

# **WHAT'S COOKING?**

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**Dissertation submitted in partial fulfilment of  
the coursework requirements for the degree of**

**Master of Arts (Gastronomy)**

**School of History and Politics**

**University of Adelaide**

**September 2003**

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## ABSTRACT

In English there is a broad and general definition of 'cooking' as 'the application of heat to food'. Yet there are many forms of food preparation, generally performed by a 'cook', that do not require heat. 'Cooking' can have a number of meanings. It might be argued that 'cooking' is 'that which a cook does', whether heat has been applied or not, from sourcing quality produce to arranging the finished dish on a plate. In other languages the verb used for the preparation of food (which would be translated in English as 'to cook') does not always have the same connotation of the application of heat as the English word has. When someone says that a very rudimentary meal preparation is 'not cooking', most people understand the meaning, even though heat may have been applied. This dissertation argues that 'cooking' should be more broadly interpreted. Further, it demonstrates that there are many food preparation techniques, which do not involve the application of heat, but nonetheless represent 'cooking'. In order to help gain an understanding of contemporary interpretations of 'cooking', a set of three questionnaires was sent, by email, to 120 people, asking them to indicate which of a list of processes they would consider to be 'cooking'. The questionnaires were sent to chefs, food and wine writers, gastronomy students and amateur cooks who expressed an interest in being included. A review of literature and interviews with a number of leading chefs elaborated on the various definitions of 'cooking'. This paper first establishes the desired outcomes of cooking through a review of literature and then shows that those outcomes can be achieved without the application of heat. Non-heat forms of food preparation are then separated into four categories: those performed before, during and after heat is applied to food and, finally, those performed as an end in themselves. The paper finishes with an analysis of food preparation techniques that don't involve heat and can be an end in themselves, as well as several processes involving varying degrees of heat, arguing that all forms of irreversibly transforming food are indeed 'cooking'.

## DECLARATION

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my dissertation, when deposited in the University Library, being available for loan and photocopying.

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## ACKNOWLEDGMENT

I am extremely grateful to my lecturer Dr Barbara Santich and my supervisor Dr Alan Saunders who read multiple drafts of this paper without complaint and who offered concise and constructive criticism at every point along the way.

My thanks also to Tim Pak Poy for reading the final draft and offering his valuable comments and encouragement; to my husband Franz Scheurer for amusing himself for 18 months worth of weekends so I could study and write; and to Grahame Turk, Managing Director of Sydney Fish Market, for allowing me the flexibility to study while working full-time.

Final thanks to David Thompson and Ross Lusted, whose late night debate on the meaning of cooking sowed the seed for this paper; and to all who returned my questionnaires and gave their thoughts on the meaning of 'cooking'.

# 1 INTRODUCTION

Despite the profusion of books, magazines, websites, videos, and television and radio shows that exist today on the subject of cooking, very few ever address the question of what cooking actually is. We all think we know what is meant when we say someone is 'cooking'. However, when we start to ask what cooking is, some surprising issues arise.

In English there seems to be a broad and general definition of 'cooking' as 'the application of heat to food'. Yet there are many forms of food preparation, generally performed by a 'cook', that do not require heat. These tasks may be performed before the application of heat (peeling, chopping, stuffing); during the application of heat (basting, stirring, turning); after the application of heat (slicing, arranging, blending); or as an end in themselves without the application of heat at all (pickling vegetables, whisking mayonnaise, pounding pesto sauce). A review of literature suggests that there are a number of reasons why we cook, certain desired outcomes of the cooking process. Upon closer examination, it is seen that all of these outcomes can be achieved by food preparation techniques that do not involve the application of heat.

It might be argued that 'cooking' is 'that which a cook does', whether heat has been applied or not, from sourcing quality produce to arranging the finished dish on a plate (and possibly even cleaning up afterwards; many parents try to instil in their children that washing up is part of cooking). Does a book such as *Hooked on Raw*, by raw-foodist Rhio, have the right to the title 'cookbook' when none of the recipes in it involves the application of heat above 48 °C; or should it be more correctly named *Raw – the UNcook Book*, like the book of rawist recipes by cult California chef Juliano? An on-line review of Juliano's book warns that it "is not a book for the novice cook", implying that knowledge of techniques, and skill in applying them, are required to achieve a successful outcome.<sup>1</sup>

I started thinking about this subject after listening to two chefs discussing 'cooking'. The first claimed that cooking could be as simple as a plate of perfect strawberries with a good, homemade, vanilla ice cream; but the second retorted: "That's not cooking", saying that cooking had to involve combining ingredients to create something greater than the sum of its parts, that it had to involve skill and transformation. More

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<sup>1</sup> Zel Allen and Reuben Allen, review of *Raw: The UNcook Book*, by Juliano Brotman and Erika Lenkert [Living and Raw Foods web site on-line]; accessed 4 August 2003; available from <http://www.living-foods.com/articles/rawuncook.html>.

and more people today are thawing and heating pre-prepared meals, or combining convenience foods, such as instant noodles and simmer sauces. While this does involve the application of heat, some would argue that this expedient form of food preparation is 'not cooking'. When someone says that a very rudimentary meal preparation is 'not cooking', most people understand the meaning, even though heat may have been applied. What is meant by 'cooking' in this context? It must mean something other than 'the application of heat'. Perhaps here the definition includes the application of skill in the combining of ingredients to create something greater than the sum of its parts, not just a heated version of the original components.

In languages other than English, the verb used for the preparation of food, which would be translated as the English verb 'to cook', does not always have the same connotation of the application of heat as the English word has. Anthropologists agree that what is considered 'food' is culturally determined.<sup>2</sup> It is also possible that what is considered 'cooking' is culturally determined. Translation between languages is an imprecise art, as every word of every language carries hidden meanings understood, perhaps subconsciously, by native speakers of that language, but quite likely unknown to people with a more superficial (though working) knowledge of the language.

While it cannot be denied that 'cooking' most often involves the application of heat, it is also clear that 'cooking' can have a number of meanings. This paper attempts to work towards a broader understanding of 'cooking', through interviews with a number of leading chefs; a series of questionnaires sent to food industry professionals, students and amateur cooks; and a review of current literature. It intends to show that there are many food preparation techniques, which do not involve the application of heat, and are 'cooking' nonetheless; that 'cooking' encompasses all steps involved in preparing food for the table; and that the desired outcomes of cooking can be achieved without the application of heat.

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<sup>2</sup> Anne Murcott, "Scarcity in Abundance: Food and Non-Food," *Social Research* 66 (1999): 308.

## 2 'COOKING' IN OTHER LANGUAGES

### 2.1 Japanese

In *The Essence of Japanese Cuisine* Michael Ashkenazi, describes the “*Shijoryu* style of cooking” (Japan’s classical style still popular today), as assembling a menu based around three dishes: a stewed dish, a grilled fish dish and a raw fish dish (plus a soup). The ‘raw’ fish dish is an integral part of the *Shijoryu* style of ‘cooking’. He later quotes a Japanese woman talking about shopping for dinner on the way home from work. She says that she selects what looks best to “cook ... from scratch” as the main dish then she selects two or three other items to “round it out, perhaps a tray of good-looking *sashimi* and some seasoned vegetables. Having all those cooked dishes to choose from is so convenient”.<sup>3</sup> The *sashimi* and seasoned (pickled) vegetables, ready to serve as they are, are considered by her to be “cooked dishes”. Master Sushi Chef, Hideo Dekura, says that the Japanese translation of the English word ‘cooking’ is ‘*ryou-ri*’: ‘*ryou*’ meaning literally ‘weight’ or ‘amount’ and ‘*ri*’ meaning ‘to understand’. In Japanese, cooking is therefore not about the application of heat, but about understanding ingredients and the correct amount of each to combine in order to achieve the desired result. Dekura also says that a Japanese dictionary will include “to cut and present beautifully and tastefully” in a definition of ‘*ryou-ri*’. The emphasis in Japanese cuisine is on skilful knife-work and artistic presentation, not on heating methods. As a verb, ‘*ryou-ri*’ does not refer to the preparation of soups or desserts (which typically require less skilful knife-work); a different word, ‘*tsukuru*’ (which translates roughly as ‘make’) covers their preparation. ‘*Ryou-ri*’ as a noun, however, is a general term for all types of ‘cooking’. ‘*Ryourihou*’, translates as ‘recipe’, and ‘*ryouri-gakkou*’, translates as ‘cooking school’; both could include desserts and soups.<sup>4</sup>

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<sup>3</sup> Michael Ashkenazi and Jeanne Jacob, *The Essence of Japanese Cuisine: An Essay on Food and Culture* (Richmond, Surrey: Curzon Press, 2000), 73–76.

<sup>4</sup> Hideo Dekura, E-mail to author, 7 May 2003.

## 2.2 Tagalog

Tagalog, the official language of the Philippines, provides other interesting examples. It has a new word for each individual type of cooking. '*Luto*' is a word which broadly translates as 'cooking', but rather than referring to the application of heat it refers to the correct manner of preparation and the appropriate condiments. Each type of preparation (with its appropriate condiments) has its own word, for example, '*paksiw*', for dishes stewed in ginger and vinegar, but '*ginataan*' for dishes stewed in coconut milk. These terms go beyond English words for different cooking methods (such as 'stew') as they vary according to the accompanying ingredients. Bel Castro, a Tagalog speaker, says: "a typical question might be? '*Anong ulam?*' Which passes for 'what's for dinner' but more accurately translates into 'what are we having with our rice?' as rice at dinner is already assumed. The answer might be, '*manok*', or chicken. The next question might be '*Anong luto?*' or how is it prepared? [*'luto*' being the general verb 'to cook'] If the answer is '*tinolang manok*' not only do you know that it's poached chicken, but that the chicken has been poached with green papaya, bird chili leaves and will have a dipping sauce of calamansi and fish sauce on the side." Bel adds that in Tagalog to ask if someone can 'cook' does not refer to the application of heat to food, "but whether the person in question has the skills to prepare food for consumption, which may or may not involve the application of heat."<sup>5</sup>

## 2.3 Indonesian

Indonesia is a collection of many ethnic groups, each with its own language. Some common words run through many of the languages however, and the word '*masak*', which translates as 'to cook' in English, is one of them. A native speaker of Bahasa Indonesian assured me that '*masak*' had a broad meaning of 'preparing food so that it is ready to eat'. Interestingly it is the same word used to mean 'ripe' as in 'ripe fruit' or 'fruit that is ready to eat'. To refer to the application of heat to food, Bahasa Indonesian uses specific terms such as '*goreng*' (fry) and '*bakar*' (grill).<sup>6</sup>

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<sup>5</sup> Bel Castro, E-mail to author, 6 May 2003.

<sup>6</sup> Lonieta Illiana (Bahasa Indonesian speaker), E-mail to author, 5 May 2003.

## 2.4 Polish

The Polish word that translates as 'to cook', '*gotowac*', literally also means 'to boil'. To enjoy 'cooking' in Polish is to enjoy '*gotowac*' and to 'cook dinner' is to '*gotowac*' dinner, even if the food is not boiled. This seems to stem from the fact that boiled potatoes are considered an integral part of dinner. '*Gotowac*' is not used in reference to breakfasts and suppers; these are 'prepared' rather than 'cooked', as they do not involve the ubiquitous boiled potatoes. '*Gotowac*' is however used to refer to boiling water even if it is just to make tea or a boiled egg.<sup>7</sup>

## 2.5 Norwegian

I was told a story of an elderly Norwegian uncle who when asked how he liked his potatoes would always say (in English): "I like'm cooked, you know that!" This was understood by his niece to mean "not roasted' and 'not fried' but boiled in water with salt."<sup>8</sup> Norwegian cuisine, like Polish, relies on boiled potatoes as its staple with main meals. As in Polish, the word generally used to mean 'to cook', '*å koke*', literally means 'to boil'. Norwegian differs from Polish however, in that, if the food is not boiled (which here includes poaching and steaming), '*koke*' will not be used. Instead, the verb '*å lage mat*' is used (literally 'to make food'), which covers all aspects of food preparation (apart from shopping and cleaning up). When preparing a Sunday breakfast, a Norwegian would '*koke*' his boiled eggs, but not his fried bacon, toast or other heated foods (unless they too are boiled). '*Koke*' could not be used in the broad sense that we use 'cook' as in 'to cook breakfast', yet it is the word which Norwegians would offer as a translation of 'to cook'.<sup>9</sup>

## 2.6 Arabic

In Arabic, the emphasis seems to be on a finished dish (one that is ready to be served as defined by the parameters of Arabic cuisine), as well as on the application of heat. '*Tabikh*' is the noun referring to foods

<sup>7</sup> Danuta Buczy\_ska (Polish speaker), E-mails to author, 6 May, 8 May, 4 August and 6 August 2003.

<sup>8</sup> Liz Packer, E-mail to author, 23 July 2003.

<sup>9</sup> Øyvind Andersen (Norwegian speaker), E-mail to author, 9 July 2003.

that have been prepared with heat, and '*tabakha*' is the verb referring to the preparation of those foods, including all the preparation stages whether they involve heat or not (chopping, pounding, blanching, basting). Interestingly, however, a plate of steamed vegetables would not be considered '*tabikh*' (and therefore its preparation not '*tabakha*') until it had been dressed with oil and lemon juice ready to be served (as vegetables would not be served unadorned in Arabic cuisine). Therefore, the dressing is an essential stage of the process of '*tabakha*' or 'cooking' in this instance. Dishes that have not had heat applied, such as *kibbeh naya* (raw meat mixed with cracked wheat and seasonings) or salads, are '*khalit*' (mixed) rather than '*tabakha*'. The steps involved in preparing *kibbeh naya* are not considered '*tabakha*', unless the *kibbeh naya* is subsequently placed in a tray and baked in the oven, only then would the same steps involved in the initial preparation become '*tabakha*' ('cooking').<sup>10</sup>

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<sup>10</sup> Mary-Ann Boustany (Arabic speaker), E-mails to author, 5 May 2003, 30 June 2003, and 1 August 2003.

