The Medieval Spice Trade and the Diffusion of the Chile

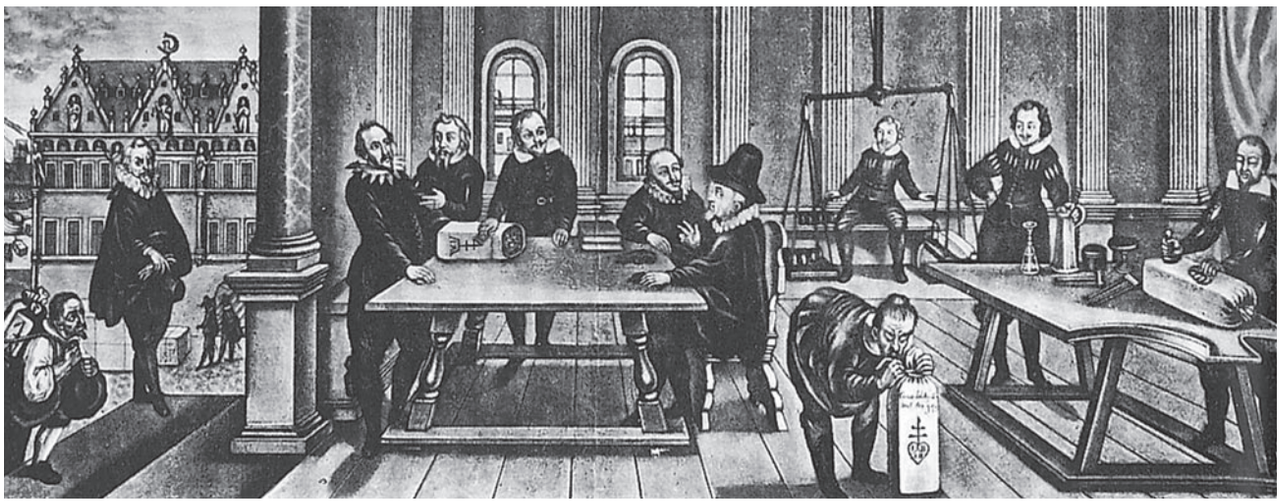
Author(s): clifford a. wright

Source: *Gastronomica*, Vol. 7, No. 2 (Spring 2007), pp. 35-43

Published by: University of California Press

Stable URL: https://www.jstor.org/stable/10.1525/gfc.2007.7.2.35

The Medieval Spice Trade and the Diffusion of the Chile



Above: *Saffron and spices arriving in Nuremberg, between 1640 and 1650. From left to right, the goods are delivered, registered, weighed, examined, and dispatched elsewhere.*
GERMANISCHES NATIONAL MUSEUM, NÜRNBERG

BETWEEN THE ELEVENTH and the sixteenth centuries, the spice trade was the source of fabulous wealth in the European countries bordering the Mediterranean Sea. So frenzied was this trade that one historian called it a "spice orgy."[1] Spices vied with grain as the most important agricultural commodity. One could argue that the money made from spices contributed to the rise of the European city-state, perhaps played a role in the transition from feudalism to capitalism, fueled the impetus that opened an age of discovery, and contributed to the later emergence of the Renaissance.[2]

Wealthy Europeans consumed spices in such extraordinary quantities during these centuries that the demand drove up prices. Yet it remains unclear how the spices were used. Although enormous amounts of spices featured in cooking, the volume of the trade was so great as to suggest that they may also have been hoarded like gold. Besides being used in the kitchen, many spices, perhaps most, were put to use as pharmaceuticals. Many historians and commentators have claimed, usually without specifying but probably meaning black pepper and/or ginger, that spices were used to preserve foods, yet there is no evidence for this assertion.

It was into this spice world of the late fifteenth century that the New World chile plant (*Capsicum annuum* and spp.) was introduced. Chiles are more versatile than spices since they are also a vegetable. And the chile not only is far more piquant than black pepper but also can be grown relatively easily in temperate climates, unlike spices, which can be cultivated only in the tropics. If black pepper owed its primary role in the spice trade to its piquancy—and the evidence indicates as much—then the chile would have offered an ideal, inexpensive substitute.[3]

In light of its importance, it is surprising that a definitive history of the spice trade has yet to be written. Of particular interest is whether the discovery and diffusion of chile—also called *capsicum*, *red pepper*, *chile pepper*, *chilli*, or *chili*—had an impact on the spice trade between the East and Mediterranean Europe. Did the arrival of the New World chile in the Old World contribute to or cause the dramatic decline in the spice trade that occurred in the mid-seventeenth century?

Answering this question must begin with an understanding of the fundamentals of the spice trade up to the

GASTRONOMICA: THE JOURNAL OF FOOD AND CULTURE, VOL. 7, NO. 2, PP.35–43, ISSN 1529-3262. DOI: 10.1525/GFC.2007.7.2.35.

discovery of the New World, a discovery that, ironically, was an accidental result of the quest for spices. For millennia spices had been rare and therefore expensive. Black pepper and ginger, the piquant spices, held pride of place, but cinnamon, cardamom, cloves, mace, and nutmeg, the so-called sweet spices, were also valued. Although the ancient Greeks, Romans, Indians, and Arabs had actively traded spices, it was not until the slow dissolution of feudal structures in western Europe in the late Middle Ages and the rise of a bourgeoisie associated with the creation and accumulation of capital in certain city-states that spices took on a far more significant role than simple culinary use would suggest.

