GEOGRAPHY
VOLUME 91(3)
PAGES 218-226

Chocolate Consumption, Manufacturing and Quality in Western Europe and the United States

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ABSTRACT: In this article we examine why chocolate consumption patterns and understandings of quality vary significantly between the United States and Western Europe on the one hand, and among western European countries on the other hand. We argue that different attitudes towards chocolate and different marketing strategies by chocolate manufacturers explain much of the difference in consumption patterns. In many continental European countries, chocolate is considered a serious food rather than an indulgence, and consumers demand both tradition and innovation to a much larger degree than in the United States. Differences in understandings of quality can largely be explained through the history of chocolate manufacturing in individual countries, with many continental European countries emphasising quality ingredients and quality-oriented manufacturing processes, while many British and US manufacturers prioritise cost over quality.

Most people love chocolate, probably because it has a particularly complex taste made up of more than 500 flavour components, which is considerably more than most other foods (Albright, 1997; Richardson, 2003). Americans like chocolate so much that they eat about five kilograms of chocolate products per person per year (Figure 1). This may seem like a large amount, but Europeans consume significantly more chocolate. The inhabitants of the main chocolate-producing countries – Switzerland, Belgium, Germany, Austria and the United Kingdom – eat on average about ten kilograms of chocolate per person every year (Zackowitz, 2004). Why do Western Europeans consume so much more chocolate on average than Americans? Why do Americans and the British have a different understanding of what constitutes quality chocolate from continental Europeans? We argue that the history of chocolate manufacturing in Europe explains how and why different notions of quality developed. Each innovation in the manufacturing process influenced understandings of quality in the chocolate industry in the country in which the innovation was made. These understandings of what constitutes quality chocolate, in turn, influence how chocolate is manufactured and marketed in the respective countries. Finally, traditions in marketing and manufacturing shape and are shaped by consumer preferences, showing that cultural and economic processes are at work simultaneously. Our analysis suggests that continental European chocolate manufacturers' dual focus on traditional understandings of quality on the one hand, and innovation in terms of flavours on the other hand, make their chocolate bars so popular.

In both the United States and in Europe, mass-market chocolate makes up the lion's share of the chocolate market, with gourmet chocolates only accounting for 3.2% in the United States (Hopkins, 2005). Originally, only small-scale producers made chocolate, but in recent decades the chocolate industry has become increasingly dominated by just a few large, often multinational, companies (Fold, 2000). Because of the dominance of these large manufacturers, we limit our analysis to mass-market chocolates. We believe that they are a better indicator of general trends in chocolate manufacturing and chocolate consumption patterns than gourmet chocolates. Chocolates produced by smaller companies often cater to a more upscale market and reflect regional variations in chocolate preferences, complicating the patterns significantly. In this article, however, our main concern is not with sub-national differences, but variations among countries. In our analysis we primarily contrast the United States and Western Europe, but also address differences among Western European countries. In particular, it is important to point out that the UK's chocolate industry has taken a different path from continental Western European producers. While the UK is distinctly European in its chocolate consumption patterns, its understandings of chocolate quality are more like those of the US, resulting in a bitter dispute among the member states of the European Union about what constitutes quality chocolate.

