively small proportion of such persons are in insurable employment, and therefore no very accurate generalisations as to the whole body can be derived from the statistics of employment among those who are insured. Within the Cardiff-Barry area, the estimated numbers insured declined steadily from 1,850 in 1923 to 1,230 in 1930,* and the numbers of those "in employment" showed a similar decrease; so that, whereas commercial workers formed 2.7 per cent. of the total insured workers in employment in the area in December, 1923, they formed only 2 per cent. in December, 1930. This shrinkage in numbers was distributed as follows:—

Decline in Numbers Insured and "in employment" in Commerce, Banking, etc., in the Cardiff-Barry Area, between December, 1923 and December, 1930.

| | <i>Decline in Numbers Insured.</i> | <i>Percentage Decline since 1923.</i> | <i>Decline in Numbers "in employment."</i> | <i>Percentage Decline since 1923.</i> |
|--------------|--|---|--|---|
| Men | 250 | 24.3 | 264 | 28.3 |
| Women | 210 | 36.9 | 201 | 37.0 |
| Boys | 140 | 70.0 | 137 | 70.3 |
| Girls | 20 | 40.0 | 26 | 52.0 |
| Total | 620 | 33.5 | 628 | 36.5 |

It would appear reasonable to conclude that boys and girls in the subordinate posts of messengers, etc., have been dismissed before

* Allowance must be made, in reading these figures, for the fact that from 2nd January, 1928, onwards, persons aged 65 and over were not insurable.

the services of older workers have been dispensed with, and that women have been more subject to dismissal than men. How far similar changes have taken place among the non-insurable cannot be stated with accuracy. But it is known that, even among the salaried grades, dismissals have taken place recently, though many firms, in the hope of some future improvement in trade, have retained the services of clerical employees longer than strictly commercial considerations would have warranted. Restriction of the entry of juveniles into these occupations will probably prevent the existence of a surplus more easily than in the case of manual labour; for parents and teachers have a fuller knowledge of the openings for employment, and the opportunities for transfer to other occupations or other parts of the country are more numerous.

The bulk of insurable workers at the docks are classified by the Ministry of Labour in the three categories of Shipbuilding and Ship-repairing; Shipping Service (i.e., seamen); and Canal, River, Dock and Harbour Service (i.e., dockers, trimmers, etc., etc.). Shipping Service and Dock Service can be conveniently treated together since both are directly concerned with transport, while ship-repairing, an ancillary service, will be dealt with later.

Employment statistics relating to seamen present a certain amount of difficulty, because seamen, though residing near the port at which they most frequently put in, are often at sea when the July exchange of insurance books takes place, and generally take the first opportunity on their return to exchange their books at the port of arrival, wherever that may be. Caution must, therefore, be exercised in dealing with these figures. On the other hand, however, so great a proportion of the British Shipping entering and leaving South Wales ports is occupied primarily with the export of coal and therefore returns with considerable regularity to one or other of these ports, that the total figures of employment and unemployment for the chief ports combined may not present a very distorted picture of the local demand for seamen's labour, and may help to illustrate the state of trade at the ports.

It is estimated that at the five ports, Newport, Cardiff, Fenarth, Barry, and Swansea combined, 9,510 seamen were insured in 1923, of whom 12 per cent. were recorded as unemployed in December. By 1929 this number had increased to 9,720, of whom 21 per cent. were unemployed in December. In 1930 the estimated number of insured was 9,300, of whom 41.4 per cent. were unemployed in December. These unemployment percentages compare with 20.2 per cent. in December, 1923, and 33 per cent. in December, 1930, for the whole country. It seems reasonable to conclude that the decline of trade at the ports has affected seamen's employment very adversely during recent years, but in view of the nature of the calling and the great mobility of labour, it would be obviously impossible to assert that any actual surplus of labour exists in any one region. It may, however, be of some significance

to note that between 1923 and 1929, when the number of seamen registered at the five ports and "in employment" decreased by 655 (7.96 per cent.), the number of Swansea-registered seamen "in employment" increased by 239 (18.2 per cent.); while between 1923 and 1930 a decrease in employment among the whole body of 2,885 (34.6 per cent.) included an increase in employment of the Swansea-registered by 244 (18.6 per cent.). These figures by themselves would be of no importance; but they may, perhaps, be regarded as somewhat significant in the light of further information which we give later.

When we turn to the various classes of dock labour, we encounter equally great difficulty in dealing with unemployment figures where almost all labour is casual. Our information shows that at the five ports 11,290 dock workers were estimated as insured in 1923; 9,740 in 1929; and 10,200 in 1930. The increase during the last year may perhaps mean that, in spite of efforts to secure decasualisation of dock labour, during a year of pronounced industrial depression labourers have secured occasional jobs at the ports. The percentage unemployed was 13.1 in December, 1923, and 48.6 in December, 1930, comparing with figures of 26.7 and 35.2 respectively for Great Britain. As in so many other occupations, unemployment in South Wales is seen to be less than in Great Britain at the beginning of the period and considerably worse at the end. Whereas the estimated total number of insured at the five ports declined between 1923 and 1930 by 13.7 per cent., the number insured at Swansea diminished by only 5.8 per cent.

Volumes have been written on the problem of the unemployment of dock workers. It is impossible in the case of such workers to determine how much of an apparent surplus may be due to a definite contraction in the trade of the ports to which they are attached and how much to the general conditions of their calling. At Newport, Cardiff, Penarth, Barry, Port Talbot, and Swansea, Port Registration Schemes exist. Of such Schemes the Port Labour Enquiry Committee has reported that: "It is certain that Registration Schemes have definitely assisted in steadying the employment situation during a period of great difficulty It may be safely asserted that the employment situation within the industry during this trying period would have been far more serious but for their existence."* It further states that "what Registration itself has not achieved has, in a small measure, been brought about by the natural progress of industrial organisations of the port workers themselves, and by the growth of port work generally into a recognised and increasingly skilful occupation. It is undoubtedly true to say that the stigma once attached to port work—that it was the last resort for the unfortunate—is now, and has been for some years, absolutely unwarranted It is obvious, however, that

* Ministry of Labour. *Port Labour Enquiry Committee Report, 1931, p. 17.*

the real progress has been due to effective registration, which has erected a barrier against those undesirable classes of persons."* These remarks are true of the South Wales ports.

The trade of the ports is so largely concerned with the export of coal that our account of the mining industry will already have made it clear that a considerable shrinkage of activity at the ports has taken place since the boom year of 1923.† At Cardiff, for example, exports of coal and coke which totalled 10,576,506 tons in 1913, were only 8,540,167 tons in 1923, and in the "good" year of 1929 were 7,211,609 tons. During 1930 they fell to 6,358,004 tons, a figure lower than any recorded (save during years of war or industrial dispute) since 1882. The figures of the total tonnage of imports and exports (in which coal bulks so largely) were unparalleled since 1887. Iron and steel rails and ironwork are the only export which shows any tendency to improvement since 1923. At Newport, exports of coal and coke have similarly declined, and with them the total tonnage of imports and exports, though not quite so heavily as at Cardiff. Barry returns indicate almost as serious a position as that at Cardiff. When we turn to Swansea, however, where the total tonnage of coal exported is normally (e.g., in 1929) only a little more than half that exported at Cardiff, but where total imports and exports are only about two million tons less, we find that the total tonnage of imports and exports has been on the whole maintained, if not improved, since 1923. The smaller port of Port Talbot, not far from Swansea, where imports and exports (owing to the comparative smallness of the quantities) have fluctuated considerably, has the unique distinction of exporting more coal and coke during 1930 than in 1929, and slightly more in 1929 than in 1923.

The port returns, therefore, tend to confirm the conclusions concerning the incidence of the trade depression upon different parts of the coalfield which were suggested by our analysis of output and employment in the mining industry. The peak of Cardiff's prosperity was reached when the demand for steam coals was at its maximum. Unemployment in the steam coal valleys has been paralleled by depression at Cardiff. The slightly more favourable position at Newport may perhaps be in part a reflection of the slightly better employment position in the Monmouthshire valleys; and perhaps Barry has been a little more fortunate than Cardiff in obtaining a share of the output of the comparatively active Rhymney Valley. The western ports have benefited from the maintenance of the demand for and output of anthracite; and at the same time have had the inestimable advantage conferred by a more diversified industrial hinterland than surrounds Cardiff, Barry, and Penarth. Steel and tinplate, oil, and the non-ferrous metals, as well as anthracite, have played an important part in supporting the activity

* *Ibid*, p. 43.

† See Appendix 9.

of Swansea; whereas at Cardiff, Penarth, and Barry, decline of trade has been so pronounced as to suggest that some of the equipment which was adequate for the immense coal trade of 1913, must be redundant in the circumstances of to-day, unless industries other than coal spring up to provide work for the docks.

The facilities of the ports for handling existing coal and general merchandise traffic have been considerably improved during recent years. In 1923 the Great Western Railway introduced its policy of granting a 5 per cent. rebate on the carriage charges for coal sent in 20-ton wagons. One of the chief obstacles to the introduction of larger capacity wagons on British railways has always been the inadequacy of port shipping appliances to deal with anything but 10- or 12-ton wagons. To-day, however, there are 50 hoists at the South Wales ports capable of shipping coal from 20-ton wagons, and work is proceeding on a further 25 such appliances. There are now 2,000 of these wagons working between the collieries and the South Wales ports. The few pence per ton to be saved by cheaper haulage would make a great difference to the South Wales coal export trade, for many contracts in recent months have been lost by very narrow margins.

The ports were developed originally for the shipment of coal and metals, and the greater part of the commercial organisation of importers, exporters, etc. has grown up in connection with these trades. Recently, however, attention has been directed to the possibility of developing a distributive trade. The facilities of the ports are sufficient, or, where necessary, could without difficulty be extended, to deal with a considerably increased importation of food and other products needed by South Wales and the Midlands. It is probable that it is not lack of facilities that has hindered such a development, but the fact that at other ports there has been built up a commercial mechanism for dealing with these imports, and that therefore such trade continues to follow its customary channels. The importation of such commodities as fruit has tended during recent years to increase: the Great Western Railway has been making efforts to expand this type of trade, and warehouse and transit accommodation have been considerably improved. It is conceivable that a considerable expansion in this direction could take place at a profit, and afford a substantial increase in employment; but consideration of existing circumstances does not warrant any optimistic forecast that it will happen in the near future.

During the last three or four years, several passenger liners have landed and embarked passengers between Great Britain and North America, the largest of which was the *George Washington*. This traffic has mainly taken place during the summer. The recent heavy decline in the volume of both tourist and emigrant traffic on the North Atlantic makes it impossible to estimate fairly the possibilities of the extension of this new service.

Ship-repairing.

According to the returns of the Census of Production, 1924, the net value of the output of this industry in South Wales was £1,218,000 (or 1.6 per cent. of the total net output of productive industry in Glamorgan, Monmouthshire, and Carmarthenshire). At that date there were employed in the industry in South Wales 5,645 persons (or 3.9 per cent. of the total so employed in the United Kingdom). Shipbuilding and ship-repairing, in the Census of Production, Ministry of Labour and other classifications, are always taken together. In the South Wales ports, however, shipbuilding is of comparative insignificance, being confined to the construction of small craft such as life-boats. The work of the yards, therefore, consists almost entirely of repairing. There is at present a total of thirty dry docks, two pontoons, five slip-ways, two grid-irons, and one jetty—at Newport, Cardiff, Penarth, Barry, Port Talbot and Swansea.

During the years since the War some firms have been wound up and their plant has been bought by others, while further concentration of ownership has been brought about by amalgamation. At Cardiff and Penarth in 1915, sixteen separate firms were operating; in 1931 there are six. For Barry the corresponding figures are six and four; for Newport, five and two. At Port Talbot, during this period, there has never been more than one firm. At Swansea three firms operated in 1915, and four are found to-day, a new dry-dock having been laid down by Messrs. Palmers, primarily to deal with the oil-carrying vessels expected to visit the port after the establishment of the oil refinery at Llandarcy. Thus, whereas 31 separate firms operated at the six ports in 1915, by 1931 this number had been reduced to 17. These absorptions have not, however, involved any great reduction of equipment. The Mercantile Pontoon at Cardiff has been destroyed, but the addition of the new dry-dock at Swansea means that on balance as ample facilities as ever are still available.

We have had access to detailed figures concerning numbers of workers insured and unemployed for our Cardiff-Barry and our Newport areas, thus covering the ports of Newport, Cardiff, Penarth and Barry, but not Port Talbot and Swansea. At the latter two ports rather less than 1,200 insured workers are now registered in this industry. There was a considerable influx into this industry in South Wales, as in the United Kingdom as a whole, during the War and the subsequent boom years. Consequently, the number estimated as insured for the four ports of Newport, Cardiff, Penarth and Barry taken together in 1923 was 8,770, a greater number than that normally employed before the War, of whom 36.6 per cent. were unemployed in June and 28.3 per cent. in December. (For the United Kingdom the corresponding figures were 44.1 per cent. and 34.5 per cent.).

The estimated numbers of insured have since declined to 5,760 for 1930, of whom 64.0 per cent. were unemployed in June and 65.6 per cent. in December, 1930. The unemployment percentage for the United Kingdom was higher than that for these four ports in 1923, but since then it has been at all periods lower. As the United Kingdom returns cover large numbers engaged in ship-building, notoriously one of the most depressed industries during recent years, the size of the unemployment in South Wales is the more notable. Between December, 1923, and December, 1930, the numbers of insured fell by 34 per cent. and of those "in employment" ("temporary stoppage" is comparatively insignificant in this industry, where the mass of labour is normally casual) by 68 per cent. The estimated number of boys insured remained the same as in 1923, and the number of insured boys "in employment" diminished by 22 (8 per cent.). The number of men insured diminished by 35 per cent. and the number of men "in employment" by 72 per cent. Part of the decline in the number of men insured is, of course, due to the fact that men aged 65 and over ceased to be insurable after January, 1928. A total of 80 women was insured in this industry at these four ports in 1923. This number had declined to 40 in 1930. From December, 1923, to December, 1930, the number of insured women "in employment" fell from 78 to 37.

Whereas the total number of insured workers "in employment" in ship-repairing at Newport, Cardiff, Penarth and Barry formed, in December, 1923, about 6 per cent. of the total number of insured workers in all trades in the Cardiff-Barry and Newport areas combined, by December, 1930, the shipyard workers formed rather less than 3 per cent. of the total. In December, 1929, however, they formed rather more than 5 per cent. of the total.

Though there has been concentration of ownership, the number of dry docks available for shipping, as we have seen, has not declined, and there is little reason to suppose that the diminished demand for labour is to any extent attributable to rationalisation. In the London ship-repairing industry, "mechanisation has made little progress" because "the great variety of work makes the cost of installing machinery prohibitive."* The same general conditions obtain at the South Wales ports. The chief mechanical advance during recent years has been the perfection of the oxy-acetylene lamp for burning; but though this has meant a reduction in costs by increasing speed of operation, owing to agreements with Trade Unions it has not involved direct displacement of labour.

It is to more general trade conditions, then, that we must turn for an explanation of the employment situation in this industry. During recent years a heavy fall in the value of ships has caused

* *New Survey of London Life and Labour*, vol. 2, p. 8.

a corresponding fall in insurance premiums, and underwriters in consequence put out for tender all repair work which is not immediately urgent. Competition is keen and much work goes to foreign yards which, in the easier conditions before the War, would have been done in British ports. At the same time there is an increased tendency for repairs to foreign ships to be effected in the country from which they come. Much repair work, for example, which used to be done on Scandinavian tonnage in South Wales ports, especially in winter when light and other natural conditions were unfavourable in northern latitudes, is now taken back to the Baltic ports. No doubt this is an inevitable consequence of the general development of industry, and, perhaps, of electric lighting in particular, in European countries. Moreover, the recent tendency to increased size of ships minimises the demand for repairs. The average tonnage per vessel of vessels cleared from South Wales ports in 1920 was 938, in 1925 it was 1,225, and in 1929 it was 1,261.

These developments reduce the demand for labour in all British shipyards. That the employment position is worse in South Wales yards than in those of the United Kingdom as a whole is due to the decline of the trade of the ports following upon the depression in the coal industry, especially perhaps to the decline in the bunker trade, to which we have drawn attention elsewhere.

In view of all the circumstances, it would seem unwise to put the employment capacity of this industry in South Wales much above 5,000. (In June, 1930, it was probably less than 3,000). It is an industry in which casual labour abounds and in which employment is inevitably irregular.* The absorption of some of the surplus would greatly improve the livelihood of those who remain. Fortunately for the industry at the present time, recruitment, as far as the skilled labour is concerned, is still strictly controlled by apprenticeship.†

Railways.

As we have already pointed out, practically the whole of the railway system of the region is now under the unified control of the Great Western Company. The administration of the whole undertaking has been brought within the existing departmental organisation of the Great Western Railway; and many large schemes of development and modernisation have been undertaken. These schemes fall roughly into certain categories.

Among the works designed to secure the co-ordinated working of undertakings which formerly were separately operated may be mentioned first the remodelling of the Queen Street Station, Cardiff,

* "Ship-repairing is indeed notorious for irregularity and uncertainty of employment." *New Survey of London Life and Labour*, Vol. II, p. 195.

† ". . . Its great variety of work . . . makes all round experience essential", and about 4/5ths of the lads employed are bound by apprenticeship. *Ibid.*, p. 11.

which made possible the closing of a former station of the late Rhymney Railway and the provision of more economical passenger transport facilities. At Caerphilly, the work of repair and maintenance of engines and rolling stock, which was formerly performed at a number of small, scattered depots, has been concentrated in newly erected shops. By means of the construction of new engine sheds at Pantyffynon, Treherbert, Radyr, and other points, a great deal of light engine running has been eliminated.

In order to facilitate the concentration, marshalling and storage of traffic, particularly shipment coal, new sidings have been provided for holding shipment coal, notably near Cardiff Docks; and considerable extensions have been made to marshalling yards, such as those at Rogerstone (for the Monmouthshire coal area) and at Severn Tunnel Junction.

Operating facilities have been notably improved by developments at Newport, where the Usk Bridge is the main gateway from England into the region. Four lines instead of two now cross this bridge, a large new Station has been erected, and electrical signal control has taken the place of manual. Consequently the movement of freight and passengers has been accelerated and time-keeping has been improved. Similar improvements have been made at Swansea, and are now being undertaken at Cardiff. As part of the Cardiff scheme, the running lines for a considerable distance each side of the Station are being quadrupled in order to overcome difficulties in working over the approaches to this busy centre, and new and improved accommodation for the stabling, examination, etc., of engines and train vehicles is being provided. At Newport, Cardiff, and Swansea, as well as at other places within the area, the facilities for dealing with merchandise traffic have been greatly augmented and improved: warehousing accommodation has been increased, and modern appliances for the handling of goods introduced.

It is notorious that employment in the railway service is comparatively stable, and the bulk of railway employees are normally outside the scope of unemployment insurance legislation. Nevertheless, the general industrial depression, with the consequent decline in the amount of traffic handled; the increased competition of road transport with the railways; together with the amalgamation and rationalisation which have taken place since 1921, must obviously have restricted the demand for railmen's labour.

So much of the total tonnage hauled by freight trains within the the region consists of minerals, coal, and coke that the fluctuations in goods traffic correspond year by year with the fluctuations of output in the coal industry. Even the tonnage of "merchandise (including livestock)", that is, the total tonnage of all goods in Classes 6 and upwards of the railway classification, fluctuates with

the fluctuations in the prosperity of coal mining. The total tonnage carried, therefore, in 1930 was approximately equal to that carried in 1928 and was nearly five million tons less than that carried in 1929, which latter figure had been unequalled since 1924.

The percentage of insured railway employees unemployed in the Wales Division was 3.1 in December, 1923, and 9.8 in December, 1930; whereas in Great Britain the corresponding figures were 7.4 and 11.7 per cent. The comparative lowness of the Wales percentages are probably due to the uniform character of the freight carried in South Wales and to the necessary smallness of staff at the stations in the thinly populated districts of the rest of Wales. Whereas, that is to say, in large commercial centres such as Birmingham, where a great variety of general merchandise bulks largely in the total freight, numbers of casual porters are taken on in the goods stations, in the Wales Division such employment of casual labour is comparatively uncommon, and the size of the establishment responds slowly to fluctuations in volume of traffic. Moreover, comparatively few railway shopmen are at work in Wales; and the proportion of workers in the traffic grades (exempt from unemployment insurance) to all railway workers must be larger in Wales than in Great Britain. But it will be noticed that the unemployment percentage has increased more in the Wales Division between December, 1923, and December, 1930, than it has in Great Britain as a whole. This must be due to the industrial depression of the region. It is safe, therefore, in view of the general contraction in trade and the changes in railway methods and administration which have taken place, to say that the railways of the region will not employ in the near future as large a number of workers as they employed in 1923 or 1924. It would, however, be unwise to assert that there is a positive surplus of railway labour now in existence. Railways are a highly organised industry and there is no possibility that the employer will be able to expand employment unduly during a depression by reducing wages. Moreover, collective agreements insure that a definite reduction in the demand for labour shall be effected in the first instance by a restriction of entry into the calling, and if necessary a "stepping down" of older men. Only in the last resort will dismissal take place, and then it will affect the most recent entrants. There are men now unemployed who are on the Company's books and will be employed again, if and when traffic increases, before any new candidates are considered. We have no reason to suppose that this reserve is greatly in excess of the numbers which would be required were the industry of the region to expand to the 1929 level. Any expansion above that level, due to the development of new industries, could be met without any difficulty by the improved railway system now in existence, and by the careful recruitment of new labour.

Railway Wagon Building and Repairing.

Establishments for the building and repairing of railway wagons, some maintained by colliery proprietors and some by independent wagon building concerns, are to be found in many parts of the coal-field and at the chief ports. The industry is of course directly dependent upon the trade in coal. During recent years very few new wagons have been constructed, and even the work of repairing has diminished. Consequently, several firms have gone into liquidation or have ceased trading. More than half the insured workers of the region are to be found within the Cardiff-Barry area. In this area, between 1923 and 1930, the estimated number of insured workers has fallen from 1,470 to 890, a decline of 39 per cent., while between December, 1923, and December, 1930, the percentage unemployed increased from 0.2 to 30.4. The number "in employment" in December, 1929, was 700. If that be taken as the employment capacity of the industry in the Cardiff-Barry area, it would appear that there is still too large a number of workers enrolled in it.

The encouragement by the Railway Company of the use of 20-ton coal wagons, to which we have already alluded in our account of equipment at the ports, is bound to have an influence upon the local wagon-building industry. More than 1,000 of these wagons have been provided by the Company and hired, mainly to colliery owners. There is no doubt that in South Wales, as in Great Britain, as has been proved by evidence given before the Royal Commission on the Coal Industry in 1925, considerable economy in the carriage of coal by rail would result from a pooling under unified control of all privately-owned coal wagons. If such a pooling could be effected at the same time as a considerable increase in the use of 20-ton wagons, the resultant saving might increase the competitive power of Welsh coal in world markets. Accordingly, efforts are being made to secure the formation of a Company to take over privately-owned wagons within the area; and the Railway Company recently secured the authority of Parliament to subscribe to the capital of any Wagon Company incorporated for the sole purpose of providing mineral wagons for use in common by traders whose works or premises are situated upon, or served by, the Great Western system. In this connection, the recent formation by the Central Wagon Co., Ltd., of Wigan, and the Cambrian Wagon Co., Ltd., Cardiff, of a new Company, whose activities will cover the whole of the United Kingdom south of Birmingham, is of significance. If plans mature, employment may be found again for many wagon-builders in the region; and an important step towards a reduction in the cost of transport will have been taken.

Road Transport.

The rapid expansion of road transport has been one of the most outstanding developments in British industry during recent years.

There is no need to expatiate upon the causes and results of this expansion. They are well known. It is sufficient to say that South Wales, in spite of general industrial depression, has shared fully in this expansion. The following is a summary, for the counties of Brecon, Carmarthen, Glamorgan, and Monmouth, with their associated county boroughs, of the increase in the number of vehicles licensed during the five years 1926-1930.

Number of Mechanically-propelled Road Vehicles for which Licences were current at any time during the Quarter ended 30th September.

| Description. | Year. | | | | | Per cent. increase 1926- 1930. |
|--|---------------|---------------|---------------|---------------|---------------|---|
| | 1926. | 1927. | 1928. | 1929. | 1930. | |
| Cars taxed on Horse Power. | 18,497 | 20,897 | 22,967 | 25,025 | 26,686 | +44.2 |
| Cycles | 20,450 | 22,044 | 22,560 | 23,214 | 22,967 | +12.3 |
| Goods Vehicles:— | | | | | | |
| Showmen's Special Vehicles. | | | 40 | 41 | 48 | |
| Agricultural Vans and Lorries. | 8,139 | 8,901 | 23 | 30 | 28 | +22.3 |
| Other Goods Vehicles | | | 9,112 | 9,528 | 9,881 | |
| Agricultural Engines (5/- Class). | 66 | 61 | 65 | 74 | 81 | +22.7 |
| Tractors | 95 | 89 | 78 | 68 | 69 | -27.3 |
| Hackney Vehicles ... | 4,020 | 3,675 | 3,496 | 3,653 | 3,821 | -4.9 |
| Miscellaneous (i.e., Invalid Vehicles, Trams and Exempt Vehicles). | 708 | 736 | 742 | 754 | 784 | +10.7 |
| Total | 51,975 | 56,403 | 59,083 | 62,387 | 64,365 | +23.8 |

NOTE.—All licensing authorities show roughly the same percentage increase in the total number of vehicles licensed.

The greatest development has of course taken place in passenger services. If this were a social rather than industrial survey of the region, we might devote a large amount of space to a description of the changes in social life which this development has brought about. The isolation of the villages in the coal-producing valleys has virtually been destroyed. The 'bus has not merely taken away passengers from the railway, it has enormously increased the number of passengers and made travel a daily incident instead of a rarely undertaken adventure. It is not surprising, then, to find that in this densely populated region, where geographical isolation has in the past mitigated the enjoyment of social amenities, road transport passenger services have increased, if the number of workers engaged is a satisfactory gauge, more than in the country as a whole. The number of insured workers in Tramway and Omnibus Services in the Wales Division of the Ministry of Labour (of whom about 80 per cent. are in the Industrial Region) increased

between 1923 and 1930 by 73.3 per cent., while the number in Great Britain during the same period increased by 50.6 per cent. In " Road Transport not separately specified " * the numbers insured in Wales (of whom about 70 per cent. are found in the Industrial Region) increased by 95.8 per cent. (from 3,800 to 7,440) between 1923 and 1930, compared with an increase by 26.8 per cent. in Great Britain. As in the case of other industries, the percentage unemployed was lower in Wales in 1923 and higher in 1930 than in Great Britain.

As elsewhere, rapid expansion and intense competition resulted all over the region in a lack of co-ordination and an over-supply of transport. The " one-man " 'bus concern was a very common phenomenon in the region, especially in the thickly populated mining areas. This type of undertaking is very frequently run without due provision for depreciation and interest on capital, and therefore constitutes a waste of resources and becomes an unfair competitor of properly conducted road and rail services.

In recent years, however, concentration has tended to replace competition; and co-operation has been greatly facilitated by the provisions of the Road Traffic Act, 1930. Experienced observers inform us that the " one-man " 'bus is rapidly disappearing, though numbers of these undertakings still continue in the business of carrying workmen to their work. Other evidence shows that a reasonable co-ordination of road and rail facilities is rapidly being achieved. The South Wales Commercial Motors, Ltd., was registered in November, 1920, with a Capital of £20,000, and road services were developed operating from Cardiff and Bridgend. In 1927 the Western Valley Motor Services, Ltd. (Lewis & James), and in 1928 the Eastern Valley Motor Services, Ltd. (Barrett's) were acquired, the capital being increased from time to time to £150,000.

In 1928, the Great Western Railway, in common with the other railways of the country, obtained the authority of Parliament to provide transport services by road and to apply their funds for this purpose. In the exercise of these powers the Company entered into an agreement with the South Wales Commercial Motors, Ltd. Under this agreement, in 1929, the whole of the road services operated in South and West Wales by the Great Western Railway were taken over by the Omnibus Company, the capital of which was increased to £500,000, and the name changed to Western Welsh Omnibus Co., Ltd., the Great Western Railway holding 50 per cent. of the present issued capital of £290,000. The services of Messrs. Cridland, of Cardiff and Port Talbot, were

* Including charabanc service (horse or motor) motor garages, livery stables and hiring establishments, cartage and haulage contracting, etc.

acquired towards the end of 1929 and incorporated with the Company's services.

