CHAPTER 1
Traditional chocolate making

Stephen T. Beckett

1.1 History

As early as 1900 BC cocoa was being used as a beverage by the Mokaya people in Mexico (Powis *et al.*, 2007). Cacao trees were subsequently cultivated by the Aztecs of Mexico long before the arrival of the Europeans. The beans were prized both for their use as a currency and for the production of a spiced drink called "chocolatl". The Aztec Emperor Montezeuma is said to have drunk 50 jars or pitchers per day of this beverage, which was considered to have aphrodisiac properties, a belief still held as late as 1712, when *The Spectator* newspaper advised its readers to be careful how they meddled with "romances, chocolate, novels and the like inflamers …". The chocolate was prepared by roasting the cocoa beans in earthenware pots, before grinding them between stones. The mixture was added to cold water, often with other ingredients such as spice or honey, and whipped to a frothy consistency (Whymper, 1912).

The first cocoa beans were brought to Europe by Columbus as a curiosity, but were later exploited commercially by Don Cortez as a new drink (Minifie, 1980). The Spaniards preferred their drink sweetened, and in this form its popularity spread to Central and Northern Europe. In 1664 it was mentioned in England in Pepys' *Diary*, but was essentially still restricted to the wealthy. The introduction of milk into this chocolate drink was first recorded in the UK in 1727, by Nicholas Sanders (Cook, 1984), although his reasons for doing so are uncertain.

A mixture of the ground cocoa beans and sugar would not by itself produce the solid chocolate so familiar to the modern consumer. Instead it would give a very hard substance which would not be pleasant in the mouth. In order to enable it to melt easily, it is necessary to add extra fat. This can be obtained by pressing the cocoa beans and removing some of the fat content, known as cocoa butter. The ability to extract this fat was developed in 1828 by Van Houten of Holland, and it had a double advantage: the expressed fat was used to make the solid chocolate bars, while the remaining lower-fat cocoa powder could still be

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incorporated into a drink. This "drinking chocolate" was in fact usually preferred, as it was less rich than the original high-fat mixture.

Van Houten's development is even more remarkable when one considers that his factory and presses were entirely operated by manpower. In 1847, however, in Bristol (UK) Fry used recently developed steam engines to power the first factory to produce tablets of plain chocolate.

The solid form of milk chocolate is normally attributed to Daniel Peter of Vevey in Geneva (Switzerland) in 1875. In Switzerland, water-powered machines were able to operate for long periods at an economic rate. This enabled the extra water from the milk to be driven out of the chocolate without incurring a large extra cost. Chocolates with moisture contents of above about 2% are normally unacceptable as they have poor keeping qualities, as well as a poor texture. The page of the notebook where he wrote his original recipe is shown in Figure 1.1. In 1908 his invention of milk chocolate was disputed, so this notebook was taken to a lawyer, who placed his stamp at the top of the page.

Over the years many different flavours of both milk and plain (dark) chocolate have been developed. Sometimes there has been a definite policy to develop a "house" flavour within a company, for example in Cadbury's Dairy Milk, or the Hershey Bar. At other times the flavour is adjusted to complement the centre of the sweet to be coated with chocolate. A very sweet centre such as a sugar fondant may be best complemented by a relatively bitter chocolate and vice versa. For milk chocolate, one of the biggest flavour differences is between the chocolates made from milk powder which are predominantly found in Continental Europe, and the "milk crumb" ones of the UK and parts of America. Milk crumb (see Chapter 6) is obtained by dehydrating condensed milk and cocoa mass. This was developed where milk production was very seasonal. As cocoa is a natural antioxidant, it was possible to improve the keeping properties of the dehydrated form of milk over extended periods without refrigeration. The drying process also produced a distinct cooked flavour, not normally present when the milk is dried separately.

Table 1.1 summarises some of the important dates connected with the history of cocoa and chocolate.

1.2 Outline of the process

Chocolate has two major distinguishing characteristics: its flavour and its texture. Although many different flavours of chocolate exist, all must be free from objectionable tastes and yet incorporate at least some of the pleasant ones, which the consumer will associate with the product. A primary feature of the texture is that it must be solid at a normal room temperature of 20–25 °C (70–75 °F) and yet melt rapidly in the mouth at 37 °C (98.5 °F), giving a liquid which appears smooth to the tongue. The processing of chocolate is related to obtaining these