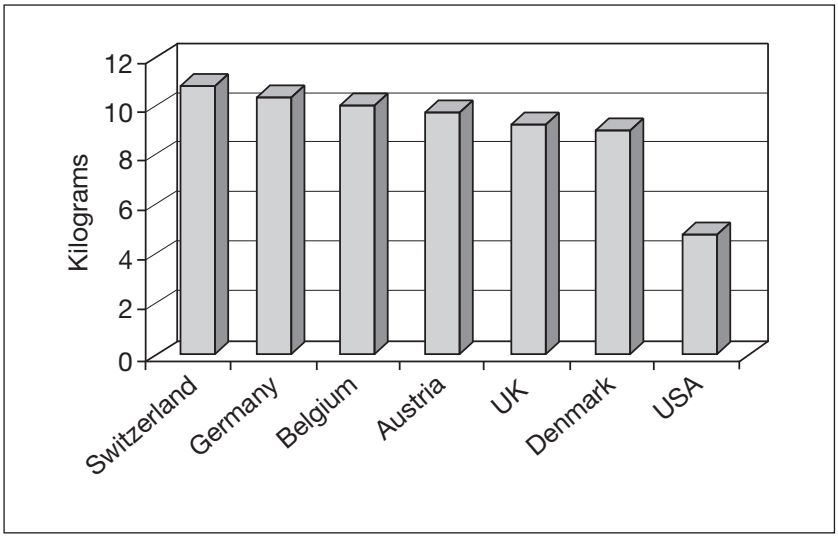

Figure 1: Chocolate consumption (kg). Source: Zackowitz, 2004.

Background

There is no shortage of publications about chocolate. Numerous books and articles – both popular and academic – focus on nutrition and health aspects and seem to be split in their overall assessment of chocolate, with some authors condemning it for its high sugar content that can lead to weight-gain and tooth decay, and others praising chocolate's positive health effects. Another body of literature centres on cultural histories of chocolate. The most well-known is Coe and Coe's *The True History of Chocolate* (1996). This book describes how chocolate was first invented as a spicy drink by the Olmec, Aztec and Maya of Mesoamerica, but when introduced in Europe after the Spanish Conquest of Mexico in 1519, it was mixed with sugar to better suit European tastes. It then explains innovations in chocolate making and modern commercial production. Most other cultural histories of chocolate draw heavily on this work, and are therefore similar in content. There is also an impressive array of recipe collections, some of which are published by the chocolate companies themselves to promote their products. There was a flurry of publications about the chocolate industry in the 1920s and 1950s, but since then relatively little academic work has been done, partly because the chocolate industry is so secretive about recipes and production methods that it is virtually impossible to conduct primary research (Brenner, 2000). Exceptions include Pottker's *Crisis in Candyland* (1995), which examines in detail the history of the Mars Company. Similarly, Terrio (2000) provides an in-depth analysis of chocolate manufacturing in France. Szogyi's *Chocolate: Food of the gods* (1997) is probably the only collection of contributions addressing a wide range of contemporary trends within the chocolate industry, including regional differences and the recent popularity of gourmet chocolates. However, none of these works investigate the main differences in chocolate consumption, manufacturing and understandings of quality between the United States and Western Europe to explicitly tie these differences to the historical development of chocolate manufacturing in these countries.

The origins of chocolate

Cocoa grows on a tree called *Theobroma cacao*, which literally translates as 'food of the gods'. The cocoa tree only flourishes between 20° north and south, as it needs warm temperatures, year-round moisture, and midges for pollination. *Theobroma cacao* is an unusual tree as it flowers directly from the trunk, rather than from the branches (Figure 2). The flowers develop into pods that contain 30 to 40 bitter-tasting beans surrounded by a sweet, juicy pulp. When they are ripe, the pods are harvested and opened by hand (Figure 3). Then the pulp and beans are put in a heap under banana leaves to ferment, resulting in the beans developing the typical chocolate taste. The beans

Figure 2: Cocoa fruit. Photo: www.infozentrum-schoko.de

are then dried for transport (Coe and Coe, 1996; Info-Zentrum Schokolade, 2005).

Cocoa first became popular among Mesoamerican peoples such as the Olmec, Maya and Aztec. They roasted the dried cocoa beans, ground them and mixed them with water as well as various spices, such as chilli. The resulting drink was called *xocoatl*[1], a mixture of the terms *xoco* for bitter and *atl* for spicy (Info-Zentrum Schokolade, 2005). As we know from images on ceramics and in the Maya codices (books), the Maya created foam on top of their drinking chocolate by pouring it from one vessel into another. Drinking chocolate was an important part of numerous ceremonies. However, this was not the only purpose cocoa served in Mesoamerica – both the Maya and the Aztec used cocoa beans as a currency (Coe and Coe, 1996).