The Company now operates regular services for passengers and parcels on about 70 routes. The frequency of service varies on the different routes, some operating daily, others on specified days. Local time-tables are issued periodically. Almost all parts of the region are covered, and are connected with England and the West of Wales. The Company's services cover a route mileage of 1,000 miles. The total number of vehicles owned by the Company and its subsidiaries is now approximately 300.

The following are brief particulars of the growth of the Undertaking over the last few years :—

| | <i>Year ended 31st March.</i> | | | |
|---------------------------------------|-------------------------------|--------------|--------------|--------------|
| | <i>1928.</i> | <i>1929.</i> | <i>1930.</i> | <i>1931.</i> |
| Total number of passengers carried. | 5,088,364 | 7,606,697 | 15,933,460 | 18,372,036 |
| Total Mileage run ... | 2,236,504 | 5,879,777 | 7,127,989 | 8,787,523 |
| Total traffic receipts ... | £106,000 | £233,366 | £286,066 | £335,569 |
| Number of Staff employed at year end. | 396 | 430 | 954 | 1,036 |

The company has arranged a system of inter-availability of return tickets with the Railway, the use of which is growing; and this system of inter-availability is being extended wherever possible.

In 1930, a large central Repair Shop and Garage and General Offices, were erected at Cowbridge Road, Ely, near Cardiff, at which depot the whole of the overhaul work of the Company's fleet of 'buses is carried out, and the Company has now purchased the old Cattle Market at Bridgend on which it is intended to erect a Service Garage and 'Bus Station for the convenience of passengers, as the present station at Bridgend, which was one of the first of its kind to be opened in this country, is now altogether too small for the Road Transport business in Bridgend. The Company has also erected modern garages at Cross Keys, Pontnewynydd and Neath.

Similar developments have taken place within the area of the South Wales Transport Co. and other large passenger companies, who have arrangements for co-ordinated working with the Western Welsh Co.

Goods Vehicles.

In goods traffic the road haulier has not proved so serious a competitor with the railway as in other parts of the country because of the heavy nature of the traffic. But, even so, in South Wales, as elsewhere, the roads have been used for the carriage of heavy goods for the transport of which the railways are much better fitted. The number of goods vehicles in use has increased steadily during recent years; and the railway company, since its acquisition of road powers, has developed lorry services in the country districts and near the large ports.

Number of licences current in the four counties during the quarter ended 30th September for the years 1926-30, also the total and average estimated unladen weight.

| Year. | | | Licences current. | Total estimated weight. | Weight per Vehicle. |
|-------|-----|-----|----------------------|----------------------------|------------------------|
| | | | No. | Tons. | Tons. |
| 1926 | ... | ... | 8,139 | 13,561 | 1.67 |
| 1927 | ... | ... | 8,901 | 14,319 | 1.61 |
| 1928 | ... | ... | 9,175 | 14,481 | 1.58 |
| 1929 | ... | ... | 9,599 | 15,303 | 1.59 |
| 1930 | ... | ... | 9,957 | 15,833 | 1.59 |

The number of insured workers in the region engaged in the "construction and repair of motor-cars" is at present about 1,000. No outstanding developments have taken place, for there is no manufacture of motor vehicles within the region.

CHAPTER V.

OTHER INDUSTRIES.

Food, Drink, and Tobacco Trades.

The Third Census of Production (1924) shows that in the counties of Glamorgan, Monmouth and Carmarthen, the net output of firms engaged in Food, Drink and Tobacco trades (*i.e.* Grain Milling; Bread and Biscuits; Cocoa and Confectionery; Butter, etc.; Brewing, etc.; Aerated Waters, etc.; and Tobacco) was £4,525,000 or 5.8 per cent. of the total net industrial output of the three counties, and the number employed was 7,504, or 2.0 per cent. of the total employed in the three counties, and 1.5 per cent. of those employed in these industries in the United Kingdom.

Grain Milling.

South Wales is largely a self-contained milling area, and little outside flour comes in, except from Bristol to the Co-operative Wholesale Society's factories at Cardiff. Grain milling is, of course, confined to the ports, the most important of these being Cardiff and Swansea. Cardiff is by far the largest milling centre in the region, and in the Cardiff-Barry area are exchanged some 80 per cent. of the total number of millers' books exchanged in the Industrial Region.

During recent years, the industry has been subject to a serious decline in employment, due in the main to the output capacity of the mills being above the demand for flour. Some idea of the fortunes of the industry in the Cardiff-Barry area—which reflects what has happened in Swansea and the other ports, though on a

smaller scale—may be gathered from the course of unemployment since 1923 :—

| | | <i>Number Insured.</i> | <i>Number Unemployed (including temporarily stopped).</i> | <i>Unemployed as percentage of Insured.</i> |
|----------------|-----|------------------------|---|---|
| December, 1923 | ... | 1,300 | 58 | 4·5 |
| " 1924 | ... | 1,520 | 37 | 2·4 |
| " 1927 | ... | 1,300 | 285 | 21·9 |
| " 1929 | ... | 1,250 | 209 | 16·7 |
| " 1930 | ... | 1,260 | 340 | 27·0 |

One of the big problems before the industry is the short-time system which has come with slack trade. Several years ago, from about 1926 onwards, mills in Cardiff were idle on an average one week in three and sometimes one in four. Even after rationalisation of the industry had been carried some considerable way, the stopped periods continued to be as frequent as before, and it is only lately that conditions in this respect have improved. Mills are now closed one week in twelve.

Since the War, the milling industry has been drastically overhauled in order to meet a situation where the output of the South Wales mills was 30 per cent. above requirements. The National Millers' Mutual Alliance was formed with the object of buying up redundant mills and putting them out of commission. It still remains true that output more than meets local demands. In Cardiff, where rationalisation has been pushed farthest, the output per hour is now about 116 sacks; at Swansea it is 76, at Barry 85, and at Newport 20.

As a result of improved methods of production, the problem has arisen of placing in other employment men whose services are no longer required in the mills. In Cardiff an Assistance and Resettlement Committee in connection with one firm of millers contemplates assisting some 80 men. A Joint Industrial Council was formed in 1920, which has recently inaugurated a contributory pensions scheme for all employees. Messrs. Spillers have organised a pensions scheme for all those over 60 years of age; and for those under 60 who are displaced a lump sum gratuity is given, varying according to years of service.

These developments, interesting in themselves, do not hide the fact that the demand for labour in the grain milling industry is likely to contract in the future, as the application of machines to production is extended. In view of the fairly inelastic nature of the consumers' demand for bread, it is unlikely that, even when the present depression lifts, employment in grain milling will expand to any important degree.

Bread, Biscuit, Cake, etc., Making.

In the Baking industry, too, rationalisation is causing a diminished demand for labour, and is making the future employment needs of the industry very uncertain. The increasing substitution of elaborate plant for the older hand processes is tending

to the replacement of skilled workers by young unskilled girl labour. Even in a bakery of considerable size, relatively few skilled hands are needed, the remainder of the employees being rather machine tenders than bakers.

Thus we find in the Cardiff-Barry area that, whereas, from 1923 to 1930, insured females declined by 5.3 per cent. and females "in employment" by 8.4 per cent., male insured workers declined by 33 per cent. and male workers "in employment" by 38.6 per cent. Total unemployment has increased as the following figures show (they refer only to the Cardiff-Barry area):—

| | | <i>Number Insured.</i> | <i>Number Unemployed (including temporarily stopped).</i> | <i>Unemployed as percentage of Insured.</i> |
|----------------|-----|----------------------------|---|---|
| December, 1923 | ... | 1,510 | 75 | 5.0 |
| " 1927 | ... | 980 | 23 | 2.3 |
| " 1930 | ... | 1,170 | 123 | 10.5 |

Not only has unemployment increased, but short-time working has become a common feature of this industry. Some firms are idle one day a week; others, one week in seven; and yet others, one week in six.

Thus the employment position of the industry is not good. On the one hand, rationalisation means an increased output with a fewer number of hands, and on the other, there is this persistent system of short-time working.

An examination of the returns of individual firms reveals the large number of small firms in the region. The only firm of any substantial size is the C.W.S. biscuit factory at Cardiff, which employs between 360 and 400 workers. This Society has expanded within recent years and has escaped the consequences of the industrial depression. In Cardiff, seven firms supply 75 per cent. of the city's bakery requirements; a multitude of other firms compete for the remaining 25 per cent. The small firm is characteristic of the region as a whole.

In view of the increasing mechanisation of the industry, it does not seem likely that a large number of new entrants is desirable, and it will become increasingly difficult to find openings for the many students who are studying in Technical Colleges and elsewhere.

Cocoa, Chocolate and Sugar Confectionery Making.

Employment has declined in this industry, perhaps more especially because of the industrial depression of the region. The firms engaged in confectionery making are small in number, the largest being a Newport firm which employs between 400 and 500 workpeople. In this firm and in two at Cardiff—which practically exhaust the industry in South Wales—two to three times as many females are employed as males. The number

of books exchanged show this proportion between males and females :—

Books Exchanged (Industrial Region).

| 1928-9. | | | | | 1929-30. | | | | |
|---------|-------|--------|--------|--------|----------|-------|--------|--------|--------|
| Men. | Boys. | Women. | Girls. | Total. | Men. | Boys. | Women. | Girls. | Total. |
| 263 | 27 | 456 | 148 | 894 | 236 | 27 | 514 | 46 | 823 |

The heavy fall in the exchange of girls' books occurred at Newport, where they dropped from 110 to 14, and it was accompanied by an increase in the number of women's books from 277 to 373.

This industry would not seem likely to expand in the near future, especially so long as the mining community continues to be depressed.

Other Foods.

Employment in this group is quite insignificant everywhere but in Cardiff, where 335 books were exchanged in 1929 and 293 in 1930. Employment is distributed between a C.W.S. butter factory, a private bacon factory, and two jam and pickle factories. In no case does there appear to be expansion.

Drink Industries.

A total exchange of books of about 2,500 takes place in the Industrial Region, of which the Cardiff-Barry area accounts for nearly 1,000; the remainder are fairly evenly distributed among the other areas.

One firm engaged in the manufacture of mineral waters have, since 1925, increased their exchange of books in their establishments at Cardiff and Port Talbot, while their business at Porth has maintained itself fairly steadily. A firm at Morriston, too, has exchanged an increasing number of books. It would seem, therefore, that conditions in this branch of the drink industry are more or less favourable and mineral water manufacturers in the region have not felt the depression so keenly as have the brewers.

It is apparent that brewing, bottling and malting firms have as a whole experienced a steady decline in trade coincident with the worst phases of the depression in the coalfield. This is especially true of the larger firms in Cardiff. With a few minor exceptions, there has been a general tendency for the conditions in the coalfield to operate adversely on brewing interests, for it seems reasonable to suppose that the depression has brought about a drop in consumption which, it is held, has been hastened by the operations of the recent Budget.

Several breweries in the region have been closed down, and many others are working short-time—another sign of depression. In the industry as a whole, less than one-third but more than one-quarter of those employed are females; in the Cardiff area somewhat more than one-third are women. Nor does it seem that this proportion is being-altered by the tendency which the industry shows to reflect the general trade reduction in the region.

Tobacco Manufacture.

There exists in the Industrial Region one tobacco factory, which has shown an expansion since 1926. Figures for the whole of Wales show a definite expansion in the number of insured persons in the tobacco industry from 350 in 1923 to 460 in 1930. The proportion of males to females has throughout the period been in the region of 1 : 7.

Catering and Amusement Trades.

It has often been remarked that during recent years, in spite of depression in the basic industries, the businesses of supplying refreshments and amusements seemed to be flourishing. In the United Kingdom as a whole, the total estimated number of insured persons in the Hotel and Restaurant Services increased from 258,960 in 1923 to 350,870 in 1930, and in the Amusement Catering trade from 60,050 to 78,050 in the same period.*

In South Wales the same tendency is to be seen. Detailed figures of the total number of insured persons within the Industrial Region employed in these trades are unfortunately not available. But there is evidence that about half of the insured hotel and restaurant workers of the region work within the Cardiff-Barry area. In this area, where there is no reason to suppose that conditions are not roughly typical of those obtaining throughout the region, there has been a continuous and consistent growth in the number of insured persons, the numbers having increased by 50 per cent. (from 2,010 to 3,030) between 1923 and 1930. In December, 1923, the insured in this trade amounted to 2.7 per cent. of the total number of insured workers in the area—a proportion which had increased to 4.1 per cent. by December, 1930.

In the hotel and restaurant services three times as many females are employed as males, and more than 70 per cent. of the increase in the numbers insured between 1923 and 1930 represented an increase in the number of female workers. There is a good deal of seasonal unemployment, and on the whole entry into the industry seems to have taken place faster than the openings for employment have increased.

* From the beginning of 1923, persons aged 65 and over ceased to be insurable.

The amusement catering trades seem, on the whole, not to have shown any substantial expansion. If the number of attendants employed by cinemas has increased, this has often been offset by the number of those who have been dismissed when theatres have been closed, while prospects of employment for musicians have been severely affected by the introduction of "talkies". Greyhound racing was a new development from which much was hoped in certain quarters, but it has failed to retain public favour as was expected, and has made substantially little difference to employment.

On the whole, in both the hotel and restaurant and the amusement trades, fluctuations in employment have followed very closely the fluctuations of the fortunes of the basic industries of the area; and, though they have tended to expand while the latter have contracted, there is no reason to suppose that, in the absence of a decided improvement in employment in coal mining, they are likely in the future to be able to employ many more persons unless seaside resorts in the region so increase their attractiveness as to draw visitors from outside the Industrial Region, or to persuade inhabitants of the region, who now go elsewhere for their holidays, to visit them. So far as we are able to judge from the rather scanty information available, it would seem that the local resorts depend almost entirely upon the earnings of workers in the larger industries, and have suffered depression while those industries have been depressed. Amusement caterers would seem to have prospered more than hotel and restaurant proprietors during recent years; for the rapid development of road transport has increased the frequency of seaside visits by day-trippers. Any considerable absorption by these trades of surplus labour from the mining valleys must depend upon the possibilities of the commercial development of such districts as the Gower Coast.

Building and Allied Trades.

In the Third Census of Production (1924), the Building and Contracting Trades of the Glamorganshire, Monmouthshire and Carmarthenshire area made 239 returns, showing a net output of £1,556,000 and employing 8,399 operatives and administrative staff (of whom 7,785 were male operatives). These figures are exclusive of returns made by building materials trades (*e.g.*, glass, cement, china and earthenware, etc.), which employed a total of 4,075, of whom 263 were female operatives and 279 administrative staff.

We have complete figures for six of our sub-areas only. In these areas we find that between 1923 and 1930 the number of insured workpeople decreased by 3.3 per cent.; that is, there were 13,610 workers insured in 1923 as compared with 13,160 in 1930. This decrease might well be wholly accounted for by the fact that

persons aged 65 and over, who were insurable in 1923, were no longer insurable after the 2nd January, 1928. In 1927, however, there were 16,180 recorded as insured, or 4.4 per cent. of the total number of insured workers in all trades in the six areas; whereas the insured in the building trades in 1930 were only 3.8 per cent. of the total number insured.

As the number of insured declined, so did the number of work-people in employment. In December, 1923, the wholly unemployed were 1,409 or 10.3 per cent. of the insured; in December, 1927, there were 5,021 wholly unemployed (31 per cent. of the insured), and 5,356 in December, 1930, or 40.7 per cent. of the insured workers.

As would be expected from the seasonal character of the Building and Contracting Trades, unemployment in the winter months was greater than in the summer. This is true of every year under review, except 1923, when an increase in employment took place between June and December.

The decline in employment thus becomes plain. From December, 1923, to December, 1930, the number in employment declined by 37.9 per cent.

| <i>Da'e.</i> | | <i>Nos. in Employment.</i> | <i>Nos. Insured.</i> |
|--------------|--------|----------------------------|----------------------|
| June, 1927 | ... .. | 14,014 | 16,180 |
| Dec. " | ... .. | 10,901 | 16,180 |
| June, 1929 | ... .. | 10,162 | 13,810 |
| Dec. " | ... .. | 8,939 | 13,810 |
| Dec., 1930 | ... .. | 7,575 | 13,160 |

During the last two years under review, all areas, with the possible exception of Swansea, shared in this decline. The total number of books exchanged increased in the Swansea area; 3,727 were exchanged in 1929 and 4,125 in 1930. All other areas, however, show a decrease in books exchanged, this decrease being most largely accounted for by contraction in adult male labour.

The three areas for which no Ministry of Labour figures are available contain together about 3,600 workers. A large proportion of these were, in 1930, without employment.

The building industry offers no great possibility of employment to female labour. In the Cardiff and Barry area, 32 females exchanged books in 1929 as against 5,045 men and boys. Building is essentially an industry employing male labour, and for all practical purposes, women and girls may be ignored.

The growing volume of unemployment in the building industry undoubtedly reflects the general industrial situation of the South Wales coalfield. It also coincides with the decline in the number of houses erected, especially during the last few years. As will be seen from the accompanying table, in the four counties the number of houses erected with State assistance since 1927 has seriously declined, while the number of those erected without State assistance has correspondingly tended to rise.

Number of houses erected with and without State Assistance in the Geographical Counties of Brecon, Carmarthen, Glamorgan, and Monmouth.

| Year ended 31st March. | Brecon. | | Carmarthen. | | Glamorgan. | | Monmouth. | |
|------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|
| | With State Assistance. | Without State Assistance. | With State Assistance. | Without State Assistance. | With State Assistance. | Without State Assistance. | With State Assistance. | Without State Assistance. |
| 1926 ... | 49 | 29 | 581 | 206 | 3,364 | 1,886 | 1,041 | 460 |
| 1927 ... | 73 | 22 | 562 | 149 | 4,313 | 1,046 | 1,683 | 237 |
| 1928 ... | 71 | 20 | 556 | 101 | 4,446 | 597 | 2,220 | 148 |
| 1929 ... | 23 | 6 | 447 | 95 | 1,534 | 756 | 1,472 | 130 |
| 1930 ... | 11 | 22 | 165 | 142 | 1,396 | 949 | 945 | 193 |
| 1931 ... | — | 28 | 3 | 128 | 628 | 994 | 54 | 344 |

These factors, working together, largely account for the rapid increase in the unemployment percentages, denoting a decline in employment far more steep than that in the United Kingdom, as the following comparison shows:—

Unemployment Percentages.

| | <i>Great Britain and Northern Ireland.</i> | <i>Six Sub-Areas.</i> |
|-------------------|--|-----------------------|
| June, 1927 | 6.9 | 13.3 |
| Dec. " | 16.0 | 32.6 |
| June, 1929 | 8.5 | 26.4 |
| Dec. " | 16.9 | 35.2 |
| June, 1930 | 12.7 | 28.8 |
| Dec. " | 22.7 | 41.7 |

Obviously, in a region where population is declining and emigration proceeding rapidly, a definite decline in the demand for the labour of builders is inevitable. Many men employed in this industry are labourers who leave it and enter other occupations when demand is slack. Nevertheless, the figures given above would suggest the existence of a surplus in the neighbourhood of 3,000.

Public Works Contracting.

Public Works Contracting is essentially an occupation which demands male labour, and even adult male labour. Something less than 2 per cent. of the books exchanged are boys' books, both in our area and in the whole of Wales.

The number of books exchanged in South Wales was roughly 60 per cent. to 70 per cent. of the insured workpeople in Public Works Contracting in Wales as a whole in 1929 and 1930. In Wales the number of insured increased between 1929 and 1930 by 2,450; in South Wales the books exchanged declined by 223.

Work coming under the scope of Public Works Contracting is essentially temporary in character. On the completion of specific contracts, firms "close down", or at least dismiss the operatives for whom the contracts have provided employment, while continuing to exist in a small way. Contracts may be relief works and employ a couple of hundred men or they may be smaller operations employing only some twenty or thirty men. As would be expected, then, the firms vary in size considerably, and although the large majority of firms exchange a relatively small number of books each, there are a few firms in our area exchanging between 150 and 250 books each year. But these are exceptional.

Between 1929 and 1930, there was, as is mentioned above, a net decrease of 223 in the number of books exchanged in the Industrial Area. A slight increase, however, took place in five of our sub-areas, viz., Newport, Western, Swansea, Pontypridd and Rhondda.

We have no means of estimating the percentage of unemployment in Public Works Contracting, but a comparison between the United Kingdom figure and that for the whole of Wales will be useful—in view of the fact that 65 per cent. of the Welsh workers are in South Wales. The following table explains itself:—

| | | <i>Unemployment Percentages.</i> | |
|------------|--------|----------------------------------|---------------|
| | | <i>United Kingdom.</i> | <i>Wales.</i> |
| Dec. 1923 | ... .. | 18·9 | 21·8 |
| June, 1924 | ... .. | 15·7 | 16·0 |
| Dec. „ | ... .. | 19·2 | 27·4 |
| June, 1927 | ... .. | 14·4 | 22·8 |
| Dec. „ | ... .. | 20·8 | 32·9 |
| June, 1929 | ... .. | 18·1 | 39·2 |
| Dec. „ | ... .. | 25·3 | 52·3 |
| June, 1930 | ... .. | 22·0 | 41·7 |
| Dec. „ | ... .. | 31·3 | 58·7 |

These figures illustrate the following of the definite—and wise—state policy of encouraging the adoption of Schemes of Public Contracts in relief of employment *outside* rather than within industrially depressed areas. By means of this policy, unemployed men are transferred from the depressed areas into others less depressed where, when the Public Works Contract is completed, they may possibly find other employment.

Heating and Ventilating Apparatus.

Two small firms, at Swansea and Cardiff, cater successfully for local demand and have recently shown some signs of expansion.

Stove, Grate, Pipe, etc., Manufacture.

This industry is found in the Swansea Valley, in Cardiff, in Newport, and in the Eastern area.

The industry as a whole has in the last two years fairly well maintained its ground. The total books exchanged in 1930 were 1,355, or 64 less than in 1929. As male labour is predominant in this particular form of manufacture the decline was spread over men and boys, the number of women who exchanged books (17) remaining the same.

In the whole of Wales in 1929 and 1930, there were 1,450 and 1,530 insured respectively. Compared with the total exchange of books in our area, these figures make it possible to assume that the industry is almost wholly situated in South Wales; it therefore becomes possible to compare usefully the Wales unemployment with that for the United Kingdom:—

| <i>Unemployment Percentages.</i> | | | | <i>United Kingdom.</i> | <i>Wales.</i> |
|----------------------------------|-----|-----|-----|------------------------|---------------|
| December, 1923 | ... | ... | ... | 9.4 | 17.7 |
| „ 1929 | ... | ... | ... | 8.9 | 15.9 |
| „ 1930 | ... | ... | ... | 21.9 | 31.7 |

Bricks, Tiles, Fireclay, etc.

The Brick and Tile Works in the Industrial Area are numerous; most of them possess but a small employment capacity. The average exchange of books seems to be between 30 and 40, though there are one or two firms with an exchange between 100 and 150.

The industrial depression which has been felt in the Building and Contracting trades has, through them, affected the manufacture of bricks and other building accessories. It is apparent that the industry has been contracting for some years past and between 1929 and 1930, the exchange of books fell from 1,509 to 1,263. Several firms throughout the area have closed down, and those firms—very few in number—which have recently commenced have shown no signs of development.

| <i>Unemployment Percentages.</i> | | | | <i>United Kingdom.</i> | <i>Wales.</i> |
|----------------------------------|-----|-----|-----|------------------------|---------------|
| June, 1929 | ... | ... | ... | 8.6 | 15.3 |
| Dec. „ | ... | ... | ... | 12.1 | 18.1 |
| June, 1930 | ... | ... | ... | 12.0 | 21.6 |
| Dec. „ | ... | ... | ... | 18.3 | 28.3 |

Furnishing and Woodworking Trades.

This group of trades is not important in the Industrial Region. Many small *Furnishing* concerns exist which employ 10 or even fewer workpeople. Sixty per cent. of the larger concerns—i.e., those which normally employ 20 or more—are situated in or near the Cardiff-Barry area. Employment in these firms has remained very steady since 1926. In the Swansea and Western areas some small improvement has taken place. Perhaps the most notable development has been the introduction of furniture-making into Brynmawr, reference to which is made elsewhere in this Report.

The *Saw-Milling and Machine Woodworking* industry has undergone definite contraction. Ninety per cent. of the books exchanged are exchanged in the Western, Swansea, Cardiff-Barry and Newport areas.

Only one firm engaged in *Wooden Box and Wooden Packing-case* making employs more than twenty workers. It is situated in Cardiff, and it seems to have expanded slightly since 1927.

One firm is engaged in *Woodworking* in the Pontypridd and Rhondda district. This has recently developed. Unlike the other concerns mentioned, in which employment is predominantly male, 30 per cent. of the books exchanged by this woodworking firm belong to females.

Cement.

The most important part of the industry is situated at Fenarth, Rhoose, and Aberthaw, with two smaller firms near Bridgend. This is roughly the region of the Lias limestones and shales, which furnish the raw material. The industry has suffered to some extent from the prevailing depression in trade and has introduced labour-saving machinery during recent years. Consequently, its number of employees has declined. It is an industry which should expand if home industries are stimulated. At present, employment in South Wales is about 800 all told. The unemployment percentage was 34.2 in December, 1930, and has been high since June, 1929, when it was comparatively low, at 10 per cent.

Exports of cement up to 1929 were increasing; and the local manufacturers have been developing new products such as cement-asbestos tiles and sheets, fencing poles, etc. It would seem not unreasonable to hope that, with a general trade revival, this industry should be able to employ again the 1,200 insured workers on its books in 1923.

Oil Refining and Kindred Industries.

The most important unit within this group in the Industrial Region is the National Oil Refineries, situated between Neath and Swansea at a spot which has been renamed Llandarcy.

These works, founded by the Anglo Persian Oil Company, were opened in 1922, and represent the first attempt to establish a complete oil refining process in this country.

The entire site occupied by the works covers approximately seven hundred acres of land, and is divided into three main sections.

One area near the Queen's Dock, Swansea, has been equipped with jetties, pipe lines and storage tanks: then there is the Refinery itself situated about four miles distant from the Queen's Dock, and the third section is the Tank Farm erected near the Refinery.

Crude oil is transhipped direct from Persia in tankers belonging to the Company; these tankers, consisting of a fleet of about

eighty vessels representing a total deadweight tonnage of 700,000 tons, are controlled by a subsidiary Company known as the British Tanker Company, Ltd.

Upon arrival at the Queen's Dock, Swansea, where the berths are capable of accommodating as many as five tankers simultaneously, the oil is forced by means of electrically-driven pumps through large pipe lines to the Tank Farm. Within the Tank Farm there are about sixty tanks, most of which are large enough to hold the full cargo of a ten thousand ton tanker. Other pipe lines return the refined products to tanks preparatory to shipment abroad. The chief products are various grades of Petrol, Kerosene, Vapourising Oil, Lubricating Oil, Gas Oil, Diesel Engine Oil, and Paraffin Wax. These are dispatched either by tankers to overseas destinations or by rail cars or road wagons to the Company's distributing centres in various parts of the country.

Imports and exports of oil at Swansea Docks during recent years have been as follows :—

| <i>Year.</i> | <i>Imports.</i> <i>Tons.</i> | <i>Exports.</i> <i>Tons.</i> |
|--------------|---------------------------------|---------------------------------|
| 1924 | 1,068,490 | 847,874 |
| 1925 | 1,038,397 | 942,934 |
| 1926 | 1,102,757 | 904,051 |
| 1927 | 1,345,848 | 996,442 |
| 1928 | 1,120,166 | 840,892 |
| 1929 | 926,701 | 733,673 |
| 1930 | 723,553 | 561,069 |

The decline of trade which these figures illustrate has been accompanied by a decline in numbers employed, but as some sub-contracting for various jobs takes place at these works, the Ministry of Labour returns of persons employed have to be interpreted with a certain degree of care. While the contract is in progress, the workers would naturally be returned as employed at the Oil Works, but on the completion of the contract their services would no longer be required.

In the Cardiff-Barry and the Newport area are found four small firms of oil importers and oil and tar blenders, and a minor firm also exists at Swansea. The remainder of the employees in the industry are engaged in the distribution of imported refined oil. Three firms have their own coastal depots, near Cardiff, and at Briton Ferry. The work of distribution has of course expanded with the increased use of road transport, but no development of great significance has taken place within this section of the industry.

