

## THE SPICE TRADE AND ITS IMPORTANCE FOR EUROPEAN EXPANSION

by

**Doz. Udo Pollmer**

### Summary

Both historical studies and popular accounts tend to present European expansion and the discovery of the New World as the achievements of daring adventurers who were seeking the thrill of novelty. But what leads people to take risks in everyday life is the hope of gaining an advantage - usually a financial one. If we consider European economic activity before the "discovery" of the New World by Christopher Columbus, it is clear that it was mainly the centers of the spice trade where wealth was accumulated. The palaces of Venice and Genoa, the riches of the Fugger and Welser merchant families of southern Germany, and the splendor of Lisbon and Amsterdam were established mainly on the profits from the spice trade.

The route the spices took from the East Indies to the Occident was both difficult and dangerous. The spices were mostly harvested by slaves, and then sailed or paddled in tiny praos from the Spice Islands (the Moluccas) to Malacca. From there, they were shipped in junks across two or three dangerous tropical seas. After that, this freight was carried on camelback through the desert from Aden to Egypt, becoming more expensive at each stage. Emirs, sultans, and pirates levied high customs tariffs on whatever had not been lost to typhoons, sandstorms, or other pirates. The exotic freight passed through at least a dozen hands before it was received by European merchant firms in Alexandria or Constantinople.

Today, we tend to underestimate their historical importance. For example, the term "spice" is not mentioned even once in the detailed subject index of Golo Mann's ten-volume *History of the World* (a well-known German reference work).<sup>4</sup> For spices are merely a perishable item of consumption. As soon as they have had their effect on our tongues and palates, they vanish into our stomachs. This makes them much less accessible for archaeology than gold and silver, which outlast the centuries, and still have great material value today.

Exotic spices were often more expensive than the food itself in former times. For a long time, people wondered why it was things with no nutritional value which were so strongly desired. The usual answer is, "Because they make things taste better". But this does not explain anything. For Nature does not do anything for nothing, or pointlessly. So why do human beings have this passion for spicing their food?

### **I. Saffron (*Crocus sativus* L.)**

TO THIS DAY, saffron remains the most expensive of all spices. Someone who eats saffroned rice for the first time is likely to be disappointed. Its aroma is faint, with a "medicinal" note that is more reminiscent of a pharmacy than of exotic scents from the Orient. Its taste is described as "peculiar", and it is even slightly bitter on the tongue. If it had only been a question of its coloring effect, then much cheaper dyestuffs, such as safflower (carthamin) would have been good enough.

Saffron has been used since antiquity. The Indians were exporting it in the fourth millennium BCE.<sup>7</sup> It was well known in ancient Egypt, as the *Papyrus Ebers* shows. Saffron-dyed garments were part of the typical clothing of Persian kings. Pictures on Cretan pottery and frescos in the palace of Knossos show saffron pluckers at work four thousand years ago.<sup>5,14</sup> Aeschylus dressed his Iphigenia of Aulis in saffron-dyed clothes, as did Euripides and Virgil with their Antigone and Helen. In more worldly times, the hetaerae, the expensive courtesans of ancient Athens, seized upon the golden-yellow saffron color and made it their trademark.<sup>10</sup> In ancient Rome, Apicius listed, in his *Excerpta*, saffron in first place among the spices that a perfect cook's spice cabinet must contain, followed by pepper.<sup>15</sup> The Arabs brought saffron to Europe after conquering the Iberian peninsula. The word itself comes from the Arabic or Persian, from "za'faran" or "safra", which means "yellow".<sup>16</sup>

The raw material is the stigmas of the flowers of a species of crocus from Asia, whose bluish-purple flowers resemble the poisonous autumn crocus, or meadow saffron (*Colchicum autumnale* L.) of Europe. They are harvested individually by hand in autumn. The aroma does not develop until they are

dried, either in the sun, on sieves over a low flame, or on metal plates over glowing charcoal. In the process, the stigmas lose about 80% of their weight when plucked, so that about 150,000 flowers are needed for one kilogram of saffron spice.

THE SCENT is caused mainly by the chemical compound safranal, but also by pinene and cineole, while the taste is due to the somewhat bitter picrocrocin, a glucoside of safranal. The yellow dyestuff is called crocin; it is one of the carotenoids.<sup>8,10</sup>

Basically, anything that is expensive becomes a target of criminal profit-making. No spice was ever counterfeited as unscrupulously and cunningly as saffron. Even in ancient times, there were lots of tips on how to "load" saffron with boiled-down apple pomace, litharge (lead monoxide), or minium (lead tetroxide). In Pisa, Italy, in 1305 the inspectors of the storehouses were required to swear a special "saffron oath", and in medieval German cities, special laws and checks were introduced in order to counter the skills of the saffron counterfeiters - but apparently with limited success. By 1440, they were so severe that the death penalty was imposed. Counterfeiters were buried alive or burned at the stake. In 1551, the Diet of Augsburg passed a law for the entire Holy Roman Empire against "shoddy saffron", as the adulterated material was called in those days. To this day, counterfeiting of saffron remains a common thing.<sup>7, 8, 10, 11, 18, 19</sup>

BUT SAFFRON is not only so valuable that it was sometimes paid for with its weight in gold, it is also not exactly harmless. In ancient times, the lethal dose of saffron was estimated at 12 grams, while today toxicologists give the lethal dose as 20 g.<sup>12,22</sup> Louis Lewin confirms that saffron can be poisonous even after only "lengthy inhalation of its volatile components". And he states that, "According

to older reports, serious illnesses, even death, were caused by accidentally sleeping on or near fresh saffron".<sup>12</sup> The pluckers sometimes fainted simply while plucking the saffron.<sup>3</sup>

