

DIFFUSION OF MESOAMERICAN FOOD COMPLEX TO SOUTHEASTERN EUROPE

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ABSTRACT. A Mesoamerican food complex apparently reached southeastern Europe by way of Portuguese Africa, India, and the Turkish Empire in the aftermath of the Columbian voyages. Food items like peppers, squash, maize, beans, and the turkey enjoy their greatest acceptance in the Balkans rather than in Iberia.

THE Columbian quincentennial celebration has brought an intensified interest in the related diffusion of ideas, adaptive strategies, material culture, and domesticated plants of the New World. One crucial element that achieved a widened distribution as a result of the post-Columbian exchange was the traditional Mesoamerican food complex of maize, beans, squash, and peppers (*Capsicum*), to which the turkey might be added. Oddly, the Ottoman Turkish Empire, especially Anatolia, rather than Iberia became a center of diversity for squashes, pumpkins, popcorn, and possibly other American crops, which presents the puzzling Anatolian mystery (Anderson 1958).

My own work, focused on the spread of the five domesticated capsicums—*Capsicum annuum* var. *annuum* Linne, *Capsicum chinense* Jacquin, *Capsicum frutescens* Linne, *Capsicum pubescens* Ruiz & Pavon, and *Capsicum baccatum pendulum* (Willdenow) Eshbaugh—suggests that peppers diffused as part of this complex, that the spread to the Old World was far more complicated than is usually assumed, and that the circuitous routes by which the complex reached Anatolia and southeastern Europe largely bypassed the western Mediterranean. My findings also suggest, improbably, that the Portuguese and Turks were far more influential than the Spaniards in the diffusion of the Mesoamerican plant complex, even though the source lay in the Spanish colonies and the complex was discovered by Columbus on several voyages, probably including the first. I was led to these conclusions by the initially troubling fact that the prevalent pepper brought to their Atlantic islands and India by the Portuguese was the Mexican-derived *C. annuum* var. *annuum* rather than the South American–West Indian–Brazilian *C. chinense*, popularly called *ají*.

What is generally agreed is that the diffusion of *Capsicum* and the related complex occurred with great rapidity. Their spread to Africa and Asia occurred in such a short time that centuries later Europeans thought they had originated in the Orient. Nicholas J. Jacquin in 1776 named a new *Capsicum* species *chinense* because he thought it had originated in the Orient. In 1542

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the first European illustrations of peppers were published in a German herbal. Such books listed plants and their medical properties and were written for the most part by medical doctors. The herbal by Leonhart Fuchs (1543) proves that peppers were known in central Europe no more than a half-century after the first Columbian voyage. All appear to be the Mesoamerican *C. annuum* var. *annuum*, which implies an even more rapid diffusion that almost certainly began before the conquest of Mexico by Cortés between 1519 and 1521. Moreover, though published in 1542, the herbal may have been written as early as 1538, which allows less than two decades for the diffusion from Mexico (Sauer 1969, 148). The herbal included illustrations and descriptions of the Mesoamerican squash, beans, and maize.

PRE-COLUMBIAN DIFFUSION AND COLUMBIAN DISCOVERY

This troubling narrow time frame rests on false assumptions concerning the pre-Columbian distribution of *C. annuum* var. *annuum*. I propose that Columbus encountered the plant perhaps several times. On New Year's Day 1493, near Navidad, Española, he recorded a momentous circumstance in his journal: the pepper that the natives used as spice was more abundant and valuable than either black pepper or melegueta (grains of paradise) peppers. The three peppers have no botanical relationship with one another (Fig. 1). Melegueta pepper, of the ginger family, is native to Guinea, Africa, and was known in Venice during the thirteenth century as a less expensive substitute for black pepper, which is of Indian origin. Melegueta was also known as Guinea or ginnie pepper. Soon after the Columbian discovery, several American chillies of the cayenne type became established in the Portuguese colonies of Guinea and were likewise called ginnie pepper, while in the Brazilian colonies tiny local capsicums were referred to as malaguetas by the African slaves transported from Guinea. All this made for a confusing situation.