About 90 per cent. of the persons registered in this industry in the Wales Division of the Ministry of Labour are employed within the Industrial Region. The estimated number insured for the Wales Division was 2,130 in 1923 and had fallen to 1,520 in 1930. For July, 1931, the number is estimated at 1,440. It will be safe to assume that more than 90 per cent. of the decline in numbers has taken place within the Industrial Region. In the

years of the commencement of operations at Llandarcy, unemployment was comparatively negligible; but in recent years it has become considerably more serious, as the following details of the percentage unemployed in the Wales Division show :—

| | | | | | |
|------------|-----|-----|-----|-----|------|
| June, 1929 | ... | ... | ... | ... | 11·6 |
| Dec. " | ... | ... | ... | ... | 10·0 |
| June, 1930 | ... | ... | ... | ... | 8·9 |
| Dec. " | ... | ... | ... | ... | 13·0 |
| June, 1931 | ... | ... | ... | ... | 20·8 |
| Sept. " | ... | ... | ... | ... | 20·6 |

The history of events is disappointing to those who hoped that this industry might employ a continuously increasing number of those unable to find work in the basic industries. Nevertheless, it does still employ rather more than a thousand workers, and, should the economic position of Great Britain as a whole improve, may be expected to employ a larger number.

Quarrying and Mining.

Within recent years, *Stone Quarrying* has, on the whole, offered more employment than formerly, due partly to the number of relatively small firms which have commenced since 1927, and partly to the development of some of these newer firms and some of the older. Thus the books exchanged in the Industrial Region between the years 1929 and 1930 increased from 760 to 914. The tendency seems to be for most of the stone quarries to be small in size, though there are some exceptions.

A *Lead mine* in Llandovery closed down in 1930 though it was hoped to open again when conditions improved. Employment had been steady for the past four years.

At Llanharry *haematite* is extensively mined. The mine is capable of producing 3,000 tons per week when conditions warrant it. Since 1920 persistent expansion has taken place and whereas in that year 350 books were exchanged, 545 were exchanged in 1930. The mine is worked on up-to-date lines, and should further expand.

One *Gravel quarry* exists at Port Talbot which has expanded during the past few years.

Printing, Publishing and Paper Trades.

These trades do not, in general, reflect the depressed condition of industry in South Wales, though unemployment among printers has, during recent years, been more severe in the Industrial Region than in Great Britain as a whole.

Quite two-thirds of the Printing industry is concentrated at the three towns, Cardiff, Swansea, and Newport; and more than half the unemployment insurance books of the whole region are exchanged

at Cardiff. In the Cardiff-Barry area, the total number insured increased by 20.8 per cent. (it must be remembered that persons aged 65 and over ceased to be insurable after January 2nd, 1928), and the total "in employment" by 13.5 per cent. between December, 1923, and December, 1930. Female workers form about one-third of the total, a proportion which has remained fairly steady, though the number of boys insured and employed has increased considerably faster during the period than the number of girls.

Amalgamation of daily newspapers in Cardiff and in Swansea has restricted opportunities of employment; and an agreement between large newspaper interests has prevented the introduction of a new evening daily paper. Without a very considerable revival of trade and a greatly increased resort to advertising, there is no reason to expect printing to absorb a larger number of workers in the near future.

One firm at Ely, near Cardiff, manufactures paper. During the last five years its trade has expanded. It began to show signs of contraction in 1930, and is now suffering in the prevailing depression. Two firms of paper-bag makers, employing mainly women workers, have expanded slightly in recent years, as has a small Cardiff firm supplying stationery.

Fishing.

In the Wales Division in 1923 there was an estimated total of 1,940 workers insured in this industry, of whom 9 per cent. were unemployed. By September, 1931, the estimated number of insured had increased to 3,040 (i.e., an increase of 57 per cent. since 1923), and the number "in employment" to 2,674 (an increase of 51 per cent. since 1923). The unemployed were 12 per cent. of the insured. The number of unemployed fishery workers in the whole of the United Kingdom in September, 1931, was 12 per cent. of the total insured. The number insured in the Wales Division is about 11 per cent. of the total insured in the United Kingdom.

Evidently this industry, when considered alongside others established in Wales, has been comparatively prosperous. As far as the Industrial Region of South Wales is concerned, the industry is found to a substantial extent only at the ports of Swansea and Cardiff. At these ports together, about one-fifth of the total insured workers in the Welsh industry are employed. The great majority of the remaining four-fifths are employed by the firms operating in the Milford Haven district.

The importance of the fishing industry in Swansea has been greatly enhanced in the post-war period, and some 15,000 tons of fish per year have been landed recently.

In 1919, Swansea was selected by the Consolidated Fisheries, Ltd., Grimsby, as a separate base for a section of its trawler fleet.

This Company, owning a fleet of 130 steam trawlers, has, at present, permanent fishing bases at Grimsby, Lowestoft and Swansea.

In addition to steam trawlers, the acquisition of shore establishments for maintaining and keeping afloat the trawlers has increased employment in the numerous ancillary shore services, engineering, woodworking, ship chandlery and the like.

Before reaching the customer a catch passes through the hands of landing gangs, shipside salesmen, wholesale depots and departments, and then to the slabs of the retailers' shops.

In addition to the activities created by the actual arrival and departure of the steam trawlers, there have grown up subsidiary by-product industries such as fish curing, and a plant producing fish meal and fish oil, which are used chiefly as cattle food and manure.

An ice factory has been erected capable of an output of 500 tons of ice per week. This factory supplies the trawlers with the means of preserving their catches until they are brought into port, and also supplies the distributing centres with their requirements for keeping the fish in condition until it is finally sold to the consumer.

Swansea as a fishing port is thus comparatively young and possibly capable of development.

At Cardiff, the business of the principal firm, whose fleet of trawlers is equipped with up-to-date modern appliances, has been increasing during recent years, and some 10,000 tons of fish per annum are landed. This firm has also established a plant for the manufacture of manure.

It has been suggested that the section of this industry which is situated within the Industrial Region—namely, at Swansea and Cardiff—might be expanded. Under present conditions of supply and demand, however, it is true to say that the whole of the present market requirements of the United Kingdom can be more than supplied by the present United Kingdom industry. The South Wales catch is certainly more than sufficient, under present conditions, to supply the present South Wales market demand for the fish which are caught by the South Wales trawlers and fishing fleet. (Much of the fish consumed in South Wales is caught by the East Coast fishing fleet, but these are classes of fish caught in the North Sea fishing grounds, hundreds of miles by sea from the South Wales ports.) Whether demand might be so expanded by advertisement, or costs so reduced by changes in the organisation of the industry, that fishing operations from Cardiff and Swansea might be considerably expanded, are questions we have felt to be too complicated to permit of examination by us. Our view, in the light of present conditions, is that it would be unduly optimistic to expect the local fishing industry to absorb a greatly increased number of workers during the next few years.

CHAPTER VI.

INDUSTRY IN THE REGION DURING 1931.

In the Industrial Region as a whole, there has been an increase since 1930, in the number of insured workers in all industries from 478,020 to 484,880. This increase, by 1.4 per cent., is in strong contrast with the decrease by 6.8 per cent. which occurred between 1927 and 1929; and is nearly ten times as large as the small increase which took place between 1929 and 1930. It suggests that the extension of industrial depression over the whole country has restricted the opportunities of transfer available to Welsh workers. In all the chief industries, mining, iron and steel and tinplate, however, the number of insured workers has diminished since 1930.

Between June and September, 1931, the decline in numbers in employment steadily continued, as the following table shows:—

Total Unemployed in All Industries.

| | 1930. | | 1931. | |
|-----------------------------|---------|-----------|---------|------------|
| | June. | December. | June. | September. |
| Numbers | 126,948 | 152,083 | 163,926 | 174,478 |
| Percentage of total insured | 26.6 | 31.8 | 33.8 | 35.9 |
| Number "in employment" | 351,072 | 325,937 | 320,954 | 310,402 |

The distribution of insured workers among the more important industries changed as follows:—

| Number Insured. (All Industries). | Percentage of Total Insured Registered in | | | | | | | | |
|---|---|---------------|---|---------------|---------------|---------------|-------------------------|---------------|---------------|
| | Coal Mining. | | Iron and Steel Melting, Rolling, etc. | | Tinplate. | | Distributive Trades. | | |
| | 1931. Sept. | 1930. Dec. | 1931. Sep. | 1930. Dec. | 1931. Sep. | 1930. Dec. | 1931. Sep. | 1930. Dec. | 1931. Sep. |
| 484,880 | 44.8 | 42.3 | 5.5 | 4.9 | 6.0 | 5.6 | 10.2 | 10.7 | |
| <i>Percentage of Insured Unemployed (counting the "temporarily stopped" as Unemployed).</i> | | | | | | | | | |
| 35.9 | 25.9 | 35.4 | 66.1 | 54.7 | 68.2 | 42.6 | 15.3 | 18.6 | |

The most striking increases, both in the numbers insured and in the numbers "in employment" occurred in the Distributive Trades; for in every area, except that of Pontypridd-Rhondda,

these trades have expanded in numbers since 1930. But everywhere the September figures show contraction to have taken place since June, the decline in Newport and Cardiff-Barry together accounting for 70 per cent. of the net increase in the number of distributive workers unemployed.

In three areas, the Pontypridd-Rhondda, Merthyr, and Rhymney-Tredegar, the total number of insured workers has fallen since 1930. Of these, the first two have been the most depressed areas of the region since 1924. The almost entire dependence of the Rhymney-Tredegar area upon coal mining probably accounts for the loss of insured population which it has experienced. The two commercial areas of Cardiff and Newport showed the largest gain in numbers insured. In the Western and West Central areas fairly large increases were registered; but in the remaining areas the change was negligible.

Coal.

From the beginning of the year 1931, output in the coal industry was limited by the provisions of Part I of the Coal Mines Act, 1930. South Wales was allocated an output of 11,859,840 tons, 18.95 per cent. of the total output permitted for the whole country. In view of the growing depression of industry, these allocations were made about 10 per cent. below the actual output of the corresponding quarter of 1930. The actual output of South Wales during the first quarter of 1931 proved, however, to be some 3 million tons (or 26 per cent.) below the permitted quantity. " This was primarily due to the labour dispute in the coalfield during January. A secondary cause, operating later in the quarter, was want of trade."* The South Wales district instituted minimum prices for coal from the beginning of the year.

Output until the end of October continued to decline. The production during recent three-monthly periods (which exclude the month of January, during which the wage dispute took place) was :—

| | <i>Tons.</i> |
|--|--------------|
| Three months ended October 31st, 1930 | 10,905,000 |
| " " " April 30th, 1931 | 10,293,000 |
| " " " July 31st, " | 10,020,000 |
| " " " October 31st, " | 9,766,000 |

In each of the first three quarters of 1931, actual output was less than the permitted quantity. For the nine months ended in October 1929, 1930, and 1931, output was 36,676,000 tons, 34,210,000 tons, and 30,080,000 tons respectively; while foreign cargo shipments from Bristol Channel ports were 18,563,000 tons, 17,439,000 tons, and 14,118,000 tons for the same periods respectively.

* Mines Dept. Cmd. 3905.

An analysis of the markets to which coal was shipped shows in every single case a substantial decline in the amount of coal taken during the months of January-September as compared with the amount taken during the same period in 1930.

South Wales exports amounted during January-June, 1931 to 43.3 per cent. of the total cargo exports of Great Britain, whereas they had formed 44.1 per cent. of the total in the corresponding period of 1930. Total shipments from South Wales ports were 32.6 per cent. of total shipments from British ports in the first half of 1930, but only 29.4 per cent. in the first half of 1931.

The unprecedented depression in the trade is further illustrated by the fact that, whereas in the quarter ended March, 1931 a gain of 2.59d. per ton is shown in the Mines Department Returns for South Wales, a loss of 0.92d. per ton is shown for June quarter. The trading loss, as ascertained under the terms of the South Wales Wages Agreement, was 1.52d. per ton for the three months ended October, 1931.

The figures available at the time of writing all refer to the earlier part of the year. Sufficient time has not yet elapsed to obtain any statistical illustration of the effects upon the industry of the abandonment of the gold standard in September last. Theoretically and abstractly speaking, the effects should have been the exact opposite of those which were felt when the pre-war gold parity of the £ was restored in 1925. Until such time as an internal rise of prices raised costs of production to correspond with the fall in the external value of the £, British exporting trades should receive a stimulus proportionate to the amount of that fall; and their foreign competitors should be to that extent handicapped in selling their products in world markets. So far, however, the improvement in the competitive power abroad of the South Wales coal industry conferred by the change in monetary conditions has not resulted in a great improvement in trade. The business and financial situation in the European and South American countries which import coal from South Wales is so unstable and their purchasing power has been so reduced that the cheapened cost of the coal to them has been almost offset by the decline in their effective demand. Moreover it is believed that in many instances purchasers in these countries have made contracts ahead which do not expire until the end of the year; and South Wales exporters are looking forward to January, 1932 in the hope that conditions may then be more favourable to them.

Apart from these more general considerations the decree issued by the French Government in July, 1931 limiting imports of coal from Great Britain to 80 per cent. of the monthly averages in the three years 1928-1930 has affected South Wales, which normally exports nearly 60 per cent. of the total quantity of British coal

sent to France, more severely than other districts. After the abandonment of the gold standard, France further imposed additional duties of 15 per cent. ad valorem on certain imports, including coal, from Great Britain. These attempts to maintain home production of coal in France are largely responsible for the failure of South Wales coal exports to expand as might have been expected.

The competitive power of Germany, Poland, Holland, and other producers for European markets whose financial authorities have maintained the gold standard has, nevertheless, undoubtedly been reduced. So too has that of the United States, a rival of South Wales in the South American and Canadian markets. Enquiries and orders from Canada may in part have been responsible for the tendency witnessed since September for the prices of anthracite and dry coals (a substitute for anthracite for certain uses) to harden. An increased demand for anthracite cannot always be rapidly supplied by the collieries in the western part of the coal-field where it is found, for these are often rather small. Anthracite in consequence began to be somewhat difficult to obtain; and, in order to prevent any possibility of failure to satisfy the improving demand, an increase in the output permitted to South Wales under the "quota" scheme was granted. The Executive Board is obviously ready to assist the export trade whenever necessary, and the system of fixation of permitted outputs is thereby shown to be flexible.

Part of the increase in the permitted output was granted in response to representations that there had been an expansion in the demand for coking coals for use in the local iron and steel industry. Here again the fall in the external value of the £ may be supposed to have exercised a favourable effect upon South Wales industry by making the importation of crude steel and bars less profitable than before. Any injurious effect upon tinplate producers resulting from an increase in the price of their raw material should not be seriously felt until internal prices rise considerably, and will, in any event, be offset by the increased ability to export tinplate conferred by the same monetary changes which restrict imports.

Foreign producers of coal for export whose national currencies have recently appreciated in relation to Sterling will of course take what measures they can to reduce their money costs so as to compete with British coal. In Germany, for example, underground workers and their employers have been temporarily exempted from payment of unemployment insurance. The resulting loss to the fund, calculated to be £171,000 per month, will have to be met by the State. Suggestions for further subsidy and for wage reductions have also been made. In other countries similar efforts to hold export markets are to be expected.

Unlike that of Great Britain, output of coal in Polish Upper Silesia was maintained during the first six months of 1931 at the

1930 level, and exports were considerably increased. But export contracts have been made upon a Sterling basis. Since the end of September, therefore, the price obtainable has fallen by 20 per cent. or more. Transport costs remain unchanged, and so large a proportion of total costs do these form that it has been estimated* that prices obtainable at the pithead have in consequence fallen by 41 per cent., so that receipts are not sufficient to cover even wage costs. The export of coal is already heavily subsidised, and wages are very low. Whatever further burdens may be thrown upon Polish taxpayers, wage-earners and consumers, it is inconceivable that British competitive power in the Baltic markets should not be improved. It is probable that the northern coalfields rather than South Wales will chiefly benefit from this situation. But a South Wales firm has already been able to arrange a contract for a substantial export of coal to Finland in return for an import of pit-props, and enquiries concerning the possibility of similar contracts have been received from other Baltic purchasers.

In the changed circumstances, shipping may be expected to revert to the use of British ports, instead of Dutch or Belgian, for bunkering; and in general we may say that the prospects for the trade of South Wales have been improved by the fall in the external value of the £. But so uncertain is the whole international situation that prophecy is impossible. The number of miners employed in South Wales increased slightly between June and September, 1931; but so little further information is available, and the future of Sterling and of the country's fiscal policy is so uncertain, that no reliable calculation concerning unemployment in the near future can be made. We feel, nevertheless, that it is safe to say that there is no reason to revise our previous estimate of the number of workers surplus to the industry at, at least, 30,000. Were any substantial appreciation of the £ as against foreign currencies to take place, that number would undoubtedly become a serious underestimate.

Iron and Steel and Tinplate Manufacture.

Prevailing uncertainty concerning fiscal policy and the unsettled condition of foreign markets make it difficult to explain the movements of trade during 1931 or to assess the prospects of the steel and tinplate industries in the immediate future.

Contrary to expectation, there took place during the month of October an increased importation of sheet and tinplate bars into the South Wales ports. In the week ending 4th October, 1,610 tons were imported; in the week ending 11th October, 7,358 tons; in the week ending 18th October, 11,406 tons; and for the week ending 1st November, 9,459 tons. No very satisfactory generalisation can be based upon the experience of a few weeks. Yet it is difficult to suggest causes for such increases in importation when, in theory, the reverse might be expected to occur.

* In an article in the *Deutsche Bergwerks Zeitung*.

It may be suggested that the increase was due to the fulfilment of orders held up by continental manufacturers during the acute phases of the monetary crisis, and that, with the realisation that a complete monetary collapse was not imminent, trading relations were resumed and orders made prior to the crisis were executed. Further, it may be that certain steel manufacturers, such as those of Belgium and Luxemburg, who normally export about 75 per cent. of their combined output, feel bound to maintain their export trade connections even at a heavy loss. Certain continental sales associations habitually divide their markets into contested regions and uncontested regions. "Battle prices" are charged in the contested regions, sometimes below cost of production, while the merchants recoup themselves for their losses by higher prices in the uncontested regions.

The trend of the export trade in sheets and tinplates may be seen from the following returns:—

| | | <i>Thousands of tons.</i> | | |
|-----------------------|-----|---------------------------|----------------|-------------------|
| | | <i>July,</i> | <i>August,</i> | <i>September,</i> |
| | | <i>1931.</i> | <i>1931.</i> | <i>1931.</i> |
| Galvanised sheets ... | ... | 25·6 | 22·7 | 23·6 |
| Tinplates and sheets | ... | 37·8 | 29·7 | 30·4 |

The upward trend from August to September may of course have been met from products already in stock, and may not have had any favourable effect upon the productive side of these industries. The prices of 24-gauge galvanised sheets declined from £9 15s. 0d. per ton to £9 5s. 0d. in June, but rose again to the former figure in the month of August. Tinplate prices fell to 13s. 1½d. per box in the weeks ending August 13th and 20th, but recovered towards the end of October to a price from 14s. to 14s. 6d. per box.

At Newport the transfer of a galvanising plant from Bristol and the extension of a steel works are expected to provide additional employment in the near future; and similar developments are expected at Cardiff.

So far about ten additional steel producing furnaces have been put into commission in the Western, Swansea, and West Central areas since August. An upward tendency was shown in the volume of production in the sheet and tinplate trades as early as July. In the sheet trade it was probably due to changes in the political situation in India and the Far East and to changes in the price of silver. How far increase in the production of tinplate may have been stimulated by the depreciation of the £ it is at present impossible to judge, since the improvement which has taken place was not notably accelerated after September.

The Ministry of Labour returns of unemployment in the Tinplate industry bear out the contention that it would be unsafe to ascribe any definite improvement in the trade to the altered exchange

situation. The following are the returns during the disturbed months :—

Percentages of Insured Workers Unemployed.

| | | | <i>Wholly Unemployed.</i> | <i>Temporarily Stopped.</i> | <i>Total.</i> |
|------------|-----|-----|-------------------------------|---------------------------------|---------------|
| June, 1931 | ... | ... | 20.9 | 16.3 | 37.2 |
| July, " | ... | ... | 13.6 | 18.3 | 31.9 |
| Aug. " | ... | ... | 13.2 | 23.6 | 36.8 |
| Sept. " | ... | ... | 16.6 | 24.1 | 40.7 |

Owing to various practices adopted within the industry the temporarily stopped and total unemployment percentages are extremely unreliable indices of the fluctuations of the trade. The wholly unemployed percentage probably gives a better indication of the changes. It will be observed that the latter show an improvement in the months of July and August, synchronising with the restarting of mills in a number of tinplate works. Since then, unemployment has increased; and in the present situation of world trade it is impossible to suggest what the prospects in the immediate future may be.

The Ports.

Too little time has elapsed since the abandonment of the gold standard for the effects of this change in monetary policy to be reflected in the movements of imports and exports. The only figures available at the time of writing show the great decline of trade which took place in the first nine months of the year.

The total imports of the six ports for the period January 1st-October 25th, 1931, amounted to 3,192,907 tons, and the total exports to 19,491,907 tons. Compared with the corresponding period in 1930, these figures represent a considerable decline, in imports of 21.2 per cent. and in exports of 22.6 per cent.

The volume of certain imports—grain and flour, timber and deals, and general merchandise, was maintained, but the distribution between the ports changed. For example, imports of grain and flour increased at Swansea and Barry, and declined at Cardiff; timber and deals improved at Cardiff and Barry at the expense of the other ports; general merchandise increased at Swansea and declined at Penarth and Port Talbot. The total imports of iron ore declined by 39 per cent. At Newport, iron and steel imports maintained their strength, and as a result the total decline for all ports is only 6.3 per cent. Imports of pitwood and mining timber declined by 31.8 per cent. Swansea imported, within this period, 482,975 tons of oil out of a total importation of 499,138 tons. Compared with 1930 this latter figure represents a decline of 32.6 per cent.

In export commodities, coal accounts for a decline of 5,194,270 tons out of a decline in all exports of 5,706,184 tons. This decrease was felt by the various ports as follows: Cardiff 18 per cent., Swansea 16 per cent., Newport 23.5 per cent., Barry 23 per cent., Port Talbot 38 per cent., and Penarth 25 per cent. Of other exports, patent fuel decreased by 16.6 per cent., increased shipments at Cardiff being more than counterbalanced by declines at Swansea and Port Talbot. Large decreases of iron and steel rails and iron-work occurred at Swansea, Port Talbot, and particularly at Newport. Exports of cement increased at Barry, but at all other ports declined. General merchandise declined by 34.1 per cent. The export of tin-plates and oil is most important at Swansea, and in these commodities the decrease amounted to 26.3 per cent. and 20.5 per cent. respectively.

Percentage Decreases in the Aggregate Trade (in tons) of the Ports from 1st January to 25th October, 1931, compared with the corresponding period of 1930.

| | <i>Imports.</i> | <i>Exports.</i> |
|--------------------|-----------------|-----------------|
| Cardiff | 19.1 | 16.6 |
| Barry | 20.0 | 22.8 |
| Swansea | 24.1 | 18.4 |
| Port Talbot | 32.1 | 39.3 |
| Penarth | 9.9 | 25.6 |
| Newport | 11.1 | 24.8 |

As a further indication of the worsening conditions at the ports, we may notice the laid-up tonnage at certain dates of the year. The numbers of ships "laid-up" in various ports fluctuated considerably from month to month, but during the year 1930 they showed a tendency to rise, and during 1931 the tonnage laid-up was far in excess of any previous figure for the post-war period.

Laid-up Shipping at (a) Cardiff, Newport, Port Talbot and Swansea, and (b) all United Kingdom ports, during 1931.

| 1931. | | British. | | Foreign. | | Total. | |
|--------------|--------------|---------------|-----------|---------------|--------|---------------|-----------|
| | | No. of Ships. | Tons. | No. of Ships. | Tons. | No. of Ships. | Tons. |
| On 1st Jan. | } Four ports | 65 | 138,169 | 2 | 2,969 | 67 | 141,138 |
| | } U.K. ports | 531 | 1,310,598 | 10 | 20,549 | 541 | 1,331,147 |
| On 1st Apr. | } Four ports | 79 | 152,405 | 3 | 3,271 | 82 | 155,676 |
| | } U.K. ports | 617 | 1,567,513 | 11 | 21,691 | 628 | 1,589,204 |
| On 1st July. | } Four ports | 67 | 148,340 | 1 | 395 | 68 | 148,735 |
| | } U.K. ports | 619 | 1,672,539 | 8 | 21,035 | 627 | 1,693,574 |
| On 1st Oct. | } Four ports | 73 | 161,787 | 1 | 395 | 74 | 162,182 |
| | } U.K. ports | 636 | 1,701,582 | 5 | 6,868 | 641 | 1,708,450 |

CHAPTER VII.

AGRICULTURE.

General Conditions.

The agricultural area included in the Industrial Survey of South Wales comprises some 72 per cent. of Carmarthenshire, the whole of Glamorganshire, and 61 per cent. of Monmouthshire's land under crops and grass—a total of 648,200 acres of arable land and permanent pasture as against 728,400 acres in 1913. This loss of between 5 and 6,000 acres a year is partly due to causes other than the decline in use of farm land, or the tendency of occupiers to return, under the heading of rough grazings, land which has previously been returned as permanent grass. Every year, throughout the area, there has been some encroachment upon agricultural land by the expansion of urban and industrial interests—an extension of residential districts and industrial areas; the removal of factories from congested to less congested and less heavily rated districts; the provision of more recreation grounds and public parks; new arterial roads and the widening of the older roads. For these expansions and improvements, farm land, and, unfortunately, more often the better type of agricultural land, is absorbed.* Some reduction in the total number of holdings and variation in size may also be attributed to these causes. Taking into consideration all land returned as being under crops and grass and rough grazings in the whole of the three counties the net loss to agricultural and pastoral uses, since 1913, would be 20,000 acres.

Considering the three counties as a whole, the type of farming practised is predominantly pastoral. This type of farming can be undertaken with a minimum of labour. For the period 1910 to 1914, only 17 per cent. was arable land and this has now been reduced to 15 per cent. The Census figures of 1921 for the total population of the three counties was 1,878,348, of which 27,511, or 1.5 per cent., represented persons engaged in agriculture, the farmers and graziers outnumbering their paid employees by 1,654. On the larger holdings, in the hilly districts of the counties, the farm personnel is said to consist of "a man, a dog and an ash stick." A man, a dog and a pony is commonly the form of combination of labour forces over the greater part of each year. This is a reflection of the labour requirements of the hill sheep farm.

* See Appendix II.

There has been a reduction of 1,600 holdings throughout the three counties since 1913 principally affecting the size groups of above 1 and up to 5 acres, and of those of over 150 acres. Except in the highlands the most favoured size for a holding, to-day, would appear to be one of 50 to 100 acres in extent; there has been a steady increase in holdings within this size group. A farm of this size may be regarded as a typical family farm where all manual labour, or the greater portion of it, is performed by the family—the occupier, his wife, sons, daughters and other relatives not in the position of hired workers.

The present (1931) total number of occupiers of farm holdings cannot be stated, but the 1921 Census returned all farmers and graziers in the three counties as 11,869, including 1,489 women. These figures require some explanation. In a survey of this nature the necessity to discriminate between full-time and part-time occupiers of agricultural land is clear. Without this knowledge it is difficult, if not impossible, to produce material which would justify the formation of conclusions as to the changes in, or demand for, part-time employment on the land within any specified district. It is unfortunate that there is no available information as to the number of men and women occupying small parcels of land, excluding allotments, to supplement earnings from their primary occupations, or vice versa. Official statistics recognise holdings of one acre and upwards, and, by inference, each occupier may be assumed to be a full time worker on his, or her, holding.

The fallacy of any such inference has been disclosed in a survey, undertaken some five years ago, of all holdings under 50 acres in extent situated in Carmarthenshire. Of a total of 4,087 holdings, 1,905, or 46.6 per cent., were occupied by men and women with non-agricultural employments. Included in this non-agricultural class were 420 miners, quarrymen, etc., 277 artisans, 470 labourers, and 405 shop-keepers. Much the same condition would be found in parts of the other counties covered by the Survey, but in these cases no detailed information is available. So, until an investigation of this particular problem in industrial areas is undertaken, much valuable information must remain undisclosed.

Statistics regarding full-time agricultural employees must also be approached with caution. Many sons and daughters of farmers are, under normal circumstances, engaged in various industrial occupations. But, during periods of unemployment, they return home where, at least, food and shelter is assured. Unemployment has been all too frequent and of prolonged duration of recent years, so it is more than probable that many bona-fide unemployed industrial workers have been included as agricultural workers in the

annual 4th of June Returns rendered by farmers to the Ministry of Agriculture. For this reason, then, it may be assumed that the increase of 614 regular farm workers since 1921 is, to a great extent, composed of the unemployed sons and daughters of farmers in the three counties; also this condition is a contributing factor to the decrease in casual farm employment by 1,827 persons between the years 1921 and 1930.