The Spice Trade before the European Discovery of *Capsicum*

Spice use is very old in human history, probably reaching back to 6000 B.C.[4] Spices make a prominent appearance in the Bible, and we know they were very popular in ancient Greek and Roman times. The Greeks in India, according to Tamil literature, exchanged gold for very large sacks of black pepper. The Romans were especially fond of black pepper, as attested by the fact that nearly all the recipes in a fourth century A.D. Roman cookbook by Apicius, likely written in the first century, call for it. Although trade in spices declined with the fall of the Roman Empire, it revived some centuries later. Budding capitalists in the growing towns of Europe created the demand that would lead men to risk everything for the wealth to be made from spices grown in distant India or the Spice Islands of the Indonesian archipelago, namely black pepper, ginger, nutmeg, cloves, and cinnamon.

The literature about the spice trade has long posited that the source for the spices of the East was hidden from Europeans by the Arab middlemen who controlled the trade. These middlemen "were in an excellent location, and to preserve their monopoly they kept secret from their Mediterranean customers the provenance of their wares."[5] But since the Greek and Latin words for both black pepper (*peperi* [Gr.] and *piper* [L.]) and ginger (*zingiberi* [Gr.] and *zingiber* [L.]) derive from Indian-language words (specifically, the middle Indian *Pali* and *Prakit*), it would appear that the Greeks and Romans knew full well the source of those spices.[6]

Increasing demand can partially explain the high price of spices in Europe in the late fourteenth and fifteenth centuries.[7] The upper and middle classes had become so accustomed to consuming spices that the merchants in Alexandria and Aleppo and other spice entrepôts in the Levant were confident that they could get the high prices they asked. The European cookbooks of the time, written for the aristocracy and burghers, called for enormous quantities of spices, including cinnamon, saffron, pepper, ginger, cloves, nutmeg, mace, and coriander.[8] The sixteenth-century Italian chef Cristoforo di Messisbugo, for one, included spices in more than 80 percent of his recipes;[9] his recipe for ravioli for ten specified an ounce of cinnamon, a half ounce of ginger, and some saffron.

The Venetian-Mamluk Monopoly

In the second quarter of the fifteenth century, the price of black pepper (which formed the bulk of the spice trade) dropped. At the time the importation of spices into Europe was controlled by the Venetians, who bought most of their spices in Alexandria from Karimi merchants who had procured them in Yemen. The Mamluk sultan Barsbay (r. 1422–1438), in an effort to derive more revenue from the spice trade, raised the price of spices imported into Egypt. So why would the price of pepper have dropped?

The explanation might lie in the fact that Barsbay, in trying to monopolize the spice trade with Westerners, squeezed out the Karimi merchants. Even so, he refused to maintain a monopoly with the Venetians and extended his power to Jidda on the Red Sea coast of the Arabian Peninsula. This move encouraged traders to bypass Aden (Yemen), which then squeezed out the Arab chieftains who had previously controlled the trade.[10] To avoid paying protection money in Aden, in 1424 Arab traders began to sail directly to Calicut in India for their spices, from Jidda and Egyptian ports. This direct route lowered shipping costs and hence the cost of pepper in Venice, even as Barsbay was taxing the spice more heavily.[11] As a result Venetians were favored because their agents had a privileged position buying from the "merchants of pepper and spices," as the Karimi merchants were called in Mamluk Egypt.[12]

Although the Karimi merchants were often mentioned in the documents as central to the Arab spice trade, who they were or what their name means remains a mystery. The word *Karimi* has no meaning in Arabic, either in Ayyubid (1169–1250) or Mamluk (1250–1517) times. Mentioned for the first time in 1181, the Karimi merchants reached their peak of prosperity in the fourteenth and fifteenth centuries, particularly in Egypt.[13] Variously Arabs, Jews, Armenians, Copts, and Muslims, they were members of a confederation or guild specializing in the spice trade.[14] In 1428 their privileged position came to an end when Barsbay changed his mind and prohibited them from selling spices to the Italian

merchants in Alexandria. Ultimately, the Portuguese succeeded in breaking the Venetian-Mamluk monopoly in the second half of the fifteenth century by finding another route to the Indies by rounding Africa.