SAFFRON is an extremely potent drug. In large doses, it is poisonous, and in small ones, mainly euphoriant. Pharmacologists of past centuries attributed the same pain-relieving and anticonvulsive effects as opium to this crocus.<sup>3</sup> Some reported effects such as "merry delirium" or "uncontrollable laughter". Lonicerus, for example, credited it with making "a happy and good blood". According to Gerhard Madaus, Jahn (1860) described saffron for children as being what opium was for adults. Other authors also emphasized the similarity of the effect of opium and saffron. Other typical indications for its use according to folk medicine are to calm the nerves, and to treat pains, coughing fits, asthma, or diarrhea.<sup>3</sup> Its relaxing effect on the intestinal and bronchial muscles is also characteristic of an opiate.<sup>17</sup>

Even though the individual active ingredients have not been identified yet, one can say that it is the pharmacological effects of one or more opiates which make the taste of saffron seem attractive. Somebody who desires the effect will recognize it by its aroma - and thus a drug became a "spice". This would explain people's willingness to spend enormous sums of money for products that have no nutritional value. The fact that saffron has been cherished for thousands of years, from Europe over the Near East to Asia, shows that it is a biological phenomenon, not a sociological one.

## **II. Pepper (*Piper* species)**

But the most important spice by volume in the history of Europe was not saffron, but pepper. It was so valuable that grains of pepper were often sold individually, or paid by their weight in silver. Yet the high price did not keep

people from consuming large quantities. Pepper is believed to have reached Europe as a result of Alexander the Great's campaign in India. Our word "pepper" also derives from the Sanskrit word *pippali*. However, India was already exporting spices such as pepper, cloves, cardamom and saffron to other countries in the fourth millennium BCE.<sup>7</sup>

IT TOOK the Romans quite a while to come to like the hot taste, but by the beginning of the Imperial period, pepper had been generally accepted; indeed, it was considered essential. Apicius mentions pepper in almost all of his recipes.<sup>21</sup> This referred to the considerably hotter "long pepper" (*Piper longum*), not the "black pepper" (*Piper nigrum*) we use today. At the end of the first century CE, there were special pepper storehouses (*horreae piperatariae*) in Rome, so that the citizens could be supplied with this sought-after commodity at any time.<sup>1</sup> When Alarich, king of the Visigoths, besieged the city in the year 408, he demanded as ransom for withdrawing, besides silver and gold, three thousand pounds of pepper.

Besides pepper and other spices, the Roman Empire imported from India such quantities of pearls and Chinese silk that the enormous amounts of gold and silver exchanged for these luxury goods at times threatened the stability of the state's finances, as Pliny reports. The Romans spend a hundred million sestertii annually on perfume imports from the Orient.<sup>10</sup> Since the reign of Augustus, more hundred merchant ships sailed to the ports of India and East Africa every year. They reached the Red Sea via the Necho Canal from the Nile, which no longer exists.<sup>25</sup> *The Periplus maris Erythraei*, an Alexandrian text probably dating from 76 CE, gives detailed instructions on the further course of the ships to reach the coasts of India. It also contains a list of goods that indicates what was shipped.

Of course, the high price of pepper made the Romans unhappy. Strabo (ca. 64 BCE to 26 CE) reports military campaigns intended to make the coastal dwellers on the Indian Ocean submissive to the Roman Empire, and the trade routes safer. Although they suffered setbacks at first, they finally achieved their goal: "In former days, barely a score of ships ventured out of the Red Sea, but now large fleets sail to India and the furthest shores of Africa", he writes. Two Roman legions were even stationed on the Malabar Coast of southwestern India to protect the Roman Empire's trade interests. The ruins of a Roman temple dedicated to Augustus still recall this.<sup>25</sup>

ONE OF THEIR destinations was Korkai, the main port of the Pandya kingdom, near the present town of Tuticorin, and another was Trincomalee on the island of Taprobane, the present-day Sri Lanka, where there was also a Greek trading colony. Some authors even present arguments for Roman ships having sailed as far as Java, Sumatra and Borneo in those days.<sup>24,25</sup> Perhaps the range of Roman commerce really is underestimated: a figure of undeniably Roman origin has been found near Mexico City that must have reached there before the "discovery" of the Americas.<sup>32</sup> Some writers have expressed the opinion that the statements of Pliny the Elder on the outflow of Roman gold and silver to India were moral appeals, and thus grossly exaggerated.<sup>23</sup> We cannot accept this view. Both the impressive collection of Roman gold and silver coins in the Mattanceri Palace in the southwestern Indian trading city of Cochin, and the testimony of Indian authors contradict this. Roman ships and legionaries are described in the "sagam" literature, the historical chronicles of the Pandyas. About the Western commercial agents, the "yavanas", they say, "Everywhere in Puhar the observer saw the residences of the yavanas, whose wealth never diminished." A

Tamil poet wrote about the Occidental traders in the port of Muziris near Cochin, "They arrive with gold and depart with pepper."<sup>14, 24, 25</sup>

Until the late Middle Ages, pepper retained its huge value, and often served as a means of exchange, instead of gold or silver, for paying tributes, taxes, rents, and customs duties, ransoms, or as an expensive gift or an inheritance.<sup>1</sup> But this should not make us forget that pepper was mainly intended to be consumed. When Charles the Bold, Duke of Burgundy, celebrated his wedding in 1468, he had 380 pounds of pepper served to the guests.<sup>19</sup> The recipes indicate a per-capita consumption that was ten to a hundred times larger than today. About 1500, the Bremen city council demanded that lebkuchen (German gingerbread) that was to be marked with the emblem of the city, the Bremen key, must have at least 25 parts of white pepper to 166 parts of honey and 180 parts of wheat flour.<sup>31</sup> Before sugar came into use, such "peppercakes" were a daily food for Germans, comparable to bread.