The prospects for any further increase in regular agricultural employment in South Wales, or elsewhere in the Principality, have been unfavourable. Few of the farms in Wales lend themselves to intensive farming, or to any system of farming which might absorb additional labour from outside sources. The area of naturally rich land is extremely limited and in only a few instances have economic conditions justified the expenditure necessary to overcome the handicaps of rather poor natural conditions relative to soil, climate, altitude, situation of farm, and to some economic conditions inside, and others outside the industry. In general, the prospects of greater employment in agriculture, in this area, depend upon the possibilities of increase of production of livestock and their products. Having regard to the natural conditions and the recent agricultural history of this area no considerable extension of arable cultivation would be expected, unless under very exceptional circumstances. The only probable exception to this statement is that under strong stimulus some of the most suitable land in the Vale of Glamorgan might again be brought under the plough. There are, however, some possibilities of developing *petite culture* in certain parts of the Survey Area, and possibilities for production of specialist crops may appear.

More than half of the manual work on Welsh farms is done by family labour—that of the occupier, his wife, sons, daughters and other relatives not in the position of regular paid workers. This form of labour is increasing. The family workers take their remuneration in various forms, but few of them receive wages at definite rates. They receive maintenance and irregular money allowances of indefinite amounts.

Family labour is cheap because it works more hours each year, and is probably more willing and more efficient than hired labour.

The increasing proportion of family labour on Welsh farms suggests that, even allowing for saving in addition to maintenance and small money allowances, family labour is still definitely cheaper than hired farm workers. But it does not follow that this increase of labour is necessary for the economic working of the holding.

Under normal conditions, some of it, at least, would be absorbed into industries other than farming.

The following table summarises the changes which have taken place within the South Wales industrial area since 1913. It should be explained that " Corn Crops " include all cereals, beans and peas. The reduction in arable land is due, in part, to the difficulty experienced in ripening grain crops and to the poor quality of the straw for feeding purposes, and, in part, to the increasing importance of the factor of co-operation amongst farmers for the purchase of processed, or manufactured, feeding stuffs. Farmers are in a position to buy, through their co-operative societies, feeding stuffs of dependable quality at reasonable rates delivered at the farm by modern transport facilities provided by their own organisations. It is improbable that any political expedient for the raising of the prices of cereals in this country will induce Welsh farmers to increase the present area of arable land to any appreciable extent.

The area under market garden crops is very small (this is the case throughout the Principality). There are small market gardens in the vicinity of towns, but the total area is small, and the local supplies are not generally sufficient even for small towns. There is a little development of the production of vegetable crops for market in Glamorgan and Monmouth. But the production of these crops is very meagre in comparison with the large requirements of the industrial population of South Wales. More than half (64 per cent.) the total population of Wales lives within the borders of the above two counties. There is scope for considerable development of this type of culture in the counties of Carmarthen, Glamorgan and Monmouth whenever the conditions necessary for production and marketing can be arranged.

The most striking fact is that even of the more common products of arable cultivation, a very small proportion is sold off Welsh farms. The bulk of the potato crop is consumed by the farm population and the same may be said of the cereal crops. The Survey Area is one of " deficiency " in respect of local supplies of potatoes, and large quantities now have to be obtained from other parts of the country by rail and sea, and are sometimes imported from the Continent.

There has been a marked change in the proportion of cows and heifers and other cattle due to the increasing importance of the wholesale milk trade in South Wales. The general increase in sheep is partly due to greater attention devoted to the fat lamb trade. The density of the sheep population is much greater in the industrial than in the non-industrial areas. Pigs have fluctuated considerably and now occupy much the same position in the farm economy as in 1913.

*Acreege of Crops and numbers of Live Stock per 100 Acres of Cultivated Land in the Industrial Area of South Wales.**

| | | Corn Crops. | Roots and Potatoes. | Other Crops. | Total Arable Land. | Permanent Pasture. |
|---------------------|------|-------------|---------------------|--------------|--------------------|--------------------|
| Parts of Carmarthen | 1913 | 8.7 | 1.7 | 4.9 | 15.3 | 84.7 |
| | 1930 | 6.2 | 1.4 | 4.3 | 11.9 | 88.1 |
| Glamorgan ... | 1913 | 7.4 | 3.3 | 7.8 | 18.5 | 81.5 |
| | 1930 | 6.5 | 3.2 | 9.1 | 18.8 | 81.2 |
| Parts of Monmouth | 1913 | 5.3 | 2.6 | 3.7 | 11.6 | 88.4 |
| | 1930 | 4.3 | 2.1 | 4.8 | 11.2 | 88.8 |
| Total Area ... | 1913 | 7.5 | 2.4 | 5.7 | 15.6 | 84.4 |
| | 1930 | 5.9 | 2.2 | 6.1 | 14.2 | 85.8 |

| | | Horses. | Cattle. | | | Sheep. | Pigs. |
|---------------------|------|---------|-------------------|---------------|--------|--------|-------|
| | | | Cows and Heifers. | Other Cattle. | Total. | | |
| Parts of Carmarthen | 1913 | 5.7 | 11.1 | 15.0 | 26.1 | 64.6 | 6.7 |
| | 1930 | 4.3 | 14.7 | 13.5 | 28.2 | 82.3 | 6.3 |
| Glamorgan ... | 1913 | 6.7 | 9.2 | 11.7 | 20.9 | 114.5 | 5.3 |
| | 1930 | 5.5 | 13.3 | 12.5 | 25.8 | 145.1 | 7.2 |
| Parts of Monmouth | 1913 | 6.5 | 8.0 | 12.6 | 20.6 | 103.8 | 5.7 |
| | 1930 | 5.1 | 10.5 | 12.3 | 22.8 | 119.7 | 7.3 |
| Total Area ... | 1913 | 6.2 | 9.8 | 13.3 | 23.1 | 90.5 | 6.0 |
| | 1930 | 4.9 | 13.4 | 12.9 | 26.3 | 111.6 | 6.8 |

Carmarthenshire.

Carmarthenshire is the largest county in Wales, and one of the most important. Over half of the county lies within the 500 feet contour whilst only 10.1 per cent. of its total area rises above 1,000 feet. The eastern portion of the county forms part of the South Wales anthracite coal area and includes important metallurgical industries. The country west of a line drawn from Kidwelly to Llandilo may be regarded as purely agricultural in character.

Rainfall is heavy and streams and rivers are numerous. A large proportion of the farm land is of considerable fertility.

Proximity to the densely populated industrial area, together with good rail and road transport facilities, places the Carmarthenshire farmer in a very advantageous position.

Sale of liquid milk has greatly increased during the last ten years in those districts conveniently situated for transport. Collecting routes by road have been developed and extended by large

* For a fuller comparison see Appendix 13.

wholesale distributors principally concerned with trade in the London area. The county is now closely linked up with the London milk trade. But a large proportion of milk is sent into the Swansea and Cardiff districts and contiguous mining valleys.

Butter production, chiefly for consumption in the industrial areas, has been pushed further back into the hills: these hill holdings also supply cows and store cattle and prime draft cows to the lowland milk and fat lamb producing farms. Sheep are reared in considerable numbers and "flying" flocks are a feature on the dairy farms. Fat lamb and beef production are important, whilst poultry and eggs are receiving attention on account of the readily available markets. Until recently the county possessed the largest pig population in Wales, but now some decline has taken place.

The town of Carmarthen is, undoubtedly, the most important prime dairy-cow market in Wales and a useful trade exists in store cattle and sheep.

The county is not very suitable for fruit growing. The farm area under vegetables, always comparatively small, varies little, but the potato area, which was maintained during the period 1920-24 at its pre-war level, has now lost some 500 acres. Market gardening, in a small way, for local consumption, is carried on near the towns.

There exists much land suitable for the growing of osiers, and, some years ago, with the aid of a grant from the Development Commissioners, experimental beds were established in various parts of the county.

The total area of woodland in the county in 1905 was nearly 24,000 acres but this has now been considerably reduced.

Immediately after the War strong efforts were made to establish a producers' co-operative milk depot at Carmarthen, and to induce farmers in the outlying districts to abandon butter making in preference for the liquid milk trade through a producers' organisation. This depot was not successfully established, but, instead, wholesale dairy firms opened factories in the county.

In Carmarthenshire agricultural co-operation (mainly for the purchasing of farm requisites) is more strongly developed than in any other county in Wales. There are twelve societies with a membership of 7,903 giving employment to some 110 persons. The keen business acumen of the farming community is probably due to a close association with an industrial community. There is a flourishing Chamber of Agriculture in the county—one of two existing in Wales.

Farm Holdings.

Carmarthenshire possesses considerably more farm holdings than any other county in Wales. There are some 360 holdings less in the county to-day than in 1913. The chief reasons for this reduction have already been discussed. Changes in the size of holdings,

and in the area of land devoted to crops and grass, can be better followed by an analysis of relevant statistics.

Acreage of Holdings.

| | Above 1 and up to 5. | Above 5 and up to 20. | Above 20 and up to 50. | Total up to 50. | Above 50 and up to 100. | Above 100 and up to 150. | Above 150 and up to 300. | Above 300 Acres. | Total. | Per cent. up to 100 Acres. |
|---------------|----------------------|-----------------------|------------------------|-----------------|-------------------------|--------------------------|--------------------------|------------------|--------|----------------------------|
| 1913 ... | 1,012 | 2,454 | 2,009 | 6,476 | 1,095 | 815 | 433 | 28 | 7,846 | — |
| Per cent. ... | 12·9 | 31·3 | 25·6 | 69·8 | 18·9 | 10·4 | 5·5 | 0·4 | 100·0 | 83·7 |
| 1920 ... | 931 | 2,404 | 2,188 | 5,523 | 1,494 | 809 | 368 | 19 | 8,203 | — |
| Per cent. ... | 11·3 | 29·3 | 26·7 | 67·3 | 18·2 | 9·9 | 4·4 | 0·2 | 100·0 | 85·5 |
| 1925 ... | 835 | 2,365 | 2,191 | 5,391 | 2,023 | 771 | 306 | 16 | 8,507 | — |
| Per cent. ... | 9·8 | 27·7 | 25·8 | 63·3 | 23·8 | 9·1 | 3·6 | 0·2 | 100·0 | 87·1 |
| 1930 ... | 755 | 2,315 | 2,209 | 6,279 | 2,047 | 772 | 274 | 14 | 8,386 | — |
| Per cent. ... | 9·0 | 27·6 | 26·8 | 62·9 | 24·4 | 9·2 | 3·3 | 0·2 | 100·0 | 87·3 |

The notable changes, since 1913, are the increased number of holdings in the groups of above 20 and up to 50 acres and above 50 and up to 100 acres—increases of 200 and 142 holdings respectively—and the decrease in the smallest group, above 1 and up to 5 acres, of 257 holdings.

Distribution of Crops and Live Stock.

Variations in the distribution of grass and arable land since the period 1920-24 are chiefly the result of the increase of permanent pasture. But the average area returned as being under permanent grass for the years 1925-1929, when compared with the five pre-war years is less by over 9,000 acres. On the other hand there has been a considerable increase in the area classified as rough grazings. In the analysis below the grass area includes rotation grasses and the very small acreage of lucerne: the plough land is that area actually ploughed for cereal, roots and green crops.

Plough Land.

| | 1910-14. | Per cent. | 1920-24. | Per cent. | 1925-29. | Per cent. | 1930. | Per cent. |
|--------|----------|-----------|----------|-----------|----------|-----------|---------|-----------|
| Grass | 386,476 | 88·1 | 363,378 | 87·5 | 371,494 | 90·8 | 369,496 | 90·9 |
| Plough | 52,043 | 11·9 | 51,957 | 12·5 | 37,840 | 9·2 | 37,104 | 9·1 |
| | 438,518 | 100·0 | 415,335 | 100·0 | 409,334 | 100·0 | 406,600 | 100·0 |

Percentage of Cultivated Land to the County Area.

74·8 71·0 70·0 70·0

Percentage of Total Farm Land to the County Area.

86·5 86·0 86·6 86·5

It should be noted that, although the area of cultivated land, that is, the total area in the county returned as being under crops and grass, has declined, the area of total farm land, which includes rough grazings, remains unaltered.

Changes in the cropping of the arable area, and in the livestock and poultry population, are illustrated in the following tables.

Acreage of Crops per 100 Acres of Cultivated Land.

| | Corn Crops. | Potatoes. | Roots. | Forage Crops. | Rotation Grasses. |
|-------------|-------------|-----------|--------|---------------|-------------------|
| 1910-14 ... | 9.60 | 0.70 | 1.20 | 0.10 | 5.30 |
| 1920-24 ... | 10.10 | 0.80 | 1.10 | 0.30 | 6.00 |
| 1925-29 ... | 7.15 | 0.70 | 0.90 | 0.25 | 4.30 |
| 1930 ... | 7.10 | 0.60 | 0.90 | 0.25 | 4.35 |

| | Small Fruit. | Other Crops. | Bare Fallow. | Total Arable. | Permanent Grass. |
|-------------|--------------|--------------|--------------|---------------|------------------|
| 1910-14 ... | 0.01 | 0.03 | 0.20 | 17.14 | 82.86 |
| 1920-24 ... | 0.01 | 0.05 | 0.22 | 18.58 | 81.42 |
| 1925-29 ... | 0.01 | 0.06 | 0.16 | 13.53 | 86.47 |
| 1930 ... | 0.01 | 0.07 | 0.16 | 13.44 | 86.56 |

Live Stock per 100 Acres of "Adjusted" Pasture.*

| | Horses. | Cattle. | | | Sheep. | Pigs. |
|-------------|---------|-------------------|---------------|--------|--------|-------|
| | | Cows and Heifers. | Other Cattle. | Total. | | |
| 1910-14 ... | 6.3 | 13.6 | 17.7 | 31.3 | 72.4 | 9.3 |
| 1920-24 ... | 6.5 | 15.8 | 16.6 | 32.4 | 72.1 | 8.8 |
| 1925-29 ... | 4.8 | 15.2 | 15.9 | 31.1 | 77.6 | 7.9 |
| 1930 ... | 4.5 | 15.9 | 14.7 | 30.6 | 80.2 | 7.2 |

Fowls per 100 Acres of Cultivated Land.

| 1913. | 1921. | 1924. | 1926-1929. (Average) | 1930. |
|-------|-------|-------|-------------------------|-------|
| 99.1 | 87.5 | 105.6 | 127.0 | 135.5 |

Interesting changes in the livestock population are observed between the years 1913 and 1930. Per 100 acres of the total cultivated land (arable and pasture) cows and heifers, in the industrial area, have increased by 3.6 and "other" cattle declined by 1.5 head. In the non-industrial area there has been the same increase of cows and heifers, but "other" cattle have declined by 2.5 head. In the former area sheep increased by 17.7 as against 6.9 increase in the latter area (see Appendix 13).

* "Adjusted" Pasture includes Rough Grazings in the ratio of 4 : 1 of Permanent Pasture.

Farm Labour.

Regular labour on Carmarthenshire farms, according to the statistics of the Ministry of Agriculture, has increased by over 1,100 persons since 1921. The average annual number of regular workers* (excluding the occupier, his wife, and domestic servants) on Carmarthenshire farms, since 1921, was 6,570, of which 44 per cent. were adult males, 23 per cent. were males under 21 years old, and 33 per cent. were women and girls. Casual labour has decreased by 600 persons. This increase in regular workers would represent the return home of many of the unemployed members of farmers' families from the industrial areas. No other reason can be advanced; the natural expectation would be, having regard to the system of farming practised in the county, that the number of regular workers would remain fairly stationary, or show a little decline since 1921, or 1924. With these people back on the farms less casual labour is required. This feature, common to the agricultural districts of South Wales, has been discussed in the introductory remarks.

Number of Workers (including Relatives of the Occupiers) on Holdings above one Acre.

| | 1921. | 1923. | 1924. | 1925. | 1926. | 1927. | 1928. | 1929. | 1930. |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Regular Males... .. | 4,269 | 3,915 | 4,140 | 4,033 | 4,497 | 4,474 | 4,654 | 4,731 | 4,842 |
| „ Females | 2,059 | 1,722 | 1,938 | 1,681 | 1,735 | 2,230 | 2,795 | 2,765 | 2,669 |
| | 6,328 | 5,637 | 6,078 | 5,694 | 6,232 | 6,704 | 7,449 | 7,496 | 7,511 |
| Casual Males | 1,214 | 880 | 977 | 888 | 955 | 876 | 795 | 810 | 722 |
| „ Females | 387 | 343 | 396 | 419 | 404 | 479 | 298 | 259 | 263 |
| | 1,601 | 1,223 | 1,373 | 1,307 | 1,359 | 1,355 | 1,093 | 1,069 | 985 |

Female labour represents, roughly, one-third of the total persons (other than occupiers and their wives) regularly employed or engaged.

The apparent increase in regular agricultural employment, per 100 acres of crops and grass and the percentage of male regular and casual workers, 21 years old and over, since 1921, was

| | Workers per 100 Acres. | | Percentage of | |
|-------------|------------------------|---------|------------------------|-----------------------|
| | Regular. | Casual. | Regular Adults. Males. | Casual Adults. Males. |
| 1921 | 1.53 | 0.40 | 65.70 | 76.20 |
| 1923 | 1.37 | 0.30 | 65.90 | 77.80 |
| 1924 | 1.47 | 0.33 | 64.10 | 76.40 |
| 1925 | 1.39 | 0.32 | 63.10 | 80.60 |
| 1926 | 1.52 | 0.33 | 66.10 | 76.70 |
| 1927 | 1.63 | 0.33 | 66.30 | 73.70 |
| 1928 | 1.82 | 0.27 | 66.50 | 85.00 |
| 1929 | 1.84 | 0.26 | 65.80 | 84.00 |
| 1930 | 1.85 | 0.24 | 65.10 | 82.80 |

* In the Ministry of Agriculture Statistics "regular workers" includes wage-earning employees and relatives of occupiers of land.

Since 1926 there has been increasing employment of full-time male workers and a strong tendency for an increase in the number of women and girls. This condition may well be related to periods of unemployment in industrial occupations. Casual employment becomes less each year and is being more closely confined to the older men.

Comparable figures for any period previous to 1921 cannot be given : nor is the number of full-time workers paid at standard rates known.

Glamorganshire.

The whole of this county lies within the industrial area. It comprises the greater part of the South Wales coalfield, and, in normal times, most of its inhabitants find employment in connection with the mines and other industries. Of its total area (excluding water) of 516,194 acres, 43.2 per cent. is under crops and grass. There is a large area of some 138,600 acres of rough grazings which, if included, would increase total land in agricultural and pastoral use to 70 per cent. of the county area.

More than half of the county lies within the 500 feet contour ; 27 per cent. rises to 1,000 feet and there is no land over 2,000 feet above sea level.

Glamorganshire divides itself naturally into three divisions : (a) an elevated plateau in the northern portion, intersected by steep and narrow valleys—generally known as the *Valleys* ; (b) the *Vale*, an undulating area of considerable fertility lying south of the coalfield outcrop ; and (c) that area of about 41,000 acres lying to the south-east, known as *Gower*—a wind swept, hilly peninsula cut off from the Vale by Swansea Bay.

The population of the Valleys is almost entirely industrial, mining being the principal occupation. Excluding Cardiff, Barry and Penarth, the low-lying land ; known generally as the Vale—although it is not a vale at all—is mainly dependent upon agriculture, as also is the Gower Peninsula.

The agricultural areas of the county are comprised mainly in the rural districts of Cardiff, Cowbridge, Penybont and Gower. The other rural districts of the county are preponderantly industrial. Nevertheless, a good deal of farming is carried on in these areas as well as in the urban districts and boroughs. Thus, a considerable proportion of the agricultural population is resident in the borough and urban areas.

Farming in this county is directed chiefly to the production of milk and milk products. Cattle are fattened off the grass in the Vale of Glamorgan and winter fattening is general in the Gower Peninsula. Comparing the years 1913 and 1930 there has been a general increase of all classes of livestock (excluding horses) per 100 acres of cultivated land. The only petty sessional divisions to maintain or slightly increase their number of horses were Neath, Pontardawe and Swansea. The divisions of Neath and Pontardawe

increased their cows and heifers by 8, and Swansea by 6, whilst increases of 3 and 4, per 100 acres, are recorded by the remaining divisions of the county.

Lamb production is the main sheep enterprise. There is a tendency towards the production of yearlings and wethers in the districts of high elevation. "Flying" flocks are fairly general in the Vale.

There has been considerable development in poultry and egg production, with a tendency towards specialisation, during recent years. At present there are 12 to 15 specialised poultry small holdings. Farmers are now regarding poultry and egg production as an important source of farm income. There is, however, less interest displayed in grading and the improvement of marketing methods. A market at the door, and the absence of competition, is not an incentive to the eradication of these defects.

The area under orchards is small and appears to decrease: this, also, is the case with small fruit.

It has been stated that the county is admirably adapted for forestry. There are large areas of waste land very suitable for this purpose.

Farmers' co-operative societies—all requisite societies—have a membership of 1,680: these societies, nine in number, employ 19 adults.

Farm Holdings.

Of the 4,659 farm holdings in the county only 22.5 per cent. are over 100 acres in extent. The demand for holdings of over 20 and up to 100 acres has been steadily increasing whilst those of under 20 and above 150 acres are not generally favoured. The demand is for the family farm which requires little or no outside labour. County changes in number and size of holdings since 1913 are:—

Change of Holdings.

| | Above 1 and up to 5. | Above 5 and up to 20. | Above 20 and up to 50. | Total up to 50. | Above 50 and up to 100. | Above 100 and up to 150. | Above 150 and up to 300. | Above 300 Acres. | Total. | Per cent. up to 100 Acres. |
|---------------|----------------------|-----------------------|------------------------|-----------------|-------------------------|--------------------------|--------------------------|------------------|--------|----------------------------|
| 1913 ... | 944 | 1,588 | 1,275 | 3,807 | 1,031 | 392 | 290 | 40 | 5,560 | — |
| Per cent. ... | 17.0 | 28.6 | 22.9 | 68.5 | 18.5 | 7.1 | 5.2 | 0.7 | 100.0 | 87.0 |
| 1920 ... | 773 | 1,453 | 1,276 | 3,502 | 993 | 352 | 251 | 36 | 5,134 | — |
| Per cent. ... | 16.1 | 28.3 | 24.9 | 68.3 | 19.3 | 6.8 | 4.9 | 0.7 | 100.0 | 87.6 |
| 1925 ... | 634 | 1,335 | 1,301 | 3,270 | 934 | 339 | 209 | 32 | 4,784 | — |
| Per cent. ... | 13.3 | 27.9 | 27.2 | 68.4 | 19.5 | 7.1 | 4.4 | 0.6 | 100.0 | 87.9 |
| 1930 ... | 587 | 1,260 | 1,286 | 3,133 | 943 | 349 | 207 | 27 | 4,659 | — |
| Per cent. ... | 12.6 | 27.0 | 27.6 | 67.2 | 20.3 | 7.5 | 4.4 | 0.6 | 100.0 | 87.5 |

Distribution of Crops and Livestock.

There has been some small decrease in the area under the plough, but this may well be due to the succession of wet seasons which has handicapped farmers throughout South Wales. Potatoes and

cabbage crops and the small areas devoted to market gardening have maintained or slightly increased their acreage. Changes in stock feeding have possibly lessened the demand for roots.

Changes in the proportion of land devoted to permanent and rotation grass and to arable cropping during pre-war and post-war periods were :—

Plough Land.

| | 1910-14. | Per cent. | 1920-24. | Per cent. | 1925-29. | Per cent. | 1930. | Per cent. |
|------------|----------|-----------|----------|-----------|----------|-----------|---------|-----------|
| Grass ... | 231,246 | 88·2 | 193,991 | 84·4 | 198,989 | 89·0 | 199,836 | 89·5 |
| Plough ... | 30,749 | 11·8 | 35,724 | 15·6 | 24,600 | 11·0 | 23,523 | 10·5 |
| | 261,995 | 100·0 | 229,715 | 100·0 | 223,589 | 100·0 | 223,359 | 100·0 |

Percentage of Cultivated Land to the County Area.

51·0 44·6 43·0 43·0

Percentage of Total Farm Land to the County Area.*

75·6 70·0 70·0 70·0

The following analysis presents in greater detail changes in the cropping and stocking of the farm land of the county. It will be observed that, whilst the arable land has declined with the total cultivated area, the proportions of crops raised have not been very seriously affected. With the exception of the decrease in the number of horses, a decrease which is general throughout the country, all classes of farm animals are increasing. The number of cows and heifers and pigs per 100 acres of "adjusted" pasture is deceptive because these animals rarely occupy the rough grazing areas.

Acreage of Crops per 100 Acres of Cultivated Land.

| | Corn Crops. | Potatoes. | Roots. | Forage Crops. | Rotation Grasses. |
|-------------|-------------|-----------|--------|---------------|-------------------|
| 1910-14 ... | 7·60 | 0·70 | 2·80 | 0·20 | 7·05 |
| 1920-24 ... | 10·40 | 1·00 | 2·90 | 0·30 | 8·82 |
| 1925-29 ... | 6·70 | 0·90 | 2·40 | 0·20 | 7·80 |
| 1930 ... | 6·50 | 0·90 | 2·30 | 0·10 | 8·30 |

| | Small Fruit. | Other Crops. | Bare Fallow. | Total Arable. | Permanent Grass. |
|-------------|--------------|--------------|--------------|---------------|------------------|
| 1910-14 ... | 0·03 | 0·12 | 0·30 | 18·80 | 81·20 |
| 1920-24 ... | 0·03 | 0·30 | 0·60 | 24·35 | 75·65 |
| 1925-29 ... | 0·02 | 0·50 | 0·30 | 18·82 | 81·18 |
| 1930 ... | 0·02 | 0·43 | 0·25 | 18·80 | 81·20 |

* including Rough Grazings.

Live Stock per 100 Acres of "Adjusted" Pasture.

| | Horses. | Cattle. | | | Sheep. | Pigs. |
|-------------|---------|-------------------|---------------|--------|--------|-------|
| | | Cows and Heifers. | Other Cattle. | Total. | | |
| 1910-14 ... | 7.2 | 10.6 | 12.6 | 23.2 | 131.9 | 6.5 |
| 1920-24 ... | 8.3 | 13.3 | 13.2 | 26.5 | 127.7 | 8.4 |
| 1925-29 ... | 6.5 | 13.4 | 13.1 | 26.5 | 139.8 | 8.1 |
| 1930 ... | 5.7 | 13.8 | 12.9 | 26.7 | 150.1 | 7.4 |

Fowls per 100 Acres of Cultivated Land.

| 1913. | 1921. | 1924. | 1926-1929. (Average) | 1930. |
|-------|-------|-------|-------------------------|-------|
| 94.7 | 87.4 | 111.7 | 129.1 | 146.6 |

Farm Labour.

The average number of regular workers employed in the agricultural holdings of the county since 1921 was 4,606, of which 58 per cent. were adult males, 24 per cent. males under 21 years old, and 18 per cent. women and girls. Casual labour averaged 1,061 yearly. There has been little fluctuation in regular workers, but casual employment has decreased.

These figures would include an unknown number of sons, daughters and other relatives of the occupiers, so, the actual number of regular workers from outside must be very much smaller. 7,326 holdings out of a total of 8,386 are under 100 acres in extent, and it is improbable that many workers, on regular rates of pay, would be found on these family farms. The annual farm labour strength of the county is contained in the following table:—

Number of Workers (including Relatives of the Occupiers) on Holdings above one Acre.

| | 1921. | 1923. | 1924. | 1925. | 1926. | 1927. | 1928. | 1929. | 1930. |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Regular Males... .. | 3,867 | 3,299 | 3,689 | 3,639 | 3,948 | 3,887 | 3,757 | 3,797 | 3,877 |
| „ Females | 906 | 653 | 809 | 757 | 820 | 852 | 978 | 1,058 | 876 |
| | 4,773 | 3,957 | 4,498 | 4,396 | 4,768 | 4,719 | 4,735 | 4,855 | 4,753 |
| Casual Males | 1,349 | 816 | 934 | 976 | 873 | 688 | 787 | 701 | 754 |
| „ Females | 252 | 195 | 198 | 161 | 199 | 189 | 145 | 142 | 191 |
| | 1,601 | 1,011 | 1,132 | 1,137 | 1,072 | 877 | 932 | 843 | 945 |

* "Adjusted" Pasture includes Rough Grazings in the ratio of 4:1 of Permanent Pasture.