Columbus left a recommendation that people who were to remain on Española collect as much of the local capsicum pepper as possible (Morison 1963, 142). Two weeks later, near Samana Bay at the other end of the island, Columbus continued to record the crops he was seeing, one of which was the native pepper. The account of that voyage by the royal historian Peter Martyr is of relevance. He not only wrote of Mesoamerican maize being grown in the islands in 1492 but also mentioned two types of peppers. "The *sweet pepper* [my emphasis] is called *boniato*, and the hot pepper is called *canibal* [apparently *ají*], meaning sharp and strong" after the characteristics of cannibals (d'Anghiera 1965, 532-533; Andrews 1984, 4). Today the *C. chinense* of the West Indies are known for their pungency, and it is improbable that the reference is to a sweet pepper of that species. It must refer instead to a Mesoamerican *C. annuum* var. *annuum*, which already had sweet varieties at that time.

On his fourth voyage, Columbus landed on the Honduran and Nicaraguan shores, where he encountered maize, roots, and "victuals like they eat



FIG. 1.—Pre-Columbian migration path from mainland to Caribbean islands and the routes of the four Columbian voyages.

in Española," along with woven cotton fabrics. In fact, there was such a wide selection of indigenous goods aboard a native trading vessel that Columbus exclaimed "Thanks to God, that he has given us a sample of all the things of that land without danger or fatigue to our people" (Columbus 1947, 274). Capsicums were probably included, as Columbus commented that all the natives knew red pepper. If so, it would almost certainly have been *C. annuum* var. *annuum*.

Later, in 1502, when the Spaniards arrived in Panama, they found maize, beans, and perhaps peppers, which had gradually diffused from Mexico through Central America (Columbus 1947, 296). From there the pre-Columbian route of diffusion had led eastward across northern South America and thence northward into the Antilles, perhaps borne in part by the Arawak and Carib Indians during their migrations (Sauer 1966, 54). Concurrently, following the same overland trail, domesticated turkeys had reached at least as far south as Costa Rica. With the immediate post-Columbian help of the Spaniards these foods quickly went from the isthmus to all of the islands.

It is my deduction that the Spaniards probably found *C. annuum* var. *annuum* in some of the islands, specifically Española, and certainly found it in Central America by 1502, and from there quickly spread it throughout

the West Indies. It is highly possible that Mesoamerican peppers had already reached some parts of the West Indies at the time of the first Columbian voyage by traveling as the handmaiden to maize over pre-Columbian trade routes along the Central American corridor, across northern South America, and northward through the lesser Antilles to Española (Sauer 1966). Though highly probable, the assertion by W. C. Sturtevant (1961, 71) that *C. annuum* was being cultivated in the gardens of Taino Indians on Española before the arrival of Columbus is questionable, because the only cited source is a paper by Heiser and Smith (1953) that recognized only *C. annuum* and *C. frutescens*. Not until 1957 did botanists recognize *C. chinense*, which was brought to the West Indies during Arawak migration from South America and which had long been considered the only species growing on those islands at the time of the Columbian discovery (Heiser and Smith 1957).

Perhaps the diffusion occurred even earlier—5000 to 2500 B.C.—with paleo-Indians from Mesoamerica across the mid-Caribbean island chain; by birds, their natural dispersal agents; or through both agencies (Cruxent and Rouse 1969; Millman and Emery 1986; Watts 1987). *C. annuum* was available to those migrating hunters and gatherers, as it had been cultivated by humans since 5000 B.C. in the Tehuacán valley of Mexico and probably elsewhere (MacNeish 1967). They spread rapidly after the contact on the mainland in 1502. Supportive evidence comes not only from the chroniclers Martyr and Chanca (1870) but also from Fray Bartolomé de las Casas (1967), who recorded some botanical observations in *Apologética Historia*, which is assumed to have been drafted on Española between 1526 and 1529 (Fernandez 1971, 84). In Seville, some twenty-five years after making the first draft, Las Casas separated the two sections and enriched them with numerous interpolations (1967, xxxiv). He remarked that the peppers he saw were “like those already known in all Spain” (Las Casas 1967, 58), and it would be very significant to know when he was referring to them growing in Spain—at the time of his first sighting, at the time of his first draft, or at the time of the final version. During his second stay, 1508–1515, in the West Indies, he farmed a grant of land on the Arimao River, Española, between 1513 and 1514. I tend to think that he made his agricultural observations during that sojourn, which was well before the discovery of Mexico, an interpretation that strengthens my Mesoamerican trade thesis.

