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inter-Imperial trade, while Sir George Julius emphasised the growing realisation of the interdependence of the two countries, and the need that Great Britain should further extend her Empire markets. Not the least of the efforts being made towards that end was, he said, the work of the two Standards Associations, which for many years had been studying each other's needs with a view to securing at a maximum efficiency and minimum cost the article or material, which would satisfy the user. Failure in this direction on the part of the British manufacturer had resulted in the loss of much possible trade in Australia, while primary producers in the latter country had equally failed to understand the markets in the Mother Country and had, therefore, found it difficult to meet competition from others. This position could only be rectified by a whole-hearted and co-operative survey of imperial market requirements and manufacturing possibilities, so that, as far as possible, those requirements could be met by products from within the Empire. It was the intention of the Commonwealth Government to assist in the conduct of the work of the Standards Association of Australia. Sir Henry Barraclough stated that in that country there were 500 committees dealing with various aspects of standardisation. That number might appear large, but it must be remembered that they were scattered over a continent the size of Europe, which was divided into six self-governing states. Mr. Le Maistre uttered a warning to British manufacturers on the necessity of adapting their products to the special requirements of Australia, and added the good advice that they should visit the country to see for themselves, if possible. We commend this advice to our manufacturers.

Irrigation Works in Madras.

The Presidency of Madras is essentially an agricultural region, 71 per cent. of its population being engaged in tilling the soil. The total area of the province is 142,200 sq. miles and over 42 per cent. of this, namely, 39,260,000 acres, is under cultivation; a fair proportion of the remainder is forest land. The fertility of the soil is greatly increased by irrigation, and this has long been recognised by the industrious Madrasi agriculturist. About a quarter of the sown area is systematically irrigated and does not, therefore, depend on the adequacy of the monsoons. For many years past a large proportion of the irrigation works have been in the hands of the Madras Government and the annual administration report of the Public Works Department of the Presidency shows that 7,380,867 acres of land, representing 18·8 per cent. of the total cropped area, were irrigated by Government works. The total area of land [illegible] the tank restoration scheme is 102,500 square miles, which, as will be seen, is two-thirds of the area of the Presidency itself. Up till the end of March, 1930, restoration works had been completed over an area of 83,137 sq. miles, and, in addition, works had been put in hand, or were about to be commenced, on a further 4,493 sq. miles of land. Consequently, some 85·49 per cent. of the total area comprised in the [illegible] dealt with by March 31, 1930.

Regulations for the Asbestos Industry.

The Home Secretary has issued a pamphlet of regulations relating to the Asbestos Industry, under Section 79 of the Factory and Workshop Act, 1901, three pages of which are concerned with the responsibilities of occupiers and one-half a page with the duties of persons employed, the remainder being taken up by familiar perambulatory matter. Assuming that brevity is more effective than diffuseness, there is no objection to this. Indeed, the whole pith of these regulations is comprised in the statement that the occupier is to provide mechanical means for preventing the escape of asbestos dust from the various machines into the room, and a breathing apparatus for each person employed in chambers where loose material is prevalent, while the persons employed are to wear that apparatus. If we regard the last stipulation as being the most important, it is because a long study of the reports of H.M. Inspector of Factories has convinced us that there are few, if any, of the methods proposed for increasing the safety of workmen, which these workmen will not exercise the greatest ingenuity to circumvent, when they feel so disposed. That this view is also held by the authorities is shown by the fact that another stipulation animadverts against the misuse of, or interference with, any appliance provided in pursuance of these regulations. The processes covered include the breaking, crushing, disintegrating and grinding of asbestos, the manufacture of asbestos textiles and insulating materials, and the cleaning of the equipment used for the collection of the dust. The regulations are published by H.M. Stationery Office, as *Statutory Rules and Orders*, 1931, No. 1140, at a price of 2*d*. net.