Changes in the labour personnel, per 100 acres of crops and grass, and the percentage of adult male workers, since 1920, were :—

| | Workers per 100 Acres. | | Percentage of | |
|-------------|------------------------|---------|------------------------|-----------------------|
| | Regular. | Casual. | Regular Adults. Males. | Casual Adults. Males. |
| 1921 | 2·1 | 0·70 | 75·0 | 76·3 |
| 1923 | 1·7 | 0·45 | 74·3 | 75·4 |
| 1924 | 2·0 | 0·50 | 73·5 | 76·1 |
| 1925 | 2·0 | 0·51 | 70·6 | 79·1 |
| 1926 | 2·1 | 0·48 | 70·1 | 66·7 |
| 1927 | 2·1 | 0·40 | 68·8 | 70·9 |
| 1928 | 2·1 | 0·42 | 67·6 | 78·8 |
| 1929 | 2·2 | 0·38 | 68·6 | 81·2 |
| 1930 | 2·1 | 0·42 | 69·4 | 80·0 |

The number of full-time, or regular workers, has been regularly maintained, but casual labour is being reduced. The proportion of younger men (males under 21 years) on full-time work is increasing, and older men are performing whatever casual work is required.

Monmouthshire.

Monmouthshire may be described as a predominantly industrial county : only about 1·5 per cent. of its total population was engaged in agriculture at the time of the 1921 Census. Yet the acreage returned as being under crops and grass and rough grazings is 70 per cent. of the county area. The western portion of the county forms part of the South Wales coalfield, and its valleys provide employment for the population engaged in coal mining, or in the iron and steel industries, while the town of Newport is a manufacturing and shipping centre. The industrial regions are found mainly within the urban districts of the county. Broadly speaking, the whole of the North, East and South Monmouth may be regarded as agricultural, and West Monmouth as industrial.

Of the total area, 61 per cent. is below 500 feet ; 23 per cent. above 500 and below 1,000 feet, and 16 per cent. is between 1,000 and 2,000 feet above sea level.

The configuration of the land, the humid climate and the character of the soil, naturally favours pastoral farming. Stock feeding and the production of hay have been the chief forms of agricultural practice since, at least, the beginning of the seventeenth century.

Of late years dairying has received considerable attention and the quantity of milk produced has very largely increased. Difficulties of local transport and competition from other and better situated milk exporting counties, however, prevent satisfactory prices being realised by the Monmouth producer.

The area under soft fruit and vegetables, although small, is important; the orchard land of the county exceeds that of the combined orchards of the rest of Wales.

There is one well established farmers' co-operative society with a membership of 283, employing 23 persons.

Farm Holdings.

The number of farm holdings, in 1930, was 363 less than in 1913, and 172 more than in 1925. Between the years 1913 and 1930 the gross acreage of farm land had decreased by 3,000 acres—due, most probably, to urban and industrial encroachment. It is noted that while the percentage of holdings of under 150 acres has remained very much the same over the past 17 years, the proportion of the smallest size group of over 1 and up to 5 acres increases. These small market garden holdings generally carry poultry and pigs and are a distinct asset in the farming economy of the county.

All available particulars as to number and size of holdings in the county since 1913, are set out in the following table:—

Acreage of Holdings.

| | Above 1 and up to 5. | Above 5 and up to 20. | Above 20 and up to 50. | Total up to 50. | Above 50 and up to 100. | Above 100 and up to 150. | Above 150 and up to 300. | Above 300 Acres. | Total. | Up to 100 Acres. |
|---------------|----------------------|-----------------------|------------------------|-----------------|-------------------------|--------------------------|--------------------------|------------------|--------|------------------|
| 1913 ... | 809 | 1,331 | 986 | 3,126 | 759 | 369 | 327 | 48 | 4,629 | — |
| Per cent. ... | 17.5 | 28.7 | 21.3 | 67.5 | 16.4 | 8.0 | 7.1 | 1.0 | 100.0 | 83.9 |
| 1920 ... | 707 | 1,174 | 943 | 2,824 | 752 | 343 | 310 | 58 | 4,287 | — |
| Per cent. ... | 16.5 | 27.3 | 22.0 | 65.8 | 17.6 | 8.0 | 7.3 | 1.3 | 100.0 | 83.4 |
| 1925 ... | 667 | 1,103 | 912 | 2,682 | 745 | 326 | 301 | 40 | 4,094 | — |
| Per cent. ... | 16.3 | 26.9 | 22.3 | 65.5 | 18.2 | 7.9 | 7.4 | 1.0 | 100.0 | 83.7 |
| 1930 ... | 770 | 1,162 | 923 | 2,855 | 748 | 342 | 283 | 38 | 4,266 | — |
| Per cent. ... | 18.1 | 27.2 | 21.6 | 66.9 | 17.6 | 8.0 | 6.6 | 0.9 | 100.0 | 84.5 |

It is of some interest to note, in passing, that the reduction of the farms over 300 acres by two between 1925 and 1930 coincides with the purchase, by the County Council, of two holdings of over 300 acres for conversion into Council small holdings.

Distribution of Crops and Live Stock.

Monmouthshire has never had any large proportion of its farm land under crops, so, excluding the abnormal war period, and the years immediately following, there has been little change in the cropping area. Variations in the area under crops, and in the area under permanent and rotation grasses, and changes in the proportion of total cultivated and total farm land, have been:—

Plough Land.

| | 1910-14. | Per cent. | 1920-24. | Per cent. | 1925-29. | Per cent. | 1930. | Per cent. |
|------------|----------|-----------|----------|-----------|----------|-----------|---------|-----------|
| Grass ... | 213,180 | 89.8 | 190,119 | 86.5 | 193,338 | 90.2 | 196,139 | 90.9 |
| Plough ... | 24,313 | 10.2 | 29,631 | 13.5 | 21,081 | 9.8 | 19,621 | 9.1 |
| | 237,493 | 100.0 | 219,750 | 100.0 | 214,419 | 100.0 | 215,760 | 100.0 |

Percentage of Cultivated Land to the County Area.

| | | | |
|---------|---------|-----------|------|
| 1910-14 | 1920-24 | 1925-1929 | 1930 |
| 68·0 | 63·0 | 61·7 | 62·0 |

Percentage of Total Farm Land to the County Area.

| | | | |
|------|------|------|------|
| 79·0 | 77·0 | 76·6 | 77·7 |
|------|------|------|------|

The actual loss of total farm land to the county is rather more than 1 per cent. in seventeen years. But the cultivated area has decreased by 6 per cent. The explanation lies largely in the fact that certain areas, or farms, are yearly returning an increasing amount of grass, previously classified as permanent pasture, as rough grazing—a fairly common practice throughout the country.

A more detailed examination of the changes in the cropping area and of the number of livestock and poultry, per 100 acres, has been made: certain of these changes are not without interest.

Potatoes and rotation grasses are of less importance in the farm economy of the county than in Carmarthenshire or Glamorganshire. Roots occupy an intermediate position. The area under vegetables in Monmouthshire is more than twice that of the other two counties, while the acreage under small fruit is equal to their combined areas.

The number of cows and heifers, per 100 acres, is considerably less than in either Carmarthenshire or Glamorganshire: "other" cattle are more numerous in comparison with the latter and less in comparison with the former county; total cattle per 100 acres are below either of the above counties. Sheep and pigs are low in comparison with Glamorganshire but the sheep density of Monmouthshire is much greater than that of Carmarthenshire. Fowls per 100 acres are also high and greatly exceed the average for the whole of the Principality.

Crops per 100 Acres of Cultivated Land.

| | Corn Crops. | Potatoes. | Roots. | Forage Crops. | Rotation Grasses. |
|-------------|-------------|-----------|--------|---------------|-------------------|
| 1910-14 ... | 6·90 | 0·40 | 2·35 | 0·20 | 4·10 |
| 1920-24 ... | 8·90 | 0·65 | 2·35 | 0·20 | 5·20 |
| 1925-29 ... | 6·40 | 0·50 | 1·90 | 0·15 | 4·30 |
| 1930 ... | 5·10 | 0·50 | 1·70 | 0·14 | 3·70 |

| | Small Fruit. | Other Crops. | Bare Fallow. | Total Arable. | Permanent Grass. |
|-------------|--------------|--------------|--------------|---------------|------------------|
| 1910-14 ... | 0·04 | 0·07 | 0·30 | 14·36 | 85·64 |
| 1920-24 ... | 0·07 | 0·70 | 0·60 | 18·67 | 81·33 |
| 1925-29 ... | 0·05 | 1·50 | 0·30 | 14·10 | 85·90 |
| 1930 ... | 0·05 | 1·50 | 0·15 | 12·84 | 87·16 |

*Live Stock per 100 Acres of " Adjusted " * Pasture.*

| | Horses. | Cattle. | | | Sheep. | Pigs. |
|-------------|---------|-------------------|---------------|--------|--------|-------|
| | | Cows and Heifers. | Other Cattle. | Total. | | |
| 1910-14 ... | 6.8 | 8.7 | 14.4 | 23.1 | 106.9 | 7.3 |
| 1920-24 ... | 7.8 | 10.5 | 14.5 | 25.0 | 94.3 | 9.4 |
| 1925-29 ... | 5.8 | 10.9 | 14.9 | 25.8 | 106.9 | 7.9 |
| 1930 ... | 4.9 | 10.4 | 14.1 | 24.5 | 109.7 | 7.7 |

| <i>Fowls per 100 Acres of Cultivated Land.</i> | | | | |
|--|-------|-------|-------------------------|-------|
| 1913. | 1921. | 1924. | 1926-1929. (Average) | 1930. |
| 105.4 | 91.0 | 108.8 | 139.6 | 158.3 |

A closer analysis of changes in livestock in the industrial and non-industrial areas of the county, between 1913 and 1930, shows an increase of 2.5 cows and heifers each 100 acres of the cultivated land in the industrial area while " other " cattle exhibit a slight downward tendency. In the non-industrial area there has been an increase of 2 cows and heifers with some small increase in " other " cattle. There has been an increase of 16 sheep in the industrial area and 17 sheep, per 100 acres of cultivated land, in the non-industrial parts of the county. The density of sheep, each 100 acres, is much greater in the former area—119.7 as against 75—and demonstrates the large amount of unimproved pasture, or pasture only suitable for sheep runs.

Farm Labour.

Since 1923 there has been very little variation in the number of farm workers regularly employed in Monmouthshire. For the years 1921 to 1930 the annual average has been 4,064, comprising 60 per cent. males of over 21 years; 25 per cent. males under 21 years old and 15 per cent. women and girls. Casual labour averaged 1,035, of whom 13.5 per cent. were women and girls. Regular farm workers employed in 1930 were 549 less than in 1921, or 134 less compared with 1923. (The 1921 labour strength appears to be exceptionally high.) Since 1921 casual workers decreased by 555.

Number of Workers (including Relatives of the Occupiers) on Holdings above one Acre.

| — | 1921. | 1923. | 1924. | 1925. | 1926. | 1927. | 1928. | 1929. | 1930. |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Regular Males... .. | 3,659 | 3,373 | 3,392 | 3,352 | 3,476 | 3,364 | 3,474 | 3,476 | 3,259 |
| „ Females | 743 | 614 | 669 | 585 | 628 | 592 | 678 | 652 | 564 |
| | 4,402 | 3,987 | 4,061 | 3,937 | 4,104 | 3,956 | 4,152 | 4,128 | 3,853 |
| Casual Males | 1,151 | 1,022 | 980 | 1,088 | 904 | 763 | 752 | 772 | 622 |
| „ Females | 151 | 138 | 174 | 168 | 132 | 144 | 110 | 120 | 125 |
| | 1,302 | 1,160 | 1,154 | 1,256 | 1,036 | 907 | 862 | 892 | 747 |

* " Adjusted " Pasture includes Rough Grazing in the ratio of 4 : 1 of Permanent Pasture.

Changes in the number of workers, per 100 acres of crops and grass, and the percentage of regular and casual male workers, 21 years old and over, since 1921, were :—

| | Workers per 100 Acres. | | Percentage of | |
|-------------|------------------------|---------|------------------------|-----------------------|
| | Regular. | Casual. | Regular Adults. Males. | Casual Adults. Males. |
| 1921 | 2.00 | 0.59 | 69.4 | 76.3 |
| 1923 | 1.82 | 0.53 | 72.9 | 76.7 |
| 1924 | 1.87 | 0.53 | 69.1 | 75.8 |
| 1925 | 1.83 | 0.58 | 70.2 | 75.4 |
| 1926 | 1.91 | 0.48 | 70.4 | 70.7 |
| 1927 | 1.86 | 0.38 | 69.5 | 74.8 |
| 1928 | 1.95 | 0.40 | 69.5 | 84.7 |
| 1929 | 1.91 | 0.41 | 70.2 | 84.1 |
| 1930 | 1.78 | 0.35 | 70.7 | 84.4 |

Monmouthshire employs more regular male workers, per 100 acres, than Carmarthenshire although the acreage under the plough is less and total head of cattle considerably less. It may be that more labour is utilised on holdings specialising in fruit and market gardening; alternatively, it may involve the efficiency factor. The employment of women and girls per 100 acres, is about 50 per cent. less than in Carmarthenshire and one-third less than on Glamorgan-shire holdings. There is little change in the percentage of males over 21 years old in regular employment, but less males under 21 years are being employed. The volume of casual labour is also decreasing.

Summary of General Tendencies of Agriculture in South Wales.

A. Crops and Livestock.

(1) During recent years there has been some decrease in arable cultivation, but this has been offset by a pronounced increase in dairy cattle and dairy products.

There has been general steadiness with some local inclination towards decline, in the numbers of other cattle.

(2) The general decline in the sheep population during and immediately following the war period—a typical movement throughout the counties of Wales—has been arrested: at present there are decidedly marked tendencies towards further increase.

(3) Increasing numbers of poultry with better attention paid to poultry flocks, and an increase in production, and improvement in supplies, have been observed.

(4) Apart from the pig "cycle" which is common to the whole country, there has been a general steadiness in pig production.

(5) An increased dependence on purchased, concentrated feed for livestock, especially related to the increase in the dairy herd, but, to some extent, general in connection with all livestock enterprises.

(6) On the whole the agricultural movement in the industrial area of South Wales is towards an increase in total volume of production.

B. Farm Organisation.

(1) A common movement towards a reasonable size of family farm in cases in which the family has no subsidiary occupation. Some disappearance of the smallest and of the largest types of holdings.

(2) Until about 1924 there was evidence of greater employment of horses, and an increase in number of working horses on farms. This movement now shows some reversal. The increase in the employment of horses was due to the greater use of implements and machinery in relief of manual labour wherever possible.

This apparent reversal is, to some extent, due to the disappearance of the smallest holdings, and to efforts to economise in the cost of keeping horses, but without restricting the sphere of horse labour or of reducing its importance.

(3) There has not been a great increase in power for cultivation purposes in South Wales, but during the past 20 years there has been considerable increase in the small power units for stationary uses. The size and the arable areas of farms are not conducive to extensive employment of power units for cultivation purposes, or to their economical use. But the extension of electricity supply to some local areas, under favourable conditions, would, as elsewhere, lead to an extended use of this source of power for the lighter farm tasks.

(4) *Manual Labour.*—In manual labour the movement has been towards steady maintenance. Some apparent recent increase in Carmarthenshire is not primarily due to agricultural conditions and requirements, but to connections of families with other industries and to their low demand for labour. Economy in the use of manual labour for a given amount of agricultural production appears to be the general aim.

Exactly what may be the influence of the present industrial conditions in South Wales is difficult to say. On the whole it is improbable that they will lead to very much greater extension of the uses of manual labour on the farms of the area. While it is true that potential labour supplies are more plentiful at the moment than for some decades, it is also true that the farmers of the area are feeling very keenly the loss of a considerable part of the effective consumers' market in the neighbourhood. Some increase in the use of, or, at any rate, the residence of, manual labour is to be expected on the smaller farms of South Wales, especially in certain districts from which much labour has hitherto migrated. Not only has the stream been stopped, to some extent, but a return flow is

apparent. But it is probable that the increase in manual labour will be more important on the relatively small farms situated at some distance from the industrial areas than on the larger farms more in contact with the large industries, and which, hitherto, have been most subject to their influences. Such farms have been more completely organised to carry on with a minimum of manual labour, and it is unlikely, at this stage, that their equipment will remain unused while manual labour is employed, especially in view of restrictions imposed by the Agricultural Wages Act. On the smaller farms, on which members of the family are mainly engaged, the restrictions on employment are not so rigid, in practice, as elsewhere. There are, of course, no restrictions on mere residence and incidental working.

CHAPTER VIII.

SURPLUS LABOUR AND THE INDUSTRIAL FUTURE OF THE REGION.

That there exists in certain industries within the region a surplus of labour which will not be reabsorbed by those industries even after a considerable improvement in trade, nobody who knows the region can possibly doubt. Our examination of coalmining has shown that there still remain at least 30,000 men whose labour is no longer necessary for carrying on that industry. It is sometimes implied in public discussion of this problem that the surplus of miners is the only surplus that exists. But that is not so. In the tinsplate trade it may be that the creation of a large surplus is being avoided by restriction of entry; even so, it is obvious that each year an alternative industrial outlet will have to be found for a considerable number of juveniles whose parents can no longer reckon upon finding them employment in this trade. In parts of the iron and steel industry a definite surplus exists. When we turn to the services engaged in the distribution of coal, we find that owing to the contraction of coal exports, there is a surplus of dock workers and ship-repairers, to say nothing of a probable surplus of the non-insurable commercial and clerical classes who also participate in the work of distribution. In a region whose population is diminishing rapidly, there is necessarily a surplus of labour in the building and many other trades which cater for the housing, furnishing, and social needs of the community.

It is estimated that in the summer of 1929 there were 407,000 insured workers "in employment" (including the "temporarily stopped"). In 1930 there were about 478,000 insured workers in the region. Yet it would be unreasonable to deduce that there exists, therefore, a total surplus of insured workers numbering 70,000. The magnitude of the surplus depends upon circumstances. If the 30,000 surplus miners, together with the 5,000 or 6,000 transport workers and others who *at present* are surplus to their industries because of the contraction of the trade in coal, are all to leave

the region and find employment in other trades elsewhere, then indeed the total surplus may well be 70,000 or even more. But if a substantial number of the miners find alternative occupation within the region, and if a number of women, who formerly would not have thought of entering industry, take up paid employment within the region, then a renewed demand will be created for the labour of transport workers and others formerly dependent upon the activity of the coal industry. The surplus of insurable workers available for new industries and services, if development takes place, is perhaps in the neighbourhood of 40,000. The surplus to be transferred, if decay continues, we shall not attempt to estimate. But it is obvious that the problem of transfer, in the latter event, will be of great magnitude.

The Surplus of Juveniles.

The existence of a surplus of juvenile labour, because of its social effects upon the morale and physique of the population, is perhaps the most distressing feature of the whole problem. It is known of course that the juvenile population of school-leaving age will, owing to the great increase in the number of births which took place in the period immediately following the end of the War, be unusually large during the years 1933, 1934, and 1935, and thereafter will diminish. On behalf of the Ministry of Labour, various Juvenile Advisory Committees in the region were asked recently to estimate the shortage or surplus of juveniles likely to exist in their areas* in the years from 1931 to 1938. This estimate was based upon the assumption that the school-leaving age from 1932 onwards would be 15 years. Accordingly, in reading the findings of the Committee, some allowance must be made for the fact that the leaving age has not been raised from 14 years. We summarise in the following paragraphs the conclusions of the Committees, without necessarily endorsing all their opinions.

Most of the Juvenile Advisory Committees anticipate definite surpluses of juveniles during the years 1932-1938. The exceptions to this are Newport, Cardiff and Pontypool, who look forward to a shortage of boys and a surplus of girls over this period. The shortage will be most serious in Pontypool and Newport, and Cardiff foresees a surplus of boys for the years 1936 and 1937. In Ebbw

* The following areas are covered by the Committees making reports :—*Llanelly* : Llwynhendy, Felinfoel, Bynea, Dafen, Pwll, Burry Port, and Llangenneck. *Swansea* : County Borough of Swansea. *Neath* : Briton Ferry, Skewen, Resolven, Glyn Neath, Crynant, Seven Sisters, and Neath. *Port Talbot* : Kenfig Hill, Porthcawl, and Port Talbot. *Aberdare* : Aberdare. *Merthyr* : Merthyr Tydfil. *Pontypridd* : Taffs Well, Pontyclun, and Pontypridd. *Rhondda* : Rhondda Fawr and Fach, Tonypanyd, Penygraig, Ystrad, Treorchy, Treherbert, Mardy, Ferndale and Porth. *Barry* : Barry. *Cardiff* : City of Cardiff. *Bargoed* : Bargoed and areas embraced by Urban District Council—Gelligaer, Caerphilly, part of Bedwellty and part of Rhymney. *Newport* : County Borough of Newport. *Abertillery* : Blaina, Crumlin, Risca, and Abertillery. *Ebbw Vale* : Beaufort, Victoria, Cwm, and Ebbw Vale. *Pontypool* : from Pontnewydd to Blaenavon and Abergavenny.

Vale a shortage of boys is anticipated for 1932 to 1935, and thereafter an almost negligible surplus, while the Llanelly figures reveal a small shortage from 1933 to 1936. That is, in these last two areas it might be said that the supply of boys will, to all intents and purposes, be equal to the demand for them.

It is not anticipated generally that the demand for juveniles will change to any appreciable extent, except in the areas covered by the Neath and the Rhondda Advisory Committees. The Neath Committee, for example, thinks that the demand for juveniles will decrease in the main industries because of the continued contraction of demand, coupled with rationalisation.

One of the most important factors governing the juvenile question is the extreme dependence of South Wales in general and areas such as the Rhondda, Bargoed, Abertillery, in particular, upon one industry—coal mining. The view is taken by most of the Committees that no change in the industrial situation can be expected in the future; consequently, no material change in the demand for or supply of juvenile labour is expected. Pontypool anticipates increased activity in building and public works owing to the need for street clearance and house building, and to some extent consequent upon the much talked-of amalgamation of local authorities. But these developments, if and when they occur, need not necessarily mean an increased demand for juveniles, as the percentage of boys employed in such industries is small.

The industries most likely to be affected by prospective shortage (in those areas which anticipate a shortage) are coal mining, steel and tinplate manufacture and the distributive trades. Newport will experience a small shortage of girls for 1933 to 1935, which will affect domestic service. The Aberdare Committee points out that the demand for boys even now exceeds the supply in the coal industry, but this is due not to actual shortage but to the reluctance of boys to enter the coal industry. It seems that the number of applicants for work in the "skilled" trades will continue to be adequate and may perhaps exceed the demand; it is felt, therefore, that the shortage of juveniles, where it occurs, will affect mainly industries in which unskilled labour is required.

It is not anticipated that girls will, to any extent, enter occupations now normally confined to boys; this is again explained by the dependence of these areas on coal mining. It may, however, happen that girls will replace boys in the Cold Roll Department of Tinplate concerns as happened during the War; it is possible, too, that boys may be replaced to a small extent in shops and brickworks. This possibility must not, however, be exaggerated, and the Advisory Committees practically all agree that should the demand for girls increase, they will not to any large extent enter existing local industries.

But the anticipation of a shortage of juveniles is, as has been said, confined to four or five areas. In the main, the problem is one of surplus, and the difficulties of finding employment for the increased number of juveniles will be very great. The large surplus of girls throughout South Wales is due to the absence of any suitable light industries and to the improbability, in view of the general industrial position, of any expansion in the distributive trades and in domestic service. It must be noted, however, that girls between the ages of sixteen and eighteen might be transferred into Newport for resident domestic service, and boys at the age of seventeen might be transferred to Aberdare which, as explained above, suffers from a shortage of boys willing to enter coal mining.

Nearly all the areas are agreed that daily travelling in lieu of transference offers no solution inasmuch as contiguous areas are similarly situated, i.e., most areas have a surplus. But the Newport shortage of boys might be relieved by daily travelling facilities from nearby valleys, e.g., from Bargoed. Similarly the shortage anticipated in Cardiff (1932-5) might be relieved by daily travelling from contiguous areas expecting a surplus. As in the Pontypool area a shortage of boys is anticipated, daily travelling would only be of use in the case of girls. At present there are no special transport arrangements for juvenile labour provided by the employers.

While there seems to be at present a fairly full and close co-operation between the Juvenile Advisory Committees and the Employers' Organisations, it would seem important that all vacancies should be notified to the Exchanges.

The following table summarises the forecasts of the various Committees, with the exception of that at Merthyr, for which numerical estimates are not available:—

Surplus Juvenile Labour in Juvenile Advisory Committee Areas within the Industrial Region.

| Year ending March 31st. | Estimated Shortage of Juveniles in certain areas. | | Estimated Surplus in the remaining areas. | | Net Surplus. | |
|----------------------------|---|--------------------|---|--------------------|--------------|--------|
| | Boys under 18. | Girls under 18. | Boys under 18. | Girls under 18. | Boys. | Girls. |
| 1931 ... | — | — | 8,364 | 11,889 | 8,364 | 11,889 |
| 1932 ... | 917 | — | 2,368 | 6,671 | 1,451 | 6,671 |
| 1933 ... | 1,546 | 18 | 2,242 | 6,570 | 696 | 6,552 |
| 1934 ... | 1,351 | 63 | 3,409 | 7,659 | 2,058 | 7,596 |
| 1935 ... | 1,300 | 63 | 2,565 | 7,175 | 1,265 | 7,112 |
| 1936 ... | 480 | — | 4,843 | 9,455 | 4,363 | 9,455 |
| 1937 ... | 514 | — | 5,805 | 9,997 | 5,291 | 9,997 |
| 1938 ... | 441 | — | 4,546 | 8,740 | 4,105 | 8,740 |

The Expanding Trades.

We have already mentioned certain industries and services in which employment has been expanding during recent years. The total volume of increased employment brought about in these occupations has been very small indeed; and we have given our reasons for believing that little, if any, further expansion can be looked for in these directions. There remains to be considered, however, that large group of services comprehensively labelled by the Ministry of Labour as Distributive Trades, in which, as we have seen, the number of insured workers has increased by 46 per cent. between 1923 and 1930, and in which there were enrolled 10.2 per cent. of all the insured workers of the region in 1930, compared with 6.6 per cent. in 1923. This expansion has been some compensation for the decline which has taken place elsewhere.

As a community, by means of new industrial processes and improvements in administration, increases its wealth-producing capacity, a reduced amount of labour is required to satisfy its demand for the product of its longer-established industries. But the community, being now richer, can satisfy new wants, or cater more fully for wants already felt but not satisfied. There then takes place a transfer of labour from the old to the new industries and services. In part, we may regard the recent expansion of the Distributive Trades as an example of such desirable transfer. By means of advertising, house to house canvassing, credit and "coupon" trading, the development of direct delivery services, and other such devices, salesmanship has expanded the activity of the Distributive Trades. The demand for the products of the "new" industries—radio and gramophone accessories, motor cars, canned goods, artificial silk and so on—has brought into being a new army of workers to distribute those goods. In so far then as such expansion may be regarded as part of a rising standard of living, even in a "depressed" Industrial Region, we may regard the growth of the Distributive Trades, as we regard the growth of road transport, as a desirable development and a definite compensation for that decline of the heavy industries which invention and the falling rate of increase of the population have made inevitable.

It is possible, however, that in part the expansion may not be so desirable. To some extent the expanding services may not be a compensation for the decline of the heavy industries but may be parasitic upon those industries, causing them to decline more than is inevitable, and reducing the total wealth-producing capacity of the community. We will not enter into the highly controversial dispute as to whether road transport in general, using roads paid for largely with ratepayers' money, has been parasitic upon railway transport, which provides its own track and is a large contributor to local rates. But, whatever views may be held upon the

general question, all will agree that the small 'bus undertaking, inefficiently run, which is able to carry on unfair competition because of its failure to provide for depreciation and interest on capital, is a parasitic development and wasteful of the community's resources. It may well be that other services show similar examples of parasitic expansion; for such expansion is to be expected in times of industrial depression. Unemployed labour, especially that of juveniles, is available, and is likely, in the circumstances, to flow into unorganised trades where wages are low, because it cannot afford to refuse even a poor opportunity of employment. Professor Clay has described this well-known tendency in these words: "Let us contrast with the reaction of an organised trade to fluctuations in trade prosperity the effects of the same fluctuations upon a completely unorganised trade. When demand falls off, wages will be reduced to the point at which the value of the marginal product of the worker again covers his or her wage; so far the difference is merely that the one trade meets depression by reducing wages, the other by reducing employment. But presently demand recovers. There are then two possibilities: either wage rates may be restored, or even raised above the former level, and the same number be employed; or the reduced wage rates be maintained, and additional workers be drawn in to meet the increased demand at that level of labour-costs. In the absence of organisation, the latter tends to be the alternative taken. Successive fluctuations will have the same effect, reducing wages in depression and expanding employment in boom, until the scale of the industry is large enough to satiate the demand of the poorest class of consumers, and wages are so low that, even with the aid of supplementary earnings by other members of the family, poor relief and charity, they barely maintain the workers."*

It would require painstaking research into wages and conditions of employment to determine how far the expansion of certain services in the region has been parasitic and how far a legitimate growth in response to new demand. But we are convinced that in unorganised trades, such as catering and general distribution, some of the development has taken the form of the employment of girls and boys, who are still dependent upon the earnings of their parents in organised trades, and who are dismissed, without having received any training to fit them for other occupations, when they become old enough to demand a higher wage.† We have already pointed out that the proportion of females to males among insured workers in the distributive trades of the region has fallen since 1924 from 879 to 692 per thousand.