The Portuguese and the Spice Trade

The age of discovery began with the Portuguese, the true pathfinders of all the seaborne empire builders. Beginning around 1419, they slowly worked their way down the western coast of Africa. Then, in 1488, Bartolomeu Dias (d. 1500) rounded the Cape of Good Hope and reported that the sea route to India was open.[15] Were spices the impulse behind the age of discovery? Yes and no, for although pepper was precious, religious, political, and strategic factors must be considered along with the obvious economic ones.[16] The French historian Pierre Chaunu has argued that the underlying motive for European expansion was the search for space to satisfy the food and energy needs left unfulfilled by an increasingly inadequate European agricultural system.[17]

The presence of the Portuguese in the Arabian Sea interrupted the flow of spices from Calicut to the Red Sea, and hence to Alexandria. Ironically, even though the Portuguese captured the spice trade, they did so only by methods that raised prices, including the payment of protection money, rather than by those that would lower them.[18] Although historians contest this narrative, it is often said that the search for a shorter, quicker, and more profitable trade route to the East led to the great sea voyages of the fifteenth century and thus to the discovery of the New World. It is sometimes claimed that the rise in the price of spices before 1492 had something to do with this age of discovery. But according to the historian Frederic C. Lane, this assertion is incorrect. The price of black pepper dropped between 1420 and 1450 in Antwerp, a major market for the Portuguese. In fact, the price of black pepper fell by 50 percent between 1420 and 1498 before returning to its previous high price.[19] European trade through the Levant revived during the sixteenth century, and Lane has shown that Venice imported as much pepper from Alexandria in the 1560s as it had in the 1490s.[20] In fact, from 1570 to 1580, 60 percent of all spice imports came through the Levant, rising to 80 percent in 1590.[21] Thus it cannot be said that the Portuguese ruined the Venetian spice trade by finding a route to India around the Cape of Good Hope.

The Portuguese began to take an interest in Asian spices only in the 1480s. Their explorations were prompted by two factors beyond spices: the allure of gold and the myth of Prester John, a Christian king who, from the eleventh century, was said to rule a vast and wealthy empire in Africa, or perhaps Asia. At first these two factors may have been stronger than the lure of spices, but by the time Vasco da Gama arrived in India in 1498, spices were all-important. Even if we accept Chaunu's agricultural argument, certainly the demand of the European bourgeoisie for spice was stimulating the expansion of European trade in the fifteenth century. It has been recorded that the first man from Vasco da Gama's crew to reach Calicut in India was accosted by two Spanish-speaking Tunisians who asked him, "What the devil has brought you here?" To which he replied, "We have come to seek Christians and spices."[22]

When Columbus set sail in 1492, Venetian merchants were supplying western Europe annually with about one and a half million pounds of black pepper from the East. Although the eastern trade was initially disrupted by the Portuguese discovery of the sea route to India (by 1505 some two million pounds of pepper were being shipped annually around the Cape of Good Hope to Lisbon and Antwerp), it recovered quickly. The Portuguese had caused Venetian spice imports to drop by two-thirds, and black pepper became a minor commodity. But within sixty years of the discovery of the Cape route, Venetian spice imports via the old trade routes were attaining the same proportions as those of the Portuguese. Increased European consumption was one reason that the Venetians were able to restore their trade through the Levant to its former levels. Another was that Portuguese interference in the Red Sea trade made the Venetians that much more determined to reestablish their old routes.[23]

One of the direct consequences of Portuguese participation in the Asian spice trade was the rapid increase in European pepper consumption. The Portuguese secured a monopoly on the black pepper trade on the Malabar coast of western India, forcing Arab and Indian merchants to look for alternative sources in Sumatra, where the spice was already being commercially grown (pepper constituted one of the chief exports of the Sumatran seaports of Samudra-Pasè and Pidië).[24] The Portuguese followed the Arab and Indian trade to the Indonesian archipelago and in the early sixteenth century secured bases at Malacca and in the Moluccas. The great admiral Alfonso de Albuquerque (1453–1515) took Goa in 1510 and Malacca in 1511, essentially founding the Portuguese empire in the East. European demand for pepper did not falter, and the opening up of alternative sources and trade routes by the Portuguese only further fueled European consumption.[25]

The pepper trade attracted many foreigners, including Javanese, Chinese, and Indian traders from Gujarat and

Above: *A Portuguese merchant ship is attacked off Malacca by Dutch and English vessels, 16 October 1602. From Johann Theodor de Bry,* Indiae Orientalis Pars Septima. *Francofurti: Typis Wolfgangi Richteri, 1606. Artist not known.*

COURTESY OF THE CHAPIN LIBRARY, WILLIAMS COLLEGE

Bengal.[26] The Chinese, in particular, were very interested in pepper, which they obtained from Pasè and Pidië and from Patani on the east coast of the Malay peninsula. The profits were huge, as a quintal (113 pounds) of pepper bought for four cruzados in Malacca could be sold in China for sixteen cruzados.[27] The Chinese also got pepper from a very small Hinduized kingdom on the Malay peninsula called Kedah. Each year four hundred *bahar* (180,000 pounds) of pepper went from there to China by way of Thailand.[28] This trade suggests that chiles later found their way to China by the same route. According to the Portuguese chronicler Tomé Pires, Pasè produced eight to ten thousand *bahars* of pepper a year, but compared with the pepper of Cochin in India, it was of inferior quality, with larger, hollower peppercorns whose pungency dissipated more quickly.[29]