FRANCE was the first country to begin to do without the exorbitant quantities of exotic spices, in the seventeenth century. This is shown by the reports of French chroniclers, who complained bitterly on journeys abroad that the food was totally inedible, because it was stuffed with saffron and pepper, so that it was "gold and black inside".<sup>7</sup> What in the world was such large quantities of pepper needed for? Maguellonne Toussaint-Samat, like other historians, is convinced that possessing pepper "transcended its gastronomic importance, for once a certain amount of the spiee is exceeded the food becomes inedible. Pepper more than any other spice (...) came to be seen as a symbol of power and virility, qualities reflected in its powerful and aggressive flavor. The symbolic factor rated high, since such huge amounts,

which could hardly all have been consumed, would have been bound to go stale."<sup>5</sup>

Did European rulers of that time, who were always short of money, really collectively invest their fortunes in perishable grains as a symbol of their virility, in order to hoard them in storehouses? What leads us to conclude that extremely spicy foods are inedible? That may be true for the sensitive palate of modern Europeans, but we cannot assume that it applies to other societies. In many parts of the world, people eat foods that are so pungent that they would be totally inedible for us. As late as 1950, a typical Bedouin family with parents and six children in southern Tunisia consumed a kilogram of dried chili peppers and 300 grams of black pepper per month.<sup>7</sup>

A SECOND, equally popular, explanation suggests that the pepper was needed to cover up the disgusting taste of meat that had gone bad: "All cattle were slaughtered in November and the meat salted", John Mann claims. "Inevitably this meant that when the meat was eventually cooked it was either very salty or putrid. To disguise these tastes our medieval forebears used large amounts of herbs and spices, especially pepper and cloves."<sup>2</sup> Hansjörg Küster takes a similar view: "The reason for the use of pepper in the Occident remained the same until the invention of the refrigerator: of course, the lure of the exotic played a role, and of course pepper makes fatty meat more digestible, but the real reason for spicing with pepper is given by Johann Fischart in his translation of *Gargantua* in the second half of the sixteenth century: 'Over a stinking meat one (...) likes to put a (...) pepper.'"<sup>19</sup>

Even today, in many countries, freshly cooked foods are spiced extremely pungently. Where refrigerators are still not common, meat is not encrusted in pepper or chili peppers, but consumed right away. Eating meat that has gone bad would have caused severe food

poisoning. Since meat was cheaper than pepper, it seems plausible to look for other interpretations. Here, too, pharmacological and toxicological knowledge provides us with hints. Piperine, the active ingredient in black pepper responsible for its pungent "hotness", is one of the strongest insecticides.<sup>28</sup> And even more importantly, pungent active ingredients are usually extremely effective against microbial pathogens, and above all, intestinal parasites.<sup>42,43</sup> Intestinal parasites are often the most dangerous threat to human health, as the situation in developing countries demonstrates. Therefore, this custom was an important instrument of health care in the history of Europe.

Another effect seems even more important: what we perceive as a spice's "hotness" in our mouths is actually a feeling of pain. The pains release opiates produced by our own bodies, known as "endorphins".<sup>29</sup> If such spices are consumed regularly, the body adapts to them by learning to provide opiates immediately. These not only suppress the feeling of pain on the gums, but also makes one feel in a good mood. People who are used to eating hotly spiced foods need the endorphine "kick", indeed, they are sometimes addicted to it.<sup>29</sup> If we consider that, up until the Middle Ages, the much hotter "long pepper" (*Piper longum*) was used much more than black pepper, this observation gives a plausible explanation for the enormous consumption in Europe, so that Europe was almost dependent on pepper shipments from India.

### **III. Nutmeg (*Myristica fragrans* Houtt.)**

NUTMEG remains the second most important spice after pepper here in Germany. It was barely known in classical antiquity. It is true that philologists have in the past tried to identify unknown Greek words with "nutmeg", but there is no convincing evidence. The word *macis*, which occurs in Plautus' writings, is a joke word that has no

connection with spices. In older literature, *macer* is also found as the name of an astringent drug. But this is not *Myristica fragrans*, but rather *Ailanthus malabarica*, a close relative of the Chinese 'tree of heaven'. Many authors often transcribed *macer* incorrectly as *macis* when copying or compiling older texts.<sup>20</sup> However, the nutmeg cannot have been completely unknown, since it was used in ancient Egypt for embalming.<sup>5</sup>

THE FIRST note that is certainly about nutmeg was by Aron (Ahroun), who wrote a Syrian handbook of medicine in the seventh century.<sup>20</sup> By the end of the ninth century, Arabian doctors were already treating numerous illnesses with nutmeg, which indicates that it was widely available. Otto Warburg recognizes Hildegard of Bingen (born 1098) as the first authentic European source: "If someone eats nutmeg (*nux muscata*), it opens his heart and purifies his senses, and provides him ... good understanding." She recommended powdering "nutmeg and the same weight of cinnamon and some cloves", and then to make tarts out of this with "white flour (*simile farinae*) and some water", and nibble on them as often as possible. This will "soothe all bitterness of the heart and ... make spirits merry"<sup>41</sup> This recipe is a bit like our German Christmas snaps. By the late fifteenth century, nutmeg was a popular spice and cure-all.<sup>20</sup>