* Henry Clay: *The Problem of Industrial Relations*, p. 227.

† The efforts of the Grocers', Drapers' and other associations and federations to provide training for their employees, by means of apprenticeship, Summer Schools, evening classes and other methods, are admirable. Unfortunately, the example set by such bodies is by no means universally followed by traders who do not belong to them, nor by those distributors who possess no such organisation.

But though males have entered these trades more rapidly than females, the most marked expansion has been in the employment of boys rather than men; and though females have increased in number more slowly than male insured workers, the employment of girls has expanded more than the employment of women. The number of men insured has increased between 1923 and 1930 by 58 per cent., but the number of boys by 85 per cent.; the number of women insured has increased by 26 per cent., but the number of girls by 40 per cent. In the hotel, club and restaurant service in the Cardiff-Barry area, the number of men insured has increased by 26 per cent., the number of boys by 60 per cent.; the number of women insured has increased by 47 per cent., and the number of girls by 92 per cent. By themselves, these figures perhaps prove nothing; for in almost every trade and industry the employment of juveniles has remained more steady than the employment of adults. But the very rapid increase in juvenile entry into such services as distribution and catering—unorganised trades in which “blind alley” occupations are all too frequent—must be viewed with some misgiving. Certainly when it is pointed out that at present juveniles between 16 and 18 years of age form one-eighth of the total insured workers in the distributive trades, and when it is remembered that boys and girls between 14 and 16 years of age, who are not insurable, number at least as many, it will be realised that the expansion of such trades is not wholly a blessing.

In view of all the circumstances, it would be very unwise to expect the trades within the region which have shown signs of expansion to absorb in the future more than an almost negligible proportion of the surplus. The surplus, therefore, can be dealt with only by transfer to other parts of the country where new industries are developing, or by the introduction of new industries into the region.

Transfer.

As we have already pointed out, it was the regular practice before the depression for women and girls to migrate from the region. Such migration has now extended to men and boys; and a total of 242,000 persons emigrated from the four counties between 1921 and 1931. A substantial number of these migrants have been transferred to other areas through the agency of the Ministry of Labour's various Schemes for Industrial Transference. Between June 1928 and November 1931, the following numbers were transferred in this way:—

| | <i>Men.</i> | <i>Women.</i> | <i>Boys.</i> | <i>Girls.</i> | <i>Total.</i> |
|---|-------------|---------------|--------------|---------------|---------------|
| 1. Number of persons transferred to— | | | | | |
| (a) Industrial Employment ... | 12,514 | 118 | 3,254 | 95 | 15,981 |
| (b) Employment on Relief Schemes | 9,252 | — | — | — | 9,252 |
| Totals | 21,766 | 118 | 3,254 | 95 | 25,233 |
| 2. Number of men sent to Government Training Centres | | | | | 9,920 |
| 3. Number of men sent to Transfer Instructional Centres | | | | | 4,431 |
| 4. Household Removal Scheme: 1,245 families transferred, containing 3,305 persons. | | | | | |

It must be remembered that perhaps 40 per cent. of those thus transferred remain away for a time and then return to the region. It has been estimated that more than 30,000 persons have been transferred and have obtained some measure of employment elsewhere.*

The Ministry of Labour has shown for Great Britain as a whole†, that out of a total of 28,220 net transfers from coal mining recorded on unemployment books, which took place in the year 1930-1931, no less than 17,836 were transfers to "Building and Public Works Contracting", that is, mainly to unemployment relief works. Such net transfer of miners as takes place *within Wales* is more evenly distributed over the whole of industry, as the following table, for the year 1928-1929, will show. But the greater part of the transfer of Welsh miners is transfer from Wales to other areas of Great Britain and consists very largely, as we have shown above, of transfers to relief work.

Administrative Division of Wales.

Industrial Analysis of Transfers of Men aged 18 to 64 from and to the coal mining industry recorded on the Unemployment Books exchanged in the three months ended 7th October, 1929.

| Industry Group. | Transfers from Coal Mining. | Transfers to Coal Mining. | Net Transfers from Coal Mining. |
|--|-----------------------------|---------------------------|---------------------------------|
| Building and Public Works Contracting | 709 | 562 | 147 |
| Transport and Communication, Fishing, etc. | 249 | 92 | 157 |
| Metal and Metal Goods Manufacture ... | 738 | 113 | 625 |
| Engineering, Engineers' Iron and Steel founding. | 145 | 41 | 104 |
| Explosives, Chemicals, Coke Ovens, etc. | 38 | 25 | 13 |
| Brick, Tile, etc., making ... | 118 | 70 | 48 |
| Mining (other than coal mining) ... | 221 | 31 | 190 |
| Hotel and Laundry Services ... | 109 | 39 | 70 |
| Construction and Repair of Vehicles ... | 39 | 22 | 17 |
| Textile Industries ... | 5 | 12 | 7 |
| Shipbuilding ... | 8 | 2 | 6 |
| Food, Drink and Tobacco ... | 36 | 12 | 24 |
| Rubber and Leather Trades ... | 10 | 1 | 9 |
| Sawmilling, Furniture, and Wood-working. | 15 | 11 | 4 |
| Paper-making, Printing, etc. ... | 1 | 4 | 3 |
| Clothing Trades, excluding Boots and Shoes. | 3 | 1 | 2 |
| Commerce and Finance ... | 4 | 5 | 1 |
| Other Industries and Services ... | 676 | 347 | 329 |
| Totals ... | 3,124 | 1,390 | 1,734 |

* Evidence of Mr. W. R. L. Blakiston before the Royal Commission on Unemployment Insurance.

† *Ministry of Labour Gazette*, November, 1931, p. 416.

In September and October 1929, the Ministry of Labour interviewed 35,715 workmen in the depressed mining areas of England and Wales, between 18 and 45 years of age, who had been unemployed for at least three months. Of these, 17,262—or 48 per cent.—were men from the mining areas of South Wales.

The men interviewed were classified in four categories :—

| Category. | Five Areas of Great Britain. | | South Wales. | |
|---|------------------------------|-----------|--------------|-----------|
| | Number. | Per cent. | Number. | Per cent. |
| A. Immediately available and willing for transfer. | 6,616 | 19 | 3,587 | 21 |
| B. Immediately available and willing to undergo training. | 3,339 | 9 | 1,717 | 10 |
| C. Requiring reconditioning prior to transfer. | 8,864 | 25 | 4,758 | 27 |
| D. Unable, unwilling or unfit for transfer. | 16,896 | 47 | 7,200 | 42 |
| Totals | 35,715 | 100 | 17,262 | 100 |

The category in which a man might be placed depended upon a consideration not only of his physical and mental fitness for transfer or training, but of family circumstances—e.g., number and age of dependants and whether their maintenance could be assured if transfer were effected. Normally, a man with more than four children below wage-earning age was assigned to Category D.

The men interviewed were divided as follows among the various industries :—

| Industry. | Five areas of Great Britain. | | South Wales. | |
|--|------------------------------|-----------|--------------|-----------|
| | Number. | Per cent. | Number. | Per cent. |
| Coal Mining | 24,530 | 68·7 | 13,506 | 78·2 |
| Shipbuilding and Ship-repairing ... | 688 | 1·9 | 4 | — |
| Pig Iron Manufacture | 132 | 0·4 | 52 | 0·3 |
| Steel Melting, Iron Puddling, Iron and Steel Rolling, etc. | 753 | 2·1 | 292 | 1·7 |
| All other Industries | 9,612 | 26·9 | 3,408 | 19·8 |
| Totals | 35,715 | 100·0 | 17,262 | 100·0 |

In category A 56·2 per cent. of the whole group and 69·3 per cent. of the Welsh group were coal miners. In category B 65·3 per cent. of the whole group and 75 per cent. of the Welsh group

were coal miners. In category *C* the percentages had risen to 75.7 and 85; and in category *D* they were 70.6 and 79 respectively. The high percentage of miners as compared with other men in Categories *C* and *D* is significant. It is particularly marked in Category *C*, for the need for reconditioning mainly depends upon the length of time the individual has been out of work; evidently continuous unemployment has pressed even more severely upon miners than upon other workers in the heavy industries. It was found that of the total classified in Category *C*, though 24 per cent. had been unemployed for less than one year, no less than 11.6 per cent. had been unemployed for more than four years. In Category *D*, 35 per cent. had been unemployed for less than one year, but 9.6 per cent. had been unemployed for more than four years.

It must be borne in mind that a substantial number of the men in Category *D* were so classified because of the number of their dependants. In Categories *A* and *B*, the percentage of men without dependants was 33.2 and 56.5 respectively. In Category *C* this percentage had fallen to 20.8; and in Category *D*, out of the 16,896 men interviewed, 12,888 had between them 47,790 dependants. If it could be assumed that men who had not been unemployed for more than six months did not require reconditioning, and that the financial obstacles to the mobility of men with dependants could be removed, 16.5 per cent. of the men in Category *D* would be immediately available for transfer. This consideration, however, though it may serve to correct the impression derived from a first reading of the figures, does not alter the fact that *in the existing circumstances*, 42 per cent. of the men interviewed in South Wales were found either unable, unwilling or unfit for transfer. Moreover, it must be remembered that all the men interviewed were between 18 and 45 years of age. Men who by reason of age were unlikely to be suitable for transfer were not interviewed at all.

More recently, on 2nd February, 1931, an enquiry was conducted by the local officers of the Ministry of Labour with a view to ascertaining the degree of employability of those on the Live Register in the area of the present survey. An 0.5 per cent. sample was taken and the actual interviews confined to a random selection of 532 men. They were divided into four categories according to their suitability for employment. If suitable on all grounds they were placed in category *A*; if suitable in industrial experience but somewhat disqualified by age or physical condition in category *B*; if suitable on personal grounds, but lacking in industrial experience in category *C*, and if unsuitable both in personal qualifications and industrial experience in category *D*. In assessing the value of this enquiry it must be remembered that it was a very restricted one; but there is no reason to suppose that it was not fairly

representative of the labour supply of the region. The men interviewed were selected from the main industries and in rough proportion to their relative local importance. The following table may, therefore, be taken as a significant indication of employability.

| Age Groups. | Total men interviewed. | Categories of employability. Percentages in each category. | | | | Type of Training. Percentages in each division. | | |
|-------------|------------------------|--|------|-----|-----|---|----------|----------------------------------|
| | | A. | B. | C. | D. | Apprenticed. | Trained. | Neither apprenticed nor trained. |
| 18-19 | 32 | 78.1 | 18.8 | 3.1 | — | 12.5 | 25.0 | 62.5 |
| 20-24 | 87 | 78.2 | 8.0 | 8.0 | 5.8 | 14.9 | 34.5 | 50.6 |
| 25-34 | 115 | 83.5 | 12.2 | 4.3 | — | 18.2 | 29.6 | 52.2 |
| 35-44 | 101 | 79.2 | 9.9 | 3.0 | 7.9 | 11.9 | 23.7 | 59.4 |
| 45-54 | 112 | 72.3 | 26.8 | 0.9 | — | 8.0 | 31.3 | 60.7 |
| 55-64 | 85 | 45.9 | 48.2 | 2.4 | 3.5 | 14.1 | 22.4 | 63.5 |
| | 532 | 73.1 | 19.2 | 4.5 | 3.2 | 13.3 | 29.2 | 57.5 |

It will be seen that the average of those suitable for employment on all grounds is high and well maintained throughout the first five age groups. The enquiry also showed that the categories of employability were closely correlated with those of physique and health: 74.4 per cent. were returned as of good, 23.5 per cent. as of fair, and 2.1 per cent. as of poor physique. In health, 84.8 per cent. were good, 13.7 per cent. fair and 1.5 per cent. poor. The percentages of those apprenticed or trained merely illustrate the well-known fact that for the majority of employed persons in the region industrial apprenticeship or training is not required. Questions were asked with regard to the type of school those who were interviewed had attended, at what age they had left and when they had started work. These enquiries were confined to those under 30 years of age, i.e. to 177 persons. Of these, 93.2 per cent. had attended elementary schools and had left under the age of 15. The remaining 6.8 per cent. had received some amount of secondary education. It is perhaps significant that a lower percentage of those in the 18-19 age group had started work under 15 than in the 25-29 age group; but the number interviewed was too small to warrant any definite deduction.

It is clear that since so great a volume of migration and transfer has already taken place, the surplus which still remains within the region must consist largely of persons whom it is especially difficult

to transfer. Married men with dependants ; men who own their own houses ; men and women who do not possess the youth and energy or the robust self-confidence which would help them to uproot themselves from familiar surroundings and settle among strangers ; Welsh-speaking persons who would find themselves in an alien environment in England ; men whom prolonged unemployment has rendered physically unfit to take up regular work without a long period of reconditioning ; all these will be found in a gradually increasing proportion among the surplus which remains. Moreover, if transfer is to continue at the recent rapid rate, a further contraction must inevitably take place among the trades and industries which cater for the needs of those formerly engaged in basic production. Some of the region's equipment in docks and railways ; warehouses ; shops and hotels, and houses must either become definitely redundant or be wasted because of partial utilisation. At the same time, in other parts of the country the community will be expending its labour power upon new docks, new roads, new drainage and building, new shops and new amenities generally.

The conclusion seems to emerge, therefore, that a deliberate effort to secure the introduction of new industries into the region is not only desirable on sentimental or compassionate grounds, but is justifiable as a sound measure of public economy. We have said nothing in this Report of the widespread distress and misery which the contraction of the basic industries has brought about in various parts of the region. We have confined ourselves to a presentation of industrial facts and to purely economic considerations. We may, however, suggest that a policy of transfer of population unaccompanied by any provision for the men and women who cannot be transferred save at great expense will permit a deterioration to continue which is economically wasteful of man power and resources. The Industrial Transference Board has pointed out that ties of home and locality are strongly developed in the mining regions, which are to some extent isolated from the rest of the community, and where house ownership by the working classes is exceptionally widespread. It goes on to say : " This gives these communities their strength of endurance and cohesion, but it is a psychological factor which operates against a policy of transfer ".* Nevertheless there is strong evidence that, though the population of this region is averse from transfer into England, it is unusually mobile within the boundaries of the region. In our Chapter on the Coal Industry, we have shown to what a considerable extent miners have moved in search of employment from the less prosperous to the more fortunate valleys. Enquiry has shown that, whereas in the cotton districts of Lancashire on the average only 2.8 per cent. of the unemployment books exchanged in Ministry

* Report of the Industrial Transference Board.

of Labour offices originated in offices other than those in which they were exchanged, in South Wales the percentage of "foreign" books lodged by miners was 6.6 per cent.* This is a rough measure of the comparative mobility of South Wales miners and Lancashire cotton operatives; and affords support for our view that surplus labour now living in the mining valleys could be made available for new industries even if those were established near the ports and commercial towns.

Professor Cannan has recently pointed out† that: "In face of rapidly growing knowledge and slowly growing or stationary population, it is inevitable that the 'Staple' or 'heavy' industries which provide materials should decline relatively to those which provide finished goods or services. The demand for each of such things as pig iron and yards of cloth is easily satiated; and so also, no doubt, is the demand for cricket bats and chauffeurs. But the minor or 'lighter' industries are susceptible of an indefinite multiplication which makes the demand for their products, taken as a whole, insatiable. Increase a person's power of spending, and he will not increase his purchases in weight or bulk so much as in refinement of form, so that a richer people will devote a less proportion of their labour to producing things like pig iron and bricks.

"Moreover, the mere fact of the disappearance of rapid increase of population tends to increase the proportion of demand which can be satisfied from scrap without fresh primary production. So, given a stationary population with rapidly increasing knowledge applied to production, we may expect the already observable tendency towards a less proportion of the whole labour force being employed in the 'heavy' industries and a larger in the lighter industries to become more pronounced." If this argument is correct—and its reasoning seems to us to be incontrovertible—then it is towards the development of a number of the small, "lighter" industries that this region must look for the absorption of the personnel which is now surplus.

The Deliberate Creation of Alternative Occupations.

Chronic unemployment in the coalfield has suggested the deliberate establishment of new industries to absorb the surplus labour of the old. Nothing of this kind has been done upon a large scale. Indeed, what has been attempted has not touched the fringe of the unemployment problem, even in the localities concerned. But though these experiments may have been insignificant in comparison with the magnitude of the problem, we feel that they have not all been negligible and that they deserve mention here in that they do represent a conscious effort of local self-help.

* In the Welsh figure, books lodged in the same valley, in whatever office they were issued, have been counted together. See *Labour Mobility in the Coal Mining Industry* by Brinley Thomas in *The Economic Journal*, pp. 218-219, June, 1931.

† In an address to the British Association, reprinted in *The Economic Journal* December, 1931.

During recent years, certain philanthropic bodies have established in some of the most depressed districts of the region "Settlements" whose primary object has been to combat the psychological effects of industrial depression by means of educational and cultural activities. Part of this educational work has resulted in the partial revival of weaving, embroidery, and quilting. These crafts are now established in the Rhondda, in Aberdare, Blaina, and Merthyr. They can hardly be said to be new industries, but, begun as purely educational and social activities, they tend to become semi-industrial. Markets for the output have so far been found without difficulty; and it is possible that a few women workers may in time be able to find regular and self-supporting work in this way. The same may be true of educational efforts undertaken by these bodies among boys and men in training them in poultry-keeping and woodworking. Those who are concerned with the preservation of rural industries report that in the craft of wood-turning demand is increasing, that the only craftsmen left are either aged or approaching middle-age, and that there is definite need for a few apprentices for whom prospects are reasonably good. The same is true of one or two other crafts for whose output change in taste has brought a renewed demand.

The most important development of this nature, however, has been the establishment at Brynmawr, under the Industrial and Provident Societies Acts, of Brynmawr and Clydach Valley Industries, Ltd. In this small town on the fringe of the coalfield, chronic unemployment has existed among miners for more than ten years. The new concern, which is administered by a Board of Management, consisting of gentlemen of considerable experience in business management on a very large scale, has established new industrial activities, which are carried on upon a business footing, with the object first of placing them upon a profit-making basis and then of handing them over to local co-operative control.

At one time, firms existed in Aberdare, Cardiff, Brynamman and Brynmawr, which manufactured miners' boots, a product whose simplicity of construction does not necessarily require the use of high-power machinery. To-day, however, the needs of the coalfield are supplied by large-scale producers, chiefly at Kingswood (Bristol) and Leeds, with the exception of one or two family concerns in Pontypridd, which buy "uppers" from Kingswood and perform the remainder of the operations themselves. It has been suggested to us that the main reason for the failure of the former South Wales firms was lack of business efficiency on the part of inheritors of family businesses. Brynmawr Bootmakers, Ltd., has been registered as a subsidiary of Brynmawr and Clydach Valley Industries, Ltd., has purchased at low cost the plant of a firm formerly operating in Brynmawr, at present employs 12 men and girls at satisfactory wages, and produces about 300 pairs of miners' boots per week at a profit.

Furniture-making and the weaving of tweeds are other industries which have been established and which have so far found an expanding market *on ordinary commercial lines* (i.e., by sale to the trade or by competitive tender) for their product. The knitting (by machinery) of miners' stockings finds employment for six to eight girls, though it is not yet entirely self-supporting. Poultry-keeping by miners' families is being encouraged with expert aid, rather as a supplement to earnings than as a definite alternative occupation. In all these enterprises care has been taken to train the younger and more adaptable persons available and the management has definitely determined not to subsidise any of the ventures. If any fail, within a reasonable period, to meet all expenses (including interest and depreciation), they will be abandoned.

There exists in South Wales, whose population has for so long been engaged in the extraction of coal and the manufacture of iron and steel, a habit of thinking that the only kind of production which is dignified or worth while is the production of primary commodities. So strong is this habit that some persons may actually be heard deriding the efforts at Brynmawr because they produce "luxuries" for the well-to-do in Oxford and London. Such persons sometimes argue that the "new" industries—the manufacture of artificial silk, or gramophones, or radio accessories, for example—cannot "give employment" as coal mining, or shipbuilding, or cotton-spinning can do. But a hundred minor industries, each employing a thousand workers, present the same demand for labour as one industry employing a hundred thousand. A community where a number of such industries exists tends, moreover, to be able to employ its population more regularly than one devoted to a single speciality; for when one industry is "down," another is almost certainly "up." Nothing is more instructive in this connection than the comparative prosperity of West Midland industry during recent years. The numerous and diverse trades which have grown up in and around Birmingham since 1860 have not only provided an outlet for the surplus of labour created by the contraction of heavy industry in the Black country, but have ensured an industrial stability which has been the envy of less prosperous regions.* No part of the findings of the Survey of South Wales industry which we have made has been more significant than the comparative good fortune of the Swansea area. It has lost a smaller fraction of its population by migration than has any other area, and its imports and exports have been better maintained. This relative superiority is partly a result of the area's dependence upon anthracite rather than steam or bituminous coal. But in the main it is due to its possession of a greater diversity in industrial make-up than exists in any other area of the region. It seems to be impossible to escape

* See G. C. Allen *The Industrial Development of Birmingham and the Black Country, passim.*

the conclusion that, if an unnecessary wastage of the resources of an established community is to be avoided, efforts must be made to increase such industrial diversity as exists and to distribute it as far as is reasonably possible over a larger section of the region. We are well aware that the employment of fifty or sixty persons at Brynmawr in making tweeds or furniture or boots is but a minute step along the road which has to be travelled before a surplus of 30,000 or 40,000 can be removed; but it seems to be a step in the right direction.

In considering the problem of the development of new industries, it should be borne in mind that the region has always contained a large number of women and girls for whom paid employment was not available. Any reluctance to take up such employment which may have existed before the War has been virtually destroyed by the changes in social convention which have since taken place, and by the pressure of a reduction of family incomes.

The number of women and girls required in domestic service, which has hitherto always been the chief claimant in the region upon their labour, is declining; and the same is true of the areas outside the region to which women domestic workers normally migrate from South Wales*. The Central Committee on Women's Training and Employment have provided courses of training in domestic service during recent years at Aberdare, Abertillery, Bargoed, Cardiff, Garnant, Maesteg, Merthyr, Mountain Ash, Neath, Pontypool, Pontypridd, Swansea, and Tonypany. Between the beginning of the year 1929 and the end of September, 1931, the Training Centres succeeded in placing in employment as domestic servants 501 adults and 1,699 juveniles. Of these, 50 per cent. of the adults and 72 per cent. of the juveniles have been transferred to districts outside Wales. Centres of training are now being established in residential areas in more prosperous parts of the country. From these centres, 30 adults and 24 juveniles from South Wales have found employment in domestic service, all, with one exception, outside Wales. It is clear, however, that such training centres cannot be established on a very large scale when the demand for domestic workers is declining.

Numbers of women from the Industrial Region seek seasonal employment mainly in the hotel and catering trades. During the 1930 season, 3,830 women were "placed," through the agency of the Ministry of Labour, in holiday resorts in Wales and 1,173 outside the Division. Many of these workers are now available

* The number of domestic servants in the four counties and their associated County Boroughs fell considerably between 1921 and 1931; and the number of domestic servants per 1,000 families also declined. The same tendency has been at work in London; vide *New Survey of London Life and Labour*, p. 465.

for employment, if it could be found for them, within the region during the winter months and probably many more would prefer regular industrial employment, if it were available, all the year round, rather than rely upon seasonal opportunities.

Even supposing that domestic service still continued to demand in future as many workers as it now does and that there is no excess of women and girls entering the hotel, catering and distributive services—and neither supposition appears to be justified—there would still remain within the region a substantial reserve of women available for work in light industries should such be established.

The Supply of Electricity.

The industrial development of the region in the future must depend very much upon the facilities available to industry for the use of electric power. At present, as in the rest of the country, the situation is somewhat confused. The chief supplier is the South Wales Electrical Power Distribution Company (now merged with the Shropshire, Worcestershire and Staffordshire Electric Power Company), whose services cover the whole of the region with the exception of certain municipal areas. Within the Company's area are about fifteen small Municipal and Company supply undertakings, which operate their own power, buy power from neighbouring collieries and works, and buy power from the South Wales Power Company. Finally, there are plants at many collieries and works which supply their own needs; or, in some cases, supply part of their needs themselves and buy the remainder from the Company.

Under the provisions of the Electricity Supply Act, 1926, the National Grid Lines will link together the Power Stations of Newport (Municipal), Cardiff (Municipal), Upper Boat (South Wales Power Company), Swansea (Municipal), Neath (Municipal) and Llanelly. It is estimated that this Scheme will be completed within two years. The Power Stations at Cardiff, Newport and Upper Boat will be "selected;" that is, their operations will be controlled by the Central Electricity Board. It is also anticipated that the new Power Station now being built at Swansea will eventually be "selected." Under this system, power will be easily available in any part of the region, and it is hoped that many undertakings which now supply their own needs will be persuaded to purchase from the Board, thus assisting a large-scale production which will greatly reduce costs. Already one line, between Swansea old Power Station and Neath Power Station, is operated by the Board, which has enabled it to obtain surplus power from Swansea and sell it to the Neath Council, who in turn sell it to the National Oil Refineries at Neath. In consequence, the latter

Company, instead of increasing its private generating plant, as it at first intended, takes much of its power more cheaply from the Board.

Technical Education.

If new industries are to establish themselves in the region, they must be assured of a supply of suitably educated workers. One of the main reasons for the gravitation to Birmingham of industries which might otherwise have been settled with equal profit to their owners in any other thickly populated region was the presence there of a highly skilled working class.* Though it is true that in many of the new, highly mechanised trades great skill is not required from the bulk of the workers, yet there must be available a reserve of highly skilled craftsmen, such as tool-setters, electrical engineers, and so on, to ensure the smooth working of the mechanical equipment. If South Wales is to obtain its share of new development, it will have to be able to assure employers of the availability not only of numbers but of trained ability. We whose chief work consists in education know that there exists in South Wales a numerous population as anxious for and as capable of education as any in other areas. We know too that in general that population is distinguished by its mental alertness and adaptability. But unless satisfactory technical education be available potential ability will be wasted. The Board of Education has recently published the report of a departmental committee upon "Educational Problems of the South Wales Coalfield"† which makes a complete survey of the existing provision of technical education within the area. The Committee finds that the scope of such education is narrow, and that a reorganisation of its administration is necessary. It would be superfluous for us to go over ground already covered in this Report. We need only say that it deserves serious consideration by the authorities concerned.

Local Rates.

One of the most important factors in bringing about the localisation of industrial depression within certain regions has been the system of local rating. Industries already depressed have been obliged, through the rates they pay, to maintain a large body of persons whose poverty has been caused by their very depression. In South Wales this has been a very serious problem.‡ It is illustrated by the following table which shows that the coal industry in South Wales has had to bear a heavier burden in the form of rates than other coal-producing districts.

* See Allen, *op. cit.*

† Published by His Majesty's Stationery Office, 1931.

‡ See Appendix 10 for numbers of persons receiving poor relief.

Average amount of Local Rates per ton of Coal disposable commercially.

| District. | Local Rates per ton. | | | | |
|---|-----------------------------------|------------------------------------|-----------------------------------|------------------------------------|---------------------------------------|
| | April to Dec., 1927. | Year 1928. | Jan. to Sept., 1929. | Year 1930. | 1931. |
| | d. | d. | d. | d. | d. |
| Scotland | 1.95 | 1.69 | 1.84 | 0.31 | — |
| Northumberland ... | 2.41 | 4.14 | 3.88 | 0.75 | — |
| Durham | 4.98 | 4.36 | 4.54 | 1.50 | — |
| Yorkshire | 3.35 | 4.60 | 4.71 | 1.30 | — |
| North Derbyshire and Notts. | 2.78 | 2.99 | 2.95 | 0.77 | — |
| South Derbyshire, Leicestershire, Cannock Chase and Warwickshire. | 3.25 | 3.27 | 2.73 | 0.63 | — |
| Lancashire and Cheshire. | 2.65 | 3.61 | 3.62 | 0.82 | — |
| North Staffs. | 3.53 | 4.78 | 4.65 | 1.06 | — |
| Cumberland, North Wales, South Staffs., Shropshire, Bristol, Forest of Dean, Somerset and Kent. | 2.94 | 3.62 | 3.17 | 0.93 | — |
| Great Britain | 3.30 | 4.17 | 4.10 | 1.08 | Jan.-Mar. 1.02 |
| South Wales and Monmouthshire. | 9 months ended Jan. 1928. 3.85 | 12 months ended Jan. 1929. 6.71 | 9 months ended Oct. 1929. 6.15 | 12 months ended Jan. 1931. 1.64 | Feb.-Apr. 1.71 May-July 1.68 |

The Derating Act has relieved manufacturing industries of three-quarters of their liability for rates and therefore makes the burden of rating a less important consideration in the location of industry than it has been in the past. The question arises, however, whether, in the rates which still have to be paid, the difference between the charge in South Wales and that in areas where poor relief has been a comparatively light burden is still sufficient to deter manufacturing enterprises from establishing themselves in the region.