Conquistador Hernán Cortés brought the first cocoa from Central America to Europe. The Spaniards had tasted Aztec drinking chocolate during the Conquest of Mexico (1519), and held differing views about its taste. Some liked the Aztec drink, while others thought it was too bitter and spicy. Most Spaniards preferred chocolate as a hot drink, mixed with sugar and old-world spices such as cinnamon. Like the Mesoamericans, they liked their chocolate with foam. In order to create it, the Spaniards invented the *molinillo*, a stick twirled between the hands. As chocolate drinking spread through Europe, the French invented the chocolatière, or chocolate pot, to serve it in style (Coe and Coe, 1996). Chocolate drinking became an important ritual among the European elite, with each country it spread to making a contribution to that ritual. As demand for cocoa beans increased, the colonial powers started growing cocoa in other parts of their empires, namely in South America (especially Brazil), West Africa (especially Ghana and the Ivory Coast), and Southeast Asia (especially Indonesia) (Ullmann, 1997). Today, the largest cocoa producers are all former colonies outside Central America (Figure 4).

Innovations in chocolate manufacturing

While chocolate drinking spread quickly among the European elite, it was not until the industrial period that it became available to the general population. The introduction of steam power made the grinding of the cocoa beans more efficient, and other technological breakthroughs revolutionised chocolate manufacturing and lowered its cost substantially (Ullmann, 1997). These processes also had an important geographical impact, as chocolate manufacturing shifted from Spain and France, the countries where chocolate first became popular, to the northern and central European countries where most of the innovations in the industrial age took place (Coe and Coe, 1996).

The period of rapid innovation began in 1828, when Dutch chemist van Houten invented a hydraulic press that made it possible to press the cocoa butter from the cocoa bean. The remaining dry chocolate mass could then be pulverised and used as chocolate powder. Drinking chocolate could now be produced cheaply and in large quantities (Burleigh, 2002). About 20 years later, in the UK, Fry found a way to make good use of the cocoa butter that had thus far been a waste product. He discovered that mixing the cocoa powder with cocoa butter, instead of water, allowed him to pour the resulting paste into a mould to produce solid chocolate (Coe and Coe, 1996). The idea quickly caught on and other chocolate manufacturers, including Cadbury in the UK and Suchard in Switzerland, started

Figure 3: Opening the cocoa fruit. Photo: www.infozentrum-schoko.de

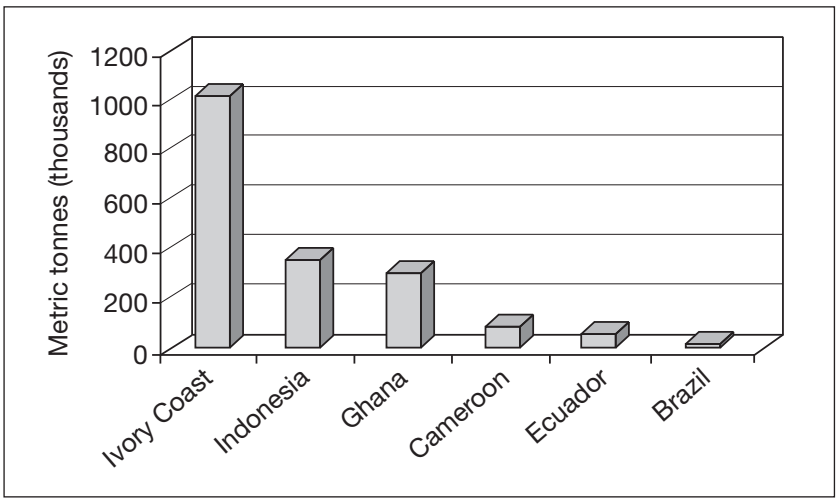

Figure 4: Leading cocoa producers. Source: Zackowitz, 2004.

producing solid chocolate bars. Thus, technological innovations, combined with lower cocoa prices due to imports from a large number of colonies, completed the transformation of chocolate from an elite drink to a food available to the general population (Richardson, 2003; Schokoladenmuseum, 2005).

Rather than making chocolate cheaper, the next round of innovations improved the quality of solid chocolate. In 1867, Nestlé, a Swiss chemist, discovered how to produce milk powder through an evaporation process. Since it would not spoil like fresh milk, milk powder allowed him to produce milk chocolate, which quickly became popular throughout Europe. The most significant invention of this time, however, was made by another Swiss, Lindt, in 1879. Lindt discovered that kneading the chocolate with granite rollers broke the cocoa into smaller particles, resulting in a smoother chocolate. This conching process significantly improved the quality of the chocolate. To this day Swiss chocolate is renowned for its rich taste and smoothness (Ullmann, 1997).