## 3 WHAT IS COOKING?

### 3.1 Dictionary

In attempting to define a word, the obvious starting place is the dictionary. The *Oxford English Dictionary* gives the following definitions of “cook”:

- (noun) “One whose occupation is the preparation of food for the table”
- (intransitive verb) “To act as cook, to prepare food by the action of heat (*for* a household, etc.).”
- (transitive verb) “To prepare or make ready (food); to make fit for eating by due application of heat; as by boiling, baking, roasting, broiling, etc.”<sup>11</sup>

Already we have some confusion in the definition. The first definition given is of the noun: ‘a cook’ is one who prepares food for the table (no mention of heat). Then the verb is defined: ‘to cook’ is to do what a cook does (which we were previously told was ‘prepare food for the table’) however there is an additional element to this definition: the preparation of the food now involves ‘the action of heat’. A further definition (as a transitive verb) reiterates the preparation of food, adding the possibility of ‘making food ready’; could this differ from ‘preparing’ by involving the plating and arranging of previously ‘prepared’ food? This definition adds the ‘making fit for eating’ but again includes the condition of the ‘application of heat’, giving specific examples of heat application. If ‘to cook’ is ‘to do what a cook does’, as the first part of the intransitive verb definition suggests, then surely there are many aspects of cooking which do not involve the application of heat. Yet, the full definitions of the verb all introduce the element of ‘heat’. Michael Symons was equally confused when he consulted a number of English dictionaries in an attempt to define ‘cook’. All referred to heat except for a nineteenth century edition of *Webster’s Dictionary*, which defined ‘to cook’ as: “To dress victuals for the table; to prepare for any purpose”. This, he says, was later modernised to: “To prepare food for eating”, and eventually altered to specify heating.<sup>12</sup> An online version of the 1913 edition of *Webster’s Revised Unabridged Dictionary* gives the definition of the intransitive verb ‘to cook’ as: “To prepare food for the table.”<sup>13</sup> Other definitions given in the *Oxford English Dictionary*

<sup>11</sup> *The Oxford English Dictionary*, 1989 ed., s.v. “cook.”

<sup>12</sup> Michael Symons, *A History of Cooks and Cooking* (Totnes: Prospect Books, 2001; originally published as *The Pudding that Took a Thousand Cooks*, Victoria: Viking, 1998), 99.

<sup>13</sup> *The Project for American and French Research on the Treasury of the French Language (ARTFL)*, ed. Analyse et Traitement Informatique de la Langue Française (ATILF) of the Centre National de la Recherche Scientifique (CNRS) and the Division of the Humanities, the Division of the Social Sciences, and Electronic Text Services (ETS) of the University of Chicago, [dictionary on-line]; accessed 24 August 2003; available from <http://machaut.uchicago.edu/cgi-bin/WEBSTER.sh?WORD=cook>.

involve some sort of manipulation, modification, alteration, falsification, or even to ruin or spoil. The dictionary does not elaborate on the link between these two apparently different definitions. It might be suggested however, that when we 'cook' food, even in a sense broader than that involving heat, we do in some way manipulate, modify or alter it from its original state (sometimes even ruining or spoiling it in the process). If this transformative function were applied to documents, they may become falsified, ruined or spoiled. Perhaps this broader definition of 'cooking', as 'transforming from an original state', is more appropriate than the narrower, 'application of heat', definition.

In considering the meaning of a word, it is worth looking at other words closely related to it. We shall see that many writers use the words 'cooking' and 'cookery' interchangeably, while a few attempt to draw a distinction. The *Oxford English Dictionary* defines 'cookery' as:

- "The art or practice of cooking, the preparation of food by means of fire."<sup>14</sup>

Definitions of other 'cooking' related words include:

- 'Culinary': "Of or pertaining to a kitchen ... Of or pertaining to cookery."<sup>15</sup>
- 'Cuisine': "Kitchen; culinary department or establishment; manner or style of cooking; kitchen arrangement."<sup>16</sup>
- 'Cookery-book': "a book of receipts and instructions in cookery."<sup>17</sup>
- 'Recipe': "A statement of the ingredients and procedure necessary for the making or compounding of some preparation, esp. of a dish in cookery; a receipt."<sup>18</sup>

*Roget's Thesaurus* offers synonyms for 'cook' listed under the headings of "heat ... prepare ... [and] falsify."<sup>19</sup> These three headings broadly cover the dictionary definitions above. The culinary encyclopaedia, *Larousse Gastronomique* (henceforth *Larousse*), defines 'cooking' as: "The culinary operation of subjecting food to the action of heat, which either renders it fit to eat or improves its flavour."

<sup>14</sup> *The Oxford English Dictionary*, 1989 ed., s.v. "cookery."

<sup>15</sup> *The Oxford English Dictionary*, 1989 ed., s.v. "culinary."

<sup>16</sup> *The Oxford English Dictionary*, 1989 ed., s.v. "cuisine."

<sup>17</sup> *The Oxford English Dictionary*, 1989 ed., s.v. "cookery."

<sup>18</sup> *The Oxford English Dictionary*, 1989 ed., s.v. "recipe."

<sup>19</sup> *Roget Thesaurus*, revised by D. C. Browning, (London: Octopus Books, 1982), s.v. "cook."

It goes on to list “seven basic cooking techniques: frying, grilling (broiling), roasting, sautéing, cooking in water (or steam), braising, and pot-roasting.”<sup>20</sup>

### 3.2 Scientific

A review of the literature on cooking reveals that while some writers follow the narrow dictionary definition of ‘the application of heat to food’, others take a much wider-reaching approach, incorporating everything a ‘cook’ does, from the selection and acquisition of produce to the washing up. Not surprisingly, scientists writing on cooking generally follow the more narrow definition. Harold McGee, who writes about the science of everyday life, says: “Cooking can be defined in a general way as the transfer of energy from a heat source to food.”<sup>21</sup> In his popular book of kitchen chemistry, *What Einstein Told His Cook*, chemistry professor and food writer, Robert Wolke, says: “For cooking, we need a lot of heat delivered in a short period of time.”<sup>22</sup> He does later allude to cooking’s complex nature however when he asks: “And what do we mean by ‘cook,’ anyway?”<sup>23</sup> Wolke in fact defines ‘cooking’ as more than the application of just any heat to food, saying that the critical element is to achieve a temperature sufficient for the food’s molecules to be transformed. His definition of ‘cooking’ is: “raising the food’s temperature (by any means, including microwaves) to a value where certain chemical changes begin to take place, such as denaturation of proteins, decomposition of carbohydrates, etc.”<sup>24</sup>

### 3.3 More than Heat

Some writers believe that cooking does necessarily involve heat, but that heat alone is not sufficient. Baron Karl Friedrich von Rumohr (a German gastronome whose work preceded by a few years that of his more famous French contemporary Brillat-Savarin) defined “the art of cooking” as “to develop, with the aid of heat, water and salt, the nutritional, refreshing and delectable qualities of those natural substances which are suitable for the nourishment or restoration of mankind.”<sup>25</sup> Therefore, while he agreed that heat

<sup>20</sup> *Larousse Gastronomique*, (London: Paul Hamlyn, 1988), s.v. “cooking.”

<sup>21</sup> Harold McGee, *On Food and Cooking: The Science and Lore of the Kitchen* (New York: Scribner, 1984; reprint, New York: Simon & Schuster, Fireside, 1997), 610.

<sup>22</sup> Robert L. Wolke *What Einstein Told His Cook: Kitchen Science Explained* (New York: W. W. Norton & Company, 2002), 187.

<sup>23</sup> Wolke, 192.

<sup>24</sup> Robert Wolke, E-mail to author, 4 July 2003.

<sup>25</sup> Karl Friedrich (Baron) von Rumohr, *The Essence of Cookery*, trans. Barbara Yeomans (London: Prospect Books, 1993), 61.

was essential to cooking, he argued that water and salt were no less essential (a point proponents of modern low-sodium diets may well note!). For Willi Bode, a professional chef and lecturer in food studies, the critical point in the development of cooking was not the application of heat to food, but something that provided greater control over the heat. He says: “It is probable that the advancement of cooking and cookery really developed from the point where man found a vessel”.<sup>26</sup> Bode, covers the subject of cooking from a technical perspective in his work, *European Gastronomy*, tracing the history of European gastronomy from prehistoric to modern day, he acknowledges that the harnessing of fire was a critical step in human development. Interestingly though, in discussing this, he says: “between about 500,000 BC and the appearance of Neanderthal man at about 75,000 BC, some simple cooking of, or more correctly, the application of heat to, food, particularly meats, was discovered and used.”<sup>27</sup> Clearly for Bode, even “simple cooking” is more than “the application of heat to food”. In fact, he later says, regarding the first application of heat to food, it is important that it should not be called ‘cooking’:

Prehistoric man may have made some of his food more digestible, nutritious and palatable by applying heat, but cooking and cookery as we understand it today means so very much more than the mere application of heat ... The application of heat may give some recognition to the beginnings of cookery and does, in some cases, identify early and simple cooking methods still recognisable today, but cannot be called cookery as yet.<sup>28</sup>

### 3.4 Cooking versus Good Cooking

Although most people readily accept the definition of ‘cooking’ as ‘the application of heat to food’, and would initially reach for this if asked to define ‘cooking’, we also understand it in the sense expressed when someone says of a very simple preparation (such as foil-wrapped fish put on a barbecue plate): “That’s not cooking. That’s throw-it-on-and-let-it-do-itself.”<sup>29</sup> Food writer Eric Rolls accepts the general definition of ‘cooking’ as applying heat to food, and so concedes that microwaving is ‘cooking’, but complains that it is not ‘good cooking’, as the “Cooking is so quick that the food does not caramelize, there is none of the wondrous interaction of sugars and proteins that gives conventionally cooked food its

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<sup>26</sup> Willi Bode, *European Gastronomy: The Story of Man’s Food and Eating Customs* (London: Grub Street, 2000), 47.

<sup>27</sup> Bode, 10.

<sup>28</sup> Bode, 47.

<sup>29</sup> Barbara Santich, *Looking for Flavour* (Kent Town: Wakefield Press, 1996), 61.

flavours.” He concludes: “a chicken cooked in a microwave is an offence to food.”<sup>30</sup> Writing in 1861, Isabella Beeton, in *The Book of Household Management*, suggested that cookery was about skill and the bringing of enjoyment. The following quote suggests that she would not have considered foil-wrapped fish thrown on a barbecue, or anaemic, microwaved chicken, to be cooking even though she would almost certainly have accepted that cooking involved the application of heat:

The object, then, is not only to *live*, but to live economically, agreeably, tastefully, and well. Accordingly, the art of cookery commences; and although the fruits of the earth, the fowls of the air, the beasts of the field, and the fish of the sea, are still the only food of mankind, yet these are so prepared, improved and dressed by skill and ingenuity, that they are the means of immeasurably extending the boundaries of human enjoyments.<sup>31</sup>

### 3.5 Transformation

In discussing his young grandchild learning to cook at school, Rolls indicates yet another interpretation of ‘cooking’. He says that the children do not just watch the teacher, “they take an active part, measuring ingredients, working butter into flour with their hands, pulling stems off dried fruit, adding yeast to bread mixes and watching it work.”<sup>32</sup> None of these processes involves the application of heat; yet, in performing them the children are learning to ‘cook’. There is clearly a broader definition of ‘cooking’ implied here, involving all the steps of food preparation, not just the heating process. John Thorne, the American food writer who became well known through his *Simple Cooking* newsletter, describes ‘cooking’ as “what happens from when the hand first closes on what we mean to eat to the moment it puts it in the mouth.”<sup>33</sup> His book, *Simple Cooking*, includes chapters on ‘Carpaccio’, ‘Strawberries and Cream’, and ‘Bread and Olives’. Many of his recipes do not involve the application of heat, yet he considers them part of “simple cooking”. Our acceptance of the above situations as logical, suggests that we have a broader, perhaps subconscious, understanding of ‘cooking’ than the mere application of heat to food.

<sup>30</sup> Eric Rolls, *A Celebration of Food and Wine* (St Lucia: University of Queensland Press, 1998), 3.

<sup>31</sup> Isabella Beeton, ed., *The Book of Household Management* (London: S. O. Beeton, 1861; facsimile reprint, Lewes, East Sussex: Southover Press, 1998), 39.

<sup>32</sup> Rolls, 23–24.

<sup>33</sup> John Thorne, *Simple Cooking* (New York: Viking Penguin Inc, 1987; reprint, New York: Penguin Books, 1989), 221.

Alan Saunders, food writer and broadcaster, says: “Cooks are people who take what is edible from their environment and make it palatable. They may do this by arranging it or cutting it up or heating it, or any two of these things or all three of them.”<sup>34</sup> He stops short of defining which of these steps is actually cooking, although it might seem reasonable to suggest that what cooks do is called ‘cooking’; part of the dictionary definition of ‘cooking’ given above was “to act as cook”. Therefore, if the cook makes the edible palatable by using his knife and serving platter, rather than his frypan, surely he has still fulfilled his role as a cook and therefore has ‘cooked’. Felipe Fernández-Armesto opens his book, *Food: a History*, with a chapter entitled ‘The Invention of Cooking’, and addresses the issue of definition early, saying: “it all depends on what one means by cooking. Cultivation, in some eyes, is a form of cookery ... exposing clods to the baking sun, turning the earth into an oven for seeds.”<sup>35</sup> He goes on to list a number of non-heat processes, applied to foods to transform them, which may be called ‘cooking’: “As soon as you squirt lemon juice at your oyster you are beginning to alter it, to apply changes which affect texture and taste: a generous definition might call this cooking.”<sup>36</sup> Fernández-Armesto refers to the cooking revolution as “the first scientific revolution: the discovery, by experiment and observations, of the biochemical changes which transmute flavour and aid digestion.”<sup>37</sup> Could a more complete definition of ‘cooking’ be: ‘that which brings about biochemical changes which transmute flavour and aid digestion’?

Beeton said: “Everything that is edible, and passes under the hands of the cook, is more or less changed, and assumes new forms.”<sup>38</sup> For her, cooking was clearly a transformative process. Canadian food writer Anita Stewart thinks along similar lines, saying that ‘cooking’ is “everything one does with food to transform it.”<sup>39</sup> Elizabeth Rozin, cookbook author and food historian, divides cooking methods into three broad categories: changing the food’s physical shape or mass, including cutting, grinding, grating, juicing, and whipping; altering the water content of food, including soaking, marinating, salting, drying, smoking and freezing; and chemically changing food, including heating, and fermenting. Apart from acknowledging heat as: “the most pervasive of all cooking techniques”, she does not accredit it any special status among the other techniques she lists.<sup>40</sup>

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<sup>34</sup> Alan Saunders, *A is for Apple* (Port Melbourne: Reed Books, William Heinemann Australia, 1995), 94.

<sup>35</sup> Felipe Fernández-Armesto, *Food: A History* (N.p.: Macmillan, 2001; reprint, London: Pan Macmillan, Pan Books, 2002), 4.

<sup>36</sup> Fernández-Armesto, 4.

<sup>37</sup> Fernández-Armesto, 11.

<sup>38</sup> Beeton, 39.

<sup>39</sup> Anita Stewart, E-mail to author, 10 June 2003.

<sup>40</sup> Elisabeth Rozin, *Ethnic Cuisine: How to Create the Authentic Flavors of 30 International Cuisines* (N.p.: The Stephen Green Press, 1983; reprint, New York: Penguin Books, Viking Penguin, 1992), xii – xiii.