Two of the three capsicums that Las Casas describes in Española fit the illustrations in the German herbal. He had seen two kinds of peppers being cultivated in the West Indies (Las Casas 1967, 58). One ají, which is now the name for all capsicums in the Dominican Republic, was long, red, and finger shaped; the second was globular like a cherry and more pungent than the first type. A third was a wild pepper that bore very small fruits. The first of Las Casas’s descriptions fits the cayenne-type *C. annuum* var. *annuum*, figured as “Langer Indianischer Pfeffer” in the German herbal, rather than any *C. chinense*.

PORTUGUESE TRADE CORRIDORS

Why might that Mesoamerican complex have taken earlier and deeper root in Anatolia? The answer seems to lie with the Portuguese, who acquired peppers and other items from the Spanish Main despite the mutual trade exclusion that prevailed.

Few Spanish trading ships actually came to the Antilles in the crucial early years, and in the first half of the sixteenth century exchange between Seville and the New World was very limited. In contrast, trade between Portugal and the New World was much greater. Although the Treaty of Tordesillas assigned most of the New World to Spain, the elimination of Portugal from the Spanish arena remained more theoretical than real in the early sixteenth century. The paucity of Spanish shipping allowed the Portuguese surreptitiously to enter the region with their African slaves and other trade goods (Watts 1987). That illicit trade was aided by Spanish subjects in the New World, not from inherent disloyalty but from dire necessity (Means 1935, 61). Moreover, relatively cordial relations existed between Spain and Portugal in the late fifteenth and early sixteenth centuries. As a result, communication existed between Lisbon, Seville, and Barcelona (Walsh 1939) that could have contributed to the rapid diffusion of *Capsicum* and other Mesoamerican domesticates.

Another form of communication that could have transferred New World seed from Spain to Portugal soon after its introduction to Spain was the trade in small grains. At the time of the conquest and throughout the period of rapid diffusion of New World economic plants, 1492 to 1550, bread grain was deficient, and Portugal depended on a well-established trade with Spain and North Africa for its cereal supply (Pounds 1979, 63). Surely the traders would have been aware of the new intertilled symbiont—squash, beans, maize, and its attendant peppers.

The Portuguese, then, could have acquired *C. annuum* var. *annuum* and the other seeds either in Iberian ports or in the Spanish Main after initiation of the African slave trade (Watts 1987). Reaching Lisbon by one or the other of those routes, the next crucial link in the diffusion of *Capsicum*, ultimately even for Europe itself, led improbably from Portugal to the Atlantic islands, Africa, and India (Miracle 1967). The pepper and perhaps the turkey almost certainly accompanied maize, beans, and squash on that route. Evidence suggests that the Portuguese started growing maize and peppers in the Azores and Madeira as well as Guinea and Angola very early.

The herbalist John Gerard (1974, 292) described the capsicums in England and called them "ginnie pepper." He added that the peppers introduced to Spain and Italy had come from "foreign countries as Ginnie, India, and those parts into Spain and Italy." Soon the term ginnie pepper would become one of the several inappropriate names for *C. annuum* var. *annuum*. Maize reputedly arrived in Cape Verde, São Tomé, and Príncipe as early as 1502 (Jeffreys 1953, 966; 1954, 193; 1975, 35), the same year Columbus began his



FIG. 2.—Diffusion of *Capsicum* through Asia.

fourth voyage, which took him to the mainland of Mesoamerica for the first time. If domesticated *C. annum* var. *annuum* peppers went with maize to the Portuguese Atlantic islands at that time, the Portuguese would have had to acquire them from an earlier Spanish West Indian source, which implies that peppers were being cultivated on Española at the time of the discovery. From Portuguese Africa, capsicums soon reached the colonies in India, probably accompanied by the maize-squash-bean complex. Writing in 1576, the Flemish botanist Matthias de Lobel observed that capsicums had been brought to Goa and Calicut at a very early date. From that observation George Watt (1889) declared, "There can be no doubt that the Portuguese very possibly began exporting them in competition with black pepper (*Piper nigrum*)" (Fig. 2).

