

The use of the wheel in Japan. Alan Macfarlane

An even more mysterious reluctance lies in the use of the wheel. We have seen one aspect of this in relation to mills, but the absence comes out more clearly in relation to the use of the wheel for carrying goods and people. If we take the wheelbarrow, this device was traditionally enormously important in China. 'For adaptability to the worst road conditions no vehicle equals the wheelbarrow, progressing by one wheel and two feet. No vehicle is used more in China, if the carrying pole is excepted, and no wheelbarrow in the world permits so high an efficiency of human power as the Chinese, where nearly the whole load is balanced on the axle of a high, massive wheel with broad tire.'¹ Yet in Japan the wheelbarrow was not adopted, unlike most things Chinese. For the medieval period, we are told 'The wheelbarrow seems to have been unknown (whereas it was used in China) and earth was carried either in baskets, or thrown on to a screen made of straw or rushes drawn by hand and slid along the ground.'² Towards the end of the nineteenth century, Chamberlain noted that 'Japanese rural economy knows nothing of wagons or wheelbarrows.'³

Moving up to larger wheeled devices, Kaempfer had noticed a rough cart being used for moving stone. 'We came to the village Asiap, thence to the village Kasama, in the neighbourhood of which is a quarry of freestone, which are brought to the water-side in carts drawn by oxen. These carts have but three wheels, each of one solid piece of wood.'⁴ Yet there is very little evidence elsewhere in his work of much use of wheeled carts. A century after Kaempfer, Thunberg noted the virtual absence of wheeled conveyances. 'No post-coaches, or other kinds of wheel-carriages, are to be found in this country for the service of travellers...'⁵ The only carts he saw were near the city of Kyoto (Miaco), and they were not only the exception, but showed, as Kaempfer noted, how primitive and undeveloped the technology was. 'This day, I saw several carts driving along the road, which were the first I had seen, and indeed were the only wheel-carriages used in and about the town of Miaco, there being otherwise none in the country. These carts were long and narrow with three wheels, viz the two usual wheels and one before. The wheels were made of an entire piece of wood sawed off a log...Nearer the town, and in it, these carts were larger and clumsier, sometimes with two wheels only, and drawn by an ox.' He noted that they tended to break up the roads, and were hence confined to one side of the street. Carts

¹ King, *Farmers*, p.239

² Frederic, *Daily Life*, p.129

³ Chamberlain, *Things*, p.20

⁴ Kaempfer, *History*, 3, p.202

⁵Thunberg, *Travels*, iii, 108

being 'only allowed on one side of the road - "which, on that account, seemed much broke up".⁶

In the middle of the nineteenth century, a number of western commentators noticed the absence. Oliphant on the Elgin mission noted in almost identical words to Kaempfer and Thunberg, 'I also observed, for the first time, one or two carts of a very rude construction, and drawn by bullocks; but they are apparently very little used in Japan.'⁷ Alcock quoted Veitch: 'There are no carts in this district. Everything is transported from and in to the interior by horses and bullocks.'⁸ Morse noted that 'I have seen no wheeled vehicles except the **jinrikisha** and there are very few of these,'⁹ though he did note 'A very common sight to encounter in the streets is labourers dragging on a two-wheeled dray a fruit, or flowering, tree, such as Camellia.'¹⁰ Wheeled transport for carrying people came very late indeed. 'The rickshaw is thought to have been invented in Tokyo in 1869, though the origins are obscure. Japanese no longer had to rely on transport by water or on foot, and within a few years there were as many as 50,000 rickshaws in Tokyo.'¹¹

How then was the immense traffic in goods and people in Japan carried? Apart from a very limited use of horses, and good water transport, the answer is basically on the human back and shoulders. Morse described a few of the techniques. The main method was by poles and racks. 'The farmers have long racks with which they lug grass or grain from the fields. They are longer than a man and are carried high on the back.'¹² For stones and dirt '...when a sufficient load is collected a pole is thrust through the loops and two men lug it off on their shoulders, the matting suspended from the pole like a hammock. Wheelbarrows are unknown in Japan and this device provides a good substitute.'¹³ Immense loads were carried. 'After leaving the market town we met scores of people struggling along with heavy loads hung

⁶Thunberg, *Travels*, iii, 134

⁷Elgin, *Mission*, 139

⁸ Morse, *Tycoon*, 2, p.477

⁹ Morse, *Day i*, p.425

¹⁰ Morse, *Day i*, p.347

¹¹ Jansen; Rozman (eds.), *Transition*, p.463

¹² Morse, *Day i*, p.66

¹³ Morse, *Day i*, p.345-46

from their carrying poles. Such loads! I have tried a number of times, without success, to lift them from the ground, and these people will travel miles with them.¹⁴ In the early twentieth century, boys used to carry eggs from the shop to the train, and then through the streets of Tokyo. 'With an enormous pack on his back and bundles in both hands, one boy could carry as much as 180 lbs of eggs at a time; 100 lbs on his back and forty in each hand.'¹⁵ Even when there were carts to lighten the load, people were used to pull or push them rather than animals, as in the West. 'One notices with sympathy the painful endurance of a class of men who take the places of horses or bulls in dragging and pushing a two-wheeled cart with heavy loads of merchandise.'¹⁶

From this brief account, it can be seen that Japan was at the opposite extreme to Europe, and especially England. Almost all those labour-saving technologies which helped England out of hard physical labour were either not utilized, or hardly employed. Wind power, water power, animal power - all were little used by the Japanese, although they had known how to use them and were aware of their benefits from at least the seventh century. It was not a question of information. Deeper pressures in the social and economic structure led them to rely almost entirely on the muscles of human beings, rather than letting 'nature' take some of the strain.

¹⁴ Morse, Day i, p.46

¹⁵ Silk and Straw, p.110

¹⁶ Morse, Day i, p.9