### 3.6 What Cooks Do

Symons, who adopts perhaps the broadest definition of any food writer, argues: “the dictionary definition is merely descriptive. It looks narrowly at the immediate operations and consequences, and not at functions and meanings.”<sup>41</sup> He says: “a book about cooks is also about cooking”, suggesting ‘cooking’ is ‘that which cooks do’.<sup>42</sup> He lists three elements to what cooks do: “acquire, distribute and organise human sustenance.”<sup>43</sup> He argues that “More fundamentally than the application of heat ... cooking is dividing up”, and that although “applying heat is close to the core of cooking ... More often to ‘cook’ denotes food preparation generally”.<sup>44</sup>

Chefs, professional cooks, seem to have a relatively broad view of cooking. Thomas Keller, of the French Laundry in the Napa Valley, California, says: “Every step of cooking is manipulation”.<sup>45</sup> Like Rolls with his microwaved chicken, he seems to have two definitions of ‘cooking’, distinguishing ‘cooking’ from ‘good, or skilful, cooking’. He says that “A filet mignon is a filet mignon, which is raw and then becomes grilled or sautéed. It is no more now than when it began; it’s just cooked.” Cooking short ribs however, is a different sort of cooking. Keller says:

It’s not just cut, sauté and serve ... It requires a cook to cook in many different ways. Those are things I like to do, cooking that has some process behind it, some thought, some technique that results in deep flavors and a lot of character, something that’s more than what you started with.<sup>46</sup>

For Janni Kyritsis (whose career has spanned the kitchens of Stephanie’s in Melbourne, Berowra Waters Inn and MG Garage in Sydney), extracting flavour is essential to cooking. He defines ‘cooking’ as any process that brings the most flavour out of the food. He considers preparing steak tartare, for instance, to be cooking, because the combining of the different flavouring agents in appropriately small quantities takes skill and is what defines the flavour of the finished dish.<sup>47</sup> Christine Manfield, chef and cookbook

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<sup>41</sup> Michael Symons, “Did Jesus Cook,” in *Food, Power and Community: Essays in the History of Food and Drink*, ed. Robert Dare (Adelaide: Wakefield Press, 1999), 18.

<sup>42</sup> Symons, *A History of Cooks and Cooking*, 23.

<sup>43</sup> Symons, *A History of Cooks and Cooking*, 16.

<sup>44</sup> Symons, *A History of Cooks and Cooking*, 18 and 100.

<sup>45</sup> Michael Ruhlman, *The Soul of a Chef: The Journey Toward Perfection* (New York: Penguin Group, Viking, 2000), 329.

<sup>46</sup> Ruhlman, 330.

<sup>47</sup> Janni Kyritsis, conversation with author, 20 May 2003.

author, says that we are cooking if we “change the natural texture of a product” and includes pickling and acidifying as processes that are ‘cooking’.<sup>48</sup> Matthew Evans, a food writer and former chef, also thinks a change in texture is the key element in cooking, defining it as anything that brings about “a substantial change in texture and character through heat/cold/chemical change.” He considers curing, putrefaction, fermenting, pickling, acidifying, and even the churning of ice cream, all to be ‘cooking’.<sup>49</sup> Anders Ousback (who has been involved with many Sydney restaurants) defines the verb ‘to cook’ as “the process by which a chemical change (ie non-reversible) is effected”, adding that the application of heat is just one example of this ‘chemical change’ process.<sup>50</sup> Phillip Searle (of Vulcans at Blackheath) says: “My role is like that of an alchemist – transubstantiation, that’s basically what cooking is”.<sup>51</sup> Tim Pak Poy (of Claude’s) takes the broadest view, defining ‘cooking’ as “any aspect of food preparation”, saying that “Once process (simply washing & plating) is applied” even to simple berries picked fresh from the garden “it becomes cookery.”<sup>52</sup>

Therefore, while most people readily accept the dictionary definition of ‘cooking’ as ‘applying heat to food’, it seems that many, especially those who do it professionally, also recognise that there is more to cooking than heat. This is seen in the observation ‘*that’s not cooking*’ of an operation requiring no skill, and in teaching children to cook by giving them culinary tasks that do not involve heat. Most broadly, while ‘cooking’ can be defined as ‘what cooks do’, it is clear that it can also be defined in terms of transformation. Clearly cooking often encompasses many activities other than the application of heat.

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<sup>48</sup> Christine Manfield, conversation with author, 10 May 2003.

<sup>49</sup> Matthew Evans, E-mail to author, 5 May 2003.

<sup>50</sup> Anders Ousback, E-mail to author, 5 May 2003.

<sup>51</sup> Symons, *A History of Cooks and Cooking*, 21.

<sup>52</sup> Tim Pak Poy, E-mail to author, 5 May 2003.

## 4 WHY COOK?

It has been established that cooking is a transformative process. Another approach in defining 'cooking' might then be to look at what this transformation is intended to achieve, what the desired outcome of cooking is. We cook for a number of reasons:

- to make the inedible edible by rendering mastication easier and eliminating toxins;
- to increase nutritional value through increased digestibility and bioavailability of nutrients;
- to preserve for later use;
- for aesthetic reasons (to please the senses);
- and for social reasons: to set our food apart as "civilised" and to add value to it.

### 4.1 Make the Inedible Edible

One explanation for man's desire to cook his food is that our teeth are not as strong as those of other animals, which are able to tear apart raw flesh.<sup>53</sup> The texture of heated food is such that it can easily be chewed, or broken apart by hand.<sup>54</sup> *Larousse* offers a list of four changes brought about by cooking, the first of which is: "Chemical changes: through softening, coagulation, swelling, or dissolving, foods become either edible ... or easier to digest".<sup>55</sup>

Cooking can render otherwise harmful substances harmless. Obvious examples are the trichinosis worm found in pork, salmonella bacteria common in poultry and listeria bacteria, fear of which prevents Australians from producing raw-milk cheeses.<sup>56</sup> *Larousse* lists "elimination of the harmful elements which are destroyed by heat, particularly through boiling" as one of the changes brought about by cooking.<sup>57</sup> More complex are vegetable foods, which may contain harmful naturally occurring elements; for example, bitter manioc, in its raw state, "contains enough prussic acid to kill anyone who eats a meal-sized quantity."<sup>58</sup> Once processed by various combinations of pounding, grating, soaking, heating and

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<sup>53</sup> Bode, 19.

<sup>54</sup> Fernández-Armesto, 12.

<sup>55</sup> *Larousse Gastronomique*, 1988 ed., s.v. "cooking."

<sup>56</sup> Fernández-Armesto, 12.

<sup>57</sup> *Larousse Gastronomique*, 1988 ed., s.v. "cooking."

<sup>58</sup> Fernández-Armesto, 12.

fermenting, this once toxic vegetable becomes tapioca, which is “the fourth most important source of calories in the human diet in tropical regions.”<sup>59</sup>

## 4.2 Increase Nutritional Value

In Ancient Greece and Rome, food and cooking were closely linked with medicine. It was thought that raw foodstuffs needed to be rendered digestible before they were consumed, “in order to avoid the risk of premature aging, damaging to the health of even the most robust.”<sup>60</sup> This line of thought continued throughout the Middle Ages, where specific cooking techniques were applied to different types of meat to make them more digestible: fatty (moist) meat was roasted to dry it out and lean (dry) meat was boiled to add moisture.<sup>61</sup> By the eighteenth century, a new school of thought had begun. While still subscribing to the concept that “cooking was an aid to digestion”, Jacques-Jean Bruhier, in revising an earlier treatise on cooking, suggested that some foods (such as ripe fruit and oysters) were best eaten raw, and others, that did require cooking, should not be overcooked. Overcooking, he believed, would lead to drying out of the fibres of the food rendering them more difficult to digest and less nourishing.<sup>62</sup> The focus of this new cuisine, *nouvelle cuisine* or *cuisine moderne*, was on lightness and allowing the true essence of the food to shine through. This new focus was still considered however, to be in the best interest of digestion and health. From a German perspective in the early nineteenth century, Rumohr saw the focus of cooking as its health-enhancing properties, referring to his three critical elements of cooking (heat, salt and water) as “external digestion aids”.<sup>63</sup> *Larousse* includes “Chemical changes” which make foods “easier to digest” among the list of changes brought about by cooking, citing as examples the destruction of meat’s collagen, softening of cellulose fibre in vegetables, release of pectin from fruit and swelling of starch.<sup>64</sup>

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<sup>59</sup> J. G. Vaughan and C. A. Geissler, *The New Oxford Book of Food Plants* (Oxford: Oxford University Press, 1997; reprint, Oxford: Oxford University Press, 1999), 190.

<sup>60</sup> Innocenzo Mazzini, “Diet and Medicine in the Ancient World,” in *Food: A Culinary History from Antiquity to the Present*, eds. Jean-Louis Flandrin, Massimo Montanari and Albert Sonnenfeld, trans. Clarissa Botsford et al. (New York: Columbia University Press, 1999; reprint, London: Penguin Books, 2000), 149.

<sup>61</sup> Jean-Louis Flandrin, “Seasoning, Cooking, and Dietetics in the Late Middle Ages,” in *Food: A Culinary History from Antiquity to the Present*, eds. Jean-Louis Flandrin, Massimo Montanari and Albert Sonnenfeld, trans. Clarissa Botsford et al. (New York: Columbia University Press, 1999; reprint, London: Penguin Books, 2000), 319.

<sup>62</sup> Jean-Louis Flandrin, “From Dietetics to Gastronomy. The Liberation of the Gourmet,” in *Food: A Culinary History from Antiquity to the Present*, eds. Jean-Louis Flandrin, Massimo Montanari and Albert Sonnenfeld, trans. Clarissa Botsford et al. (New York: Columbia University Press, 1999; reprint, London: Penguin Books, 2000), 427.

<sup>63</sup> Rumohr, 65.

<sup>64</sup> *Larousse Gastronomique*, 1988 ed., s.v. “cooking.”

Many foodstuffs, in their natural states, contain abundant nutrients, but not in a form that we can assimilate. In a cookbook of 1739, François Marin said that “The science of the cook today ... consists of the breaking down, making digestible, and quintessencing of meats, extracting the nourishing and light juices” so that they can “pass into the blood with less obstruction”.<sup>65</sup> Bode credits the discovery of cooking, especially boiling, with increasing the range of possible foodstuffs, altering previously indigestible foods, so that they could be digested and nourishment derived from them, and increasing “the nutritive value of many other foods”.<sup>66</sup> Food historian Reay Tannahill agrees, explaining that “since heat helps to release protein and carbohydrate as well as break down fibre, cooking increases the nutritive value of many foods and makes edible some that would otherwise be inedible.”<sup>67</sup> Symons says, in terms that are more contemporary: “Cooks provide a mixed diet for their charges”.<sup>68</sup>

### 4.3 Preservation

The *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers* (henceforth *Encyclopédie*) is a collection of 72,000 articles on the arts and sciences by over one hundred contributors. It was published between 1751 and 1772 and, in attempting to classify the learning of the day, it touched on most of the important social and intellectual developments of eighteenth century France.<sup>69</sup> The article “Cuisine” which deals with cooking “in the widest sense” is attributed to the Chevalier de Jaucourt. Jaucourt credits cooking with “many very useful preparations ... some ... [of which] have a bearing on the conservation of foodstuffs”.<sup>70</sup> Symons, who views cooking as far more than the heating of foodstuffs, says that “we cook even in a heating sense – to make safe, to keep for a later date”.<sup>71</sup>

<sup>65</sup> François Marin, *La Suite des Dons de Comus* (Paris: la veuve Pissot, 1742), xviii–xxi, quoted in Sean Patrick Earl Takats, “Constructing the Cook,” *Repast* XVIII, no. 4 (Fall 2002): 4.

<sup>66</sup> Bode, 13.

<sup>67</sup> Reay Tannahill, *Food in History*, (N.p.: Eyre Methuen, 1973; revised London: Hodder Headline PLC, Review, 2002), 12.

<sup>68</sup> Symons, *A History of Cooks and Cooking*, 20.

<sup>69</sup> *The Project for American and French Research on the Treasury of the French Language (ARTFL)*, ed. Analyse et Traitement Informatique de la Langue Française (ATILF) of the Centre National de la Recherche Scientifique (CNRS) and the Division of the Humanities, the Division of the Social Sciences, and Electronic Text Services (ETS) of the University of Chicago, [encyclopaedia online]; accessed 21 June 2003; available from <http://www.lib.uchicago.edu/efts/ARTFL/projects/encyc/>.

<sup>70</sup> Jean-Claude Bonnet, “The Culinary System in the Encyclopédie,” in *Food and Drink in History: Selections from the Annales Economies, Sociétés, Civilisations*, Volume 5, eds. Robert Forster and Orest Ranum, trans. Elborg Forster and Patricia M. Ranum, (Baltimore: John Hopkins University Press, 1979), 141–142.

<sup>71</sup> Symons, *A History of Cooks and Cooking*, 18.

## 4.4 Aesthetic

One theory is that we first enjoyed food cooked because the cooking simulated 'prey temperature'. Bode says that: "Although we no longer consume warm, freshly killed meat, we nevertheless consume it at much the same temperature as other carnivore species do."<sup>72</sup> Also harking back to our primitive past, Harold McGee suggests that the only raw food that comes close to offering the complex sensory experience provided by cooked food is ripe fruit. He proposes that one of primitive man's reasons for cooking was to transform "blandness into fruitlike richness."<sup>73</sup> Carson Ritchie, in *Food in Civilization*, suggests that we are attracted by warm food perhaps because it reminds us of mother's milk.<sup>74</sup> Two of *Larousse's* four changes brought about by cooking apply to the aesthetic qualities of food: appetizing improvements to the external appearance (browning of meat, glazing of vegetables, caramelisation of sugar), and the development of aroma and flavour (by seasoning and reduction).<sup>75</sup> Humans have evolved into creatures with the ability to satisfy not only their needs but also their desires. Margaret Visser says simply: "the actual taste of edible substances which have undergone fiery treatment pleases us."<sup>76</sup> Bode suggests that one of the reasons we heat food is simply that we prefer the flavour heat imparts to our food, to that of food in its raw state.<sup>77</sup> Katie Stewart (whose career has spanned four decades in the UK and in 2000 was voted Cookery Journalist of the Year by The Guild of Food Writers) describes the philosophy of cooking as "the desire to achieve the most nutritious and savoury result by combining and contrasting textures, tastes, smells and visual appearance".<sup>78</sup>

## 4.5 Social

Apart from the more practical applications of cooking, there is a ritualistic or symbolic function. Cooking food is seen as a means of transforming it, symbolically as well as physically. Hindu society, with its complex caste system, has many prohibitions on sharing food between castes and eating food that has been touched by members of a lower caste. Raw food can however be passed between castes;

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<sup>72</sup> Bode, 19.