A Portuguese official in India from 1500 to 1516 reported that an abundance of *milho grosso* (maize) had been exported from Gujarat (Barbosa 1918). The preference for the Mesoamerican peppers caused any earlier introduction to India of other chilli-pepper species such as *C. chinense* to be replaced. The new spice was welcomed by Indian cooks who, accustomed to pungent black pepper and biting ginger, produced hot, spicy foods. The Mesoamerican pepper provided more heat with less grinding and expense. It grew readily

and fruited abundantly in a sympathetic environment. The easily cultivated and naturalizing *C. annuum* var. *annuum* was a welcome addition to the native spices, whose restrictive cultural requirements and high costs put them in a luxury category. Into the curries they went.

Remarkably soon thereafter, the Mesoamerican food complex sailed the sea-lanes to Malacca and Indonesia with coasting Chinese, Gujarati, and Arabic traders. Within a brief period, considering communications and travel time in the sixteenth century, those exotic edibles were also added to the baggage carried so laboriously from the Gangetic delta at the Bay of Bengal through Burma and Chengdu in Szechuan (Ho 1955; Gode 1960, 290). Yet another possible route from the Indian Ocean began at Portuguese Diu and Surat on the Gulf of Cambay, went inland over a low divide to tributaries of the Ganges, then up the Brahmaputra River, and across the Himalayas to Szechuan. Moreover, another possible avenue to China was accessible: Portuguese controlled the mouth of the Indus River, which led to the Himalayan silk routes. These new foods melded into the gardens and cuisines of China, India, Indonesia, and other areas of the Far East, which were mainly vegetarian.

FROM AFRICA AND INDIA TO ANATOLIA

The diffusion of Mesoamerican foodstuffs from India to the Orient is reasonably well known and noncontroversial. Less orthodox is my proposal that the eastern Mediterranean, Balkans, and even parts of central and western Europe also received the Mesoamerican complex from India and East Africa (Boxer 1969). The route from India to Europe most likely followed well-established ancient sea-lanes. Coasting from Goa, Diu, Surat, or Hormuz to the Persian Gulf or in convoys across the Indian Ocean to the Red Sea, Mesoamerican peppers, maize, beans, and cucurbits joined the oriental spices on two ancient medieval trade routes, the Aleppo and the Alexandria routes, long used by Turks, Arabs, and other Muslims for the lucrative trade from monsoon Asia to the Levant. They also could have traveled from the Indian Ocean up the Indus River to Afghan Kabul, meeting the historic course followed by Marco Polo, then westward along the toilsome way through Persia to Turkey. Most likely, the Arabs were the first middlemen in the diffusion to Europe who passed the Mesoamerican complex to the Ottoman Turks, although it should be remembered that Portuguese traders were very active at least as far as Hormuz at the entrance to the Persian Gulf and Massawa on the Red Sea, if not beyond. Hormuz was a port open to every type of immigrant, every form of commerce, and every kind of smuggling, whether by Venetians, Armenians, Turks, or Portuguese renegades who departed in astounding numbers for Turkey, where their knowledge of the East Indies was an important asset in the clandestine trade. Through Hormuz the best of India reached Venice (Braudel 1976, 564).

A Turkish document, written between 1498 and 1513, mentions a New World plant, the common bean, for the first time. By 1539 maize was already

playing a pivotal role in the Turkish Empire, and squash was known (Parry and others 1976, 89; Johnson 1981, 130). True, these Mesoamerican foodstuffs, including peppers, could have reached Turkey from Spain via the Ottoman contacts with exiled Spanish Moors or with expelled Iberian Jews, who distributed them throughout North Africa all the way to Egypt. However, in view of the nature of trade and the extent of warfare in that crucial period, these are not the most likely scenarios. It is also conceivable that the trade in firearms and gun flints between Spain and the Turks accomplished incidental *Capsicum* diffusion, but I am not inclined to accept such a plot (Witthoft 1966).