By the mid nineteenth century, a large number of chocolate manufacturers had emerged in Western Europe, especially in Switzerland, Belgium, The Netherlands, Germany and the UK. Many companies that had started as small family businesses relying on artisanal production of individual chocolates grew into large companies using industrial production methods. Over time, a common understanding of what constituted quality chocolate emerged. In Germany, the Stollwerck Company started its production in the 1860s. For many years to come, Stollwerck was at the forefront of developments in the industry. The company founded the Association of German Chocolate Makers in 1877. This Association had three main goals. First, it lobbied for lower import tariffs on cocoa to keep cocoa prices low. Second, it insisted on implementing strict quality standards. The company was concerned that several chocolate manufacturers mixed their chocolate with cheap ingredients such as potato starch, animal fats and olive oils, or even with cocoa bean shells, sand, chalk or ground brick. Stollwerck believed that it would be in the interests of all chocolate manufacturers to enforce high standards. Third, the Association argued for mandatory quality controls. As analytical chemistry was only in its infancy at the time, these quality controls were difficult to carry out and were not fully implemented until the 1930s. Nevertheless, the Association laid the groundwork for the emphasis on quality in the Western European chocolate industry (Schokoladenmuseum, 2005).

Chocolate quality

The quality of a food product can be determined at various stages in the commodity chain. Unlike many less highly processed foods, the quality of chocolate is primarily determined in the later stages of the commodity chain, i.e. the manufacturing process, rather than by the main raw material, i.e. cocoa (Cidell and Alberts, 2006). Some Western European companies prefer the better criollo bean from Central America over the cheaper forastero bean grown in Africa or Asia, or mix different beans to achieve a certain taste (Fold, 2001; Ritter Sport, 2005). Only some companies, however, get their cocoa beans from specific producers, even though this preference probably reflects traditions developed under colonialism rather than quality concerns. For example, British companies have traditionally favoured cocoa beans from Ghana, while French manufacturers tend to prefer beans from the Ivory Coast (Richardson, 2003). Historically, some European companies had direct connections to certain growers to ensure that the cocoa beans are harvested at the ideal stage of ripeness, fermented for the right length of time and stored under ideal conditions, since all these factors improve the taste (Telly, 1997). However, this practice is increasingly being eroded. Due to the increasing liberalisation of markets trading in raw materials such as cocoa and the fact that the initial processing of the cocoa beans is now carried out by just a few companies, the quality of cocoa beans can no longer be monitored to the same degree as before (Fold, 2000; Tiffen, 2002).

Since the origin of the cocoa bean can no longer be used as a determinant of quality, the manufacturing process itself has become more significant in defining quality chocolate. However, even at that stage in the commodity chain, regulators, manufacturers and consumers use different criteria to assess quality (Ibery and Kneafsey, 2000). Regulators, whether from within the industry, as in the case of the Association of German Chocolate Makers, or from outside, as in the case of government supervisors, are concerned about the chemical purity of the product as well as hygienic production conditions. Both US and Western European companies insist that their production facilities meet the highest standards in terms of state-of-the-art machinery (Figure 5), hygienic standards and qualified employees (Pottker, 1995; Lindt and Sprüngli, 2005), so differences among countries are negligible.