<sup>73</sup> Harold McGee, *The Curious Cook* (N.p.: North Point Press, 1990; reprint, London: HarperCollins, 1992), 304.

<sup>74</sup> Carson I. A. Ritchie, *Food in Civilization: How History Has Been Affected by Human Tastes* (Sydney: Methuen Australia, 1981), 15.

<sup>75</sup> *Larousse Gastronomique*, 1988 ed., s.v. "cooking."

<sup>76</sup> Margaret Visser, *Much Depends on Dinner: The Extraordinary History and Mythology, Allure and Obsessions, Perils and Taboos, of an Ordinary Meal* (Toronto: McClelland and Stewart, 1986; reprint, London: Penguin Books, 1989), 296.

<sup>77</sup> Bode, 20.

<sup>78</sup> Katie Stewart, Pamela Michael and Maurice Michael, *Cooking and Eating* (London: Hart-Davis, MacGibbon, 1975), 9.

prohibitions apply only once it has been cooked.<sup>79</sup> The implication is that subsequent cooking will remove any impurity from food handled by a member of a lower caste. In analysing the old joke that ‘the lobster blushed because it saw the salad dressing’, Visser refers to the civilizing aspect of cooking: “the lobster has undergone the ultimate civilizing transformation in being cooked ... But the salad–female, structureless, untamed hussy that she is–remains appallingly cool and raw.”<sup>80</sup> Anthropologist Claude Lévi-Strauss says that “cooking mark[s] the transition from nature to culture”.<sup>81</sup> Symons adds to this: “cooking anoints raw materials as ‘food’ ... ‘pig’ becomes ‘pork’.”<sup>82</sup> Saunders says that eating puts us at once in both the natural and cultural world:

As animals ... we need to eat, but our social being fills us with a need to transform our food through cooking into something that is as much cultural as natural. By cooking our food, we eat it in a way denied to other animals, thus emphasising ... that our place in the order of things is very different to theirs.<sup>83</sup>

In the classical world, cooking was used not just to distinguish humans from animals, but also to distinguish ‘civilised man’ from ‘barbarians’. According to Montanari: “The fact that barbarians did not cook their food, knew nothing about building fires, and ate everything raw ... was a commonplace in classical literature.”<sup>84</sup>

Early humans met their nutritional needs before the development of cooking. Cooking however added value to food, it turned food into meals, with all of the social facets that can be attached to them. Meals are occasions for lovers, families, friends and community to come together. The sharing of food around a common hearth is often credited with being the beginning of ‘society’, and therefore ‘civilisation’ as we know it, with “the transformation of competitors into a community”, as Fernández-Armesto says.<sup>85</sup> Catherine Perlès points out that the social impact of cooking would have been more immediately obvious than its nutritional impact. In encouraging communal eating, cooking encouraged the rapid development of other aspects of community, such as division of labour, resulting in “a more complex group

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<sup>79</sup> Louis Dumont, *Homo Hierarchicus: The Caste System and its Implications*, trans. Mark Sainsbury (London: Weidenfeld and Nicolson, 1970), 142.

<sup>80</sup> Margaret Visser, *The Way We Are* (N.p.: HarperCollins, 1994; reprint, London: Penguin Books, 1996), 49.

<sup>81</sup> Claude Lévi-Strauss, *The Raw and the Cooked: Introduction to a Science of Mythology*, trans. John & Doreen Weightman (London: Jonathan Cape, 1970), 164.

<sup>82</sup> Symons, *A History of Cooks and Cooking*, 114.

<sup>83</sup> Saunders, 15.

<sup>84</sup> Massimo Montanari, “Food Systems and Models of Civilization,” in *Food: A Culinary History from Antiquity to the Present*, eds. Jean-Louis Flandrin, Massimo Montanari and Albert Sonnenfeld, trans. Clarissa Botsford et al. (New York: Columbia University Press, 1999; reprint, London: Penguin Books, 2000), 75.

<sup>85</sup> Fernández-Armesto, 13.

organization.”<sup>86</sup> Saunders says: “cooking is now so much part of our humanity that to taste cooked food ... is to taste something so comforting that it may offer solace”.<sup>87</sup> Even in a modern society fond of salads and fresh fruit, foods that are referred to as ‘comfort food’ are usually the hot, often long-cooked, dishes of earlier times: cooked food is comforting. Recently cooking has become a form of recreation for many people who may not ‘need’ to cook, who could just as easily eat food prepared by someone else but who chose to cook because they enjoy it. Cooking has also become a cultural marker far more complex than one that merely distinguishes human from animal. Barbara Santich says that cuisine (which was defined in the *Oxford English Dictionary* as a “manner or style of cooking”) is “just as much a medium for expressing culture as is art, literature, newspapers, television, architecture or urban design”, and that “Cuisine can be a reflection of a region’s identity, and ... lead the way in developing a community identity.”<sup>88</sup> Cooking has therefore, become something we do for pleasure, and something we do to help distinguish who we are within society; it is a marker of our national, community, and even personal, identity.

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<sup>86</sup> Catherine Perlès, “Feeding Strategies in Prehistoric Times,” in *Food: A Culinary History from Antiquity to the Present*, eds. Jean-Louis Flandrin, Massimo Montanari and Albert Sonnenfeld, trans. Clarissa Botsford et al. (New York: Columbia University Press, 1999; reprint, London: Penguin Books, 2000), 25–26.

<sup>87</sup> Saunders, 61.

<sup>88</sup> Santich, 85.

## 5 ACHIEVING THE DESIRED OUTCOMES OF COOKING WITHOUT HEAT

So it is established that cooking is transformative, and that we transform our food through cooking in order to achieve a number of specific outcomes: to make our food more edible, nutritious and appetising; to preserve it; and to set it apart as civilised and mark it as belonging to our society. The question however is whether we always need to apply heat to food in order to achieve these outcomes. If we can achieve these outcomes by food preparation techniques that do not involve heat, I propose that those techniques are 'cooking' and that we have in fact 'cooked'.

### 5.1 Make the Inedible Edible

Symons points out that making otherwise inedible foods edible refers to “not just heating food: traditionally, cooks have spent large stretches of the day helping ingestion by milling corn and grinding spices.”<sup>89</sup> These processes would indeed render mastication easier. Heat is generally relied upon to eliminate bacteria from food; the notable exception however is the deadliest. *Clostridium botulinum*, which, according to Fernández-Armesto, “survives the range of temperatures attained in all traditional cuisine”, can be arrested in its development by high acid levels.<sup>90</sup> This point is made by Astri Riddervold in a paper on the traditional practice in circumpolar areas of burying fish to preserve it. One technique involves the covering of shark caught in summer with earth to protect it from becoming flyblown. As *Clostridium botulinum* is a soil-dwelling bacterium, the fish is infected by it. Riddervold concludes: “The extremely high value of pH explains the absence of botulism following consumption of such buried shark.”<sup>91</sup>

The practice of burying fish in cold northern countries also provides an example of the elimination of naturally occurring toxins from food without the application of heat. The large Greenland shark (*Somniosus microcephalus*), which is prepared in Iceland into a product called *hákarl*, contains cyanic acid, which would be harmful if eaten raw or even heated, however when buried and allowed to ferment,

<sup>89</sup> Symons, *A History of Cooks and Cooking*, 104.

<sup>90</sup> Fernández-Armesto, 12.

<sup>91</sup> Astri Riddervold, “‘Gravlaks’, The Buried Salmon,” in *Fish, Food from the Waters: Proceedings of the Oxford Symposium of Food*, ed. Harlan Walker (Totnes: Prospect Books, 1997), 131.

the acid leaches out and the meat becomes safe for consumption.<sup>92</sup> Another example is the bitter manioc (also known as cassava or yuca), which contains prussic acid. Soaking, cutting, grating or heating to less than 75 °C releases (and promotes the action of) an enzyme, linase, which frees the prussic acid, dispersing it into the air and rendering the vegetable safe to eat.<sup>93</sup> Sweet cassava (as opposed to the more common bitter cassava) is so low in prussic acid that peeling is sufficient preparation to render it edible.<sup>94</sup> Vic Cherikoff, an expert on Australia's indigenous plants, says that cycad nuts, a staple food of some Australian Aboriginal tribes, contain toxic compounds that were eliminated by soaking in water so that time (and possibly fermentation) broke them down.<sup>95</sup>

## 5.2 Increase Nutritional Value

Fernández-Armesto suggests that primitive hunters may often have sat down to an immediate feast of the partially digested, and still warm, contents of their prey's stomach. He calls this "proto-cookery – the earliest known instance of eating processed food."<sup>96</sup> It is also proto-digestion and one way of consuming food that is more easily digestible with a greater bioavailability of nutrients. Another food preparation that renders digestion and mastication easier and increases nutrient bioavailability is the practice of chewing food for infants or the elderly and infirm, and then giving it to them to swallow. Fernández-Armesto says of food prepared in this way: "Warmed in the mouth, attacked by gastric juices, pounded by mastication, it acquires some of the properties of food processed by the application of heat."<sup>97</sup>

Of all the food groups, starches are the hardest to render digestible without the application of heat. Even grinding them to a powder is not sufficient, as the cell structure remains impermeable.<sup>98</sup> Malting, or inducing grains to germinate, however, releases amylase from within the starch, an enzyme that then converts the starch to sugar. The addition of malt to other starches then breaks them down, rendering them digestible, as the amylase in the malt works on the cell structure of the new starches.<sup>99</sup> In Japanese cuisine, a heavy syrup, *mizuame*, is made by converting starch to sugar either through the addition of

<sup>92</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "Iceland."

<sup>93</sup> Raymond Sokolov, *Why We Eat What We Eat: How the Encounter Between the New World and the Old Changed the Way Everyone on the Planet Eats*, (N.p.: n.p., 1991; reprint, New York: Simon & Schuster, Touchstone, 1993), 141.

<sup>94</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "cassava."

<sup>95</sup> Vic Cherikoff, E-mail to author, 26 July 2003.

<sup>96</sup> Fernández-Armesto, 4.

<sup>97</sup> Fernández-Armesto, 4.

<sup>98</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "starch," by R[alph] H[ancock].

<sup>99</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "malt."

malt or of hydrochloric, sulphuric, or nitric acid. This heavy, colourless syrup is eaten as it is (as honey or golden syrup is in western cuisine) as well as being used in confectionary and desserts.<sup>100</sup>

The practice of hanging meat alters its texture; the aging process leads to a breakdown in connective tissue, rendering digestion easier. Fernández-Armesto refers to this as “an older technique than cooking by means of fire.”<sup>101</sup> Jean-Louis Flandrin points out that “the initial purpose of heating, seasoning, marinating, grinding, slicing, filtering, and other cooking techniques was to make foods digestible and safe as much as, if not more than, to improve their taste.”<sup>102</sup> For him heating was just one of the “cooking techniques” used to make foods digestible and safe, along with the other techniques listed.

### 5.3 Preservation

Preservation of food came about at the same time as humans began to hunt collectively. Large quantities of meat were slaughtered, more than could be consumed quickly, so the need to preserve it for later consumption arose. Perlès places these events in the late Palaeolithic Period when humans learnt to dry or smoke their meat, or to preserve it frozen in pits dug into the permanently frozen subsoil.<sup>103</sup> Flandrin discusses the drying and smoking of meat as well as later preservation techniques such as salting and fermentation that “produce storable products such as beer, wine, cider, vinegar, cheeses, sauerkraut, pickles, *nuoc mam* [and] soy sauce”, suggesting that such preparations “may be included under the rubric ‘cooking’.”<sup>104</sup>

Cookbooks, from earliest times, have contained recipes for preserving food, many of which do not require heat. Apicius, widely accepted as the oldest European cookbook, gives recipes for preserving fresh fruit, herbs, truffles and olives by variously placing them in honey, vinegar, dry sawdust and brine, without applying any heat.<sup>105</sup> In *The Essence of Cookery*, Rumohr gives detailed accounts of salting and smoking, both preservation methods popular in German cuisine. While he does allude to the fact that

<sup>100</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “mizume.”

<sup>101</sup> Fernández-Armesto, 5.

<sup>102</sup> Jean-Louis Flandrin, “The Humanization of Eating Behaviors,” in *Food: A Culinary History from Antiquity to the Present*, eds. Jean-Louis Flandrin, Massimo Montanari and Albert Sonnenfeld, trans. Clarissa Botsford et al. (New York: Columbia University Press, 1999; reprint, London: Penguin Books, 2000), 18.

<sup>103</sup> Perlès, 26.

<sup>104</sup> Flandrin, “The Humanization of Eating Behaviors,” 18.

<sup>105</sup> Joseph Dommers Vehling, trans. and ed., *Apicius Cookery and Dining in Imperial Rome* (Chicago: Walter M. Hill, 1936; unabridged replication, New York: Dover Publications, 1977), 8 and 52–54.

foods preserved in this way will ultimately have heat applied to them, his detailed description is centred on the non-heat preparations, indicating that he considers this part of “the essence of cookery”.<sup>106</sup>

Symons states: “Cooks take in provisions – and also, dry, salt, pickle and ferment them – for allocation over the weeks and months”.<sup>107</sup> He also points out that “Cooks make food microbiologically safe: they keep or preserve a lot of food, not just through heating but brewing, cheese-making, salting, pickling, candying, bottling, and the like.”<sup>108</sup> Bode discusses various methods of preserving food, including freezing, drying, salting and smoking, none of which involves the application of heat (with the possible exception of smoking which can be conducted at a temperature of 29 °C, no hotter than that of a summer’s day).<sup>109</sup> Visser reminds us that in today’s modern world, it is often cold, not heat, which preserves food until it can reach our tables, enabling us to “get food from anywhere on earth at any season of the year.”<sup>110</sup> Irradiation, another modern technique, kills bacteria, insects and parasites, and thus inhibits food spoilage, in much the same way as pasteurisation does. Wolke says: “many germs are harder to kill than the bacteria that pasteurization is designed to deactivate ... but higher temperatures would change the taste and texture of the foods too much. That’s where irradiation comes in.”<sup>111</sup> Many of the preservation methods mentioned above, including irradiation, are capable of preserving food for much greater periods of time, with less loss of flavour and texture, than can be achieved by the application of heat.

## 5.4 Aesthetic

Flandrin points out that an aversion to raw meat and a preference for cooked is a subjective, culturally determined bias, saying: “For a Japanese, the best way to serve fresh fish is raw. And at the beginning of the twentieth century, an Eskimo would have preferred raw and quite gamy seal meat to any of the boiled, roasted or sauced versions”.<sup>112</sup> Discussing the rawist movement Fernández-Armesto says that raw food is attractive to those “modern urbanites repelled by our over-contrived lifeways, seeking readmission to

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<sup>106</sup> Rumohr, 116–117.

<sup>107</sup> Symons, *A History of Cooks and Cooking*, 132.

<sup>108</sup> Symons, *A History of Cooks and Cooking*, 104.