Nutmeg is just as poisonous as saffron. The first report on the lethal dose dates from 1576, and was by the botanist Löbel (Lobelius), who also pointed out its narcotic effect.<sup>20</sup> It causes fits of laughter and hallucinations, sometimes ending in a delirium like after excessive consumption of alcohol. The psychoactive substances make up about 15% of the oil, mainly myristicin and elemicin.<sup>10</sup> Both compounds are converted by the enzymes of the liver into amphetamines which are almost as effective as mescaline, and in the case of MMDA (3-methoxy-4,5-methylene-

dioxyamphetamine) even exceed it.<sup>37,38</sup> Mescaline is the active ingredient from the Mexican peyote cactus, which already used by the Aztecs for religious rituals, and causes hallucinations.<sup>10</sup>

According to Lutz Roth et al., the effects of nutmeg start two to five hours after taking it, and "can range from a slightly altered state of consciousness to intensive hallucinations. While visual hallucinations are less common than with LSD or mescaline intoxications, pronounced changes in time and space perception occur."<sup>22</sup> Alexander Shulgin, who did self-tests with almost all amphetamines, writes about MMDA: "The drug gives less feeling of being ill than mescaline. (...) MMDA yields a 'Sunday afternoon' feeling of desiring to lie down and enjoy life; a luxurious feeling of 'layback'. No enhancement of colours in visual scene (...) but upon closing eyes hallucinations appear quite real in 3-D, like watching a movie. First these dreams appear in black and white, but later colours start appearing. Chartreuse and magenta first appear, then blue and finally red. First I had visions of large numbers on gaming tables, then people. MMDA appears to bring dreams to the conscious level; is a link between the subconscious and the conscious."<sup>13</sup>

The psycho-active effects will hardly have gone unnoticed by people in the past. Trading companies used every means possible to acquire a monopoly, in order to obtain the maximum profit from the demand for drugs. In order to keep the prices in Europe high, the Dutch East India Company often destroyed a large part of the harvest. In part, this was done on Banda itself, the island where the nutmeg was grown. Barchewitz wrote in 1730: "Every year on Neira, not far from the Nut House on the beach, large heaps like haystacks are burned. The fire sometimes burns for eight days. As long as it lasts, sentries stand there day and night, so that nobody can take anything. The oil flows to the

sea like a sizable stream. The Chinese have often wanted to buy the soil where the nuts were burned from the Noble Company, but were not able to obtain it."<sup>34</sup> Other eyewitnesses speak of heaps that were each the size of a church.<sup>20</sup>

IN HOLLAND, too, so much nutmeg was burned that the nutmeg butter ran across the streets, and a huge crowd of people waded up to their ankles in it. But the citizens were forbidden under pain of death to take any. Schaber reports on a burning in the year 1760 "The flames flickered for two days. Clouds of a wonderful aroma spread across Amsterdam."<sup>35</sup> The town of Middelburg in the province of Zeeland also experienced such subtle pleasures, as the Briton Wilcocks reported. He saw so many cloves, nutmegs, and cinnamon being burned that the air was full of the scent for miles around.<sup>20</sup>

An unlimited monopoly was the basis of the prosperity of the Dutch trading centers. "Until about 1670, the Dutch East India Company was the richest company in the world," writes Henry Hobhouse, "it helped to finance the heyday of Dutch civilization: Rembrandt, Vermeer, Frans Hals, Vondel, Grotius, Spinoza, the largest publishing industry in the world in the seventeenth century, with countless, now forgotten, less important authors and poets, all the painters, architects, and, above all, patrons of art."<sup>39</sup> Even today, nutmeg is the basis for global business success stories. For its active ingredient, myristicin, is the pharmacological secret of the cola soft drinks.<sup>36</sup> But whether the trade in cola will create such cultural achievements as the trade in nutmeg once did remains to be seen.

#### **IV. Frankincense (*Boswellia* species)**

Many spices, such as nutmeg, were also used as incense. Of course, frankincense has also

been a sought-after import from the East for thousands of years. This aromatic resin comes from the frankincense trees (various species of *Boswellia*), which grow from the Arabian peninsula to Ethiopia. The consumption of frankincense was enormous, even in antiquity. As Herodotus (484-425 BCE) reports, huge incense sacrifices were made in the temples of Baal in Babylon, at which up to 80 kilograms of frankincense were burned.<sup>9</sup> In the first century BCE, Rome imported up to 3,000 tons of frankincense and 600 tons of myrrh.<sup>10</sup> According to Pliny the Elder, the Emperor Nero (37-68 CE) sent a year's entire Arabian harvest of frankincense up in smoke at the funeral of his wife Poppæa Sabina.<sup>9</sup> Later, the Catholic church promoted the consumption of oriental products - it also needed lots of frankincense and myrrh for its religious rituals.