The rise of these Indo-Malaysian seaports was directly connected with the introduction of Islam to the Indonesian archipelago. In later centuries Islam was even more quickly adopted as an alternative to the militant Roman Catholicism brought by the Portuguese, who brutalized the natives.[30] Indian Muslims from Gujarat, who had been active in commerce and trade in the Indonesian archipelago before the Portuguese arrived, were instrumental in the Islamization of the islands. It is likely that these same Gujarati (a seafaring Indian people from western India) introduced such dishes as the curries now so popular on the Malay peninsula and in Indonesia.[31]

Eventually Malacca, on the southwest coast of the Malay peninsula, became the most important of the numerous trading ports in the archipelago. It was a cosmopolitan place, the center of inter-Asian trade. In the decade before the arrival of the Portuguese, hundreds of Arab, Persian, Bengali, Gujarati, Malay, Chinese, Javanese, and Kling (Tamil) merchants congregated there. Rich Bengali and Arab merchants once based in Pasè established themselves

in Malacca.[32] Although the Muslim merchants in Malacca were Arabs as well as Indians, it was the Arabs who became renowned, for among their number were the religious scholars who impressed the other populations with their knowledge of theological doctrine.[33]

Although the Levant trade through the Red Sea revived around 1540—and the overland Persian Gulf route also carried much trade, doubling in the second half of the sixteenth century—the Portuguese dominated the spice trade in the Indian Ocean for most of the sixteenth century. Huge amounts were shipped around the Cape of Good Hope, and prices for spices doubled or tripled. Between 1500 and 1533, the Portuguese were shipping 40,000 quintals of spice annually around the Cape of Good Hope to Lisbon, with perhaps 25,000 to 30,000 quintals of that amount being exported annually from Malabar. In the latter half of the sixteenth century, the trade would increase to 70,000 quintals annually.[34]

As powerful as Portugal's navy was in the sixteenth century, by the very end of the century Portuguese exports of pepper to Europe had dropped to 10,000 quintals, and the greater quantity was reaching Europe through the Levant. In 1585 a Portuguese official reported that the Achinese, a recently converted Muslim people of western Sumatra, were annually exporting 50,000 quintals of spices in Gujarati ships to Jidda in Arabia, Mecca's port. What we do not know is how much of this spice was black pepper, how much was consumed by the Ottoman Empire, and how much continued on to Europe.[35]

The Portuguese understood that the Asian spice trade had far-reaching consequences; as Tomé Pires put it, "Whoever is lord of Malacca has his hand on the throat of Venice."[36] Thus, because the Portuguese effort in Asia was directed not just against the Muslim world but against Venice too, it should not be strictly characterized as anti-Muslim. The Portuguese were above all interested in the international trade in spices; they did not interfere with the local Asian coastal trade. But Portuguese participation in the pepper trade was coming to an end. One-third of all the ships the Portuguese sent to India between 1604 and 1608 were wrecked, captured, or burned by the Dutch or forced to return home.[37]

Despite the Portuguese superiority over various Asian states in matters of technology (as opposed to scientific knowledge), in the end the Portuguese could not maintain their empire because they did not have enough men to conduct an offensive war. At any one time there were never more than 10,000 Portuguese in all of Asia.[38]

The Dutch and the Spice Trade

Once the English and Dutch began trading in pepper, enormous quantities flowed into Europe from Java and Sumatra.[39] When Vasco da Gama sailed for India in 1497, the annual imports of black pepper to Europe were about two million pounds; by 1506 that figure had risen to three million pounds, and in 1570, to about six million pounds. The price of black pepper remained high throughout this period because consumption increased and the prices of all commodities rose.[40] But by 1600 the English and Dutch had entered the Asian spice trade, capturing 80 percent of the black pepper trade. Such a large percentage reduced the price of spices. The chile was introduced to Europe at about the same time, but whether it contributed to lower prices for spices cannot be known, because the chile goes virtually unmentioned in the documents and chronicles. If nothing else, we know that by 1590 the chile was growing in Spain, Italy, Turkey, and the Balkans and probably in North Africa.[41]

The Dutch were high Calvinists who considered commerce both an instrument of survival and a branch of war. They founded the Dutch West India Company as much for commercial reasons as to destroy the Spanish.[42] These were enterprising people, and their empire, as was necessary for all global empires, would soon be based on a strong navy. Remarkably, even though a Dutch navy did not exist in 1568, by 1639 it was the greatest in the world.[43]

With a mercantile spirit and a strong navy, the Dutch were soon to play a major role in the spice trade. In 1599 Dutch investors were getting a 400 percent return on their investment in spices. In 1602 the Dutch East India Company, known by its acronym, VOC (Vereenigde Oostindische Compagnie), was formed and given a monopoly of Dutch trade east of the Cape of Good Hope and west of the Straits of Magellan. By 1648 the Dutch were the greatest trading nation in the world and controlled commerce in cloves, mace, and nutmeg from the Moluccas, cinnamon from Ceylon, and black pepper from Malabar.