<sup>109</sup> Bode, 40–41.

<sup>110</sup> Visser, *Much Depends on Dinner*, 286.

<sup>111</sup> Wolke, 313.

<sup>112</sup> Flandrin, “The Humanization of Eating Behaviors,” 17.

Eden.”<sup>113</sup> Their senses are likely quite offended by food to which heat has been applied. As much as our senses can be pleased and comforted by heated food, they are also at times delighted by cold food. Visser talks about the “water ices of the Turks and Arabs ... rather like slushy Italian *granita* ... often eaten between courses, as soup is in China, to refresh and clear the palate.”<sup>114</sup> Such ice confections are still enjoyed today throughout many cultures.

There are many aspects of food preparation, such as seasoning and presentation, which are purely aesthetic and have nothing to do with the application of heat. Rumohr says that one of the two ways in which cookery brings out food’s “delectable qualities” is “by the process of adding an appropriate seasoning to the plain but nourishing dishes and foodstuffs, and by giving them a pleasant appearance.”<sup>115</sup> Seasoning of food is a highly subjective area, where every chef (and at many tables, every diner) adds the final spices and accompaniments to the dish in order to finish it to their taste. Whether it is a piece of slow-braised meat or a freshly tossed salad, the application of heat is not necessarily relevant to the aesthetic qualities of the seasoning or presentation of the food. As previously noted *Larousse*’s list of changes brought about by cooking is heavily aesthetic, two of the four changes referring to improved appearance, flavour and aroma of cooked food. Among these changes, *Larousse* refers to the improved taste of the basic ingredients “by incorporating extra flavours, condiments, herbs, wine, etc”; seasoning, in other words, which can be achieved without heat. It also refers to “marinating foods [which] adds flavour before cooking.”<sup>116</sup> Brillat-Savarin reminds us that:

... if our remote ancestors ate all their meat raw, we have not entirely lost the habit ourselves. The most delicate palate will respond very well to Arles and Bologna sausages, smoked Hamburg beef, anchovies, freshly salted herrings, and other such things, which have never been subjected to fire, but which stimulate the appetite for all that.<sup>117</sup>

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<sup>113</sup> Fernández-Armesto, 21.

<sup>114</sup> Visser, *Much Depends on Dinner*, 297.

<sup>115</sup> Rumohr, 61.

<sup>116</sup> *Larousse Gastronomique*, 1988 ed., s.v. “cooking.”

<sup>117</sup> Jean-Anthelme Brillat-Savarin, *The Physiology of Taste*, trans., Anne Drayton (London: Penguin Books, 1970; reprint, London: Penguin Books, Penguin Classics, 1994), 244.

## 5.5 Social

Fernández-Armesto agrees with Flandrin, calling rawness “a culturally constructed, or at least culturally modified, concept.” He points out that foods referred to as raw in our culture arrive at the table elaborately prepared. A plate of sashimi is always notable for its creative presentation; carpaccio is sliced wafer thin, arranged elegantly on a plate and decorated artistically with drizzles of olive oil and shavings of parmesan cheese; and steak tartare is a collage of little bowls, or mounds, of various accompaniments artfully arranged around the centrepiece of a knoll of raw minced beef. Fernández-Armesto refers to the tableside preparation of steak tartare as “civilized over-compensation”, adding that “other raw meat and fish dishes licensed by civilization are equally removed from nature – their nakedness heavily dressed, their savagery sanitized by elaboration.”<sup>118</sup> Discussing ‘raw’ meat in a very different culture, Laurens van der Post draws a comparison to “meat *à la tartare*” while describing an Ethiopian raw meat banquet. Although the meat is not elaborately presented, as in the examples above, the ritual of consuming it is quite elaborate, with meat, bleeding and still warm, being passed between male diners, each of who hold it between their teeth and cut upwards to remove their piece before passing it on to the next man. The meat is eaten dipped in *berbere*, a fiery red pepper paste that Post says: “gives the impression of being hot enough to cook the meat.”<sup>119</sup> Fernández-Armesto says of both the European and Ethiopian ‘raw’ meat dishes: “these foods are raw only according to a very narrow definition. They are so changed from their state of nature ... as to be unrecognisable”.<sup>120</sup>

The transformation from the natural to the cultural was identified as one of the reasons for cooking. In the above examples, this transformation of food to the civilised realm has been achieved without the application of heat. As remarked previously, Claude Lévi-Strauss says that “cooking mark[s] the transition from nature to culture”.<sup>121</sup> Saunders points out that: “even Lévi-Strauss would have to admit that fugu is civilised, though much of it is served raw. The fugu that reaches the Japanese table very definitely does not belong to nature.”<sup>122</sup> Santich proposes another ‘raw’ product that is transformed from its natural state without the application of heat: mayonnaise. She suggests that it is “the contribution of

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<sup>118</sup> Fernández-Armesto, 7–8.

<sup>119</sup> Laurens van der Post, *First Catch Your Eland: A Taste of Africa* (London: Hogarth Press, 1977), 28–29.

<sup>120</sup> Fernández-Armesto, 8–9.

<sup>121</sup> Lévi-Strauss, 164.

<sup>122</sup> Saunders, 62.

culture – in other words, human intervention” that brings the egg yolk and oil together in mayonnaise and transforms them into “expressions of far greater complexity and eloquence.”<sup>123</sup>

The Ancient Romans had an interesting perspective on raw and cooked. All things were on a continuum from hard to soft, where hard was incorruptible (unlikely to decay or disintegrate) and soft was very likely to decay. Inanimate objects were hardest of all, and dead flesh was soft until it had been prepared in some way: “Culture hardened; savagery softened.” Fruit and vegetables, grown in civilized gardens and orchards, were “unlike meat, never in a raw state and subject to immediate spoilage.” The oyster (moist and cold) was softest of all, and unlikely to be eaten raw for fear of damaging the stomach and liver. Bacon, at the other end of the continuum, had been salted, dried and smoked, and was the only dead flesh that could be stored for any period of time; according to Roman thinking, the drying out of the meat had ‘cooked’ it, halting the corruption process.<sup>124</sup>

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<sup>123</sup> Santich, 60–61.

<sup>124</sup> Florence Dupont “The Grammar of Roman Dining,” in *Food: A Culinary History from Antiquity to the Present*, eds. Jean-Louis Flandrin, Massimo Montanari and Albert Sonnenfeld, trans. Clarissa Botsford et al. (New York: Columbia University Press, 1999; reprint, London: Penguin Books, 2000), 119–123.

## 6 “DO YOU CONSIDER THIS COOKING?”

In order to help gain an understanding of contemporary interpretations of ‘cooking’, a set of three questionnaires was sent, by email, to 120 people, asking them to indicate which of a list of processes they would consider to be ‘cooking’. The questionnaires were sent to chefs, food and wine writers, gastronomy students and amateur cooks who expressed an interest in being included. Thirty-four responses were received (though one respondent answered two only of the three questionnaires).

The first questionnaire was called “Cooking Processes” (Appendix 1). It sought to list as many as possible of the different techniques that can be applied to food, including those involving heat. Of the fifty-three processes listed, only baking, grilling, roasting, frying, boiling, braising, steaming and searing were regarded as ‘cooking’ by all thirty-three respondents (Table 1). With regard to the first seven of these techniques, this was probably to be expected, though it was perhaps a surprise to find searing, a deliberate form of ‘under-cooking’, unanimously accepted as ‘cooking’. Given the undisputed acceptance of baking, grilling, roasting, frying, boiling, steaming and braising as forms of cooking, these methods will not be discussed any further in this paper, though a discussion of searing will be necessary.

The second questionnaire was called “Continuum” (Appendix 2). It sought to identify at what point on a continuum of processes ‘cooking’ commences. Strawberries were used as an example, beginning with plucking them from the garden and adding increasingly more complex processing until they were baked in the oven with flavourings and served with ice cream. Plucking from the garden and eating straightaway was the only process not considered to be ‘cooking’ by any of the respondents (Table 2). Conversely, baking with butter, sugar and brandy and serving with ice cream was the only process unanimously accepted as ‘cooking’. Two results from this questionnaire are worth specific mention. Strawberries baked in the oven with butter, sugar and brandy was not accepted as ‘cooking’ by one respondent; while, despite the absence of heat, over 50% of respondents considered pureed strawberries folded into whipped cream and served as a dessert to be ‘cooking’. Perhaps the actual ‘serving’ of the dish was a decisive element here in determining whether or not cooking had occurred, some people believing that cooking has taken place only when a dish is prepared to the stage where it is ready to be served.

The third questionnaire was called “Pairs” (Appendix 3). It contrasted two (or three) processes resulting in a similar finished dish, the difference being that one process involved heat and the other(s) did not. Not surprisingly, the results of this questionnaire confirmed that the application of heat is considered by many as a defining element in ‘cooking’, with the heated dishes being called ‘cooking’ more frequently than the non-heated dishes (Table 3). Only three of the twenty-eight dishes listed were accepted as ‘cooking’ by less than 40% of the respondents however; they were sashimi (38%), *insalata caprese* (38%) and a sandwich (29%).

**TABLE 1 Cooking Processes**

"Do you consider this cooking?"	Replies	% of Total
Baking (e.g. pastry and cakes)	33	100%
Grilling	33	100%
Roasting	33	100%
Frying	33	100%
Boiling	33	100%
Braising	33	100%
Searing (e.g. placing a piece of fish or meat on a hot grill very briefly to brown the outside)	33	100%
Steaming	33	100%
Blanching (e.g. plunging spinach into boiling water and immediately removing and refreshing in iced water)	32	97%
Microwaving	28	85%
Basting	25	76%
"Sous-vide" (heating a boil-in-a-bag meal)	23	70%
Melting (e.g. chocolate or butter to make a sauce)	20	61%
Hot smoking (e.g. smoked trout)	20	61%
Re-heating pre-cooked products (e.g. reheating leftover roast meat with new ingredients to make a casserole)	19	58%
Combining convenience foods (e.g. instant noodles and simmer sauces)	19	58%
Application of heat below 48 °C as practiced by the raw food movement	19	58%
Cold Smoking (e.g. smoked salmon, smoked cheese)	19	58%
Whisking (e.g. making mayonnaise)	19	58%
Blending/pureeing (e.g. soups such as gazpacho)	19	58%
Pickling (e.g. making cornichons or pickled mushrooms)	18	55%
Tenderising with enzymes (e.g. papaya juice)	18	55%
Whisking (e.g. making a cold dessert such as a fruit fool with mashed fruit and whipped cream combined)	18	55%
Pounding/Grinding (e.g. pesto, curry pastes)	18	55%
Chopping, dicing, mincing (e.g. steak tartare, kibbeh naya, raw larb)	18	55%
Curing (e.g. modern gravlax)	17	52%
Churning (e.g. ice cream)	17	52%
Cutting and allowing to stand (e.g. making a salsa: mixing cut ingredients & leaving so the flavours can 'marry')	17	52%
Fermenting (e.g. kimch'i, sauerkraut, yoghurt)	16	48%
Curdling (e.g. cheese making)	16	48%
Acidifying (e.g. ceviche)	16	48%
Pouring a warm marinade over ingredients	16	48%
Re-heating pre-cooked products/leftovers (e.g. pre-made stocks and sauces used in commercial kitchens)	15	45%
Pasteurisation (e.g. milk)	15	45%
Drying (e.g. beef jerky, sun-dried tomatoes)	15	45%
Dehydrating (e.g. modern dried fruit making)	15	45%
Marinating (not necessarily with acid)	15	45%
Tenderising by pounding	15	45%
Seasoning (e.g. sugaring fennel)	14	42%
Slicing (e.g. sashimi, carpaccio)	14	42%
Filtering (e.g. collecting the clear juice drained from raw tomatoes to make a cold 'tomato consommé')	14	42%
Putrefaction (e.g. ageing meat, traditional gravlax)	13	39%
Juicing (e.g. fruit and vegetable juices)	12	36%
Soaking (e.g. rehydrating dried fruit/vegetables/mushrooms)	12	36%
Assembling (e.g. a salad or sandwich, dressing an oyster)	12	36%
Leaving out in the sun (e.g. proving bread dough)	11	33%
Freezing (e.g. cucumber to make a salad of softened cucumber)	11	33%
Heating to room temperature (e.g. softening butter to make a cake)	10	30%
Soaking (e.g. sprouting seeds)	10	30%
Irradiation	8	24%
Heating non-foods to soften enough to eat when nothing else available (e.g. leather shoes, belts)	8	24%
Heating potential foodstuffs for purposes other than eating (e.g. medicine, plasters, poultices, paste, paint)	7	21%
Digestion	5	15%

**Source:** Compiled by the author from questionnaires (Appendix 1).

**TABLE 2 Continuum**

"Do you consider this cooking?"	Replies	% of Total
Strawberries pulled fresh from the ground and eaten in the garden	0	0%
Strawberries washed and placed in a bowl	3	9%
Strawberries arranged on a platter with some mint leaves for garnish	6	18%
Strawberries sliced and arranged on a plate	9	26%
Strawberries sliced and served on a plate with ready-made vanilla ice cream	10	29%
Strawberries sliced and sprinkled with sugar	11	32%
Whole strawberries dipped in egg white & castor sugar	13	38%
Strawberries sliced and marinated in brandy	15	44%
Strawberries pureed and served as a sauce	16	47%
Strawberries pureed; cream whipped; then the two folded together and served as a dessert	18	53%
Whole strawberries dipped in melted chocolate	18	53%
Strawberries baked in the oven with butter, sugar and brandy	33	97%
Strawberries sliced and marinated in brandy then flambéed in a pan with melted butter and brown sugar	33	97%
Strawberries sliced and marinated in brandy then warmed in a pan with melted butter and brown sugar	33	97%
Strawberries sliced and marinated in brandy then warmed in a pan and served with ready-made vanilla ice cream	33	97%
Strawberries sliced and marinated in brandy then warmed in a pan	33	97%
Strawberries baked in the oven with butter, sugar and brandy and served with ready-made vanilla ice cream	34	100%