BOTH products were so greatly desired that it is even claimed that wars were planned because of them. For example, some historians believe that its wealth of frankincense and myrrh trees was the reason why Alexander of Macedon drew up plans for conquering all of Arabia. Pliny reports that Alexander was rebuked sharply by his tutor Leonidas when he was a boy for being wasteful with frankincense; he should not do that until he had conquered the peoples who produced it. Plutarch adds that Alexander sent five hundred talents of frankincense and a thousand talents of myrrh to Leonidas after taking Gaza, so that he would no longer have to be stingy with incense towards the gods.<sup>9, 10</sup>

Its psycho-active effect was already widely known in ancient times. It was used not only as an intoxicant, but also as an anesthetic during cruel forms of execution, such as flogging to death and crucifixion, by giving the criminal wine to which frankincense had been added. The *Papyrus Ebers* contains the oldest known text on its therapeutic effects. Later, authors such as Hippocrates,

Dioskurides or Theophrastus recommended it against a range of well-known illnesses.<sup>1,9</sup>

AT LEAST the psycho-active effect of frankincense is unquestioned today. Scientists, whose attention was caught by repeatedly reported cases of addiction, finally found a simple explanation: two important components of the resin, olivetol and verbenol, react when burned to form tetrahydrocannabinol (THC), which is known to be the active ingredient of hashish.<sup>9</sup> The analytical proof of the production of substantial quantities of THC was not published, probably so as not to offend the leading consumer of frankincense in Europe and North America, the Roman Catholic church. But when the finding was rumored in public, the German government soon legalized the possession of small quantities of drugs containing THC.

#### **V. The Crusades from a pharmacological perspective**

Today, we often underestimate the historical importance of spices. Not only because the fleeting pleasure to our palates seems insubstantial, and archeological excavations unearth more permanent material, but above all because the pharmacological effects are underestimated, and often denied entirely. If one puts the emphasis on the psycho-active effect, the "drug" effect, the results are immediately apparent. We get an idea of what people's attitudes were towards the spice merchants ("pushers", we would say today), how anxiously they awaited the shipments, and how oppressive the feeling of dependency must have been. In view of the stiff prices for spices, a considerable proportion of Europe's gross domestic product must have been "consumed" in the form of imported spices.

What was particularly irritating was that the entire trade with the Indies was in Turkish and

Arab hands. No European Christian ship was allowed to sail the Red Sea, and no Christian merchant was even permitted to pass through. "This not only made the goods unnecessarily expensive for European consumers," Stefan Zweig wrote, "and milked off Christian merchants' profits from the start, the entire surplus of precious metals threatened to be drained off to the Orient, since the European goods did not even come close to matching the barter value of the precious Indian wares. This noticeable trade deficit alone was enough to make the Occident's impatient desire to shake off the ruinous and humiliating control more and more vehement, and finally all the energies were gathered together."<sup>6</sup>

THIS FIRST attempt began in 1095, with Pope Urban's call for a crusade to the Promised Land. Since none of them knew anything about the legend-shrouded origins of the spices, the Europeans tried their luck militarily where they received the goods - somewhere between Constantinople and Alexandria. Of course, the unknown origins of the expensive and sought-after spices from the mysterious East excited the imagination of people in Europe. Whoever held the source of the spice must be wealthy beyond measure, they thought. Soon, impoverished knights and petty nobles from all over Europe had their eyes on the biblical Jerusalem, whose streets were paved with gold. Thus enough professional soldiers were attracted to the military enterprise.<sup>27</sup>

The power-hungry Vatican elite was not aiming at empty graves, of course, but at more lucrative targets. "The Crusades were by no means," Zweig writes, "a purely mystic religious attempt to wrest the site of the Holy Sepulcher from the infidels; this first European-Christian coalition was also the first logical and deliberate attempt to break through the barrier to the Red Sea and open up the trade with the East to Europe, to Christianity."<sup>6</sup>

And the Crusaders did, in fact, succeed in "liberating" Jerusalem, in establishing a bridgehead on Arab soil. The beneficiaries of this military campaign were the Venetians. They controlled the spice trade in the entire Mediterranean. Venice experienced its heyday. In 1411, its ships brought spices worth 540,000 ducats to Europe. This gives us an idea of the amounts Europe had to hand over to the Arabs. What could the Venetians offer in exchange for the drugs from the Orient? Historical works speak euphemistically of "the European merchants shipping metals in exchange", only admitting in a subordinate clause that these were gold and silver above all, followed by weapons.<sup>26</sup>

ONLY A FEW mention another item of commerce: besides gold and silver, the Italians supplied the Muslims mainly with slaves, but after the conversion of the Hungarians and Slavs, this barter came to an end. In the second half of the thirteenth century, the Genoese revived the slave trade with Turkish and Tartar slaves whom they shipped from the ports of the Black Sea to exchange for spices and other goods with the Mamelukes of Egypt.<sup>27,30</sup>

The trade in spices was also the most important source of revenue for the Crusader states.<sup>30</sup> But they had barely got any closer to the producing regions in East Asia, the legend-shrouded "Spice Islands". Their Arab trading partners continued to control the trade, and thus the prices. And the Europeans still had no goods of equivalent value to barter. The Crusader states lived from the customs duties they levied on the spice trade in particular, and from the revenues of their holdings in the European motherland.<sup>1,27</sup> Christian Palestine was in a permanent dilemma, wrote Steven Runciman; if it was to survive under healthy conditions, it must not remain dependent on a continuous flow of labor power and money from the West.<sup>27</sup> And

thus it did not make any great difference when the Christian states vanished from the map again.