Much more plausible, I propose, is that capsicums, together with turkeys, squash, maize, and beans, arrived in Turkey from Portuguese West African colonies by way of India. During that transfer, there could have been an introduction to Ethiopia as a result of the establishment of the first (1520–1526) or second (1541) Portuguese embassy to Massawa, Abyssina. Maize was probably introduced there by Turks via Harrar and by Portuguese sources via Massawa (Wright 1949, 80). European terms such as Egyptian grain, Turkish wheat, Arabian grain, and granoturko for maize; Turkish peppers for capsicums; pomo di Moro for tomatoes; and turkey for the turkey bird in diverse languages suggest the importance of the Ottomans in the European diffusion, while use of dinde for turkey, wheat of India for maize in French, and Indian peppers reveals the more remote intermediary source of the Mesoamerican complex (Stoianovich 1966). Too, the medieval spice market, still in Istanbul, has been known throughout its history as the Egyptian market, and in the old days most of the spice sold there traveled overland from the Red Sea to Aleppo and thence to Antioch. The trading vessels from the west coast of India crossed to the Red Sea where their precious cargoes were transferred to camel caravans, whose caravansaries along the route still stand as monuments to that ancient spice trade.

After the Portuguese, the Ottoman Turks were probably more responsible than any other group of people for the distribution of Mesoamerican foodstuffs (Fig. 3). In the aftermath of forays to Hormuz and beyond, the Turkish armies could easily have brought peppers with them along the medieval trade routes across Asia Minor to the Black Sea and into Hungary, which they conquered in 1526. A short time after the first Turkish siege of Vienna in that year, peppers were recorded in central Europe. The Turks, like others later, probably also recognized the value of Mesoamerican maize as livestock feed, and they had maize grown by peasants in garrison gardens in the expanding Ottoman Empire to feed the large numbers of animals required to transport the huge armies and supplies. Maize later came into use as a necessity food for troops and peasants alike. As a result it became quickly established in newly conquered Turkish territories, including Greece and elsewhere in the Balkans, perhaps as early as the 1520s. After the Turkish armies eventually departed, the peasants there continued to grow these crops

