roads for through traffic, and may even be inequitable to make each authority maintain the roads for local traffic, unless the area of any such authority is fairly large. In an almost purely agricultural country, or one in which the distribution of industries and of the soils is very symmetrical, the consideration that the more costly roads are usually those running through rich soils is of some importance; but it is of very small importance in a country which is complex as regards soils, climates, and the distribution of population and of wealth, more especially when the population of that country includes a large spending element as distinct from the elements of primary economic significance.

The United Kingdom is such a country. In it financial equity can only be secured by defraying a considerable part of the costs of road maintenance out of the King's taxes, and a fair economic distribution of burdens can only be secured by something in the nature of a wheel tax, the whole of which would not necessarily be paid by those upon whom it was imposed, but would naturally be to a great extent, distributed among the persons directly or indirectly benefiting from the carriage of goods over the roads. The customer pays. All classes do not benefit equally from the existence of an efficient highway system, and those who use the roads as a means of rapidly amassing wealth, or as an accessory in the dissipation of wealth, should be taxed to pay for road maintenance, not only because they use the roads for such purposes, but also because they are the strong, active and efficient elements in the community. To a considerable extent roads are maintained by persons who use them and benefit by them less than any other classes of the community. It is desirable that taxes raised from users of the roads should be devoted to road maintenance, not as a punishment for the use of the roads, but because there will be a constant proportion between the amount of wear and tear and the amount of money raised, and it is here suggested that a wheel tax should be imposed on all vehicles, including bicycles, for the purpose of road maintenance. The sums raised from motor and petrol taxes should be included. These sums are at present devoted to a quite distinct purpose—that is, road improvement. This is much better than carrying out such improvements by means of loans (the loans granted by the Road Board* being only such in a secondary sense, and involving no charge upon the community for interest), but this must be regarded as a temporary expedient for rendering the road system as a whole more effective, and the aim should be to establish a state of equilibrium in which all sums raised by taxes on vehicles should be devoted to road maintenance, and to such minor improvements as do not lead to an increase in the cost of maintenance.

So far the improvements carried out with the Road Board funds have largely been, as a Scottish reporter to the Road Congress has expressed it, "quasi-permanent" rather than permanent in the true sense, and no attempt has yet been made to undertake generally such engineering works as are needed in some cases to make roads more efficient, and, in many other cases, to render them less costly in annual maintenance. It should be clearly understood that the policy here advocated—viz., the attainment of an equilibrium, and the allocation of Road Board fund to road maintenance proper—includes as a preliminary the extension of the wheel tax at the earliest possible date, the "hoarding" of Road Board funds until a sufficient sum is in hand and the carrying out once for all in each case, on definite stretches of road, such improvements as are necessary. It is further suggested that the expenditure of the Road Board fund should be to some extent rhythmic, and that, in addition to the annual expenditure on maintenance, there should be a steady hoarding of a surplus to be devoted, from time to time, to works of road improvement. One advantage of this system would be that, while the money was accumulating, there would be time for investigations into the different schemes of road improvement put forward, for the preparation of the plans, and for all preliminary work, so that when the time came to spend the money the whole of the improvements staff could be employed in furthering the executive work. Outside the larger cities, at any rate, the carrying out of road improvements by means of loans on which interest has to be paid is not sound finance. How can it be good finance to pay, say, £1,600 for an improvement which actually cost only £1,000? In the case of a long-term loan the total sum paid may be more than twice that actually expended on the work.

In the United Kingdom the conditions of trade and of business and personal activitity generally are such that a wheel tax on the broadest possible basis is a very fair method of raising revenue for the purpose of maintaining roads. If it can be argued that persons who do not use the roads benefit indirectly as much as those who do use the roads, it may equally well be argued that persons who do not actually use vehicles pay indirectly a full share of the cost of running such vehicles as are used in the distribution of goods. With a better organization of road maintenance, including an increase in the sizes of administrative areas, closer relations between one highway authority and another, and some general supervision of finance, procedure and staffs, by a body such as the Road Board, the funds raised at present by local taxation, added to those derived from vehicle and petrol taxes, and increased by an extension of the wheel tax would, it may safely be asserted, be amply sufficient for all purposes of road maintenance for a very long time to come.

CORUNDUM.

In spite of the large increase, in late years, in the manufacture and consumption of artificial abrasives, such as carborundum, alundum, etc., natural corundum is still preferred for certain purposes, and the Canadian deposits of this mineral yield practically the entire supply. In 1912 the production amounted to 1,960 tons, valued at $239,091, according to statistics contained in Economic Minerals and Mining Industries of Canada, by J. McLeish.

The corundum mines are situated in the eastern portion of the province of Ontario, in the townships of Carlow and Raglan, and mining operations have been in progress since 1900. At present, mining is being conducted solely by one corporation—the Manufacturers' Corundum Company—who have acquired the mines and mills formerly operated by the Ontario Corundum Company, in Carlow, and the Canada Corundum Company, in Raglan.

The corundum occurs in the form of crystals of various sizes, disseminated in syenite, and is won by quarrying the matrix, hand-sorting the broken rock, and crushing the richer material, with subsequent wet concentration. The average corundum content of the rock treated does not much exceed 6 per cent., and, as from 1½ to 2 per cent. are lost in concentrating, the recovery represents about 4 per cent. of the crude material.

Corundum-bearing rocks were first recognized in this area in 1897, and the mineral is found sparingly, but widely distributed in the rocks of this district.