## **VI. The discovery of the New World:**

### **Searching for drugs**

Overall, the Crusaders failed in their military mission. And the demand for exotic spices continued to weigh heavily on Europe's balance of trade. In view of this continuous financial drain, the wish to come by these spices in a cheaper manner had to revive. Since the Europeans were unable to wrest Egypt from the Muslims, and the Islamic world continued to block the path to India, the desire to find a new route to mysterious India had to grow. As Zweig says, "The boldness that made Columbus thrust westwards, Bartholomeo Diaz and Vasco da Gama southwards, Cabot northwards towards Labrador, derived mainly from the purposeful desire to finally, finally discover for the Occident a free sea route to India, without tariffs or hindrances, and so break the ignominious dominance of Islam."<sup>6</sup>

THIS TIME, they did not take the military option, since they apparently saw no chance of defeating the Islamic countries in battle. Around 1300, the Venetian Marco Polo had succeeded in providing a first description of the countries of origin of pepper. Soon afterwards, the monks Oderico of Pordenone and Jordanus, and other travelers who also spied in Asia, added to Marco Polo's report.<sup>20</sup> The first one who dared to make use of the new-found knowledge to bypass the Islamic world was Christopher Columbus. He missed his goal and landed in America by mistake, where he searched without success for the much-sought spice plants. In this sense, Columbus was a failure.

Someone else had more luck. In 1498, Vasco da Gama landed in the midst of the pepper country, on the Malabar Coast. When, on his return to Lisbon, he unloaded the cargo of spices from his first voyage, they fetched six times as much as his entire undertaking had cost. And his second voyage actually earned a fiftyfold profit!<sup>7</sup> More and more Portuguese ships breached the existing Arab-Venetian trade monopoly. The dominant position of Venice was broken, and its fate was sealed. The Islamic world was also out of the business. The sea route was considerably cheaper than the arduous caravan routes. Even if four out of five ships failed to return, the crews had lost their lives, but the merchants had still made a handsome profit. After Venice, it was now Lisbon's turn to enjoy wealth and fame; a few decades later, the Dutch captured the business from the Portuguese, which helped Amsterdam flourish. And last of all, the British won the numerous colonial wars for spices. Now London experienced its flowering.<sup>7,19</sup> In all this, it should not be forgotten that until then, the real profiteers of the spice trade were based in the Orient. To that extent, Europe contributed to the fabulous wealth of the East. The discovery of the sea route, the conquest of the spice countries, and the end of payments to the Arabs meant the beginning of the commercial rise and colonial expansion of Europe, in which the seagoing nations featured so ingloriously. The Portuguese, Spaniards, Dutch and British waged cruel wars on one another all over the globe, in order to be able to enslave the native population as spice suppliers just as brutally.

Of the many descriptions of the profit margins of the spice trade after the discovery of the sea route, we will quote Horace St. John: "A rage for spices sprung up in Europe and continued, through the century, to furnish an object for the satirical effusions of the day. The natural flavour of all that is esteemed as delicate or

rich was drowned in powerful and pungent spicery, and the tables of the opulent, like the funeral pyres of antiquity, smoked with clouds of fragrance, from hot and perfumed dishes. The cloves, the pepper, and the nutmegs of the East, were indeed in that age the principal, if not the only object of mercantile adventure; an artificial value was conferred on these articles of luxury, and the commodities which the companions of Magellan bought at the rate of nearly six hundred pounds for ten yards of good scarlet cloth, worth seven pounds, sold in England at three thousand per cent above their original price."<sup>33</sup>

Around 1800, the age of the spice monopolies was finally at an end. The spice plantations made way for growing coffee, tea, or tobacco. If we wish to understand the loss of interest in spices, it is useful to take a look at the history of drugs. Europe itself possessed only a few usable intoxicants, such as alcohol. Therefore, the poorer elements of the people made use of the toadstool fly agaric, or ergot, or especially the nightshade family of plants, which also provided the basis for the witches' ointments.<sup>44</sup> A graphic impression of the numerous "bad trips" caused by thorn apple (jimson weed), henbane, and belladonna is given by Hieronymus Bosch's paintings of Hell. No doubt, experience with local drugs contributed much to the idea of a Hell. In comparison with these, the imported exotic spices were better-tolerated, and thus of course more desired. A fundamental change occurred when easily digestible stimulants such as coffee, tea, chocolate, and tobacco became available. They displaced saffron, nutmeg, and pepper as narcotics.

Stefan Zweig must have guessed at these relationships when he wrote: "No item of commerce is so sought-after as the *especeria*; it almost seems as if the scent of these Oriental blossoms had intoxicated Europe's soul in a magical fashion."<sup>6</sup> All the

circumstances of the spice trade show a remarkable similarity with the modern trade in illegal drugs. In this context, consider the findings of Svetlana Balabanova, who succeeded in demonstrating conclusively the existence of traces of cocaine in Egyptian mummies.<sup>40</sup> Perhaps addiction was not only a

major impetus for the historical development of Europe, but also for sustaining a system of intercontinental trade.