Yet even though the Dutch were a major presence in the East, especially Indonesia, and were shipping huge amounts of spices to Europe, they seem not to have used these spices for themselves. The staple diet of the Dutch in 1650 was limited to vegetables, milk, and bread and butter or bread and cheese. Even in middle-class and wealthy homes little meat was eaten; the food was butter-rich and bland. (The English called the Dutch "butter-boxes"; the French, "cheese-eaters.")[44]

Unlike the Portuguese, who had never interfered with the local Asian coastal trade, the VOC maintained its grip

on the spice trade by keeping prices high in Europe, in total disregard for local Indonesian economies. The Dutch policy was to plant and then destroy crops through mass uprooting. This policy, promulgated by the Dutch governor Jan Pieterszoon Coen, certainly kept prices high in Europe, but its local cost was the cruel treatment of the indigenous peoples, including thousands of deaths, the destruction of incomes, bankruptcies, rebellions, and starvation—leading to endemic poverty and, some would argue, an easy acceptance of Islam. Like the Portuguese, the Dutch destroyed themselves in the East.

Gaining control of the spice trade proved costly in men and money. Not until Malacca, Macassar, and Bantam in Indonesia fell into the hands of the VOC in 1684 was the spice trade virtually annihilated, owing to the rapacious colonial policy of the Dutch that literally killed the golden goose.[45] At about the same time, the chile was making inroads as a new spice, but the two events appear unrelated and coincidental. In part this was because the European spice traders either did not consider the chile a viable commodity to be traded or knew they never could get high prices for it. It was, after all, easy to grow.

The European Discovery and Diffusion of the Chile

Spices derive their flavor from volatile oils in their chemical composition. Several spices do more than give flavor; they also provide a burning sensation in the mouth. For millennia the piquancy of a small number of spices has enlivened the taste of bland food. The Old World had black pepper, mustard, ginger, and a few others. By contrast, in the Americas a single plant was the piquant spice. Both the Incas in Peru and the Aztecs in Mexico appreciated the powerful, burning sensation of the chile plant. After 1493, when the chile began to be diffused throughout the world, it replaced black pepper as the hottest spice—but only in the cook's pantry, not as an item of trade.

The botanical story of the chile is complex, but we need not explore it here to talk about chiles as a spice. Basically, the degree of piquancy in a chile depends on the amount of capsaicin contained in the placenta of the plant, which in turn depends on the dominant gene of the plant and perhaps on the level of climatic heat at night. Familiar chiles, such as mild bell peppers, paprika, and hot jalapeños, belong to one species of the genus *Capsicum*. Today, there are five cultivated species and some twenty wild ones. *Capsicum annuum*, native to either South America or Mexico and the most widely cultivated and economically important species, includes nearly all the varieties of hot and mild chiles sold in the United States. All of the others, *C. frutescens*, *C. chinense*, *C. baccatum*, and *C. pubescens*, are native to South America.[46]

The first European encounter with the chile occurred on New Year's Day 1493 when Columbus wrote in his journal that "the pepper which the local Indians used as spice is more abundant and more valuable than either black or melegueta pepper."[47] By 1542 Leonhart Fuchs, a German herbalist, had drawn and described the chile. But how, where, or when it traveled, or who carried it, remains unknown. The Portuguese can be suspected of taking the chile they found in Brazil to Africa or back to Portugal. Jean Andrews, the author of several books on chiles, has concluded that the Portuguese were growing chiles in West Africa from the Senegal River to the delta of the Niger River as early as the 1490s, after acquiring seeds from an unknown Spanish source in the West Indies.[48] Andrews plausibly sees the chile seeds being acquired by the Portuguese from the Spanish in the Antilles, traveling to the Cape Verde Islands off Africa and then to West Africa, and finally being carried by Portuguese ships to Mozambique, where the chile continued its journey to Goa in India.[49] This trajectory seems unlikely, however, because the Portuguese were not active in the region until 1509. Andrews's theory is based on the shaky supposition that chile seeds traveled with maize, for which there is better evidence. While the means of transport are likely, the dates she posits are too early.

We do know that chiles were taken to Spain by 1493 and that by 1526 they were in Italy, where they were reported by Gonzalo Fernández de Oviedo y Valdés (1478–1537) in his *Historia general y natural de las Indias*. Chiles were growing in the gardens of Spaniards and Portuguese by 1564, when the botanist Charles L'Écluse commented on them and noted that in Portugal yellow chiles were so hot "the sharpness would burn the jaws for several days."[50] According to L'Écluse, both gardeners and housewives in Castile used the chile either dried or pickled, specifically as a replacement for black pepper, and he saw fields of chiles being grown in Moravia in 1585.[51] His is the only evidence we have that the chile was used as a substitute for black pepper. The paprika that characterizes both Spanish and Hungarian cuisines comes from these chiles.

