communication routes. There were only simple country roads where land transport was necessary to avoid the falls and rapids. Furthermore, small roads led upstream from the points where the tributaries became navigable. The location of the newly emerged settlements was mainly determined by the waterways. They arose, *inter alia*, at the confluence of the rivers and at those points where the rivers became navigable.

Brazil's rubber economy collapsed after World War I. The strong population growth came to an end: large numbers of *nordestinos* no longer came to Amazônia and part of the economically stronger population moved away. In the period 1920–1940, the population of the North increased only from 1.439 million to 1.462 million. Many capable people left for the Southeast. In Acre, which had been heavily dependent on the rubber economy, the population fell from 92 379 in 1920 to 79 768 in 1940.

Those former rubber tappers who did not leave the region were forced to switch to subsistence farming or to collect other products. A number of them moved to the small towns, where employment was limited, so that open and hidden unemployment increased, (larger) slums were created, and the public service apparatus was overloaded because it could not be expanded and modernised sufficiently through a lack of capital. Many small settlements saw their population decline, even entire villages and workers' encampments disappeared.

In the 1920s and 1930s, the Ford car company tried to set up several large rubber plantations to supply its own company. However, the plantations faced several difficulties. The whole experiment was ultimately unsuccessful.

Such rubber as was produced on a few plantations in the 1960s was entirely for the domestic market. In 1970 Brazil produced no more than 35 000 tons of natural rubber, only a few percent of the world total. Pará, Amazonas and Acre supplied about 90 % of Brazil's natural rubber. The country was unable to meet domestic needs in the early 1960s, which is why the Brazilian government decided to plant two million rubber trees in 1973, but we shall enlarge on this elsewhere.

Developments in the agricultural sector in the early twentieth century

During and after the Second World War, the agricultural sector underwent a modest but certainly not insignificant development, thanks to Japanese immigrants. They had settled in the Amazon after 1920 and, in the 1930s, focused on jute and pepper cultivation. After some experimentation, they were so successful with this that cultivation expanded quite quickly. Non-Japanese people also started to focus on production. In the 1960s, jute and pepper were among the most important commercial crops. The value of each of those products exceeded that of the collected rubber.

The pepper culture was concentrated entirely on *terra firme* (non-floodable soils) in the vicinity of Belém and Manaus. However, the area near Belém was by far the most important. About 90 % of the pepper production took place in the state of Pará, where pepper was the main agricultural crop. The Japanese colony of Tomé Açu, which had been founded in the 1920s about 200 km south of Belém and which had become heavily involved in pepper production, especially after the Second World War, supplied no less than two thirds of the Brazilian harvest in the 1960s. Total Brazilian production had increased to 14 522 tons in 1970, while in 1952 it had been only 350 tons. The production not only covered the national need; most of it could even be exported. The success

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was due mainly to the intensive way in which the Japanese had devoted themselves to cultivation. They obtained high yields. They also started to keep poultry and other animals, so they were not forced to buy expensive fertilizers. All manure was produced in-house. The level of prosperity achieved by the Japanese was considerably higher than that of the average northern Brazilian farmer.

The jute culture was practised entirely on the *várzeas* (periodically flooded grounds). Initially, cultivation was also mainly an activity of the Japanese, but gradually they withdrew and left the fairly heavy work on the flooded fields to Brazilians. However, the Japanese continued to play an important role in the trade and processing of jute. Commercial production became significant only in the 1940s, but by 1970 it had already risen to about 60 000 tons, thanks in part to the government distributing seed and giving cultivation instructions. From 1953 Brazil was able to meet its own needs, and export to other South American countries was also possible. The area west of Manaus was the main production zone, the state of Amazonas supplying about three quarters of the national harvest; the rest came from Pará. Modern factories in the cities along the Amazon (Belém, Santarém and Manaus) processed the fibres.

