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## Columbian Exchange

*Columbian Exchange* is a term used to illuminate the two-way intercontinental transfers—intended and unintended, seen and unseen—of living species that followed the voyages of Columbus. Historian Alfred W. Crosby introduced the idea and the term in his landmark *The Columbian Exchange*, published in 1972, in which he created a new paradigm for understanding these movements as a key biological aspect of world history.

The concept of the exchange elucidates the transoceanic movements of plants, pathogens, and animals that accompanied European maritime expansion between the fifteenth and nineteenth centuries. Old World sugarcane transformed the New World tropics, while European livestock—brought to a continent without cattle, sheep, goats, pigs, or horses—launched the fabled ranching economies of the Americas. Conversely, Amerindian food staples were transported eastward, where they radically changed the diets and altered the agricultural systems and landscapes of Europe, Africa, and Asia. Maize, the white and sweet potato, manioc, tomato, peanut, and chili peppers contributed to the “Americanization” of three continents. Before the Columbian Exchange, none of these crops were grown outside the Americas. By the 1840s, the peasant population of Ireland had become utterly dependent on the potato (with devastating consequences during the Great Famine). Italy’s poor similarly adopted the tomato, which ultimately became a defining ingredient of Italian cooking. West African and Asian cuisines owe their celebrated piquancy to the New World’s chili peppers. Maize found new footing as a fast growing staple along West Africa’s coast, in China, and in Italy as polenta. The peanut also made an early appearance in West Africa, and later was taken up in China. New World chocolate and tobacco, Asian tea, and African coffee enlivened the salons and public houses of Europe.

Set against these intentional transfers were the accidental biological introductions of the Columbian Exchange. These include the insects, weeds, microbes, and other opportunistic stowaways that were unknowingly carried in European ships. Most notable were the Old World diseases that decimated Amerindian populations: smallpox, measles, influenza, malaria, yellow fever, typhus, and bubonic plague killed millions who had no prior exposure or immunity. As the substantial body of scholarship on the Columbian Exchange makes clear, European hegemony

was built not only on firearms and military dominance but also on the plants, livestock, and pathogens European ships transplanted around the globe.

The settlement of new lands—not merely their conquest—was a prime mover of Columbian Exchange biota. Crosby, in his second book, *Ecological Imperialism* (1986), and other historians have underscored the importance of human contributions to the environmental histories of selected regions around the globe. Ordinary emigrants carried their Old World crops and animals to the new lands where they settled. With these familiar species immigrants deliberately transformed distant and exotic outposts into landscapes resembling the ones they had left behind. In this way, ordinary people—not only plutocrat planters—remade the environments of New England, Australia, New Zealand, and South African as facsimiles of their birth countries, what Crosby calls *Neo-Europes*.

Among these broader initiatives, Africa's contributions to the Columbian Exchange have been largely diminished or ignored. This is not wholly surprising, given longstanding narratives of a continent dependent on agriculture and animal husbandry that developed in other world regions. However, recent research on Africa and Africans in the Atlantic World belies the perception of Africa as a passive recipient with few contributions of its own. Discoveries in archaeology, historical linguistics, and genetics reveal Africa as an ancient cradle of plant and animal domestication and a wellspring of improvements to crops and breeds. From this work a new portrait of the dynamic past of Africa emerges, that of a continent of creative, expert farmers and herders.

Africans independently domesticated cattle and developed breeds adapted to humid tropical climates. The guinea fowl and hair sheep, the latter bred for meat rather than for wool, contributed important food animals to Atlantic and global tables. Africa's indigenous agricultural revolution, which began some 7,000 years ago, added sorghum, pearl and eleusine millets, African ("red") rice, yams, and black-eyed peas to tropical diets. Scholarship on these foods now places Africa centrally within ancient Indian Ocean botanical exchanges that expanded Old World tropical repertoires in the millennia prior to European maritime expansion. As African sorghums and millets diffused to India, Africans adopted Asian bananas and plantains, developing them over time into more than 120 new cultivars. By the seventeenth century African plants, animals, and pathogens had crossed the Atlantic and taken root in the Americas. Just like

the other transfers of the Columbian Exchange, the African biota were carried to new lands aboard European vessels. In this case, however, the vessels were slave ships and the migrants they carried were not ordinary Europeans but enslaved Africans.

Between the sixteenth and nineteenth centuries Europeans forced the migration of more than 12 million Africans to New World plantations and mines. In fact, until the beginning of the nineteenth century, Africans made up three-quarters of all immigrants to the Americas. By then, slave ships had completed more than 35,000 voyages. To feed their captives as they crossed the Middle Passage, captains took onboard foods grown at their African ports of embarkation. These included the Amerindian crops introduced there—maize, manioc, and the peanut—as well as the continent's own principal dietary staples: sorghum, millet, rice, yams, and plantains. Within a century of Columbus's voyages, many of Africa's principal food crops had found new footings in the Americas.