In the seventeenth century the Spanish were noted for liking highly spiced and piquant food, and chiles could have been used to achieve the desired hotness. Yet uncertain and changing terminology makes it difficult to know how early chiles were used as seasoning. A seventeenth-century traveler in Spain reported that the Spanish "delight in pimiento

BASILIUS BESLER, *RED PEPPERS* © ARC PRINTS

and *Guinea pepper* and include them in all their sauces."[52] While *Guinea pepper* generally refers to grains of paradise (a pungent West African plant, *Aframomum melegueta* [Roskoe] K. Schum.), the term can also refer to the chile species *Capsicum chinense*, of which the habanero is the most prominent member. *Pimiento*, the Spanish word for "mild chiles," may refer to this plant, but there is no way to be sure. At the end of the eighteenth century, the Marquis de Langle said that the nobles of Aragon were still fond of garlic and pimiento. He described the pimiento as a "fruit as long as one's finger….[and] which tastes like pepper"; it "leaves your mouth burning and your breath on fire for the rest of the day."[53] The Spanish, and presumably the Portuguese as well, were the first European cultures to use chiles in cooking.

Because seeds can travel easily and in quantity, it is easy to imagine a seed making the journey rather rapidly from the Americas to India. We know that fifty years after Columbus's initial voyage three types of chiles were recognized on the Malabar coast of India.[54] The quick introduction of the chile to western India meant that it could become an established spice crop and be exported along with black pepper in the reverse direction back to Europe. Apparently, this did happen, as the Flemish botanist Matthias de Lobel (1538–1616) observed that chiles from Goa and Calicut appeared in Antwerp at an early date. But chiles do not seem to have been a spice crop in competition with black pepper as a commodity, for pepper production increased in the sixteenth century in India and in Indonesia until 1670.[55]

Culinary Uses of the Chile around the World and Its Effect on the Spice Trade

In the world today fourteen culinary cultures can be characterized as highly piquant. These cultures have absorbed the chile into their local foodways and use it abundantly.[56] None of these culinary cultures are in Europe, and none, excepting perhaps the Chinese, were large-scale consumers of spices brought from long distances during the decline of the spice trade. Although the chile was used early on in Spain and is used today especially in the form of paprika, Spain does not have, nor has it ever had, a cuisine that one

would describe as piquant in the same way that someone used to bland cookery would unequivocally find Sichuan cuisine piquant. In Mediterranean North Africa there is heavy chile consumption only in Algeria and Tunisia.

Of the fourteen areas where chile is the primary spice, only Algeria and Tunisia may have played a role as consumers in the medieval spice trade, but if so, that role was a minor one.[57] Because Europe was the center of the demand side of the medieval spice trade, we need to examine, first, whether the chile entered European cuisine. If it did, we need to ask whether demand for other spices coming from the East suffered a concomitant drop and, then, whether there was a causal relationship to that drop. Did the decline of the spice trade result from the supply side of the equation? Did the Indians and Indonesians stop producing the traditional spices once the chile arrived? Definitely not. Production did not decline after the arrival of the chile.

The question of whether the chile entered European cuisine is surprisingly easy to answer. Outside its initial entry into Spain and Portugal, its moderate use in southern Italy, and its transformation into paprika in the Balkans and Hungary (and, of course, Spain), the chile is almost nonexistent in European cooking. The only region close to Europe where chiles are used in quantity is Algeria-Tunisia.

It is not known how the chile arrived in North Africa, as there is no documentary evidence, but three possibilities hold equal weight. One, the Spanish took the chile from the Americas to their presidios along the North African coast after passing through Seville. Two, chile seeds from West Africa, where they had earlier been introduced by the Portuguese, traveled north along the long-established trans-Saharan trade routes accompanying the usual goods of gold, slaves, salt, and grains of paradise. Three, the chile came from the East, perhaps from Goa. It is possible that the chile arrived in the spice markets of Alexandria and Aleppo along with black pepper, cloves, and ginger and then was transported by North African traders.

Although chile is the world's most used spice, its value in the spice trade is not high. This is because it almost never gets traded long distances since it is locally grown by many of its potential consumers. The ethnologist Sidney Mintz has conceived the structure of cuisine as rooted in a core food, always a starch, to which other foods add flavor.[58] In every cuisine that can be defined as piquant, the chile is the prime peripheral flavor. Whatever the culinary role of chile, the plant does not seem to have had a dramatic, instantaneous, or measurable effect on the East-West spice trade, which was dominated by black pepper, ginger, cloves, nutmeg, and cinnamon. Although the rapid introduction of the chile around the world coincided with the diminishing of the spice trade, this phenomenon can be equally attributed to changing tastes: western Europe became less interested in highly spiced foods and more enamored of the sophisticated cooking emerging in France in the mid-seventeenth century, especially after La Varenne published *La cuisinier françois* in 1652. In fact, although no European cuisine today is notably piquant, the cuisines of the countries that were home to many of the spice trade commodities continue to use hot spices (in addition to the chile), namely West Africa, Algeria, Tunisia, Ethiopia, Yemen, the Indian subcontinent, Thailand, Indonesia, and the Sichuan region of China. Therefore, the chile cannot be blamed for the diminishing of the spice trade, which declined for the reasons outlined above. The chile's arrival in Europe and the decline of the East-West spice trade appear to be coincidental, not causal.

NOTES

1. Fernand Braudel, *The Structures of Everyday Life: The Limits of the Possible*, Siân Reynolds, trans. (London: Collins, 1981), 221.