Many manufacturers and some regulators see quality as being determined by the care taken during the manufacturing process. It is here that differences between European and US chocolate companies emerge. For example, most American chocolate manufacturers knead or conch their chocolate for 18-20 hours, while most Western European chocolatiers conch for 72 hours. This difference can be seen in the smoothness of the chocolate, with US chocolate tending to be grittier (Rinzler, 1977; Telly, 1997). Differences also exist in the mixture of ingredients. In most continental European countries, legislation specifies that milk chocolate must contain at least 30% cocoa solids, while in the US a product with as little as 10% cocoa solids is considered chocolate. For dark chocolate, the threshold is 43% cocoa solids for European chocolate and 35% for US chocolate (Khodorowsky and Robert, 2001). Since US mass-

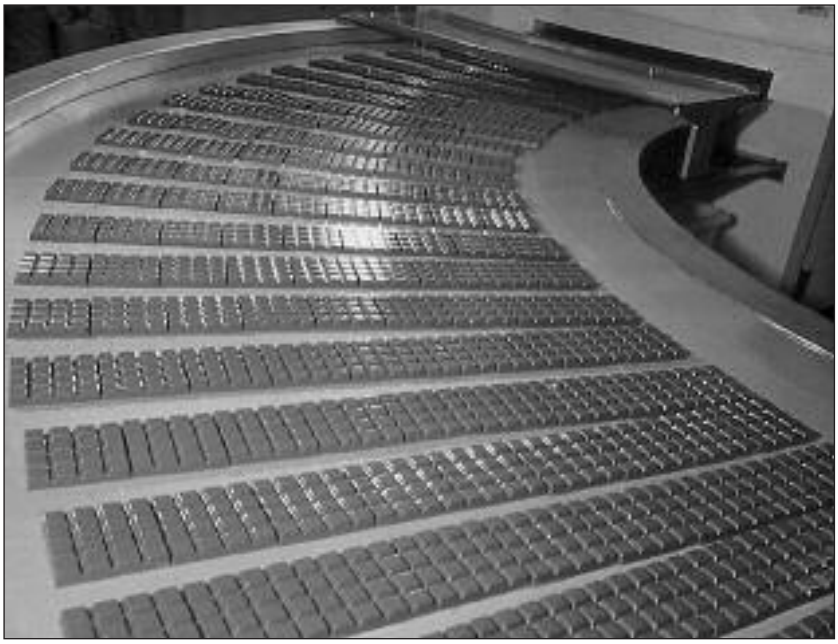

Figure 5: Modern chocolate production. Photo: www.infozentrum-schoko.de

market manufacturers prioritise cost over quality (Coe and Coe, 1996), their chocolate contains a higher percentage of sugar, as sugar is cheaper than cocoa. For example, during a chance encounter with an employee of Hershey, who did not want to be named for fear of reprisals from his company, he told us: 'Money is the only thing that counts. It's not that we don't know how to make better chocolate, we are just not willing to spend the money on doing it'.

While the quality differences as defined by the mixture of ingredients are most striking between the United States and European countries, there are also significant quality differences among Western European manufacturers. The different attitudes towards quality led to what became known as the European Chocolate Wars. The Chocolate Wars are intertwined with the development of the European Union (EU), which has now taken on the role of regulator for many food items that were previously covered by national legislation. When the UK joined the EU in 1973, it asked that the strict regulations concerning chocolate ingredients, as implemented by the original six member states, be relaxed. The traditional chocolate-manufacturing countries of Belgium, The Netherlands and Germany, as well as non-EU member Switzerland, vehemently opposed any changes in the standards. After long debates, the EU exempted the UK from the legislation and allowed British manufacturers to use a higher percentage of sugar and milk in their chocolate, as well as selected vegetable fats instead of pure cocoa butter (Morrison, 2000; Andrews, 1997). The EU standards came under attack again when Austria, Finland and Sweden joined the EU in 1994 and – following the example of the UK – asked to be exempted. Yielding to the increasing pressure, the EU passed a new chocolate law in 2000 that allows the use of fats other than the expensive cocoa butter in chocolate (for a more detailed discussion of the Chocolate Wars see Cidell and Alberts, 2006). Now chocolate manufacturers in all EU countries can replace up to 5% of cocoa butter with vegetable fats from an approved list of six substances, but have to include these prominently on the food label. While the use of these other fats increases the shelf life of chocolate and reduces the cost, many continental European manufacturers insist that quality chocolate can contain only cocoa butter (Fold, 2000; Terrio, 2000; Schokoladenmuseum, 2005). The countries with the strictest quality standards – Switzerland, Germany and Belgium – are also those where the most chocolate is consumed (Figure 1).