Owing to the differences of the method of valuation in different areas, which are considerable, and the fact that revaluations have occurred in different districts at different times, a simple comparison

of rates per pound on assessable value is insufficient to reveal the relative burden to be borne by any trade undertaking in different localities. The standardisation of the percentage deductions on the different classes of subject by the recent Valuation Act has certainly effected an improvement in this respect, and it is to be regretted that the opportunity was not taken to standardise the treatment of machinery and equipment, which now varies considerably in the different districts.

These differences must be kept in mind in any statement of the rates for any area when comparing them with those prevailing at other places. The determination of the liability in respect of rates which will be incurred in one area as compared with another by a business concern for the same premises and plant is therefore a complicated process. In the limited time at our disposal we have found it impossible to make any useful comparison of the burden to be borne by a manufacturer who should establish an undertaking in South Wales and that borne by a similar manufacturer now established in, for example, the South of England. In view of the differing methods of valuation and assessment from area to area, it seems indeed impossible to arrive at a satisfactory conclusion. We would point out, however, that because of the rate reductions effected by the Derating Act, other local conditions have become relatively more important in determining the choice of locality; and it must not, of course, be overlooked that existing social advantages, such as cheap and efficient transport, gas and electricity supply at reasonable rates, good lighting in the streets, good parks, halls and libraries, which must be paid for, constitute in themselves an attraction to a business enterprise. In newly created towns and residential districts, the rating burden may not at the moment be heavy; but in future, when the demands of the community for such amenities have to be satisfied, there seems to be no reason why it should not become as heavy as it now is in advanced industrial centres where many of the necessities of communal life have already been paid for.

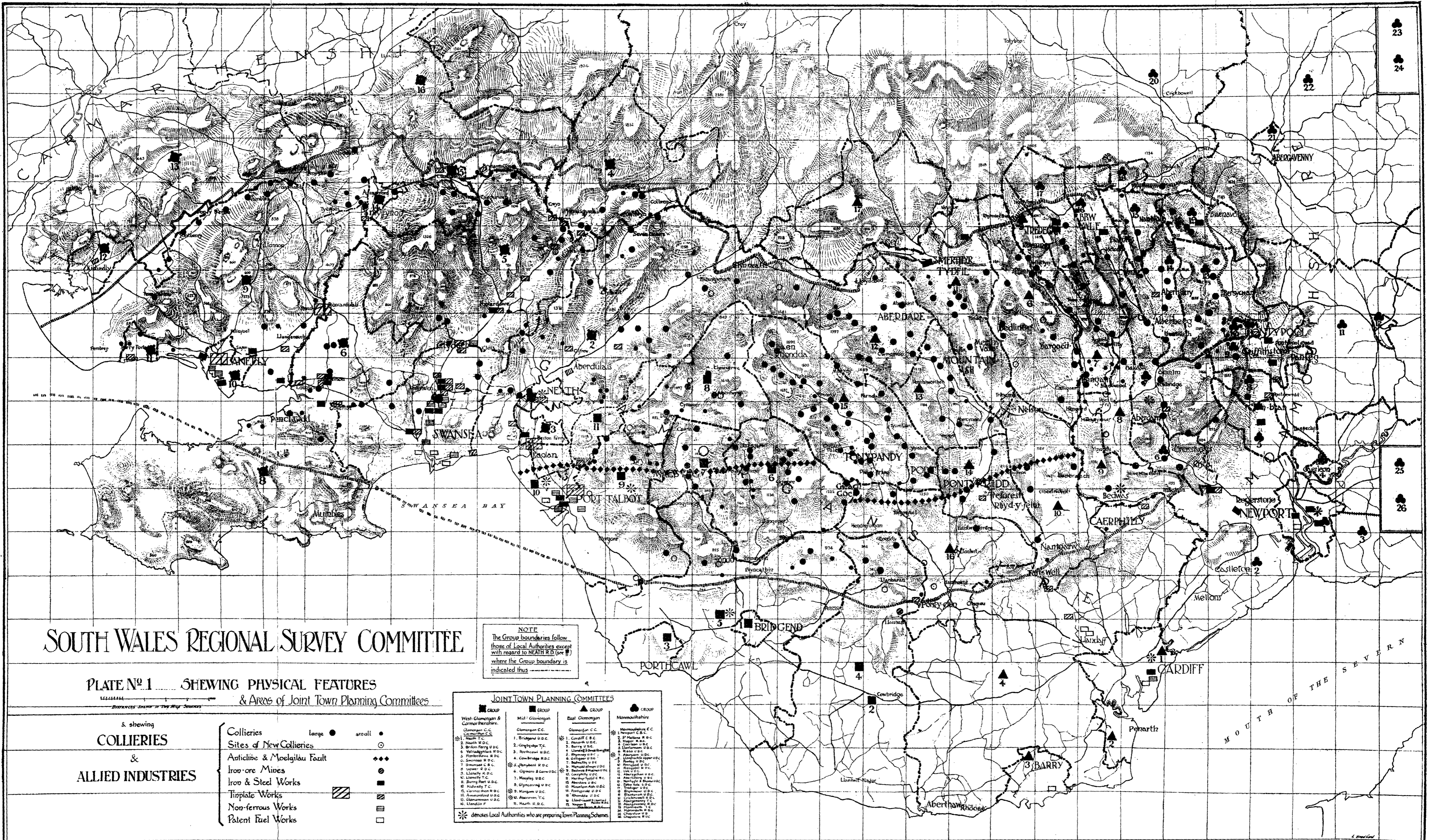
Conclusion.

We have confined ourselves in this Report, as requested, to facts and to economic considerations. We have put forward no recommendations. May we hope that our Enquiry will prove of service to those to whom will be entrusted the task of bettering the situation we have described.

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SOUTH WALES REGIONAL SURVEY COMMITTEE

PLATE No. 1 SHOWING PHYSICAL FEATURES & Areas of Joint Town Planning Committees

showing
COLLIERIES
 &
ALLIED INDUSTRIES

- Collieries large ● small ○
- Sites of New Collieries ○
- Anticline & Moelgibau Fault ◆◆◆
- Iron-ore Mines ●
- Iron & Steel Works ■
- Tinplate Works ▨
- Non-ferrous Works ▩
- Patent Fuel Works □

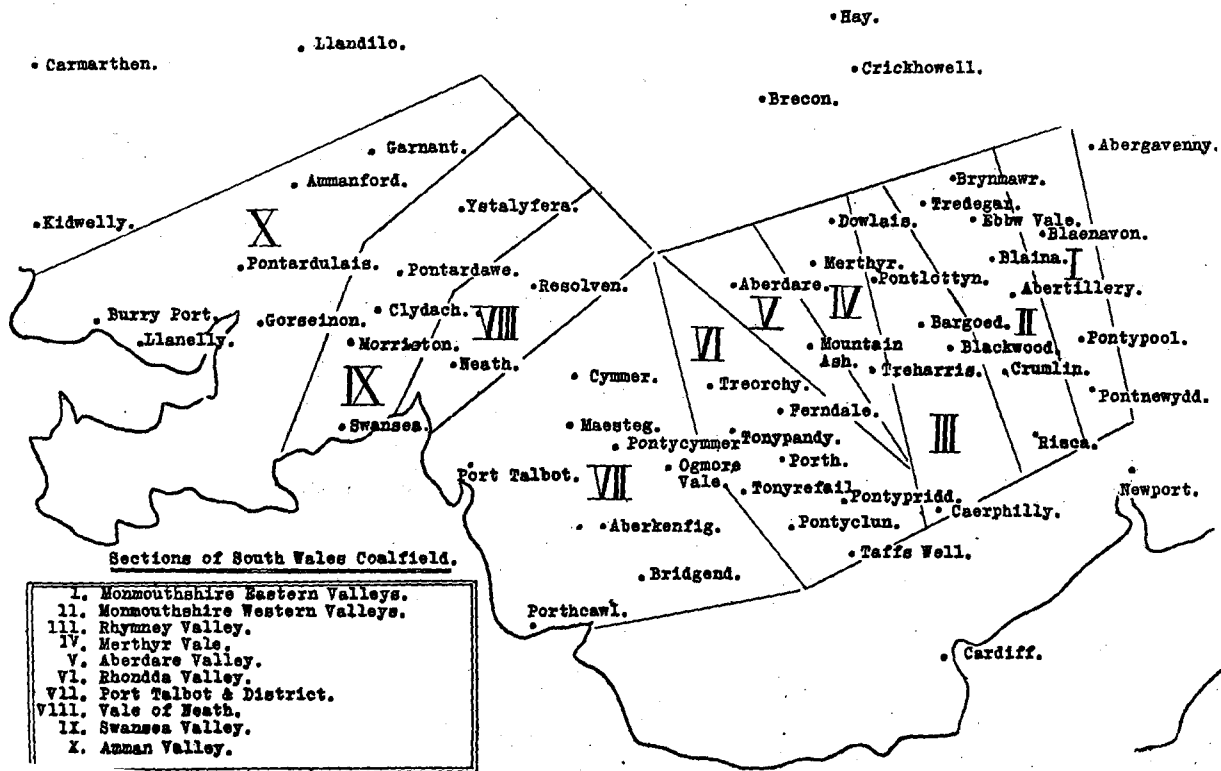
NOTE
 The Group boundaries follow those of Local Authorities except with regard to NEATH R.D. (see #1) where the Group boundary is indicated thus - - - - -

| JOINT TOWN PLANNING COMMITTEES | | | |
|--|---|--|--|
| GROUP | GROUP | GROUP | GROUP |
| West Glamorgan & Carmarthen | Mid Glamorgan | East Glamorgan | Monmouthshire |
| Glamorgan C.C. 1. Neath T.C. 2. Neath R.D.C. 3. Brynffery U.D.C. 4. Ystradgynlais T.C. 5. Rhondda R.D.C. 6. Gwent R.D.C. 7. Swansea C.B.C. 8. Gower R.D.C. 9. Llanelli R.D.C. 10. Llanelly T.C. 11. Barry T.C. 12. Kidwelly T.C. 13. Carmarthen R.D.C. 14. Ammanford U.D.C. 15. Glamorgan U.D.C. 16. Llanidloes F. | Glamorgan C.C. 1. Bridgend U.D.C. 2. Cynffig T.C. 3. Rhydyfodwg U.D.C. 4. Cowbridge R.D.C. 5. Glynneath R.D.C. 6. Ogmore & Gower U.D.C. 7. Maesteg U.D.C. 8. Glyncoed U.D.C. 9. Abertaweek U.D.C. 10. Mountain Ash U.D.C. 11. Mountain Ash U.D.C. 12. Mountain Ash U.D.C. 13. Mountain Ash U.D.C. 14. Mountain Ash U.D.C. 15. Mountain Ash U.D.C. 16. Mountain Ash U.D.C. 17. Mountain Ash U.D.C. 18. Mountain Ash U.D.C. 19. Mountain Ash U.D.C. 20. Mountain Ash U.D.C. | Glamorgan C.C. 1. Cardiff C.B.C. 2. Penarth U.D.C. 3. Barry U.D.C. 4. Llanelli & Glynneath U.D.C. 5. Rhydyfodwg U.D.C. 6. Llanidloes U.D.C. 7. Brynffery U.D.C. 8. Glynneath U.D.C. 9. Glynneath U.D.C. 10. Glynneath U.D.C. 11. Glynneath U.D.C. 12. Glynneath U.D.C. 13. Glynneath U.D.C. 14. Glynneath U.D.C. 15. Glynneath U.D.C. 16. Glynneath U.D.C. 17. Glynneath U.D.C. 18. Glynneath U.D.C. 19. Glynneath U.D.C. 20. Glynneath U.D.C. | Monmouthshire 1. Newport C.B.C. 2. St. Mellons R.D.C. 3. St. David's R.D.C. 4. St. David's R.D.C. 5. St. David's R.D.C. 6. St. David's R.D.C. 7. St. David's R.D.C. 8. St. David's R.D.C. 9. St. David's R.D.C. 10. St. David's R.D.C. 11. St. David's R.D.C. 12. St. David's R.D.C. 13. St. David's R.D.C. 14. St. David's R.D.C. 15. St. David's R.D.C. 16. St. David's R.D.C. 17. St. David's R.D.C. 18. St. David's R.D.C. 19. St. David's R.D.C. 20. St. David's R.D.C. |

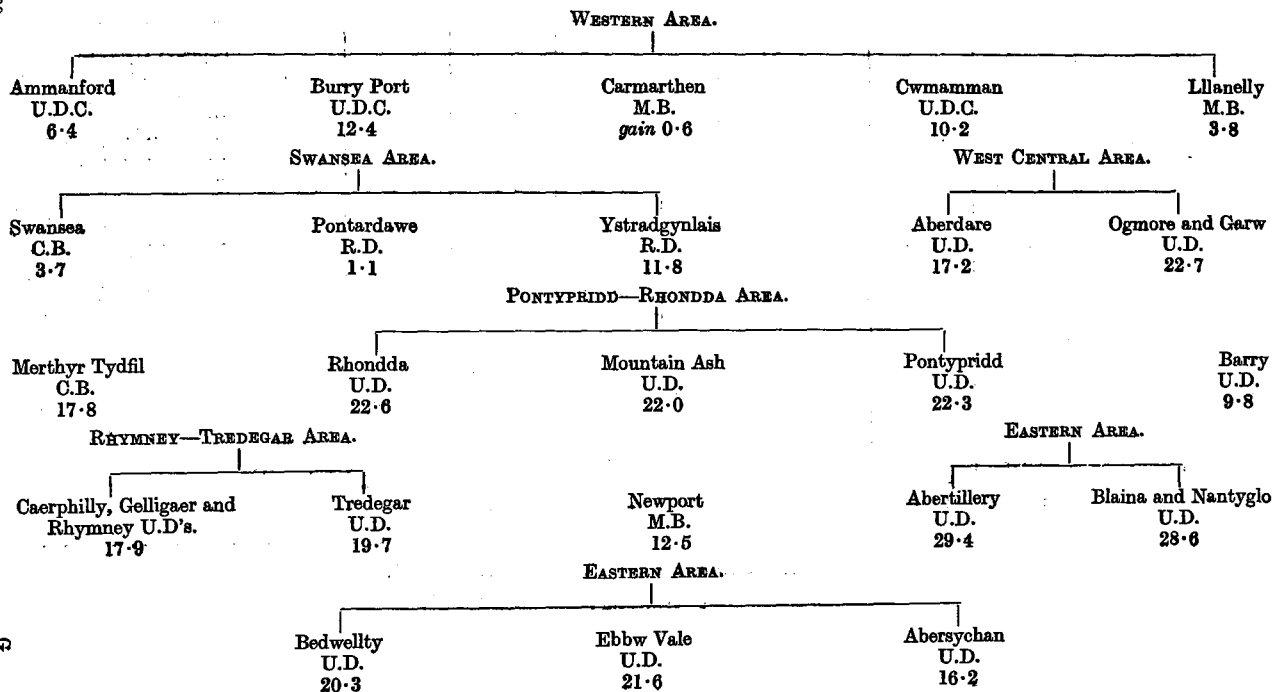
* denotes Local Authorities who are preparing Town Planning Schemes

APPENDIX 3.

SECTIONS OF SOUTH WALES COALFIELD SHOWING
MINISTRY OF LABOUR OFFICES.



APPENDIX 4.
PERCENTAGE LOSS OF 1921 POPULATION BY MIGRATION, 1921-1931, FOR CERTAIN TOWNS AND DISTRICTS OF THE INDUSTRIAL REGION.



APPENDIX 5.

I. ANALYSIS OF MALE OCCUPATIONS (1921 CENSUS).

| Area. | Total Occupied Males aged 12 and over. | Percentage of Total Occupied Males (12 years and over) engaged in :— | | | | | | | | |
|--|--|--|-------------------------|-------------|--------------------------|--|--------------------------------|---|------------------------------------|-------------|
| | | Agri- culture. | Mining and Quarry- ing. | Metal Work. | Food, Drink and Tobacco. | Builders, Brick- layers, Con- tractors, etc. | Transport and Communi- cation. | Com- mercial Finance, Clerks, Typists, etc. | Pro- fessional (excluding clerks). | All Others. |
| Monmouthshire (Administrative County) | 122,360 | 6.2 | 49.9 | 9.9 | 0.7 | 3.9 | 5.5 | 6.0 | 1.6 | 15.9 |
| Newport C.B. | 31,096 | 0.7 | 1.0 | 20.9 | 1.5 | 5.2 | 23.5 | 13.2 | 2.3 | 31.5 |
| Glamorganshire (Administrative County) | 271,872 | 3.1 | 52.0 | 8.6 | 0.7 | 3.5 | 7.1 | 7.6 | 2.0 | 15.4 |
| Cardiff C.B. | 69,357 | 0.6 | 1.2 | 11.8 | 1.9 | 4.3 | 26.8 | 16.6 | 2.6 | 34.2 |
| Merthyr C.B. | 27,239 | 0.9 | 53.2 | 12.2 | 0.8 | 3.3 | 5.2 | 7.8 | 1.7 | 14.7 |
| Swansea C.B. | 52,629 | 1.5 | 7.7 | 22.8 | 1.2 | 3.9 | 16.6 | 13.2 | 2.7 | 30.3 |
| Carmarthenshire | 57,466 | 18.6 | 25.4 | 16.5 | 0.7 | 4.3 | 6.7 | 7.5 | 2.6 | 17.7 |
| (Administrative County) | | | | | | | | | | |
| Brecknockshire (Administrative County) | 20,691 | 23.2 | 31.1 | 5.1 | 0.9 | 5.5 | 6.7 | 7.8 | 2.6 | 17.0 |

APPENDIX 5.

II. ANALYSIS OF FEMALE OCCUPATIONS (1921 CENSUS).

| Area. | Total Occupied Females aged 12 and over. | Percentage of Total Occupied Females (12 years and over) engaged in :— | | | | | | | | |
|---|--|--|-------------|-----------------------|------------------------------|--------------------------------------|----------------------------------|-------------------|--------------------------|-------------|
| | | Agriculture. | Metal Work. | Food, Drink, Tobacco. | Transport and Communication. | Commercial Finance, Clerks, Typists. | Professional (excluding clerks). | Personal Service. | Textile goods and Dress. | All Others. |
| Monmouthshire (Administrative County) | 19,544 | 3.4 | 1.6 | 0.7 | 1.0 | 23.3 | 13.2 | 44.6 | 7.4 | 4.7 |
| Newport C.B. | 8,823 | 0.2 | 0.5 | 3.1 | 2.0 | 26.5 | 9.0 | 40.7 | 8.7 | 9.1 |
| Glamorganshire (Administrative County) | 47,219 | 1.8 | 3.4 | 0.9 | 1.4 | 23.8 | 12.8 | 40.8 | 10.6 | 4.5 |
| Cardiff C.B. | 22,921 | 0.2 | 0.6 | 3.4 | 2.0 | 29.0 | 8.1 | 36.6 | 10.6 | 9.6 |
| Merthyr C.B. | 4,713 | 0.4 | 0.8 | 1.1 | 1.0 | 26.1 | 14.1 | 40.4 | 9.9 | 5.8 |
| Swansea C.B. | 14,374 | 0.6 | 5.8 | 1.2 | 1.9 | 26.0 | 10.1 | 38.4 | 10.0 | 5.8 |
| Carmarthenshire (Administrative County) | 15,171 | 15.7 | 8.2 | 0.6 | 1.0 | 15.2 | 7.9 | 34.2 | 12.2 | 4.9 |
| Brecknockshire (Administrative County) | 5,051 | 8.1 | 0.6 | 0.4 | 1.0 | 15.2 | 12.6 | 50.9 | 8.1 | 2.9 |

APPENDIX 6.

THE NUMBERS OF FACTORIES AND WORKSHOPS IN THE SOUTH WALES INDUSTRIAL REGION (FACTORY INSPECTORATE DISTRICTS OF SWANSEA, NEWPORT AND CARDIFF) WITH COMPARISONS FOR GREAT BRITAIN AND LONDON.

| Year. | South Wales.* | | | London. | | | Great Britain. | | |
|------------|---------------|------------|-----------------------------------|------------|------------|-----------------------------------|----------------|------------|-----------------------------------|
| | Factories. | Workshops. | Percentage of Factories to total. | Factories. | Workshops. | Percentage of Factories to total. | Factories. | Workshops. | Percentage of Factories to total. |
| 1921... .. | 3,761 | 6,301 | 37·4 | 24,170 | 32,977 | 42·3 | 135,356 | 146,266 | 48·0 |
| 1922... .. | 3,809 | 6,255 | 37·8 | 24,237 | 33,218 | 42·2 | 137,858 | 145,684 | 48·6 |
| 1923... .. | 3,949 | 5,795 | 40·4 | 24,750 | 32,551 | 43·2 | 139,920 | 140,850 | 49·8 |
| 1924... .. | 3,952 | 5,251 | 42·9 | 25,648 | 30,389 | 45·8 | 142,494 | 133,729 | 51·6 |
| 1925... .. | 4,051 | 5,041 | 44·5 | 26,309 | 29,126 | 47·5 | 144,361 | 129,793 | 52·6 |
| 1926... .. | 4,078 | 4,806 | 45·9 | 26,698 | 28,200 | 48·6 | 145,411 | 121,861 | 54·4 |
| 1927... .. | 3,986 | 4,656 | 46·1 | 27,722 | 27,317 | 50·4 | 147,501 | 117,066 | 55·7 |
| 1928... .. | 3,832 | 4,205 | 47·6 | 28,533 | 26,073 | 52·2 | 149,532 | 112,049 | 57·1 |
| 1929... .. | 3,842 | 3,908 | 49·5 | 29,983 | 25,506 | 54·1 | 152,453 | 108,323 | 58·4 |

* Textile factories not included : these are quite insignificant in number.

APPENDIX 7.

OUTPUT AND EXPORTS OF COAL FOR THE UNITED KINGDOM AND SOUTH WALES. (BRISTOL CHANNEL PORTS.)

| Year. | U.K. Output. (Thousand Tons.) | S. Wales and Mon. Output. (Thousand Tons.) | S. Wales Output as per- centage of U.K. Output. | U.K. Exports. (Tons.) | U.K. percentage of Exports to Output. | S. Wales and Mon. Exports. (Tons.) | S. Wales per- centage of Exports to Output. | S. Wales Exports as per- centage of U.K. Exports. | U.K. Output Index. | S. Wales Output Index. | U.K. Exports Index. | S. Wales Exports Index. |
|-------|--|---|--|-----------------------------|--|--|---|--|--------------------------|------------------------------|---------------------------|-------------------------------|
| 1913 | 287,430 | 56,830 | 19.8 | 73,400,118 | 26 | 29,875,916 | 53 | 40.7 | 107 | 111 | 119 | 116 |
| 1920 | 229,532 | 46,249 | 20.1 | 24,931,853 | 11 | 15,470,392 | 33 | 62.0 | 86 | 91 | 40 | 60 |
| *1921 | 163,251 | 30,572 | 18.7 | 24,660,552 | 15 | 12,246,650 | 40 | 49.6 | 61 | 60 | 40 | 48 |
| 1922 | 249,607 | 50,325 | 20.2 | 64,198,384 | 25 | 25,633,826 | 51 | 39.9 | 93 | 98 | 104 | 100 |
| 1923 | 276,001 | 54,252 | 19.6 | 79,459,469 | 28 | 30,119,942 | 55 | 37.8 | 103 | 106 | 129 | 117 |
| 1924 | 267,118 | 51,085 | 19.1 | 61,651,273 | 23 | 25,682,340 | 50 | 41.6 | 100 | 100 | 100 | 100 |
| 1925 | 243,176 | 44,630 | 18.3 | 50,817,118 | 21 | 21,453,714 | 48 | 42.2 | 91 | 87 | 82 | 84 |
| †1926 | 126,279 | 20,273 | 16.0 | 20,596,372 | 16 | 9,295,089 | 46 | 45.1 | 47 | 40 | 33 | 36 |
| 1927 | 251,232 | 46,256 | 18.4 | 51,149,193 | 20 | 22,592,482 | 49 | 44.1 | 94 | 91 | 83 | 88 |
| 1928 | 237,472 | 43,312 | 18.2 | 50,051,195 | 21 | 21,414,531 | 49 | 42.7 | 89 | 85 | 81 | 85 |
| 1929 | 257,907 | 48,150 | 18.6 | 60,266,618 | 23 | 24,715,928 | 51 | 41.0 | 97 | 94 | 98 | 96 |
| 1930 | 247,538 | 45,875 | 18.5 | 54,879,479 | 22 | 23,298,599 | 51 | 42.4 | 93 | 90 | 89 | 91 |

* Dispute.

† 1926 Dispute, 1st May to 30th November.

APPENDIX 8.

FOREIGN AND COASTWISE COAL SHIPMENTS—*continued.*

II. COASTWISE COAL SHIPMENTS.

| Year. | Coal as Cargo. | | | | | Coal Shipped as Bunkers. | | | | |
|-----------|------------------|-----------------|--|-------------------------------|--|--------------------------|-----------------|--|-------------------------------|--|
| | Bristol Channel. | United Kingdom. | Bristol Channel Shipments as percentage of United Kingdom Shipments. | Bristol Channel Index Number. | Bristol Channel Shipments as percentage of South Wales Output. | Bristol Channel. | United Kingdom. | Bristol Channel Shipments as percentage of United Kingdom Shipments. | Bristol Channel Index Number. | Bristol Channel Shipments as percentage of South Wales Output. |
| | Tons. | Tons. | | | | Tons. | Tons. | | | |
| 1913 ... | 3,718,605 | 20,450,917 | 18 | 189 | 7 | 263,006 | 2,402,398 | 11 | 142 | 0·5 |
| 1920 ... | 5,565,720 | 18,733,714 | 30 | 283 | 12 | 325,682 | 1,703,017 | 19 | 176 | 0·7 |
| *1921 ... | 1,870,305 | 11,413,953 | 16 | 95 | 6 | 170,501 | 1,234,003 | 14 | 92 | 0·6 |
| 1922 ... | 2,196,778 | 14,574,605 | 15 | 112 | 4 | 209,148 | 1,630,893 | 13 | 113 | 0·4 |
| 1923 ... | 1,963,334 | 13,122,666 | 15 | 100 | 4 | 189,841 | 1,445,536 | 13 | 103 | 0·3 |
| 1924 ... | 1,970,385 | 14,743,419 | 13 | 100 | 4 | 185,013 | 1,481,577 | 12 | 100 | 0·4 |
| 1925 ... | 1,668,050 | 14,378,238 | 12 | 85 | 4 | 166,373 | 1,352,544 | 12 | 90 | 0·4 |
| †1926 ... | 721,918 | 7,584,468 | 10 | 37 | 4 | 78,674 | 860,271 | 9 | 43 | 0·4 |
| 1927 ... | 1,655,643 | 16,338,103 | 10 | 84 | 4 | 132,589 | 1,368,042 | 10 | 72 | 0·3 |
| 1928 ... | 1,668,579 | 17,196,109 | 10 | 85 | 4 | 133,825 | 1,403,986 | 10 | 72 | 0·3 |
| 1929 ... | 1,735,554 | 18,947,456 | 9 | 88 | 4 | 149,186 | 1,550,728 | 10 | 81 | 0·3 |
| 1930 ... | 1,608,235 | 18,419,564 | 9 | 82 | 4 | 147,431 | 1,450,198 | 10 | 80 | 0·3 |

* Dispute.

† 1926 Dispute, 1st May to 30th November.