2. Henri Pirenne, *Economic and Social History of Medieval Europe*, I.E. Clegg, trans. (New York: Harvest/Harcourt Brace & World, 1966?), 141.

3. Although it is true that long pepper is more piquant than black pepper, long pepper, in the period being discussed, was a minor crop and played no economically significant role in the European trade. It was black pepper that formed the bulk of the spice trade. I disagree with Philip Hyman and Mary Hyman in their article "Long Pepper: A Short History" that the chile killed off the trade in long pepper, but that point, even if it were true, is not germane to my argument. See *Petits Propos Culinaires* 6 (October 1980): 50–52.

4. Jane M. Renfrew, *Paleoethnobotany: The Prehistoric Food Plants of the Near East and Europe* (London: Methuen, 1973), 163–189.

5. Jill Norman, *The Complete Book of Spices* (New York: Viking Studio, 1991), 10.

6. Patricia Crone, *Meccan Trade and the Rise of Islam* (Princeton: Princeton University Press, 1987), 76–77.

7. In 1404 the price in Venice of one *carica* (120 kilos) of pepper was 46 ducats, rising to 127 ducats in 1412, while the price of olive oil in Genoa in about 1450 was 4 ducats per 100 kilos. The economic historian Carlo Cipolla has warned, however, of problems with medieval price comparisons. See Carlo Cipolla, *Money, Prices, and Civilization in the Mediterranean World: Fifth to Seventeenth Century* (New York: Gordian Press, 1967), 53; and Elihayu Ashtor, "Profits from Trade with the Levant in the Fifteenth Century," *Bulletin of the School of Oriental and African Studies* 38 (1975): no. 2, 253, 254.

8. Ashtor, "Profits from Trade," 273.

9. Jean-Louis Flandrin, "Dietary Choices and Culinary Technique, 1500–1800," *Food: A Culinary History from Antiquity to the Present*, Flandrin and Massimo Montanari, eds., Albert Sonnenfeld, Eng. ed., Clarissa Botsford et al., trans. (New York: Columbia University Press, 1999), 410. Christofaro di Messisbugo, *Libro novo nel qual s'insegna a far d'ogni sorte di vivande secondo la diversità de I tempi cosìdi carne come di pesce*, Testi Antichi di Gastronomia 2 (Milan: Arnaldo Forni, 1982), 57. Messisbugo's *Libro* was originally published in Ferrara in 1549, a year after the author died.

10. Frederic C. Lane, "Pepper Prices before Da Gama," *The Journal of Economic History* 28 (December 1968): no 4., 593.

11. Ibid., 595.

12. Walter J. Fischel, "The Spice Trade in Mamluk Egypt: A Contribution to the Economic History of Medieval Islam," *Journal of the Economic and Social History of the Orient* 1, pt. 2 (April 1958): 173.

13. Ibid., 158, 159, 160.

14. Ibid., 164, 165, 166.

15. C.R. Boxer, *The Portuguese Seaborne Empire, 1415–1825* (Harmondsworth, UK: Penguin, 1973), 33.

16. K.M. Panikkar, in *Asia and Western Dominance* (New York: Collier, 1969), 17, argues that the early European expansion in Asian waters was neither a civilization on the march nor purely mercantile but an attempt to bypass Muslim power on the landmass of Asia and break out of the "prison" of the Mediterranean to which European energies were confined.

17. Pierre Chaunu, cited in John C. Super, *Food, Conquest, and Colonization in Sixteenth-century Spanish America* (Albuquerque: University of New Mexico Press, 1988), 80.

18. Lane, "Pepper Prices before Da Gama," 596.

19. Ibid., 590.

20. C.H.H. Wake, "The Changing Pattern of Europe's Pepper and Spice Imports, ca. 1400–1700," *Journal of European Economic History* 8 (1979): no. 2, 361.

21. Niels Steensgaard, *The Asian Trade Revolution of the Seventeenth Century: The East India Companies and the Decline of the Caravan Route* (Chicago: University of Chicago Press, 1974), 155, 69, 171.

22. Ibid., 37.

23. John Bastin, *The Changing Balance of the Early Southeast Asian Pepper Trade*, Papers on Southeast Asian Subjects, no. 1 (Kuala Lumpur: University of Malaysia, 1960), 9. See Frederic C. Lane, "The Mediterranean Spice Trade," *American Historical Review* 45 (1940): 581–586; and Frederic C. Lane, "Venetian Shipping during the Commercial Revolution," *American Historical Review* 38 (1933): 228–229.

24. These two towns, which two centuries earlier had appeared in the chronicles of the great Arab traveler Ibn Baṭṭūṭa (1304–1378?), were just beginning to achieve prosperity when the Portuguese arrived.

25. Ancient sailors knew how to use monsoons and how to navigate by the stars, but naval science demands more than this. Alfonso de Albuquerque was the first man in history to organize a system of trade based on principles of naval science. It was oceanic in scope (not just the Indian Ocean), and Albuquerque arrived at an understanding of the principles of its defense as a special branch of naval science with rules of its own. See Marie Antoinette Petronella Meilink-Roelofsz, *Asian Trade and European Influence in the Indonesian Archipelago between 1500 and about 1630* (The Hague: Martinus Nijhoff, 1962), 117.