These introductions make it possible to identify a distinctly African component of the Columbian Exchange, in which slave ships conveyed people, plants, and even food animals from Africa to the New World. Although the literature on the transatlantic slave trade and plantation slavery in the Americas emphasizes the commercialized commodities at the heart of the Atlantic economy—the Africans who were made chattel and the export crops they produced for European markets—African plant transfers underscore the importance of subsistence agriculture even on the plantations: the foods slaves preferentially grew for themselves in dooryard gardens, provision grounds, and plantation food plots.

The presence of African food staples in these early subsistence sites illustrates a component of the Columbian Exchange that was inadvertent and opportunistic rather than intentional. These transfers were accidental only in the minds of the Europeans, because slave victuals left over from the Atlantic crossings lost their utility to captains and crews when ships reached their New World destinations. The viable seeds and tubers remaining among these provisions, on the other hand, created opportunities for anonymous appropriation and appreciation by the enslaved.

These African components of the Columbian Exchange were principally food plants of the Old World tropics. They were well suited to the growing conditions of tropical and subtropical America where plantation economies evolved and where most enslaved Africans were settled.

Some of these African introductions, such as yams and plantains, required little labor to plant and process; in this regard they had advantages over such more demanding New World root crops as manioc (or cassava). Others, especially sorghum and millet, were well adapted to semi-arid climates and poor soils. As these labor-saving and versatile cultigens found favor in slave food plots, they enabled Africans in the New World to recover familiar dietary preferences in trying and unfamiliar circumstances.

The African farmers and herders whom the slave ships carried were experienced in tropical agriculture and animal husbandry. The New World tropical and subtropical environments in which they found themselves would not have seemed entirely alien. Present, for instance, were plant species from pantropical botanical families also found in Africa, which slaves likely recognized and used. They would also gain familiarity with the foods and medicines of Amerindians, who often shared their fates in plantation fields, mines, or maroon hideaways. In the Caribbean enslaved Africans inherited the ethno-botanical knowledge of Amerindian inhabitants and became its living repositories when the Native populations vanished.

In the slaves' food plots and dooryard gardens European naturalists and slaveholders first encountered many foods and medicinal remedies new to them. A few even recognized that slaves had introduced these species. Confronted with novel tropical plants for which they had no names, Europeans borrowed the words slaves gave them. In this way, New World colonial languages gained words for *yam*, *okra*, *ackee* (the national fruit of Jamaica), *benne* (sesame), *banana*, *goober* (peanut), *callalou* (a popular pan-Caribbean stew), and *gumbo*. For some species already known to be African, Europeans affixed the geographical descriptor *guinea*, creating such vernacular names as guinea corn (*Sorghum vulgare*), guinea squash (*Solanum aethiopicum*), guinea sorrel (*Hibiscus sabdariffa*), even the guinea fowl (*Numida meleagris*). The creolized food assemblages in the subsistence plots of the enslaved eventually shaped the dishes that enslaved cooks prepared for slaveholder tables. Indeed, African ingredients have remained the defining culinary signatures of former plantation societies. Okra, black-eyed peas, palm oil, plantains, rice, the broad emphasis on greens, fritters, sesame confections, and one-pot stews, all are among the African hallmarks of modern Atlantic foodways.

The African contributions to the Columbian Exchange also included animals. African cattle invigorated the gene pool of the livestock populations that came to thrive in New World tropical

lowlands. Slaves raised the African guinea fowl, introduced at an early date to plantation societies, in their dooryard gardens and sacrificed them in religious rituals. The food animals brought from Africa were provisioned for the Atlantic crossing with fodder and bedding cut from Native African grasses. These chance arrivals of guinea grass (*Panicum maximum*), Angola (Pará) grass (*Brachiaria mutica*), Bermuda grass (*Cynodon dactylon*), and other African species found new environmental niches in the emergent livestock economies of the New World tropics. These nutritive pasture grasses spearheaded a botanical invasion that environmental scientists have described as the “Africanization” of the New World tropics.

The Atlantic World was a time and place where people from all its continents—Native Americans, Europeans, and Africans—populated new landscapes with the crops, animals, and microbes transferred among them. A multiplicity of semiautonomous historical initiatives, at both regional and transregional scales, catalyzed the processes that shaped the environments in three continents, creating a compound Atlantic biome that all participants in the Atlantic World helped to create.

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