The Brothers Haworth and Carron Works.—Messrs. Carron Company, Carron, Falkirk, have recently published the eighth of their attractive little pamphlets in the "Famous Men and Carron Works" series. This deals with the work of William and Henry Haworth, who were designers and wood carvers at Carron. Illustrations of several outstanding examples of their ornamental carvings, and of the castings made from them in the foundry, are included in the pamphlet.

aircraft industry, and a [illegible] aggregate to the motor cycle and cycle industries. Although there was still a net influx of workpeople into the industry, it was on a smaller scale than in recent years, and it was insufficient to compensate the large increase in the number unemployed. The resulting figure of employment is lower than any year since 1924, and even allowing for the rapid technical advance in productive processes, indicates a marked decline in production as compared with

Private Cars.

production, published by the Society of Motor Manufacturers and Traders, Limited, in their annual review for the years up to and including 1928, and the figures for the years ending September, 1929, 1930 and 1931, are given in Table II.

Table II.—*Output of Cars.*

1923	... 71,396	1927	...	...	164,553
1924...	... 116,600	1928	...	...	165,352
1925...	... 132,000	1929	...	...	182,256*
1926...	... 153,500	1930	...	...	171,052*
		1931	...	...	158,298*

* Year ending September 30.

The production year of the motor industry is from October 1 to September 30, owing to the necessity of regulating production in accordance with the seasonal movement of demand and to the impetus given to the production of new models by the annual Motor Exhibition at Olympia, which is held at the beginning of October. Since the necessary data have been available, it has, therefore, been more useful to collate production figures on the basis of the production year. Apart from the slight overlap in 1928-29, this method does not vitiate comparison, and even in the year of transition little difference would be made where the calendar year figures substituted for those of the production year. The decline in production in this section of the motor industry is in line with the decreased employment noted above, and was progressive throughout the year. Twelve monthly totals, however, show that since October, 1931, the decline has been arrested. Both as regards the magnitude of the decline and the recent improvement, these results are highly satisfactory, especially if comparison is made with the position of the motor industries of other countries. Indeed, during some weeks of November, 1931, it was not impossible that British production exceeded the production of the U.S.A., which was then, owing to shut-downs, running at some 7,000 units per week. Such a position is certainly unprecedented, and perhaps unlikely to recur, but it is sufficiently striking to be noticed, and would not have been considered within the bounds of possibility three years ago. The new

spindle turbine placed well above the water. With regard to air supply plant, designers had been greatly assisted by the closer attention now given to the reduction of losses in intake shafts, &c. Formerly, these accounted for 50 per cent. of the total energy supplied to the fans. The reduction of such losses to a minimum was now-a-days of very great moment when installations on board might be required to supply 320,000 cub. ft. per minute against stokehold pressures of 3½ to 4 in.

Engineering Standardisation in Australia.

On Thursday, January 14, a joint meeting of the British Standards Institution and the Standards Association of Australia, was held, the two parties to the gathering being assembled at the Board of Trade, London, and at Science House, Sydney, respectively. On this side, the meeting was addressed by the Right Honourable Walter Runciman, President of the Board of Trade, by Mr. Maurice Wilson, chairman of the British Standards Institution, and by Sir William Larke, chairman of the Iron and Steel Industry Committee, while on the other, the speakers were Sir George Julius, chairman of the Standards Association of Australia, Sir Henry Barraclough, dean of the Faculty of Engineering, University of Sydney, and Mr. C. Le Maistre, Director of the British Standards Institution, who is at present in Australia. Mr. Runciman pointed out that the development of standardisation in the various parts of the Empire, upon the basis of close co-operation in establishing uniform standard specifications, would contribute to the growth of inter-Imperial trade, while Sir George Julius emphasised the growing realisation of the interdependence of the two countries, and the need that Great Britain should further extend her Empire markets. Not the least of the efforts being made towards that end was, he said, the work of the two Standards Associations, which for many years had been studying each other's needs with a view to securing at a maximum efficiency and minimum cost the article or material, which would satisfy the user. Failure in this direction on the part of the British manufacturer had resulted in the loss of much possible trade in Australia, while primary producers in the latter country had equally failed to understand the markets in the Mother Country and had, therefore, found it difficult to meet competition from others. This position could only be rectified by a whole-hearted and co-operative survey of imperial market requirements and manufacturing possibilities, so that, as far as possible, those requirements could be met by products from