**Source:** Compiled by the author from questionnaires (Appendix 2).

**TABLE 3 Pairs**

"Do you consider this cooking?"	Replies	%
Cold smoking: smoked salmon (smoked at or below 29 °C)	26	76%
Hot smoking: smoking over a hot fire (e.g. hot smoked trout)	30	88%
Oven drying: tomatoes cut & placed in a low oven to dry	26	76%
Sun drying: tomatoes cut & left on racks outdoors to dry in the sun	14	41%
Drying in a dehydrator: tomatoes dried in an electric dehydrator	19	56%
Pickled cornichons: cucumbers salted overnight, rinsed & stored in vinegar	18	53%
Pickled mushrooms: mushrooms boiled in seasoned vinegar, then stored in the vinegar	28	82%
Sauerkraut: cabbage leaves layered with salt & allowed to ferment	17	50%
Tempeh: soy beans soaked, hulled & boiled for a short time then mixed with some tempeh from a previous batch & allowed to ferment	28	82%
Ham: pork coated in a salt & sugar solution for several days then hot smoked sliced and served	29	85%
Gravlax: salmon covered in a mixture of salt, sugar & herbs for several days, then wiped clean, sliced & served	16	47%
Sashimi: slices of fresh fish served with soy sauce, wasabi & pickled ginger	13	38%
Ceviche: slices of fresh fish combined with lime juice for 3 hours, drained, served mixed with fresh herbs, tomato, onion & chilli	20	59%
Mayonnaise: an emulsion of oil whisked into egg yolks	16	47%
Hollandaise: an emulsion of melted butter whisked into egg yolks over a gentle heat (bain marie)	30	88%
Pesto: basil leaves, pinenuts, garlic, parmesan cheese & olive oil pounded to a paste	17	50%
Curry paste: shallots, garlic, galangal, red chillies & shrimp paste pounded to a paste & fried off in coconut cream	28	82%
Gazpacho: tomato, garlic, cucumber, olive oil & sherry vinegar pureed, garnished with chopped tomato & cucumber, served as soup	18	53%
Tomato soup: tomatoes pureed, mixed with cream, heated, garnished with chives & served as a soup	32	94%
Sandwich: two slices of buttered bread with slices of ham & cheese between them	10	29%
Croque-monsieur: two slices of buttered bread with slices of ham & cheese between them, pan-fried in melted butter	30	88%
Seared tuna: a piece of tuna placed on a hot grill for 30 seconds on each side	34	100%
Carpaccio: fresh beef sliced thinly, arranged on a plate and garnished with olive oil, balsamic vinegar & shavings of parmesan cheese	16	47%
Insalata caprese: tomatoes, bocconcini & basil sliced, arranged on a plate & dressed with olive oil, balsamic vinegar, salt & pepper	13	38%
Lean cuisine: a frozen dinner removed from the freezer & heated in the oven for 20 minutes	16	47%
Instant noodles: 3-minute noodles boiled, frozen broccoli heated in a simmer sauce & poured over the noodles	24	71%
Strawberry sorbet: strawberries pureed & combined with lemon juice & sugar dissolved in water, churned	16	47%
Strawberry ice cream: boiling milk whisked into egg yolks, thickened over gentle heat, cream & pureed strawberries added, churned	29	85%

**Source:** Compiled by the author from questionnaires (Appendix 3).

## 7 CATEGORIES OF COOKING TECHNIQUES NOT INVOLVING HEAT

We have seen that there are many food preparation techniques that achieve the desired outcomes of cooking without the application of heat, or involving heat at a negligible level. Such techniques can be used in one of four ways:

- before the application of heat;
- during the application of heat;
- after the application of heat;
- as an end in themselves, without the application of heat at any time.

Many techniques can be used in more than one of the above ways. Let us look first at those techniques that accompany the application of heat, either in preparing food for the pan, tending it while it is in the pan, or dealing with it after it is removed from the pan. Bode makes a similar three-way distinction, claiming that in his (and other professionals') opinions, cookery is divided into three aspects: preparation; application of heat (which he calls 'cooking' as opposed to 'cookery'); and presentation.<sup>125</sup>

### 6.1 Before

Bode divides preparation into two categories, the preparation of foods such as savoury butter, salad, or a cold dessert, which do not require the subsequent application of heat (and which we will deal with later), and '*mise en place*', the French term meaning "set in place" or preparation of all the raw ingredients before cooking. For him preparation includes selection of the correct meat, fish or fowl, and the correct cut or joint of that meat, selection of the correct cooking vessel and selection of the correct coating for a given method of preparation.<sup>126</sup> This emphasis on ingredients suggests that acquisition or selection is the first stage in cooking. In *The Essence of Cookery*, Rumohr complains: "their advancing state of refinement is also daily rendering German women less capable of attending to the ordinary necessities of life, to the longterm provision, maintenance and distribution of stores."<sup>127</sup> This suggests that Rumohr considered provisioning (or acquisition), in all its forms, part of 'the essence of cookery'. Symons would

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<sup>125</sup> Bode, 48.

<sup>126</sup> Bode, 48.

<sup>127</sup> Rumohr, 115.

agree, arguing that many old recipes began with an imperative to “take” ingredients, quoting a manuscript from the fourteenth century that begins “Tak wyte wyn (Take white wine)”. This imperative to take has given us the word ‘recipe’, which is the imperative form of the Latin ‘*recipere*’ meaning ‘to take or receive’. Even modern recipes, beginning with a list of ingredients as they typically do, suggest that the first task of cooking is acquisition.<sup>128</sup>

Once ingredients have been assembled, recipes, both modern and ancient, require the cook to perform many tasks: slicing, whisking, chopping, grinding, blending, mixing, shaping, which do not involve the application of heat. Is it fair to say that we go into the kitchen, assemble our ingredients, begin to prepare and combine them, but do not actually start to cook until we turn on the stove? If we are baking something, have we done any cooking at all or are we merely assembling ingredients and placing them in the oven for *it* to ‘cook’ them? In describing ‘what cooks do’, Symons says: “Most items must be cleaned, stripped of feathers, scraped of scales, dislodged from pods, pulverised.”<sup>129</sup> These are actions that cooks have routinely performed in almost all cultures throughout the ages, are they not, therefore, part of ‘cooking’? The first skill stressed in training food professionals is knife skills. Before apprentice chefs are even let near a stove, they are trained in using (and caring for) their knives. In *Kitchen Confidential* the infamous chef, Anthony Bourdain, has a chapter entitled ‘How to Cook like a Pro’. His first piece of advice is: “You need, for God’s sake, **a decent chef’s knife**” [Bourdain’s emphasis].<sup>130</sup>

Visser discusses the wok-cooking methods of the Chinese, developed as a quick cooking method to overcome their lack of fuel. She points out that “Chopping things small helped the Chinese to use as little fuel as possible”.<sup>131</sup> The chopping small is as integral to the food preparation as the heating, for were the food not cut into small pieces it would not heat through before the fuel ran out. Is the chopping not, therefore, part of the cooking process? In *Spices*, Elizabeth David gives a recipe for cured mutton ham which involves the cook cutting, pounding, rubbing, stuffing, resting, rubbing, pressing, and drying (or cold smoking) over a period of a month. The ham is then ready to be boiled for two hours. Surely the tasks performed by the cook over the initial month are just as much a part of the cooking process as the final two hours boiling.<sup>132</sup> David also refers to the preparation of bouquet garni as “one of the minor pleasures

<sup>128</sup> Symons, *A History of Cooks and Cooking*, 135–136.

<sup>129</sup> Symons, *A History of Cooks and Cooking*, 16.

<sup>130</sup> Anthony Bourdain, *Kitchen Confidential: Adventures in the Culinary Underbelly* (N.p.: Bloomsbury USA, 2000; reprint, New York: HarperCollins, Ecco Press, n.d.), 76.

<sup>131</sup> Visser, *Much Depends on Dinner*, 163.

<sup>132</sup> Elizabeth David, *Spices Salt and Aromatics in the English Kitchen* (London: Penguin Books, 1970; reprint, London: Grub Street, 2000), 187.

of cooking”, even though this is an action performed before heat is ever applied.<sup>133</sup> In his analysis of the *Encyclopédie*, Jean-Claude Bonnet refers to “the aspect of cooking that involves seasoning and preparation, that is, the cultural treatment of a raw foodstuff”.<sup>134</sup> Obviously, he considers seasoning and preparing the ‘raw’ food, before applying heat, an aspect of cooking.

Starch, in the form of grains or tubers, forms the basis of most diets throughout the world. Most of these foods require reasonably lengthy preparation from their raw state before they are ready for consumption. Visser talks about the Yoruba people of Nigeria who make a corn mush called *ogi* “which requires painstaking soaking, grinding, and washing for several days before it is boiled.”<sup>135</sup> This work is ‘painstaking’, lengthy, and essential to the corn being rendered edible, yet is it only the final boiling which is considered cooking, and not the initial soaking, grinding and washing? Bode suggests that the Neolithic housewife discovered that wetting grain, allowing it to sprout, then drying it and pounding it resulted in a better bread than that made from non-sprouted grain. Despite the conscious decision to follow these procedures and the time taken in completing them, do we only consider that she was cooking when she put the mush made from the ground grain and water onto hot stones? Was none of her food preparation actions before the application of heat, ‘cooking’?

## 6.2 During

Regarding the actual ‘application of heat’ stage of cookery, Bode says:

While heat is being applied other and often more important parts of cooking and cookery have to be considered:

- joints have to be turned;
- roasts basted;
- shapes tossed;
- liquids stirred;
- dough proven;

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<sup>133</sup> David, 65.

<sup>134</sup> Bonnet, 142.

<sup>135</sup> Visser, *Much Depends on Dinner*, 39.

- portions tested;
- something removed;
- something added.<sup>136</sup>

Even when cooking does involve the application of heat, it is clear that there are many other concurrent tasks, not directly involving heat, which form part of the cooking process. Despite an earlier attempt to distinguish ‘cooking’ from ‘cookery’, Bode brings them back together in the above sentence. Interestingly, he also says that these other parts of cookery are “often more important” than the actual application of heat. Some of the definitions of ‘cooking’ discussed previously (pp. 10–14) show that many people believe that cooking has to involve a degree of knowledge and skill. Perhaps there is greater skill involved in knowing when to turn or baste, how to test for ‘doneness’, when dough is sufficiently proven, or at what stage to add an ingredient, than there is in actually applying the heat. The application of heat, after all, comes down to only three factors: which heat source to use, at what temperature to apply it, and for how long. Certainly all of these decisions require knowledge and skill, but not more so than some of the other decisions which must be made while preparing food. Most good recipes give an accurate guide as to method of heating, temperature and time. Often however, the subtleties of how to test for doneness, when to turn, and when to add the next ingredient, can not be as definitively spelt out in a recipe, and rely on the knowledge and skill of the cook. In describing what cooks do, Symons says they:

... attend the flames, and do much else. They tug, tear and crack. They wash, squash and trim. They roll, shave and pinch. They fold, crease and interleave. Eventually, they make neat, tamed parcels, strips, clumps and pools ... They wipe drips clean.<sup>137</sup>

All this while they are also frying, steaming, sautéing and roasting; surely it is all part of the cooking process.

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<sup>136</sup> Bode, 50.

<sup>137</sup> Symons, *A History of Cooks and Cooking*, 18.

### 6.3 After

Bode refers to presentation as “the last, but not the least, of the three distinct stages of modern cookery.”<sup>138</sup> Given that we earlier acknowledged aesthetic considerations as one of the key reasons for cooking, the attractive appearance of the food on the plate is a significant incitement to eat. Bode says: “The most nutritious and tasty of foods will not be acceptable nor fully appreciated when brought to the table heaped willy nilly on to the plate or platter.”<sup>139</sup> Symons, with his focus on cooks as distributors, points out that “Especially in the slicing, chopping, carving and arranging, it is possible to see that, essentially, cooks allocate food among diners.”<sup>140</sup> Bourdain (in his chapter ‘How to Cook Like a Pro’) similarly emphasises the importance of presentation, recommending (as kitchen essentials) a plastic sauce bottle to drizzle sauces onto a plate; a toothpick for dragging through the sauces to create patterns; metal rings for stacking food into towers; a pastry bag for piping potatoes; and a mandoline for slicing french-fries. He then devotes one page to pots and pans before going on to discuss ingredients. Two of the seven ingredients that he says: “make all the difference in the world” are chiffonnade of parsley and herb sprigs used for garnish.<sup>141</sup> For him, a significant aspect of professional cooking is obviously assembling the finished dish in an attractive way.

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<sup>138</sup> Bode, 50.

<sup>139</sup> Bode, 50.

<sup>140</sup> Symons, *A History of Cooks and Cooking*, 18.

<sup>141</sup> Bourdain, 78–83.

## 7 COOKING WITHOUT HEAT

We see then that there are many tasks performed by cooks which, while not directly involving the application of heat, are part of the food preparation process: preparing food before heat is applied to it, tending to food while it is having heat applied, and presenting food once heat has been applied. I suggest that all these tasks are part of the cooking process and are, therefore 'cooking'. What however of other food preparation tasks, which do not ever involve the application of heat, or involve very low levels of heat? How much heat needs to be applied before it is considered 'cooking' in the narrow dictionary sense? We will now look at food preparation techniques that can be an end in themselves, rather than a step in heat-prepared food. Some are preserving, some are processing, some are presenting; all transform the food in some way, involving a permanent change in its composition, structure or texture, which is what many of the chefs consulted earlier defined as 'cooking'. Fernández-Armesto agrees, asking: "Why should cooking with kindled flame be privileged among all these startling ways of transforming food?"<sup>142</sup>

### 7.1 Smoking

Hot smoking involves the application of heat to food, as is evident in the texture of the fish or meat that has been hot smoked. Cold smoking however, according to Tom Stobart in *The Cook's Encyclopaedia*, generally uses a temperature between 10 °C and 29 °C, ideally 24–27 °C.<sup>143</sup> Springs, one of Australia's producers of premium smoked salmon, use an even lower temperature, between 15 °C and 22 °C.<sup>144</sup> Smoking is thought to be one of the earliest preservation techniques, practised since the late Palaeolithic Era.<sup>145</sup> There is evidence of fish smoking as far back as 3,500 BC in Sumeria and approximately 2,000 BC in Ireland.<sup>146</sup> Although modern food preservation methods have rendered smoking no longer necessary, many cultures enjoy the flavour and appearance of smoked foods. Slices of smoked salmon with a squeeze of lemon juice and a grind of black pepper are a tasty dish, with no further preparation, and no heat, required.

<sup>142</sup> Fernández-Armesto, 5.

<sup>143</sup> Tom Stobart, *The Cook's Encyclopaedia: Ingredients and Processes* (N.p.: B T Batsford, 1980; reprint, London: Grub Street, 1998), s.v. "smoking."

<sup>144</sup> Silvia Zola (Q.A. Manager, Springs Smoked Salmon), telephone conversation with author, 11 August 2003.

<sup>145</sup> Flandrin, "The Humanization of Eating Behaviors," 17–18.

<sup>146</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "smoking foods."