26. Meilink-Roelofsz, *Asian Trade and European Influence*, 19, 20, 21.

27. Ibid., 76.

28. *The Suma Oriental of Tomé Pires: An Account of the East, from the Red Sea to Japan, Written in Malacca and India in 1512–1515 and The Book of Francisco Rodrigues: Rutter of a Voyage in the Red Sea, Nautical Rules, Almanack and Maps, Written and Drawn in the East before 1515*, Armando Cortesao, ed. and trans., 2 vols. (New Delhi: Asian Educational Services, 1990), 106.

29. Ibid., 144.

30. Boxer, *The Portuguese Seaborne Empire*, 172. The work of Tomé Pires is a rich resource for the early history of the European presence in the Indo-Malaysian archipelago. Meilink-Roelofsz, *Asian Trade and European Influence*, 20.

31. Meilink-Roelofsz, *Asian Trade and European Influence*, 21.

32. Ibid., 33.

33. Ibid., 34.

34. Boxer, *The Portuguese Seaborne Empire*, 59. K.S. Mathew, *Portuguese Trade with India in the Sixteenth Century* (New Delhi: Manohar, 1983), 113.

35. Boxer, *The Portuguese Seaborne Empire*, 60.

36. Quoted in Meilink-Roelofsz, *Asian Trade and European Influence*, 134.

37. A.R. Disney, *Twilight of the Pepper Empire: Portuguese Trade in Southwest India in the Early Seventeenth Century* (Cambridge, MA: Harvard University Press, 1978), 64.

38. Meilink-Roelofsz, *Asian Trade and European Influence*, 128, 130.

39. Bastin, *The Changing Balance*, 19, 20.

40. Ibid., 10.

41. Jean Andrews, *The Pepper Trail: History and Recipes from around the World* (Denton: University of North Texas Press, 1999), 29–33.

42. Boxer, *The Portuguese Seaborne Empire*, xxi–xxii.

43. Ibid., 4.

44. Ibid., 113; Boxer,*The Dutch Seaborne Empire, 1600–1800* (Harmondsworth, UK: Penguin, 1990), 68.

45. Boxer, *The Dutch Seaborne Empire*, 111. Antony van Dieman, governor-general of the East Indies, took Malacca in 1641 from the Portuguese; Panikkar, *Asia and Western Dominance*, 47.

46. Some commentators claim that the chile Columbus encountered in the West Indies was *Capsicum chinense*, which they take to be native. *C. chinense* is native not to the West Indies but to the Amazonian basin, although it had migrated to the West Indies by Columbus's time. We know that it was not the only chile there from the account written in the early sixteenth century by Bartolomé de las Casas, who describes in his *Apologetica historia* three capsicums in the West Indies, the *ají*, which was long, red, and finger-shaped; a cherry-shaped one; and a wild one that bore very small fruits. Bartolomé de las Casas, *Apologetica historia sumaria, 1520–1561*, E. O'Gorman, ed. (Mexico City: Universidad Nacional Autonoma de Mexico, 1967), 1:58.

47. Quoted in Andrews, *The Pepper Trail*, 9.

48. Ibid., 15. At this crucial juncture, just when you *want* the details, Andrews presents her conclusion "without going into all the details."

49. Ibid., 226, note 38.

50. Charles L'Écluse, cited in ibid., 31. See also Jean Andrews, *The Domesticated Capsicums* (Austin: University of Texas Press, 1984), 5.

51. Colin Clair, *Of Herbs and Spices* (London: Abelard-Schuman, 1961), 43; Andrews, *Peppers*, 25.

52. Flandrin, "Dietary Choices and Culinary Technique," 410.

53. Quoted in ibid.

54. Andrews, *The Pepper Trail*, 16, citing J.W. Purseglove, *Tropical Crops: Dicotyledons* (New York: Halsted, 1968), 526.

55. Andrews, *The Pepper Trail*, 226, note 42. Andrews argues that chiles and black pepper were in competition with each other, which I do not believe to be the case; see Anthony Reid, "An 'Age of Commerce' in Southeast Asian History," *Modern Asian Studies* 24, pt. 1 (February 1990): 18–19.

56. Clifford A. Wright, *Some Like It Hot: Spicy Favorites from the World's Hot Zones* (Boston: Harvard Common Press, 2005).

57. Most of the rest of these areas were producers of spices. They are Bolivia-Peru, the Caribbean-Amazon region (especially Jamaica), Mexico (especially the Yucatan and southern Mexico), portions of the southwestern United States, Cajun Louisiana, southern West Africa and the former Portuguese colonies of southern Africa, Algeria-Tunisia, Ethiopia, Yemen, the Indian subcontinent, Thailand, the Indo-Malaysian archipelago, the Sichuan province of China, and Korea.

58. See Sidney W. Mintz and Daniela Schlettwein-Gsell, "Food Patterns in Agrarian Societies: The 'Core-Fringe-Legume Hypothesis,'" *Gastronomica: The Journal of Food and Culture* 1: no. 3, 40–52.