**Acknowledgements:** Thanks to Timothy Slater, Augsburg, for translation.

## REFERENCES

1. Gildemeister, E. and Hoffmann, F. *Die ätherischen Öle*. Leipzig: Schimmel & Co., 1910
2. Mann, J. *Murder, Magic and Medicine*. Oxford: Oxford University Press, 1992
3. Madaus, G. *Lehrbuch der biologischen Heilmittel*. Leipzig: Georg Thieme, 1938
4. Mann, G., Heuß, A., and Nitschke, A. *Propyläen Weltgeschichte - eine Universalgeschichte*. Frankfurt am Main: Ullstein, 1960-64
5. Toussaint-Samat, M. *History of Food*. Oxford: Blackwell, 1992
6. Zweig, S. *Magellan, der Mann und seine Tat*. Vienna: Herbert Reichner, 1938
7. Paczensky, G. von, Dünnebier, A. *Leere Töpfe, volle Töpfe Die Kulturgeschichte des Essens und Trinkens*. Munich: Albrecht Knaus, 1994
8. Sieweck, F. *Exotische Gewürze: Herkunft, Verwendung, Inhaltsstoffe*. Basle: Birkhäuser, 1990
9. Martinez, D., Lohs, K., and Janzen, J. *Weihrauch und Myrrhe: Kulturgeschichte und wirtschaftliche Bedeutung; Botanik, Chemie, Medizin*. Stuttgart: Wissenschaftliche Verlagsgesellschaft, 1989
10. Ohloff, G. *Irdische Düfte, himmlische Lust: Eine Kulturgeschichte der Duftstoffe*. Basle: Birkhäuser, 1992
11. Meier, D.J., and Stemmer, U. "Artificial colorants in saffron: Analytical method and results", *Mitteilungen aus Lebensmitteluntersuchung und Hygiene* 1999, 90, pp. 546-52
12. Lewin, L. *Gifte und Vergiftungen*, 4th ed. Berlin: Georg Stilke, 1929
13. Shulgin, A. *Pihkal: A Chemical Love Story*. Berkeley: Transform Press, 1992
14. Dalby, A. *Siren Feasts: A history of food and gastronomy in Greece*. London: Routledge, 1996
15. André, J. *L'alimentation et la cuisine à Rome*. Paris: Klincksieck, 1981
16. Osman, N. *Kleines Lexikon deutscher Wörter arabischer Herkunft*. Munich: Beck, 1982
17. Smith, C.M. and Reynard, A.M. *Textbook of Pharmacology*. Philadelphia: W.B. Saunders 1991

18. Freiburghaus, F., Meyer, P., and Pfander, H. "Geheimnisse des Safrans", *Naturwissenschaftliche Rundschau* 1998, 51, pp. 91-95
19. Küster, H. *Wo der Pfeffer wächst: Ein Lexikon zur Kulturgeschichte der Gewürze*. Munich: Beck, 1987
20. Warburg, O. *Die Muskatnuss: ihre Geschichte, Botanik, Kultur, Handel und Verwertung sowie ihre Verfälschungen und Surrogate*. Leipzig: Wilhelm Engelmann, 1897
21. Gollmer, R. *Das Apicius-Kochbuch aus der altrömischen Kaiserzeit*. Breslau: Alfred Langewort, 1909
22. Roth, L., Daunderer, M. and Kormann, K. *Giftpflanzen - Pflanzengifte: Vorkommen, Wirkung, Therapie; allergische und phototoxische Reaktionen*. Landsberg am Lech: Ecomed, 1994
23. Finley, M.I. *The Ancient Economy*. London: Hogarth Press, 1973
24. Thubron, C. *Die Seefahrer des Altertums*. Eltville, Germany: Bechtermünz, 1992
25. Knabe, W. *Auf den Spuren der ersten deutschen Kaufleute in Indien: Forschungs Expedition mit der Mercator entlang der Westküste und zu den Aminen*. Anhausen: Verlag Moderne Medien, 1993
26. Zöllner, W. *Die Geschichte der Kreuzzüge*. Wiesbaden: Panorama, 1989
27. Runciman, S. *A History of the Crusades*. Cambridge: Cambridge University Press, 1954
28. Steinegger E. and Hänsel, R. *Lehrbuch der Pharmakognosie und Phytopharmazie*. Berlin: Springer, 1988
29. Prescott, J. "The hot topic in food flavours", *Food Australia* 1994, 46, pp. 74-77
30. Konetzke, R. "Überseeische Entdeckungen und Eroberungen". In: Mann, G., Heuß, A., and Nitschke, A. *Propyläen Weltgeschichte*. Frankfurt am Main: Ullstein, 1964, Vol. 6, pp. 535- 634
31. Wiswe, H. *Kulturgeschichte der Kochkunst*. Munich, 1970
32. Hristov, R. and Genovés, S. "Mesoamerican evidence of pre-Columbian transoceanic contacts" *Ancient Mesoamerica* 1999, 10, pp. 207-213
33. St. John, H. *The Indian Archipelago, its history and present state*. London, 1853. cit. (20)
34. Barchewitz, *Allerneueste und wahrhaft. Ost-Indian.-Reisebeschreibung*. Chemnitz, Germany, 1730. cit. (20)
35. Schaber, W. *Colonialware macht Geschichte*. Zürich, 1936
36. EUL.E.n-SPIEGEL - Wissenschaftlicher Informationsdienst des Europäischen Institutes für Lebensmittel- und Ernährungswissenschaften (EU.L.E.) 1998, No. 6
37. Shulgin, A "Possible implication of myristicin as a psychotropic substance", *Nature* 1996, 210, pp. 380-384
38. Braun, U. and Kalbhen, D.A. "Nachweis der Bildung psychotroper Amphetamin-Derivate aus Inhaltsstoffen der Muskatnuß", *Deutsche Medizinische Wochenschrift* 1972, 97, pp. 1614- 1615

39. Hobhouse, H. *Seeds of Change: Five plants that transformed mankind*. London: Sidgwick & Jackson, 1985
40. Balabanova, S., Rösing, F. W., et al. "Evidence of cocaine in ancient pre-columbian populations from Christian Sayala (Egyptian Nubia)", *Journal of Paleopathology* 1997, 9, pp.15-21
41. Bingen, Hildegard von. *Heilmittel - vol. 1, Von den Pflanzen*. Basle: Baseler Hildegard-Gesellschaft, 1982
42. Holmes, B. "Just add chillies", *New Scientist*, 7 March 1998, p. 26
43. Nair, M.G. and Burke, B.A. "Antimicrobial piper metabolite and related compounds", *Journal of Agricultural and Food Chemistry* 1990, 38, pp. 1093-96
44. Lewin, L. *Die Gifte in der Weltgeschichte: Toxikologische allgemeinverständliche Untersuchungen der historischen Quellen*. Berlin: Springer, 1920