## 7.2 Drying

Like smoking, drying dates back to the late Palaeolithic Era, the two are thought to have evolved together, smoke originally being used to hasten the drying of, or to keep insects away from, meat that was hung outside to dry.<sup>147</sup> Tannahill suggests that the observation that fallen fruit (figs, dates and grapes) dry naturally on the ground in hot, dry climates, could easily have been extrapolated to fish and meat.<sup>148</sup> Food can be dried naturally, by sun or wind, but a low humidity is required so that bacteria do not spoil it before it has time to dry. Drying is often preceded by salting to reduce the risk of spoilage during the time it takes for food to dry sufficiently to inhibit bacterial growth. Fernández-Armesto says: “Wind-drying, which is a specialized form of hanging, works a profound biochemical change on some foods.”<sup>149</sup> It is often used as a preservation technique for food that will later be prepared by the application of heat, it can however be used as a preparation in itself. Medieval Europeans were distrustful of eating raw fruit, but were happy to eat dried figs, currants, prunes and dates imported from the Mediterranean. The dried meat known today as ‘jerky’ is a variation on the Latin American *charqui*. Such foods (including the South African biltong) originated as foods that could be readily carried by cowboys and other travellers and eaten without any further preparation.<sup>150</sup> European dried beef preparations such as Swiss *bündnerfleisch* (which is dipped in wine and rubbed with salt, herbs and onion before drying); Italian *bresaola* and French *brési* are all preserved primarily by drying and then served without any further processing.<sup>151</sup> Modern technology now allows foods to be dried, in any climate, in domestic and commercial driers or dehydrators.<sup>152</sup>

## 7.3 Salting

Ham is one of the best-known salted products; it is traditionally the hind leg of a pig that has been cured by salting then drying, and sometimes smoking. Today, however, hind legs of other animals (such as

<sup>147</sup> Flandrin, “The Humanization of Eating Behaviors,” 17–18.

<sup>148</sup> Tannahill, 54.

<sup>149</sup> Fernández-Armesto, 5.

<sup>150</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “drying.”

<sup>151</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “bindenfleish” and “bresaola”

<sup>152</sup> Stobart, *The Cook’s Encyclopaedia*, s.v. “drying.”

goat, venison, or emu) prepared in the same way are sometimes referred to as 'ham'.<sup>153</sup> Unlike the dried meat examples above, it is the salting, rather than the drying (or smoking), that is the primary preservation factor.<sup>154</sup> While most North American and British hams are heated before being served, a number of famous European hams are simply salted and dried (without smoke), then thinly sliced and served without any further preparation. Two of the most famous are Italy's *prosciutto di Parma* and Spanish *jamón serrano*.<sup>155</sup> Modern gravlax is another example of food prepared by salting and served without the application of any heat. In an introduction to a recipe for gravlax, Anton Mosimann says: "Fish ... are 'cooked' by salt, sugar and dill".<sup>156</sup> Vegetables with high water content are sometimes prepared by salting, not as a preservation technique but to alter their texture to one more desirable for the finished dish. Cucumbers, for example, are sometimes salted before being used in salads, to prevent their excess moisture from diluting the dressing and making the salad too watery.

## 7.4 Putrefaction

Preparing food for eating, or preserving it, by controlled putrefaction is another process probably discovered by accident and developed through trial and error over the millennia. Fernández-Armesto says that "Hanging meat to make it gamy, or just leaving it around to rot a little, is a way of processing for texture and digestibility: it is obviously an older technique than cooking by means of fire."<sup>157</sup> Meat prepared in this way is rarely eaten without further preparation. Traditional Scandinavian gravlaks (or gravlax), on the other hand, was prepared ready to be eaten by controlled putrefaction, as the name suggests: "*grav*" meaning buried and "*laks*" or "*lax*" meaning salmon. Either the fish were salted, stacked in barrels and the barrels buried, or the fish were put into birch bark lined holes in the ground and covered with more birch bark and stones. The buried fish could be eaten without further preparation after four to six days, or were left to slowly decompose in the cold Scandinavian soil (around 7 °C in summer) for several months, as a form of preservation.<sup>158</sup> Modern gravlaks, now cured and prepared without being buried, is a derivation of this traditional process. *Surlaks* is another, less common, name for the same preparation, "sur" meaning sour, and describing the taste of the fish rather than the process of preparing

<sup>153</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "ham," by L[aura] M[ason].

<sup>154</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "drying."

<sup>155</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "ham," by L[aura] M[ason].

<sup>156</sup> Anton Mosimann, *Mosimann's World* (London: Boxtree Limited, 1996), 229.

<sup>157</sup> Fernández-Armesto, 4–5.

<sup>158</sup> Riddervold, 127 and 129.

it.<sup>159</sup> *Surströmming* is the Swedish name for pickled herring that have been lightly salted then stacked in barrels and allowed to undergo lactic fermentation as they begin to decompose.<sup>160</sup> Other fish are still prepared today by burying. Many Norwegians have a taste for *rakørret* or *rakefisk*, fermented trout (or other freshwater fish) prepared by salting and storing underground in barrels until they are soft and strong smelling.<sup>161</sup> The tradition also survives in Iceland, where the Greenland shark is preserved and rendered edible by being buried in sand for six to twelve weeks, then dried in the shade for a further eight weeks (*hákarl*).<sup>162</sup> Fernández-Armesto points out that “Burial as quasi-cookery is also recalled in the dark tint now chemically applied to kinds of cheese which were traditionally preserved in earth.”<sup>163</sup> The maturation of surface-ripened cheeses is another form of controlled putrefaction, as the bacteria that attack the outside of these cheeses and allow them to ripen are effectively ‘decomposing’ them.<sup>164</sup> Cheese containing maggots, such as the ‘*casu marzu*’ of Sardinia, take this putrefaction a step further.<sup>165</sup>

## 7.5 Pickling

“To pickle” is defined in *The Oxford Companion to Food* as: “to preserve foods, especially vegetables, fruits, meat, and fish, in a preserving medium with a strong salt or acid content”.<sup>166</sup> *Larousse* describes ‘a pickle’ as “A condiment consisting of vegetables or fruit ... preserved in spiced vinegar.”<sup>167</sup> While many pickled foods are boiled to aid in their preservation, some, mainly those including salt, are not. Stephanie Alexander gives several pickling recipes in *The Cook’s Companion* which do not require the application of heat; for example, whole cornichons are salted, rinsed and then packed in sterilised jars with white wine vinegar, water and spices; and sliced and salted ginger, is stored in a combination of rice vinegar, water and sugar.<sup>168</sup> Christine Manfield, in *Spice*, gives a green mango pickle recipe using coconut vinegar, lime juice, palm sugar and fish sauce, turning green mangoes into a delicious accompaniment without the application of heat.<sup>169</sup>

<sup>159</sup> Riddervold, 126.

<sup>160</sup> Joachim Römer and Michael Ditter, chief eds., *Culinaria: European Specialties* Volume 1 (Cologne: Könemann, 1995), 122.

<sup>161</sup> Riddervold, 129 and 131.

<sup>162</sup> Riddervold, 130–131.

<sup>163</sup> Fernández-Armesto, 5.

<sup>164</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “cheese.”

<sup>165</sup> Piero Sardo, Gigi Piematti, and Roberto Rubino, eds., *Italian Cheese: a Guide to their Discovery and Appreciation* (Bra: Slow Food Arcigola Editore, 2000), 222.

<sup>166</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “pickle,” by R[alph] H[ancock].

<sup>167</sup> *Larousse Gastronomique*, 1988 ed., s.v. “pickle.”

<sup>168</sup> Stephanie Alexander, *The Cook’s Companion* (Ringwood: Penguin Books Australia, Viking, 1996), 254 and 330.

<sup>169</sup> Christine Manfield, *Spice* (Ringwood: Penguin Books Australia, Viking, 1999), 53.

## 7.6 Fermenting

Fermentation generally refers to the positive action of micro-organisms on food; what would be called 'spoilage' if the action resulted in a negative effect.<sup>170</sup> Flandrin includes the preparation of foods by fermentation "under the rubric 'cooking'".<sup>171</sup> Fernández-Armesto refers to it as "magical, because it can turn a boring, staple grain into a potion that can change behaviour, suppress inhibitions, conjure visions and unlock imaginary realms."<sup>172</sup> Fermenting as a food preparation technique is related to salting and pickling as some pickled foods are only lightly salted, destroying harmful bacteria which would render them inedible, but allowing the more salt-resistant lactic acid-producing bacteria to ferment them (for example sauerkraut, and *kimch'i*).<sup>173</sup> While sauerkraut is boiled before being eaten, *kimch'i* is eaten at almost every Korean meal without any further preparation. Fermentation is also partly responsible for the distinctive flavour of pepperoni, and other dry-cured salami, which undergo bacterial fermentation while drying. Part of the *salame crudo* class of salami, they are eaten thinly sliced without any further preparation required.<sup>174, 175</sup> Fermentation is the process by which milk is converted to yoghurt, a food used throughout the world in many different preparations, from Indian raita, to cool the effects of a fiery curry, to Greek *tzatziki* for a mezze plate.<sup>176</sup>

## 7.7 Curdling

Curdling, or coagulation, is the first step in virtually all cheese making. It can also be the only step, if the cheese is of an unfermented, soft curd type such as fromage frais, cottage cheese or quark. A simple fresh curd cheese can easily be made by combining warm milk (no warmer than body temperature is necessary) with rennet (in the form of junket tablets) and natural yoghurt. Once this mixture is allowed to stand overnight, it can be drained and used without any further preparation.<sup>177</sup> Mixed with some fresh herbs it can be served on crackers as a canapé or with crudités, or with fresh fruit as a dessert.

<sup>170</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "fermentation."

<sup>171</sup> Flandrin, "The Humanization of Eating Behaviors," 18.

<sup>172</sup> Fernández-Armesto, 5.

<sup>173</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "salting."

<sup>174</sup> United States Department of Agriculture Food Safety and Inspection Service, ed., "Curing Process: Flavour" in *Curing of Meat and Poultry Products* [on-line]; accessed 26 January 2003; available from <http://www.fsis.usda.gov/ofa/hrds/STATE/RETAIL/curing.htm>.

<sup>175</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "sausages of Italy."

<sup>176</sup> *The Oxford Companion to Food*, 1999 ed., s.v. "yoghurt."

<sup>177</sup> Will Studd, *Chalk and Cheese* (South Melbourne: Purple Egg, 1999), 49, 69 and 71.

## 7.8 Acidifying

*The Oxford Companion to Food* says: “When fish is cooked by heat, the main effect in terms of food chemistry is that its protein is ‘denatured’. The citric acid in lemons or limes has a similar effect, although this is not called ‘cooking’.”<sup>178</sup> Despite this assertion, of all the non-heat forms of food preparation, acidification is the one most commonly referred to as ‘cooking’. Fernández-Armesto says: “As soon as you squirt lemon juice at your oyster you are beginning to alter it, to apply changes which affect texture and taste: a generous definition might call this cooking.”<sup>179</sup> There are many versions of seafood ‘cooked’ in acid: the ceviche of Central and South America, the kokoda of Polynesia, and the *kinilaw* of the Philippines. In an introduction to her recipe for Polynesian Raw Fish Salad, Alexander says: “This salad is served very cold and relies on lime juice to ‘cook’ the fish.”<sup>180</sup> In *Food The Essential A - Z Guide*, ceviche is defined as “Thinly sliced raw fish left to marinate overnight in lime juice, chilli, onion, coriander and garlic—the acid partially cooks the fish.”<sup>181</sup> In his recipe for seviche (an alternative spelling), Mosimann recommends combining strips of raw fish with lime and lemon juice and other flavourings, then refrigerating for 1–3 hours “until the fish has ‘cooked’ and turned opaque.”<sup>182</sup> Food writer Siu Ling Hui describes a ceviche-style dish, saying: “lime juice ... is poured over raw wafer-thin slices of fish just before serving so that it doesn’t ‘overcook’.”<sup>183</sup> Filipino *kinilaw* is most commonly seafood, preferably live, (though meats and vegetables can also be prepared in this way), dipped briefly in vinegar until it just loses its translucence, then eaten immediately. The late Doreen Fernandez, one of the Philippines leading food historians, describes *kinilaw* as: “fish ‘cooked in sourness’ (technically in acetic acid).”<sup>184</sup> Edilberto Alegre, with whom Fernandez co-wrote *Kinilaw: a Philippine Cuisine of Freshness*, writes: “Kinilaw is not a preference for the raw; rather it is a valuing of the food as it is ... Vinegar takes the place of fire—it cooks. It accents; it changes the texture of the raw food; it softens; it renders opaque the translucence of the fresh ... Vinegar is liquid fire, and as such it transforms the raw into the edible.”<sup>185</sup>

<sup>178</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “ceviche.”

<sup>179</sup> Fernández-Armesto, 4.

<sup>180</sup> Alexander, 316.

<sup>181</sup> John Newton, cons. ed., *Food: The Essential A - Z Guide* (Sydney: Murdoch Books, 2001), 75.

<sup>182</sup> Mosimann, 230.

<sup>183</sup> Siu Ling Hui, “The Mighty Kingie is Back!”, in *Divine Food and Wine* issue 33 (May/July 2003), 24.

<sup>184</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “kinilaw,” by D[oreen] F[ernandez].

<sup>185</sup> Edilberto N. Alegre and Doreen G. Fernandez, *Kinilaw: a Philippine Cuisine of Freshness* (Makati, Metro Manila: Bookmark, 1991), 113–114.

## 7.9 Marinating

Flandrin considers marinating to be a cooking technique, referring to “heating, seasoning, marinating, grinding, slicing, filtering, and other cooking techniques”.<sup>186</sup> Fernández-Armesto points out that: “A marinade, applied for a long time, can be as transforming in its effects as the application of heat or smoke.”<sup>187</sup> Marinating is often used before heat is applied, to tenderise and add flavour and sometimes to preserve (although this brings the process closer to pickling). It can however also be a technique in itself, without heat being applied. Fruit, for example, can be marinated in alcohol and served as a dessert, such as sliced strawberries in Grand Marnier. Salad dressings are a form of marinade. Most are added just before serving so that the dressing does not transform the salad leaves, but only flavour them; some salad ingredients however benefit from the transformative powers of the dressing or marinade. In relation to this, Alexander says: “the breaking down of fibres can be used to advantage when the leaves are particularly tough and resistant. Cabbage coleslaw relies on this technique”.<sup>188</sup> ‘Salsa’ (the Latin word for sauce) today generally refers to a chunky sauce or salad consisting of finely chopped vegetables, herbs and/or fruits. Salsas also benefit from being prepared ahead of time and left to marinate in their dressing and in the juices given off by the various components. Flavours have time to ‘marry’ and the acids in the dish transform some of the ingredients, making them softer.

## 7.10 Seasoning

Seasoning is another of Flandrin’s “cooking techniques”.<sup>189</sup> Bonnet also refers to seasoning as an “aspect of cooking”.<sup>190</sup> He quotes Jaucourt in the *Encyclopédie* as saying: “The art of the chefs consists almost exclusively of the seasoning of dishes”.<sup>191</sup> Seasoning, like marinating, is a process most often combined with the application of heat, foods being seasoned with salt, pepper and other spices before, during or after heating. It can however be a food preparation process in its own right; not only enhancing the flavour of foods, but also transforming their structure and aiding their preservation, thus fulfilling some

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<sup>186</sup> Flandrin, “The Humanization of Eating Behaviors,” 18.