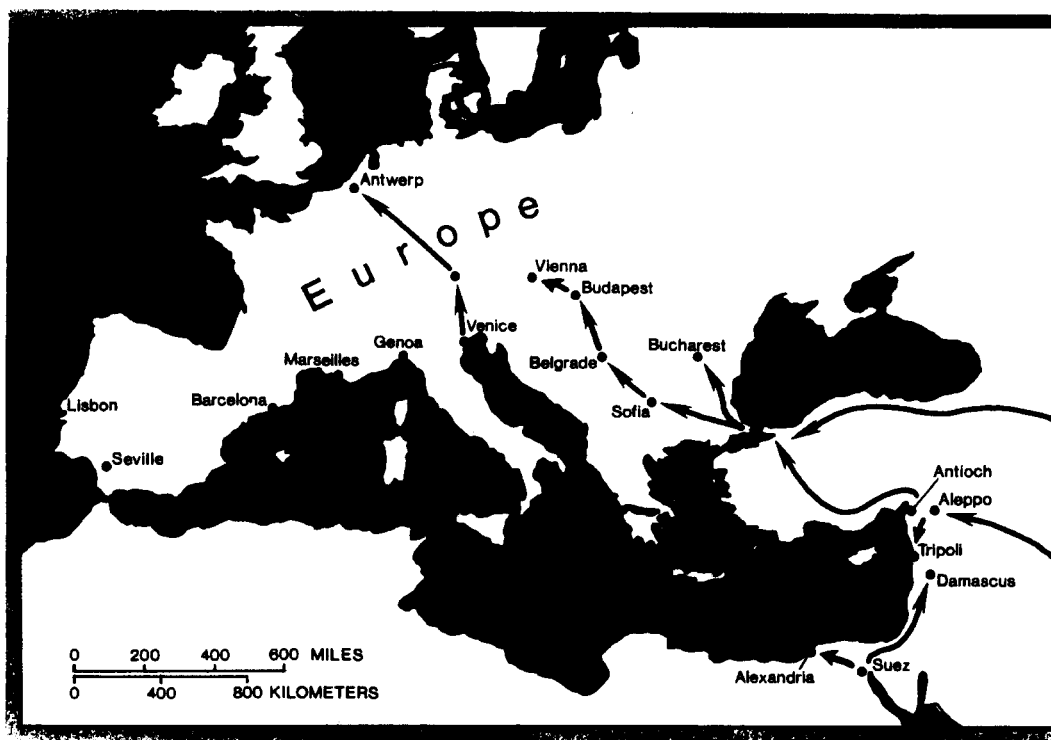


FIG. 3.—Diffusion of *Capsicum* through Europe.

in their own gardens, not only because they were more productive than native crops but also because they were still largely unknown to the noble landowners and hence untaxed. *Capsicum* peppers also traveled in the military baggage train and were grown in the same gardens as the traditional Turkish staples (Stoianovich 1966).

The diffused Mesoamerican crop-poultry complex is even now more deeply accepted in former Turkish-ruled southeastern Europe than anywhere else on the continent. Examples include the flocks of turkeys on the Peloponnese, the use of paprika in Hungarian dishes, the South Slav attention to maize, and the role of maize in Balkan folklore since the eighteenth century (Stoianovich 1966). The Andean potato eventually prevailed in the cooler lands of northern and western Europe, but the Balkans owe far more to Mesoamerica. As Sauer (1969, 151) noted, "Cultivated seed plants originating in the New World are more significant in the eastern end of the Mediterranean and in Italy than they are in Spain, and seem to have been so as far back as there is knowledge of them."

Nor did the eastern-based diffusion halt at the borders of the Ottoman Empire. Often aided by Venetian traders, capsicums soon spread into central and western Europe. German herbalists, as previously noted, acquired peppers by about 1540, apparently through the Turks, and capsicums reached England by 1548. Most often they appeared in northern and western Europe under names such as Turkish, Calicut, or India pepper.

Italy represented a diffusionary divide in the Mediterranean area between Turkish and Spanish influences. Venice depended on the Turks for spices and wheat, while Florence and Genoa relied on the Iberians for imported goods. Communications between the two halves of the sea was slow. During the crucial period 1492 to 1542, Venice had few commercial connections with Lisbon, and trade between the eastern and western basin of the Mediterranean was at a virtual standstill. In the western Mediterranean, Genoa had trade links with Bruges. The two poles of western European commerce were Italy and the Low Countries, then under Hapsburg rule (Braudel 1982, 419).

Although the Turks were a presence in southern Italy during the 1500s and dealt extensively with the Venetians, I do not think that they introduced peppers to the Italian peninsula or acquired peppers from Italy at that time or place. Instead, sweet peppers and tomatoes came to western Italy from Spain by 1535 (Oviedo 1950). The historical record of western Mediterranean trade linked Seville and Barcelona with the southern half of Italy, including Sicily. Too, the pungent peppers of the cayenne type, which the Turks carried to the Balkans, were not the sweet-pepper type favored in Italy, and selection over the centuries has reduced the original pungency of modern Balkan paprika. A large, sweet *Capsicum* came to be favored by both Italian and Spanish cooks. The usage of peppers and spices in the Balkans is more Indian in nature, while that of Italy and Spain is characteristically Mediterranean.

CONCLUSION

The Mesoamerican crop complex of maize, beans, squash, and peppers was present in the West Indies when Columbus arrived, was acquired by the Portuguese about 1500, and diffused by way of the Portuguese Atlantic islands, Angola, Mozambique, India, and the Ottoman Empire to the Balkans by the 1530s. In the Balkans the complex has received its most profound European diversity and acceptance, apparently in company with the turkey. Improbably, people of the eastern, not western, Mediterranean display the greatest imprint of the Mesoamerican agricultural and culinary heritage, and the Portuguese were the most influential dispersers of that food complex. Part of the reason could be the low status of agricultural work in Spain at that time, as evidenced by the aristocratic indifference Spaniards exhibited to that activity, in contrast with Portuguese enthusiasm for highly specialized horticulture and a particular gift for agricultural botany.

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