**Correspondence address:**

Udo Pollmer  
Food Chemist  
Scientific Director  
European Institute of Food and Nutrition Sciences  
65239 Hochheim  
private: P.O. Box 64  
75046 Gemmingen  
Germany  
Phone: +49-7267-911180, Fax: +49-7267-911181  
E-mail: Upollmer@aol.com

### Zusammenfassung

**Geschichtsschreibung wie populäre Darstellungen neigen dazu, die europäische Expansion, die Entdeckung der Neuen Welt, als Ergebnis von tollkühnen Abenteurern darzustellen, die den Reiz des Neuen suchten. Was aber die Menschen im täglichen Leben veranlasst, Risiken auf sich zu nehmen, ist gewöhnlich die Hoffnung auf einen Vorteil, meist einen wirtschaftlichen. Betrachtet man das europäische Wirtschaftsleben vor der "Entdeckung" der Neuen Welt durch Christoph Columbus, ist ersichtlich, dass Reichtum vor allem in den Zentren des Gewürzhandels angehäuft wurde. Die Paläste Venedigs und Genuas, der Reichtum der Fugger und Welser, der Prunk Lissabons oder Amsterdams gründeten hauptsächlich auf dem Gewinn aus dem Handel mit Gewürzen.**

**Der Weg der Gewürze vom malaiischen Archipel ins Abendland war ebenso mühselig wie gefährvoll. Die Spezereien, meist von Sklaven geerntet, wurden mit winzigen Praus von den Gewürzinseln nach Malacca gepaddelt. Dann von Dschunken durch zwei oder drei gefährvolle tropische Meere verschifft, bis Kamele die zunehmend teurere Fracht von Aden nach Ägypten durch die Wüste schaukelten. Auf das, was Taifune, Sandstürme und Seeräuber übrigließen, legten Emire, Sultane und Piraten einen hohen Zoll. Durch gut ein Dutzend Hände ging die exotische Fracht, bis sie in Alexandria oder Konstantinopel von europäischen Handelshäusern in Empfang genommen werden konnte.**

**Wir neigen heute leicht dazu, ihre historische Bedeutung zu unterschätzen. Der Begriff "Gewürz" ist beispielsweise in den ausführlichen Sachregistern von Golo Manns zehnbändiger "Weltgeschichte" nicht ein einziges Mal erwähnt. Sind doch Gewürze nur ein verderbliches Gebrauchsgut. Sobald sie ihre Wirkung am Gaumen entfaltet haben, gehen sie den Weg alles Verzehrten. So sind sie für die Archäologie viel weniger greifbar als Gold oder Silber, die die Zeit überdauern und noch heute einen hohen materiellen Wert darstellen. Exotische Gewürze waren früher oftmals teurer als die Nahrung selbst. Lange wurde gerätselt, warum gerade das, was ohne jeden Nährwert ist, die Begierde des Menschen weckt. Die übliche Antwort lautet: Weil es besser schmeckt. Das erklärt aber nichts. Denn die Natur tut nichts umsonst und nichts vergebens. Warum also hat der Mensch diesen Hang zur Würzung seiner Nahrung?**

**Author's main publications:**  
**(Selection)**

**Nonfiction**

Kapfelsperger E., Pollmer U.: *iß und stirb - Chemie in unserer Nahrung*; Kiepenheuer & Witsch; Köln, 1982.

Pollmer U., Fock A., Gonder U., Haug K.: *Eet smakelijk - Over de zin en onzin van gezonde voeding*; Elmar; Rijswijk, 1996.

Pollmer U., Fock A., Gonder U., Haug K.: *Liebe geht durch die Nase - Was unser Verhalten beeinflusst und lenkt*; Kiepenheuer & Witsch; Köln, 1997.

Pollmer U., Schmelzer-Sandtner B.: *Wohl bekomm's! Was Sie vor dem Einkauf über Lebensmittel wissen sollten*; Kiepenheuer & Witsch; Köln, 1998.

Pollmer U., Hoicke C., Grimm H.-U.: *Vorsicht Geschmack - Was ist drin in Lebensmitteln*; Hirzel; Stuttgart, 1998.

Pollmer U., Warmuth S.: *Lexikon der populären Ernährungswissenschaften*; Eichborn; Frankfurt, 2000.

**Journals**

Pollmer U.: *Novel foods: flavor design and malnutrition*; *Agro-Industry Hi-Tec* 1990; 2; S 43-45.

Haller R., Rummel C., Henneberg S., Pollmer U., Köster E.P.: *The influence of early experience with vanillin on food preference later in life*; *Chemical Senses* 1999; 24; S 465-467.

Pollmer U.: *Chemische Nachweise von Suchtmitteln des Altertums*; *Acta Ethnologica et Linguistica* Nr. 72; Series Generalis 19; Symposia 1; Tagungsberichte: Robert Freiherr von Heine-Geldern; Tagung anlässlich des 30. Todestages; S. 235-251.

Betreuung des Wissenschaftlichen Informationsdienstes des Europäischen Institutes für Lebensmittel- und Ernährungswissenschaften e.V.; Hochheim.