This total was [illegible] the ending June 30, 1930. previous year's figure. The total revenue on the was Rs. 3,02,53,263 and the net revenue, after deducting working expenses, was Rs. 1,36,23,889. Some idea of the scale upon which the operations were carried on will be gained when it is stated that the total length of the main and branch canals of the irrigation works was 4,447 miles, some 1,180 miles of which were utilised for navigation as well as for irrigation purposes; the length of the distributing channels reached the large total of 10,320 miles. A good deal of the report is naturally devoted to particulars regarding the now well-known Cauvery-Metur irrigation project. Work on the main dam at Metur is shown to be progressing satisfactorily; 310,000 tons of masonry had been placed in position on the dam site during the year ending June 30, 1930, and this had been increased to 429,000 tons by the end of December, representing an average of 1,050 tons per working day. The line from Salem on the South Indian Railway to Metur was opened in April, 1929, and materials are now conveyed direct to Metur Dam station. The project includes a hydro-electric power scheme, by which it is hoped to generate 30,000-h.p. continuously all the year round. The insertion into the dam of four rows of 8-ft. 6-in. diameter pipes, for the purpose, was begun in November, 1930. We hope to deal with this subject at length shortly. Another important portion of the work of the Department is in connection with the restoration of the derelict tanks distributed over a wide area within the Presidency. The total area of land coming within the scope of the tank restoration scheme is 102,500 square miles, which, as will be seen, is two-thirds of the area of the Presidency itself. Up till the end of March, 1930, restoration works had been completed over an area of 83,137 sq. miles, and, in addition, works had been put in hand, or were about to be commenced, on a further 4,493 sq. miles of land. Consequently, some 85·49 per cent. of the total area comprised in the scheme had been dealt with by March 31, 1930.

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IV.—The Motor Industry.

Official [illegible] ...ties do not distinguish between the private car industry and commercial vehicle industry. In Table I accordingly a general summary is given covering the group of industries centred round the internal combustion engine.

Table I.—*Number of Workpeople Employed.*

Year.	Motors, Cycles and Aircraft.*			
	Number Insured.	Number Unemployed.	Number Employed	Index 1923 = 100.
1923	191,830	16,108	175,722	100·0
1924	203,340	16,145	187,195	106·5
1925	214,840	14,100	200,740	114·3
1926	224,040	21,609	202,431	115·6
1927 .. .	232,860	18,339	214,531	122·5
1928	234,830	22,015	212,815	121·1
1929 .. .	245,410	17,614	227,796	129·6
1930 .. .	247,140	40,647	206,493	117·5
1931 .. .	251,320	57,462	193,858	110·3

* Figures relate only to the month of July in each year.

As explained in previous articles, the Ministry of Labour figures in respect of 1928 to 1931 are not strictly comparable with those for previous years, in that they leave out of account all workpeople 65 years of age and over, and youths under 16. Possibly, an addition of some 2,000 workpeople employed should be made on this account. The adjustment does not, however, affect materially the very decided recession shown in the above table. None of this recession is probably allocable to the aircraft industry, and a small amount only in the aggregate to the motor cycle and cycle industries. Although there was still a net influx of workpeople into the industry, it was on a smaller scale than in recent years, and it was insufficient to compensate the large increase in the number unemployed. The resulting figure of employment is lower than any year since 1924, and even allowing for the rapid technical advance in productive processes, indicates a marked decline in production as compared with 1929.

Private Cars.—The revised figures of private-car production, published by the Society of Motor Manufacturers and Traders, Limited, in their annual review for the years up to and including 1928, and the figures for the years ending September, 1929, 1930 and 1931, are given in Table II.

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