The final determinant of quality is consumer opinion. Consumer taste is highly subjective. For example, many people prefer milk chocolate over dark chocolate, even though chocolate with a higher percentage of cocoa solids is supposedly of higher quality (Terrio, 2000; Fabricant, 1998). In part, these taste preferences are the result of traditions. For example, the Spanish continue

to prefer strong and bitter chocolate with a minimum of fat and sugar, similar to the original chocolate brought over from the Americas. The Germans and Swiss, by contrast, like their chocolate rich in flavour, milky and smooth (Rinzler, 1977; Richardson, 2003). These preferences reflect other country-specific factors relating to manufacture; for example, whether or not that country invented part of the manufacturing process and what raw materials are readily available there (Fold, 2000; Richardson, 2003; Cidell and Alberts, 2006). For example, the Swiss have a large dairy industry and invented the processes that led to the production of milk chocolate, which helps to explain why they prefer milk chocolate. The Swiss also invented conching, the process that improves the smoothness of the chocolate, another characteristic of Swiss chocolate. While differences are largest among different manufacturers, companies that market their chocolates on both sides of the Atlantic, like Lindt and Nestlé, adjust their recipes slightly in order to cater to different taste preferences. For example, they use a higher sugar content in the United States and the UK than in continental Europe (Rinzler, 1977; Lindt and Sprüngli, 2005).

Marketing and consumption

Traditions and cultural attitudes are not only important in understandings of quality, but also influence chocolate consumption patterns and how manufacturers cater to the tastes of their customers. Most Americans see chocolate as an indulgence, while many Europeans consider it a 'serious food' (Pottker, 1995) and are more likely to defend it as something that is healthy when eaten in moderation. The following, even though a joke, is an indication of how many Europeans view chocolate: 'Chocolate is a vegetable. How, you ask? Chocolate is derived from cocoa beans. Beans are vegetables. Sugar is derived from either sugar cane or sugar beets. Both are plants, which places them in the vegetable category. Therefore chocolate is a vegetable' (author unknown). This attitude towards chocolate is reflected in the marketing strategies of chocolate companies. For example, commercials of the German Ritter Sport Company frequently show people eating chocolate on camping tours and when taking part in sports. Similarly, *Joghurette* (a Ferrero product) is marketed as fitting the lifestyle of active people. Interpreting chocolate as a food rather than as a treat partly explains why Europeans on average eat so much more of it than Americans do. However, not only do they eat more, they also prefer it in different forms. Most Americans eat a large share of their chocolate in the form of candy bars or in cakes, cookies or ice cream (Rees, 1997; Khodorowsky and Robert, 2001). In Europe, by contrast, most chocolate is eaten in the form of pure chocolate bars.

US chocolate manufacturers not only produce different chocolate products but also employ different innovation strategies. The US chocolate industry is dominated by two giants – Hershey and M&M/Mars. Hershey started producing milk chocolate bars *en masse* in 1893 with German machinery purchased at the World's Columbian Exhibition in Chicago. The Mars Company was established in the early 1920s and mostly made candy bars such as *Milky Way, Mars, Snickers* and *Three Musketeers*. By the 1980s, both companies were in intense competition with one another. In order to gain a competitive edge, Hershey introduced a range of new products (such as *Hershey's Hugs* and *Symphony*), while Mars limited itself to modifying existing brands (usually through the addition of peanuts or peanut butter) and transforming some of its candy bars into ice cream bars (Pottker, 1995; Albright, 1997). Compared with Western European manufacturers, though, even Hershey's more innovative approach looks timid. Innovations in the US chocolate industry have largely been limited to changes in size (giant bars, bite-sized), more healthy varieties (diet chocolates), or new packaging, rather than the creation of new products (Rees, 1997). Overall, there is relatively little innovation in the US chocolate industry. Pottker (1995), for example, points out that more than half of the candy bars sold in the US were invented over 50 years ago. Mass-market chocolate bars exist in only a few varieties (milk and dark) and with only a few different fillings (caramel and almonds). This lack of innovation may partly be due to the general decrease in chocolate consumption in the United States. In the 1980s, cocoa prices increased at a time when health concerns over food became widespread, discouraging people from eating chocolate products. Furthermore, Americans developed a taste for other snack items such as nuts and potato chips, which did not catch on in Europe to the same degree (Rees, 1997).