Japanese settlers also introduced various Asian fruits, showed that it was lucrative to sow pasture grasses on the low *várzea* soils and to use the artificial meadows thus formed for breeding water buffalos. In addition, they started to focus on raising poultry and growing horticultural crops to supply the cities, especially near Belém and Manaus. They also introduced wet rice cultivation on a limited scale and showed that rice grown in that way gives much higher yields than that grown without irrigation. The Japanese numbered less than ten thousand, but all in all they made an important contribution to the development of the agricultural economy. They had also settled along the Belém–Brasília road at the time and managed to build a decent life in the cities.

The Japanese settlers owed their success to the fact that they formed a select group that had greater agricultural knowledge than the average Brazilian settler (mainly from the Northeast), that they applied intensive production methods, received support from the mother country and the Brazilian government, had perseverance, set up cooperatives and were able to establish themselves as independent farmers with Japanese or Brazilian support and thus did not become dependent on landowners. All this could not always be said of the *nordestinos* who spontaneously settled in the Amazon region.

After the Second World War, the cultivation of malva, a weed that sprang up spontaneously on the cleared lands, also started. It turned out to have fibres that are better than those of the jute in several respects. The Belém–Bragança area became the main production area and malva even became one of the main commercial crops there. In this zone there were quite a few depleted plots that turned out to be suitable only for malva cultivation. Production had also expanded southwards along the Belém–Brasília road in the 1960s. The emerging production of synthetic fibres was already a threat to the cultivated ones at that time.

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The traditional economy

The production of pepper, jute and malva was an activity of only a small part of the agricultural labour force. In the 1960s, the emphasis was on traditional rural livelihoods. Simple arable farming, extensive livestock farming and the collection of forest products employed 57 % of the labour force.

Arable farming consisted largely of shifting cultivation, was practised on small areas by *caboclos* (*mestizos*) and Indigenous people and was primarily aimed in many cases at self-sufficiency. Corn, manioc, beans and rice were the main crops. The *roças* (cultivations) in most areas formed only small enclaves in the vast jungle. Typically they were used only for two to three years, after which a new piece of land was cleared. The practitioners of shifting cultivation lacked capital and knowledge for more intensive agriculture and did not always feel the need to do so, because large areas of forest were still available for clearing. To the extent that arable farming took place on the *várzeas*, there was often a more permanent use, at least during the period of the year when the water level allowed it. The *várzea* farmers were also generally not very prosperous.

Cattle farming was limited. In the 1960s, no more than 2 % of Brazil's livestock was located in the North. Livestock farming took place largely on the savannas, which were found mainly in the higher parts of the Amazon basin (especially near the border with Venezuela and Guyana). The *campos de várzea* near the rivers were also used for livestock farming, but here the livestock had to be moved to pastures on the *terra firme* during the wet season or to be stabled on large platforms. The island of Marajó has long been an important cattle ranching area. The low parts were flooded during the wet season, so that evacuation was necessary here too. In the 1960s it had already become quite common to use the *várzeas* more for the raising of water buffalos. Livestock farming was generally at a low level. The *fazendeiros* were fairly prosperous; the people tending the livestock, on the other hand, were poor.

The collection of forest products, such as fruits, aromatic plants, rubber, oilseeds and precious hides, was widely practised. The buyers and their trading posts were to be found at the confluence of rivers, at points where they became navigable, and in the towns. Many merchants had acquired a monopoly position and also supplied all kinds of goods. An important part of the collecting and distributing trade was in the hands of Brazilians of Syrian and Lebanese origin. The collectors were poor, simple peasants who depended on the merchants to whom they were often in debt. Collecting was for some the main activity, for others a secondary activity next to arable farming.

Timber exploitation was traditionally also a collecting activity. Tree cutters went in search of suitable trees; planting did not take place. The wood was processed mainly by small companies. This started to change only in the 1950s and 1960s.

Expansion of mining

After the Second World War, not only commercial arable farming expanded, but also mining. Rich deposits of manganese ore had been discovered in the Serra do Navio in Amapá, and their exploitation began in the 1950s. A railway line was built between the inland mines and the Port of Macapá, port facilities were upgraded and energy supplies increased. In 1957 the first shipload of manganese ore left the port of Macapá

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