

turies, and a third phase of expanding food resources and population followed the coming of the potato. With the enclosure movement and the scattering of farms, commercial agriculture came to be based on the old outfield practice of 'taking the plough round the farm' by using long leys.

Within the British Isles, the Atlantic inheritance had made a distinctive contribution to British life, and to overseas lands through heavy emigration, and Prof. Evans makes a plea for the preservation of regional variety in a world weighted in favour of uniformity. There is a danger that movements towards the restoration of self-government will lead to isolation. Along the Atlantic shores, peasant attitudes of immemorial antiquity have not entirely succumbed to the impact of a money economy. Idealization of the past and a reverence for spiritual values, coupled with suspicion of impersonal external authority, have sprung from the experience of living in the Atlantic Ends.

BRITISH ECONOMY UNDER INFLATION

PROF. A. J. BROWN, in his presidential address to Section F (Economics), states that the outstanding feature of the British economy since the War has been the low level of unemployment in comparison with both pre-war experience and the most sanguine war-time expectations. This low level appears to be explained in part by an alteration in the behaviour of employers. It is noteworthy that variations since the War have been mostly in hours of work or, secondarily, in the number of people available for employment, whereas before the War they took place mainly in the proportion of the labour force unemployed.

The great cause of high and steady employment since the War has, of course, been freedom from fluctuations in demand. Most of all, we have been remarkably free from any major fluctuations in world demand for our goods and services. There has, however, been a very marked fluctuation in internal demand for inventories, which may be a new phenomenon in Britain, though it is well known in the United States, and which might have been expected to produce marked fluctuations in employment such as have occurred in America.

The main reason why Britain has escaped these fluctuations in employment is that variation in demand for inventories has been largely taken up by variation in imports, but the method of financing government expenditure has helped somewhat and there has been fortuitous assistance from variations in defence expenditure and also from variations in the prices of our imports.

The question arises whether the high level of employment has diminished the adaptability of the economy. A simple measurement of the amount of change in the British economic structure in the years 1948-56 shows it, in fact, to have been almost identical with that experienced in the years 1929-37 (the amount of change in the intervening period 1937-48 having been about twice as great). It is natural to inquire further whether this adaptation to economic forces since the War has taken place by a different market mechanism from that of the 1930's. It proves to be the case that, on the whole, the industries which expanded relatively to the rest in the 1930's were not those in which earnings rose

most. On the other hand, there is a definite tendency for the industries which have expanded most since 1948 to have obtained their increased share of the labour force by raising their earnings in relation to others.

The record of progress in Britain in regard to the standard of living since the War has been good by previous standards but not striking in comparison with other countries. It is very difficult to find any close connexion between this progress and the timing of new investment; in fact, in manufacturing industries especially, the striking feature of the past ten years has been the increase of output in relation to both labour and capital.

The amount of saving (and hence of investment) in the economy does not seem to have been adversely affected to any marked degree by post-war inflation. Such reduction as there has been in it after allowance is made for the level of disposable real income does not seem too great to be accounted for largely by change in distribution of income. A further indication that our inflationary experience is not likely seriously to have affected saving is that there is little sign in the prices of assets or in the level of interest-rate in relation to money holdings that steady expectations of rise in prices have had much influence. It may be concluded that Britain's record of high employment and economic progress since the War has been reasonably satisfactory in many ways, but that a considerable part of our success is due to external circumstances which may change and with which we may not have adequately equipped ourselves to deal.

HEAT AND THE ENGINEER

PROF. O. A. SAUNDERS, in his presidential address to Section G (Engineering), comments that in pursuing his art the engineer must always encounter many problems of heat and heat transfer. These occur in the generation of power from heat, in the control of heat-influenced processes, and in many problems of engineering design where the production of heat is a nuisance. In the field of power generation, interest is increasing in the direct conversion of heat into electricity by some form of thermionic converter which would allow the elimination of expensive turbo-alternator machinery, and would have many applications for small generating sets even though the thermal efficiency were not high. The possibility of direct conversion of nuclear energy into electricity, although remote at present, would have far-reaching effects on power stations of the future.

The engineer is vitally interested in progress of the fundamental science of heat transfer, which has advanced greatly during recent years. By the use of numerical methods and computing machines, it is now possible to solve many problems theoretically, and the field of laminar flow convection is now well covered. For turbulent flows, however, where the greatest practical interest lies, empirical methods are still needed, although the understanding of these flows has improved. The gas-cooled nuclear power reactor has posed some interesting problems of turbulent-flow heat-transfer, and their solution is of great practical importance.

The regenerator is an attractive principle of heat exchange, and new ideas for rotary regenerators have come forward in recent years; but it is difficult to design a satisfactory mechanical arrangement,