APPENDIX 9.
THE TRADE OF THE PORTS.
I. TRADE OF SWANSEA DOCKS.

| Year. | No. of Vessels. | Registered Tonnage. | Total Imports. Tons. | Exports. | | | | | Imports and Exports. Tons. |
|-------|-----------------|---------------------|----------------------|----------------------|--------------------|----------------------------|------------------|----------------------|----------------------------|
| | | | | Coal and Coke. Tons. | Patent Fuel. Tons. | General Merchandise. Tons. | Timplates. Tons. | Total Exports. Tons. | |
| 1924* | 5,425 | 3,971,285 | 1,810,137 | 3,524,508 | 474,969 | 69,056 | 621,524 | 5,577,764† | 7,387,100 |
| 1920 | 100 | 55 | 27 | 63 | 241 | 29 | 52 | 69 | 58 |
| 1921 | 62 | 48 | 40 | 49 | 80 | 32 | 30 | 46 | 45 |
| 1922 | 97 | 81 | 72 | 92 | 130 | 73 | 67 | 90 | 86 |
| 1923 | 112 | 104 | 98 | 111 | 12 | 87 | 69 | 105 | 109 |
| 1924 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1925 | 86 | 95 | 94 | 92 | 89 | 106 | 88 | 96 | 95 |
| 1926 | 55 | 71 | 105 | 35 | 52 | 92 | 54 | 53 | 65 |
| 1927 | 85 | 101 | 115 | 93 | 135 | 112 | 72 | 102 | 108 |
| 1928 | 80 | 94 | 94 | 81 | 119 | 106 | 79 | 92 | 95 |
| 1929 | 97 | 108 | 83 | 112 | 151 | 100 | 84 | 112 | 108 |
| 1930 | 93 | 106 | 81 | 106 | 96 | 77 | 70 | 97 | 92 |

† Figures for the export of iron and steel rails and ironwork, cement, oil, grain and fish have not been included in this table, but the exports of these commodities are dealt with in the text.

II.—TRADE OF BUTE DOCKS.

| Year. | No. of Vessels. | Registered Tonnage. | Total Imports. Tons. | Exports. | | | | | Imports and Exports. Tons. |
|-------|-----------------|---------------------|----------------------|----------------------|--------------------|--|----------------------------|----------------------|----------------------------|
| | | | | Coal and Coke. Tons. | Patent Fuel. Tons. | Iron and Steel Rails and Ironwork. Tons. | General Merchandise. Tons. | Total Exports. Tons. | |
| 1924* | 6,367 | 4,693,023 | 2,066,607 | 7,684,400 | 423,518 | 62,133 | 172,540 | 8,342,591 | 10,404,198 |
| 1913 | 141 | 129 | 100 | 137 | 168 | 292 | 76 | 139 | 137 |
| 1920 | 177 | 99 | 79 | 68 | 135 | 182 | 77 | 72 | 77 |
| 1921 | 110 | 65 | 46 | 50 | 57 | 53 | 70 | 51 | 51 |
| 1922 | 95 | 94 | 72 | 92 | 78 | 87 | 78 | 91 | 88 |
| 1923 | 100 | 104 | 102 | 111 | 80 | 161 | 107 | 109 | 109 |
| 1924 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1925 | 89 | 85 | 89 | 86 | 113 | 109 | 96 | 87 | 88 |
| 1926 | 65 | 57 | 90 | 37 | 47 | 101 | 73 | 39 | 40 |
| 1927 | 88 | 91 | 97 | 94 | 107 | 126 | 71 | 95 | 95 |
| 1928 | 79 | 87 | 81 | 91 | 75 | 106 | 86 | 90 | 88 |
| 1929 | 81 | 87 | 93 | 93 | 82 | 111 | 78 | 93 | 93 |
| 1930 | 78 | 81 | 80 | 82 | 76 | 74 | 64 | 82 | 81 |

* The figures on this line are quantitative, those below are indices—1924=100.

APPENDIX 9.

THE TRADE OF THE PORTS—*continued.*

III.—TRADE OF NEWPORT DOCKS.

| Year. | No. of Vessels. | Registered Tonnage. | Total Imports. Tons. | Exports. | | | | | Imports and Exports. Tons. |
|-------|-----------------|---------------------|----------------------|----------------------|-------------|------------------|-----------------|----------------------|----------------------------|
| | | | | Coal and Coke. Tons. | Iron. Tons. | Tinplates. Tons. | Sundries. Tons. | Total Exports. Tons. | |
| 1924* | 3,896 | 3,301,876 | 1,025,099 | 5,650,286 | 223,572 | 44,624 | 14,120 | 5,932,602 | 6,957,701 |
| 1920 | 72 | 84 | 57 | 77 | 36 | 24 | 244 | 76 | 73 |
| 1921 | 110 | 58 | 35 | 52 | 26 | 177 | 41 | 51 | 49 |
| 1922 | 108 | 99 | 45 | 109 | 73 | 70 | 131 | 108 | 99 |
| 1923 | 108 | 110 | 85 | 119 | 111 | 105 | 129 | 119 | 114 |
| 1924 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1925 | 60 | 91 | 88 | 85 | 118 | 86 | 205 | 87 | 87 |
| 1926 | 112 | 61 | 115 | 39 | 80 | 84 | 194 | 41 | 52 |
| 1927 | 89 | 95 | 105 | 88 | 153 | 120 | 260 | 91 | 93 |
| 1928 | 109 | 90 | 80 | 85 | 125 | 111 | 273 | 89 | 86 |
| 1929 | 111 | 98 | 85 | 93 | 118 | 130 | 456 | 95 | 93 |
| 1930 | 95 | 92 | 65 | 89 | 81 | 146 | 330 | 90 | 86 |

IV.—TRADE OF BARRY DOCKS.

| Year. | No. of Vessels. | Registered Tonnage. | Total Imports. Tons. | Exports. | | | Imports and Exports. Tons. | |
|-------|-----------------|---------------------|----------------------|----------------------|----------------------------|----------------------|----------------------------|-----------|
| | | | | Coal and Coke. Tons. | General Merchandise. Tons. | Total Exports. Tons. | | |
| 1924* | ... | 3,367 | 4,112,100 | 463,007 | 9,052,443 | 87,737 | 9,140,180 | 9,603,187 |
| 1913 | ... | 97 | 117 | 141 | 122 | 36 | 121 | 122 |
| 1920 | ... | 118 | 102 | 80 | 76 | 97 | 76 | 76 |
| 1921 | ... | 83 | 81 | 62 | 62 | 62 | 62 | 62 |
| 1922 | ... | 107 | 112 | 102 | 108 | 84 | 108 | 107 |
| 1923 | ... | 112 | 115 | 118 | 112 | 97 | 112 | 112 |
| 1924 | ... | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1925 | ... | 84 | 80 | 76 | 79 | 111 | 79 | 79 |
| 1926 | ... | 51 | 43 | 137 | 33 | 103 | 34 | 39 |
| 1927 | ... | 88 | 90 | 83 | 87 | 110 | 87 | 87 |
| 1928 | ... | 93 | 92 | 69 | 88 | 121 | 88 | 88 |
| 1929 | ... | 94 | 98 | 66 | 96 | 114 | 96 | 95 |
| 1930 | ... | 95 | 89 | 77 | 85 | 126 | 85 | 85 |

* The figures on this line are quantitative, those below are indices—1924 = 100.

THE TRADE OF THE PORTS—continued.

V.—TRADE OF PORT TALBOT DOCKS.

| Year. | No. of Vessels. | Registered Tonnage. | Total Imports. Tons. | Exports. | | | | Im Ex T |
|----------|-----------------|---------------------|----------------------|----------------------|--------------------|----------------------------|----------------------|---------------|
| | | | | Coal and Coke. Tons. | Patent Fuel. Tons. | General Merchandise. Tons. | Total Exports. Tons. | |
| 1924*... | 1,773 | 1,134,589 | 560,507 | 2,282,703 | 67,402 | 23,967 | 2,374,072 | 2,9 |
| 1920 ... | 76 | 87 | 34 | 70 | 313 | 183 | 78 | |
| 1921 ... | 50 | 45 | 24 | 35 | 156 | 116 | 39 | |
| 1922 ... | 82 | 96 | 49 | 92 | 173 | 237 | 96 | |
| 1923 ... | 83 | 113 | 78 | 121 | No figures. | 170 | 118 | |
| 1924 ... | 100 | 100 | 100 | 100 | 100 | 100 | 100 | |
| 1925 ... | 90 | 92 | 71 | 91 | 167 | 96 | 93 | |
| 1926 ... | 44 | 45 | 54 | 38 | 49 | 41 | 38 | |
| 1927 ... | 92 | 96 | 60 | 96 | 94 | 91 | 96 | |
| 1928 ... | 87 | 79 | 67 | 74 | 26 | 179 | 74 | |
| 1929 ... | 102 | 106 | 90 | 100 | 41 | 229 | 100 | |
| 1930 ... | 104 | 110 | 107 | 105 | 158 | 162 | 107 | |

* The figures on this line are quantitative, those below are indices—1924=100.

APPENDIX 10.

NUMBERS OF PERSONS IN RECEIPT OF POOR LAW RELIEF IN CERTAIN POOR LAW UNIONS, WHOSE BOUNDARIES CORRESPOND ROUGHLY WITH THOSE OF THE INDUSTRIAL REGION.

| Date. | Total in receipt of Relief in Institutions. | Numbers in receipt of Relief (Domiciliary) (excluding Casuals). | | | Casuals. | Total in receipt of Relief. |
|----------------|---|---|--------------------------------------|---|----------|-----------------------------|
| | | Relieved otherwise than on account of Unemployment. | Relieved on account of Unemployment. | Total in receipt of Domiciliary Relief. | | |
| 1st Jan., 1922 | 9,827 | 45,106 | 63,510 | 108,616 | 294 | 118,737 |
| " 1923 | 10,177 | 52,963 | 37,859 | 90,822 | 351 | 101,350 |
| " 1924 | 10,607 | 53,511 | 17,887 | 71,398 | 330 | 82,335 |
| " 1925 | 10,492 | 57,119 | 26,879 | 83,998 | 309 | 94,799 |
| " 1926 | 10,630 | 62,648 | 54,744 | 117,392 | 267 | 128,289 |
| " 1927 | 11,262 | 57,759 | 112,398 | 170,157 | 380 | 181,799 |
| " 1928 | 11,197 | 52,898 | 30,258 | 83,156 | 315 | 94,668 |
| " 1929 | 11,160 | 54,984 | 27,563 | 82,547 | 267 | 93,974 |
| " 1930 | 11,063 | 59,082 | 17,481 | 76,563 | 228 | 87,854 |

APPENDIX 11.

Loss of Land Used for Agricultural Purposes.

The total of land used for agricultural and pastoral purposes includes improved land in farms, some of which is cultivated as arable for annual crops, and some of which is used for permanent pasture. In the Statistics, except where otherwise stated, arable includes clover and rotation grasses. The total area for pasture and hay is therefore greater than the area of permanent pasture. In addition to the improved land on farms there is "mountain and heath land used for grazings," commonly known as "rough grazings." This is used for pastoral purposes, and mainly for sheep.

In Carmarthenshire, in 1930, the total of improved land represents 80 per cent. of the total land in agricultural and pastoral use; or, alternatively, there are, on the average, 25 acres of rough grazings to each 100 acres of improved land (total cultivated area). The same proportions hold good for Monmouthshire, but the improved farm land of Glamorganshire is only 64 per cent. of the total land in farm use in this county: rough grazings averaging 62 acres per 100 acres of improved land.

These changes have been:—

| | | | | <i>Total Cultivated Area. acres.</i> | <i>Rough Grazings. acres.</i> | <i>Total Farm Land. acres.</i> |
|--------------------|-----|-----|-----|--|---------------------------------------|--|
| Carmarthen— | | | | | | |
| 1913 | ... | ... | ... | 437,143 | 68,738 | 505,881 |
| 1923 | ... | ... | ... | 413,134 | 93,318 | 506,452 |
| 1926 | ... | ... | ... | 409,890 | 98,234 | 508,124 |
| 1930 | ... | ... | ... | 406,600 | 100,417 | 507,017 |
| Glamorgan— | | | | | | |
| 1913 | ... | ... | ... | 261,048 | 127,514 | 388,562 |
| 1923 | ... | ... | ... | 226,621 | 135,519 | 362,140 |
| 1926 | ... | ... | ... | 223,620 | 139,357 | 362,977 |
| 1930 | ... | ... | ... | 223,359 | 138,635 | 361,994 |
| Monmouth— | | | | | | |
| 1913 | ... | ... | ... | 236,619 | 36,715 | 273,334 |
| 1923 | ... | ... | ... | 218,287 | 50,305 | 268,592 |
| 1926 | ... | ... | ... | 213,720 | 51,182 | 264,902 |
| 1930 | ... | ... | ... | 215,760 | 54,308 | 270,068 |

Variations between the two classes of land arise from a certain difficulty in distinguishing clearly between rough grazing land and permanent pasture. The result is that the same areas are returned sometimes in one category and sometimes in the other. The general inclination is towards a rise in the standard of judgment as to what is improved pasture, as distinct from rough grazings, and, consequently, to increase the estimate of the latter at the expense of the former. There may, however, be some general deterioration of pasture land, and its subsequent return as rough grazings must also be considered as a contributing factor.

APPENDIX 12.

Changes in Acreage of Crops and Numbers of Live Stock per 100 Acres of Total Cultivated Land in the Industrial and Non-Industrial Areas of South Wales.

| Land. | | Corn Crops. | Roots and Potatoes. | Other Crops. | Total Arable Land. | Permanent Grass. | Total Crops and Grass. |
|-------------------------|------|-------------|---------------------|---------------|--------------------|------------------|------------------------|
| Carmarthenshire— | | | | | | | |
| Industrial Area | 1913 | 8.7 | 1.7 | 4.9 | 15.3 | 84.7 | 100.0 |
| | 1930 | 6.2 | 1.4 | 4.3 | 11.9 | 88.1 | 100.0 |
| Other Parts | 1913 | 11.8 | 2.2 | 7.8 | 21.8 | 78.2 | 100.0 |
| | 1930 | 9.6 | 1.8 | 6.1 | 17.5 | 82.5 | 100.0 |
| Whole County | 1913 | 9.6 | 1.8 | 5.7 | 17.1 | 82.9 | 100.0 |
| | 1930 | 7.1 | 1.5 | 4.9 | 13.5 | 86.5 | 100.0 |
| Glamorganshire— | | | | | | | |
| Whole County | 1913 | 7.4 | 3.3 | 7.8 | 18.5 | 81.5 | 100.0 |
| | 1930 | 6.5 | 3.2 | 9.1 | 18.8 | 81.2 | 100.0 |
| Monmouthshire— | | | | | | | |
| Industrial Area | 1913 | 5.3 | 2.6 | 3.7 | 11.6 | 88.4 | 100.0 |
| | 1930 | 4.3 | 2.1 | 4.8 | 11.2 | 88.8 | 100.0 |
| Other Parts | 1913 | 8.2 | 3.0 | 6.1 | 17.3 | 82.7 | 100.0 |
| | 1930 | 6.4 | 2.3 | 6.7 | 15.4 | 84.6 | 100.0 |
| Whole County | 1913 | 6.4 | 2.7 | 4.6 | 13.7 | 86.3 | 100.0 |
| | 1930 | 4.3 | 2.1 | 4.8 | 11.2 | 88.8 | 100.0 |
| Live Stock. | | | | | | | |
| Live Stock. | | Horses. | Cattle. | | | Sheep. | Pigs. |
| | | | Cows and Heifers. | Other Cattle. | Total. | | |
| Carmarthenshire— | | | | | | | |
| Industrial Area | 1913 | 5.7 | 11.1 | 15.0 | 26.1 | 64.6 | 6.7 |
| | 1930 | 4.3 | 14.7 | 13.5 | 28.2 | 82.3 | 6.3 |
| Other Parts | 1913 | 5.3 | 11.2 | 16.4 | 27.6 | 47.2 | 8.6 |
| | 1930 | 3.9 | 14.7 | 13.9 | 28.6 | 54.1 | 7.4 |
| Whole County | 1913 | 5.6 | 11.1 | 15.4 | 26.5 | 59.8 | 7.2 |
| | 1930 | 4.2 | 14.7 | 13.6 | 28.3 | 74.3 | 6.6 |
| Glamorganshire— | | | | | | | |
| Whole County | 1913 | 6.7 | 9.2 | 11.7 | 20.9 | 114.5 | 5.3 |
| | 1930 | 5.5 | 13.3 | 12.5 | 25.8 | 145.1 | 7.2 |
| Monmouthshire— | | | | | | | |
| Industrial Area | 1913 | 6.5 | 8.0 | 12.6 | 20.6 | 103.8 | 5.7 |
| | 1930 | 5.1 | 10.5 | 12.3 | 22.8 | 119.7 | 7.3 |
| Other Parts | 1913 | 5.6 | 6.5 | 14.1 | 20.6 | 58.0 | 5.7 |
| | 1930 | 3.9 | 8.5 | 14.5 | 23.0 | 75.0 | 7.0 |
| Whole County | 1913 | 6.2 | 7.5 | 13.1 | 20.6 | 87.1 | 5.7 |
| | 1930 | 4.6 | 9.7 | 13.2 | 22.9 | 102.6 | 7.2 |

APPENDIX 13.

*Changes in Crops and Live Stock per 100 Acres of Total Cultivated Area.**(Whole Counties.)*

| | Carmarthenshire. | | | Glamorganshire. | | | Monmouthshire. | | |
|------------------------|------------------|----------|----------|-----------------|----------|----------|----------------|----------|----------|
| | 1910-14. | 1920-24. | 1925-29. | 1910-14. | 1920-24. | 1925-29. | 1910-14. | 1920-24. | 1925-29. |
| Corn Crops... | 9.6 | 10.1 | 7.1 | 7.6 | 10.5 | 6.7 | 6.9 | 8.9 | 5.4 |
| Roots and Potatoes. | 1.9 | 1.8 | 1.6 | 8.5 | 8.9 | 8.6 | 2.8 | 3.0 | 2.5 |
| Rotation Grasses. | 5.8 | 6.1 | 4.8 | 7.0 | 8.8 | 7.8 | 4.1 | 5.1 | 4.8 |
| Other Crops | 0.8 | 0.6 | 0.5 | 0.7 | 1.2 | 1.0 | 0.6 | 1.6 | 1.9 |
| Total Arable | 17.1 | 18.6 | 18.5 | 18.8 | 24.4 | 18.8 | 14.4 | 18.6 | 14.1 |
| Permanent Pasture. | 82.9 | 81.4 | 86.5 | 81.2 | 75.6 | 81.2 | 85.6 | 81.4 | 85.9 |
| Total Crops and Grass. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Horses ... | 4.5 | 5.6 | 4.4 | 6.7 | 7.5 | 6.8 | 6.1 | 6.7 | 5.8 |
| Cows and Heifers | 11.8 | 13.7 | 14.1 | 9.9 | 11.9 | 13.0 | 7.8 | 9.1 | 10.0 |
| Other Cattle | 15.8 | 14.4 | 14.7 | 11.8 | 11.9 | 12.7 | 12.9 | 12.6 | 18.7 |
| Total Cattle | 27.1 | 28.1 | 28.8 | 21.7 | 23.8 | 25.7 | 20.7 | 21.7 | 23.7 |
| Sheep ... | 62.8 | 62.6 | 71.8 | 123.2 | 115.0 | 135.4 | 95.7 | 82.2 | 95.4 |
| Pigs... .. | 8.0 | 7.6 | 7.8 | 6.0 | 7.6 | 7.8 | 6.6 | 8.2 | 7.8 |

Population and Land Surface not used for Agriculture.

| | Proportion of "Rural" to Total Population. (per cent.) | Persons per 100 Acres of Land Surface. (approx.) | Proportion of Land Surface not used for Agricultural Purposes. (per cent.) |
|----------------|--|--|--|
| Carmarthen ... | 58.4 | 30 | 13 |
| Glamorgan ... | 17.7 | 242 | 30 |
| Monmouth ... | 10.4 | 129 | 23 |
| Wales | 31.5 | 72 | 14 |

APPENDIX 14.

Farmers' Co-operative Societies Operating in South Wales, 1930.

| | Employees. | | | |
|---|--------------------|-------------------|-----------------|--------|
| | Men. | Women. | Boys and Girls. | Total. |
| Carmarthenshire— | | | | |
| Pontardulais Farmers' Society | 4 | — | 1 | 5 |
| Farmers Limited, Ammanford | — | — | — | — |
| Llandovery Agricultural Co-operative Society. | 2 | 1 | 1 | 4 |
| Llanelly Farmers' Society | 8 | — | — | 8 |
| Llangadock Agricultural Co-operative Society. | 5 | — | — | 5 |
| Pumpsaint Agricultural Co-operative Society. | 18 | — | 1 | 19 |
| Clynderwen Farmers' Association ... | 18 | 3 | 1 | 22 |
| Carmarthen Farmers' Co-operative Society. | 31 | — | 3 | 34 |
| Emlyn Agricultural Society | 4 | 1 | — | 5 |
| Llandyssul Agricultural Society | 3 | 1 | — | 4 |
| Whitland Farmers' Co-operative Society | 3 | 1 | — | 4 |
| Kidwelly and District Farmers' Mart ... | — | — | — | — |
| | 96 | 7 | 7 | 110 |
| Glamorganshire— | | | | |
| Blackmill Farmers' Co-operative Society | 2 | — | — | 2 |
| Llangynwyd Farmers' Society | — | — | — | — |
| Llanedarne Farmers' Association... .. | 1 | — | — | 1 |
| Gower Farmers' Co-operative Society ... | 1 | — | — | 1 |
| Pontardawe Farmers' Association | 1 | — | — | 1 |
| Pyle Agricultural Co-operative Society ... | 2 | — | — | 2 |
| West-Glamorgan Farmers' Association ... | 2 | — | — | 2 |
| Swansea Farmers' Association | 1 | — | — | 1 |
| Mid-Glamorgan Farmers' Society | 9 | — | — | 9 |
| Nelson and District Marketing Association | — | — | — | — |
| Birchgrove (Cardiff) Smallholders ... | — | — | — | — |
| | 19 | — | — | 19 |
| Monmouthshire— | | | | |
| Chepstow Farmers' Limited | 14 | 4 | 5 | 23 |
| | | | | |
| | <i>Membership.</i> | <i>Employees.</i> | | |
| Carmarthenshire | 7,903 | 110 | | |
| Glamorganshire | 1,679 | 19 | | |
| Monmouthshire | 283 | 23 | | |
| | 9,865 | 152 | | |
| Food Industries : Non-Agricultural— | | | | |
| Carmarthenshire— | | | | |
| Cheese Making | 4 | 15 | 3 | 22 |
| Milk Foods | 33 | — | 2 | 35 |
| Liquid Milk | 15 | 6 | 1 | 22 |
| | 52 | 21 | 6 | 79 |

APPENDIX 15.

**Number of Agricultural Holdings and Number of People
Engaged in Agriculture.**

The chief sources of statistical information about the organisation of agriculture are the *Census* and the *Agricultural Statistics* of the Ministry of Agriculture. It sometimes appears that there is disagreement between the respective data obtainable from these sources, but, on closer examination, some of this apparent lack of harmony disappears, and reasons for differences can be seen quite clearly.

If, for instance, (a) the number of agricultural holdings in the *Statistics* and (b) the number of "farmers and graziers" recorded in the *Census* are compared, the result will be found to be as follows:—

| <i>County.</i> | <i>Number of Agricultural Holdings of over 1 acre.</i> | <i>Farmers and Graziers. Male and Female.</i> |
|-------------------|--|---|
| Carmarthen | 8,766 | 5,929 |
| Glamorgan | 5,012 | 3,249 |
| Monmouth | 4,329 | 2,691 |

The number of agricultural holdings is in excess of the number of farmers and graziers because, at least, some farmers have two distinct "holdings," that is, they occupy two, or possibly more, separate parcels of land on separate agreements, and, possibly, under separate owners. It is understood that where two such "holdings" are in one parish, and worked as one "farm unit," the Ministry endeavours to state them as one "holding." Where, however, they are in two parishes they may be stated as two "holdings." They may, or may not, be two separate "farm units" in production, but, in any case, they are one "business unit" represented by one farmer or grazier in the *Census*.

But the more important reason for lack of harmony is that the Ministry is obliged to record the use of all the land in holdings over one acre in extent. Many of these are held by persons who have another occupation besides the cultivation or management of land. When the *Census* records are taken such persons will be returned under the classification of their *main* occupation. Thus, an anthracite miner, working full-time, but having a holding with, say, two cows, some poultry, and possibly some sheep, managed by himself and his wife, will be returned as a mine worker, and his wife will be returned as "married (in domestic occupation)." This type of holding is very common in some of the higher, and industrial districts of South Wales: such combinations, in a whole host of rural and semi-industrial farms are found over the whole of the Survey Area.

It should be noted, further, that in recording "labour" the *Statistics* of the Ministry of Agriculture do not include the "occupiers" of holdings, or their wives. Those persons recorded are returned as "regular" and "casual" workers under these classifications; (a) Males 21 years and over, (b) Males under 21 years, and (c) Women and Girls. But here no distinction is made between *wage-earning employees* and *relatives of occupiers* of farm holdings (farmers and graziers). The *Census*, on the other hand, returns, by sex:

- (a) Farmers and Graziers;
- (b) their Relatives, and
- (c) Employees.

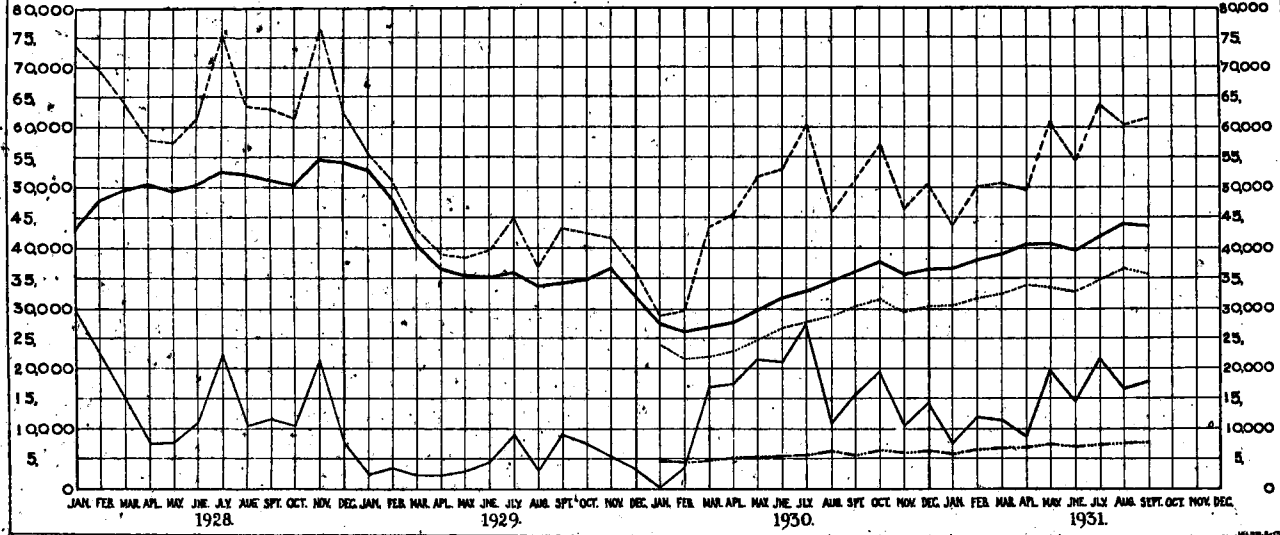
The brief statement of Persons Occupied in Agriculture, Census of 1921, is as follows :

| | Farmers and Graziers. | | Relatives. | | Employees. | | Total 1921. | |
|---------------|-----------------------|----------|------------|----------|------------|----------|-------------|----------|
| | Males. | Females. | Males. | Females. | Males. | Females. | Males. | Females. |
| Carmarthen | 5,087 | 842 | 2,142 | 807 | 2,926 | 710 | 10,155 | 2,359 |
| Glamorgan ... | 2,874 | 375 | 1,126 | 266 | 3,188 | 240 | 7,188 | 881 |
| Monmouth ... | 2,419 | 272 | 908 | 178 | 2,995 | 156 | 6,322 | 606 |
| | 10,380 | 1,489 | 4,176 | 1,251 | 9,109 | 1,106 | 23,665 | 3,846 |

SOUTH WALES INDUSTRIAL SURVEY REGION.

UNEMPLOYMENT IN THE COAL INDUSTRY - JAN. 1928 TO SEPT. 1931.

| | | |
|-----------------------------|---|---|
| <i>Wholly unemployed.</i> | <i>(Below ground Jan. 1930-Sept. 1931)</i> | |
| " | <i>Above " " " " " "</i> | — |
| " | <i>(Total)</i> | — |
| <i>Temporarily stopped.</i> | <i>(Below and above ground)</i> | — |
| <i>Total unemployed.</i> | <i>(Wholly & temporarily, below & above ground)</i> | — |



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