Western Europe has not seen a corresponding decrease in chocolate consumption. One reason is certainly the widespread opinion of Europeans that chocolate is a food, not an indulgence. Another factor is that European chocolate manufacturers market their products through a mixture of emphasising tradition as well as innovation in order to attract their customers, as evidenced by the following examples from Germany. The Ritter family started producing chocolate bars in Germany in 1912. Twenty years later Ritter came up with the idea of creating a square 100g chocolate bar that would fit into a man's shirt pocket. In the 1970s, the company decided to limit their production to just these chocolate squares (called *Ritter Sport*), and invented their marketing slogan that is used to this day: 'Quadratisch. Praktisch. Gut.' ('Square. Handy. Good.'). While the company limited production to these squares rather than branching out into different chocolate products, its innovation strategy has been to offer many different flavours. Beyond manufacturing four main types of chocolate – white, milk, alpine-milk and dark – this meant creating different fillings (Figure 6). Since the 1970s, the company has used a different colour of wrapping for each of their chocolate flavours, making the chocolate highly distinctive on supermarket shelves. Today, the company offers more than a dozen different chocolate flavours year-round (e.g. nougat, marzipan, crisp and nut) as well as a range of seasonal products (fruit-and-yoghurt chocolates in summer and chocolate with spices in winter). Thus, the Ritter Sport Company, which has a market share of 25% in Germany (Ritter Sport, 2005), continues to attract customers through a mixture of tradition (the same shape and wrapping of the bars for decades) and innovation (new flavours almost every year).

Ferrero, a major chocolate manufacturer based in Italy but with a large market share in Germany, follows a similar strategy. Besides producing a wide range of confectionary products, such as *Ferrero Rocher* or *Raffaello*, Ferrero is most known for its *Kinder* line of products. These products, milk chocolate with a milk cream filling, are targeted at children ('Kinder' means 'children' in German). For decades, the marketing slogans have been 'More milk, less cocoa' and 'the extra serving of milk' to emphasise that the products are a good contribution to children's nutrition. This strategy, too, represents a dual focus on tradition and innovation. For decades, the colour scheme of Ferrero *Kinder* products has been white and orange, and the same boy is pictured on today's chocolate bars as in the 1970s. Innovation, in the case of Ferrero, is to introduce variations of the milk filling (with crispy rice or small pieces of almonds) and to create products in different shapes and sizes.

Figure 6: Chocolate varieties. Photo: www.infozentrum-schoko.de

Conclusion

In summary, when it comes to chocolate, the United States and continental Europe are two different worlds. The UK takes an intermediate position, with understandings of quality more closely mirroring those in the US, but consumption patterns being decidedly Western European. Even though chocolate is seen as an indulgence in North America, mass-market chocolate manufacturers are not as concerned with quality and taste as are their European counterparts. This is evident in the less stringent attitude towards quality ingredients, but also in the smaller focus on manufacturing processes that improve chocolate quality, such as conching. Many continental European manufacturers, by contrast, continue to hold on to the highest quality standards, despite external pressures from

other EU member countries. This strategy of providing high-quality products and marketing them through a mix of emphasising tradition as well as innovation apparently pays off, as chocolate consumption is highest in these countries.

At this point it is important to emphasise again that our analysis is limited to mass-market chocolate producers. We believe that these companies, who make up the lion's share of the entire chocolate market, are the most important indicator of general trends in the chocolate industry. However, a future project could examine how small-scale chocolate manufacturers are reshaping a small segment of the market. European understandings of quality and innovation are clearly reflected in the strategies of these small manufacturers in the US market, and mirror similar trends in the niche markets emerging in other sections of the food industry.

Notes

1. The word for chocolate in Nahuatl, the language of the Aztec, is believed to have been *cacahuatl*. When the Spaniards brought chocolate to Europe, they were understandably wary of calling a brown substance *caca*, and therefore preferred to Hispanicise the term *xocoatl* into *chocolate* (Coe and Coe, 1996).

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