<sup>187</sup> Fernández-Armesto, 4.

<sup>188</sup> Alexander, 153.

<sup>189</sup> Flandrin, “The Humanization of Eating Behaviors,” 18.

<sup>190</sup> Bonnet, 142.

<sup>191</sup> *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers*, s.v. “Assaisonnement”, quoted in Bonnet, 143.

of the desired outcomes of cooking discussed earlier. Sugaring fennel, for example, works in a similar way to salting cucumbers. The sugar draws some of the moisture out of the fennel through osmotic pressure, softening it a little, and at the same time reducing the strength of the aniseed flavour, which may appear overwhelming in some instances; the softened, sweetened fennel can then be used as a salad ingredient. David gives a dessert recipe for Spiced Cream Cheese, where mace, cloves, nutmeg, salt and sugar are worked into cream cheese that is then drained overnight in a mould before being served with pouring cream and extra castor sugar.<sup>192</sup>

## 7.11 Whisking

Sauce making is considered an integral part of cooking, at least of the classical French school from which the style of cooking traditional in western restaurants is derived. The great French chef Antonin Carême classified sauces into three categories: brown, white and cold. Cold sauces, usually based on mayonnaise or vinaigrette, rarely involve heat in their preparation, and yet are one of the cornerstones of French cooking.<sup>193</sup> Vinaigrette, mayonnaise, aioli, gribiche, tartare and vierge are all cold sauces, prepared, without heat, by whisking or blending the various ingredients together. While these preparations are served as accompaniments to other foods, which may not be heated (such as crudités or salads), but which often are (such as boiled vegetables or seafood), the question is whether their preparation constitutes part of ‘cooking’. Gribiche is a mayonnaise-style sauce made with hard-boiled, instead of raw, egg yolk, and to which capers, herbs and chopped eggwhite are added.<sup>194</sup> It does not seem reasonable to say that in making this sauce, the cook is only truly ‘cooking’ while boiling the egg and not while preparing the actual sauce. Some cold desserts are made by whipping ingredients together (often fruit, cream and alcohol), such as the old-fashioned English ‘fools’, which consist of pureed fruit folded through whipped cream. Heat is not involved, yet is the chef not ‘cooking’ when preparing these desserts? Over 50% of the respondents to the questionnaires, considered this process to be ‘cooking’ (Table 2).

<sup>192</sup> David, 214–215.

<sup>193</sup> *Larousse Gastronomique*, 1988 ed., s.v. “sauce.”

<sup>194</sup> *Larousse Gastronomique*, 1988 ed., s.v. “gribiche.”

## 7.12 Churning

Fernández-Armesto refers to churning milk as “a process of almost alchemical magic: a liquid becomes a solid, white becomes gold.”<sup>195</sup> When cream (an oil-in-water emulsion) is agitated and beaten with a paddle, the homogenisation of the oil suspended in the water is broken down, the fat globules come together to form butter and separate from the liquid buttermilk. After churning, the free buttermilk is drained off, the butter is washed to extract further buttermilk, and often salted to extend its life and improve its flavour.<sup>196</sup> Two foods are created by the churning process without the application of heat: butter, a staple food of non-Mediterranean Europe, and buttermilk, used widely as a nutritious drink and ingredient in many dishes.

## 7.13 Pounding and Grinding

Grinding is one of the “cooking techniques” Flandrin credits with improving food’s digestibility.<sup>197</sup> Grinding and pounding, in some sort of mortar (stone, wood or earthenware) with a pestle, is a technique going back to ancient times and found in many different cultures.<sup>198</sup> According to William Mead in *The English Medieval Feast*, the mortar and pestle were “probably the most important aids to the medieval cook after the great cauldrons that hung over the open fire”.<sup>199</sup> As forks had not yet been introduced, food had to be eaten with a knife, spoon and the fingers, and so was generally of a mushy consistency. Before the days of modern food processors, pounding in a mortar and pestle was the way to achieve this. In European cooking, pounding is still a popular way of making emulsion sauces such as Italian pesto (whose name derives from the Italian word for ‘pound’), and French rouille and aioli (*alloli* in the Catalan region of Spain). In the cooking of South East Asia, the mortar and pestle are used to crush ingredients and make pastes, such as the spicy *larp* (or *larb*) pastes used to flavour the minced meat salads of northern Thailand and Laos. Chef David Thompson refers to a Laotian-style *larp*, which in its most basic form is raw minced meat, mixed with blood and a spicy paste containing pounded chillies, shallots and mint.<sup>200</sup> The complex curry pastes, which provide the backbone of Thai cuisine, are made in the mortar,

<sup>195</sup> Fernández-Armesto, 5.

<sup>196</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “butter.”

<sup>197</sup> Flandrin, “The Humanization of Eating Behaviors,” 18.

<sup>198</sup> *Larousse Gastronomique*, 1988 ed., s.v. “mortar.”

<sup>199</sup> William Edward Mead, *The English Medieval Feast* (London: George Allen & Unwin, 1931), 44.

<sup>200</sup> David Thompson, E-mails to author, 18 February and 26 July 2003.

ingredients being added, and pounded into the existing ingredients, one at a time so that the cook can smell each new addition to determine the correct quantity required. Thompson says the use of a mortar and pestle is so essential in Thai cuisine that prospective mothers-in-law listen outside girls' kitchens to hear the rhythm of their pounding and determine whether or not they will be suitable wives for their sons.<sup>201</sup>

## 7.14 Chopping and Mincing

From three different parts of the world come three different raw meat dishes that rely on the action of chopping or mincing. While the paste used to season Thai and Laotian *larps* is pounded, the meat itself is minced or finely chopped. As discussed earlier, one of the first skills an apprentice chef is expected to master is knife skills. The ability to chop, dice and mince quickly and accurately is considered essential to good cooking. Fernández-Armesto calls steak tartare “The classic ‘raw’-meat dish of western cuisine”.<sup>202</sup> This dish of freshly minced raw beefsteak (or horse meat in some instances) is traditionally dressed at the table with seasonings such as raw egg yolk, capers, anchovies, Worcestershire sauce, Tabasco sauce and finely chopped parsley, onion and shallots.<sup>203</sup> *Kibbeh nayé* (or raw *kibbeh*) is the Middle Eastern equivalent of steak tartare. Finely diced, minced, or even pounded, lamb meat is mixed with soaked cracked wheat (burghul), salt, pepper and chopped onions. It is served either in a flat dish to be scooped up in lettuce leaves, or rolled into small cylinders and served on a bed of lettuce.<sup>204</sup>

## 7.15 Slicing

Slicing, another procedure referred to among Flandrin's “cooking techniques”, is related to chopping and mincing as a skill that the young cook is expected to master early. In European cuisine, the dish based on slicing that most readily comes to mind is *carpaccio*, the Italian dish of thinly sliced raw beef. Excellent quality beef is trimmed of all sinew, wrapped tightly and placed in the freezer for 30 minutes to firm it up, sliced wafer thin and served dressed with olive oil, lemon juice, salt, pepper and parmesan cheese. The

<sup>201</sup> David Thompson, cooking class at Sydney Seafood School, Sydney, Australia, 1 March, 2003.

<sup>202</sup> Fernández-Armesto, 7.

<sup>203</sup> *Larousse Gastronomique*, 1988 ed., s.v. “tartare (à la).”

<sup>204</sup> Claudia, *A Book of Middle Eastern Food* (N.p: Thomas Nelson, 1968; reprint, Harmondsworth: Penguin Books, 1970), 239.

ability to slice the meat as thinly as possible (combined with the quality of the produce) is the key to this dish. In the case of sashimi, the Japanese dish of raw fish, it is also the slicing technique and the quality of the raw produce that define the dish. Master Sushi Chef, Hideo Dekura, lists seven different cutting techniques (including filleting and mincing) in his book *Sashimi*, and adds: “Knowing the cutting techniques for sashimi is essential, because each cutting style gives the fish fillets a different texture. It is these cutting techniques that give sashimi its delicate texture and taste.”<sup>205</sup>

## 7.16 Blending and Pureeing

Blending and pureeing are techniques that have become more popular since home blenders and food processors became widely available in the second half of the twentieth century, though in earlier times fruit and vegetables were chopped, pounded and minced into a puree or pushed through a sieve. Gazpacho, a dish introduced to Spain by the Arabs, is found in many different forms throughout Spain. The best-known version outside Spain is perhaps the Andalusian one, made by blending garlic, tomato, cucumber and capsicum with bread or breadcrumbs, water, olive oil, and wine or sherry vinegar.<sup>206</sup> Traditionally this soup would have been pounded in a mortar, today however, most Spaniards use a processor or liquidiser.<sup>207</sup> Other cold Spanish soups, such as *ajo blanco* (a garlic soup), are made in a similar way. Chef Liam Tomlin’s version of gazpacho (without bread or breadcrumbs) provides an example of such a soup made without any ingredients that have ever been processed by heat.<sup>208</sup> 53% of respondents to the cooking questionnaires indicated that they considered the preparation of gazpacho to be ‘cooking’ (Table 3).

## 7.17 Juicing and Filtering

Filtering is yet another of Flandrin’s “cooking techniques”.<sup>209</sup> Simpler versions of gazpacho can be made by simply juicing various vegetables and seasoning them. Served well chilled they make a delicious and nutritious light entrée. A more complex soup, often billed as ‘tomato consommé’, is increasingly seen on

<sup>205</sup> Hideo Dekura, *Sashimi* (Sydney: Lansdowne, 2000), 6.

<sup>206</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “gazpacho,” by A[licia] R[ios].

<sup>207</sup> André Dominé and Michael Ditter, chief eds., *Culinaria: European Specialties* Volume 2 (Cologne: Könemann, 1995), 171.

<sup>208</sup> Stan Sarris, Rodney Adler and Liam Tomlin, *Banc* (Sydney: New Holland, 1999), 151–152.

<sup>209</sup> Flandrin, “The Humanization of Eating Behaviors,” 18.

contemporary restaurant menus. It is made by allowing the clear juice of tomatoes (as most of the colour is in the skin and membranes) to drain from the tomato overnight through fine muslin. Any remaining sediment is removed by filtering through a coffee filter. This soup can be served warm, but is just as delicious served cold or at room temperature as an amuse gueule. 42% of respondents to the questionnaires said that they would consider the preparation of such a soup to be 'cooking' (Table 1).

## 7.18 Freezing and Thawing

Freezing is primarily used as a method of preserving food. It can however also play a role in the preparation of food. McGee points out that a side effect of freezing is water crystals puncturing cell walls, resulting in "tissue that is less able to hold water and so is less crisp than the fresh original."<sup>210</sup> This may on occasion be exactly what the cook desires. Cucumbers can be a very watery salad vegetable, salting them to remove some of the unwanted water was discussed previously, freezing and thawing is another solution, for just the reasons McGee describes. The water crystals puncture the cell walls, some of the liquid drains out and the softened cucumber can be gently squeezed to remove excess water, then combined with other salad vegetables without fear that they will weep too much liquid into the salad making it soggy and diluting the dressing. Partial freezing is also often used to firm up beef for *carpaccio*, so that it can be sliced as finely as possible. Ice cream is perhaps the definitive food prepared by freezing. It may be made from a cooked custard base, or 'Philadelphia style' without any heat involved.<sup>211</sup> Regardless of the base, its defining aspect is freezing. Surely the combining of ingredients, churning and freezing are such an integral part of making ice cream, that they deserve the title 'cooking', whether or not the ice cream is made from a heated custard base.

## 7.19 Assembling

Much of what occurs in many kitchens today is assembly. This can be the combining of prefabricated convenience foods involving the application of heat but little creativity (which will be discussed later), or the careful and considered selection, preparation and assembly of ingredients to make salads,

<sup>210</sup> McGee, *On Food and Cooking*, 168.

<sup>211</sup> Caroline Liddell and Robin Weir, *Ices: the Definitive Guide* (London: Grub Street, 1995), 31.

sandwiches, dips, antipasto plates and other edibles requiring skill and creativity but not the application of heat. Is the combining of mass-produced instant noodles and sauces more worthy of the name 'cooking' just because some heat is applied, than the careful washing, slicing, picking and dressing of a salad, which does not involve any heat? M. F. K. Fisher says of an 'assembled' dish, Raspberries Romanoff: "they are one variation, and to my mind the best, of a hundred more or less complicated ways of combining fresh fruits and fresh cream." Her recipe involves mixing chilled berries lightly through cream that has been beaten with sugar and kirsch.<sup>212</sup> A simple preparation perhaps, but no simpler than instant noodles and simmer sauce, and infinitely more delicious to my taste!

The above are all examples of techniques and processes that do not involve heat but that should, I believe, be included under the designation 'cooking'. Other food preparation techniques, involving a certain degree of heat, are not so clear-cut; some might consider them 'cooking', though others might not.

## 7.20 "Raw Food"

The raw food movement has many devotees, especially in the USA. Chef Roxanne Klein of Roxanne's in Larkspur, California is not only convincing diners that 'raw food' can be fine dining, but has also had an incredible influence on leading Chicago chef, Charlie Trotter, with whom she is co-writing a cookbook, *Raw*. Trotter now offers a 10-course raw-food tasting menu in his restaurant, upon request.<sup>213</sup> A review of the upcoming book defines raw food as: "Prepared with basic techniques such as juicing, dehydrating, and slicing, raw food has all of its nutritional value intact since it isn't subjected to the enzyme-rupturing process that intense heat induces."<sup>214</sup> The exact temperature above which food is no longer considered 'raw' seems to vary between 46.5 °C (the Living & Raw Foods website) and 49 °C (California chef Juliano Brotman, author of *RAW: The UNcook Book*).<sup>215, 216</sup> Roxanne Klein uses a temperature of 48 °C.<sup>217</sup> Despite these slight variations, Roxanne, Juliano and other chefs and writers promoting 'raw food' are

<sup>212</sup> M. F. K. Fisher, *An Alphabet for Gourmets* (N.p.: Viking Press, 1949; reprint, New York: North Point Press, 1989), 164.

<sup>213</sup> Sari Zernich (of Charlie Trotter's), E-mail to author, 29 July 2003.

<sup>214</sup> Amazon.com editorial review of *Raw*, by Charlie Trotter and Roxanne Klein, on RawFoodNetwork website [on-line]; accessed 27 July 2003; available from <http://www.rawfoodnetwork.com/index.html>.

<sup>215</sup> Living & Raw Foods, "Welcome to Living and Raw Foods!" [on-line]; accessed 27 July 2003; available from <http://www.living-foods.com/welcome.html>.

<sup>216</sup> Allen, review of *Raw: The UNcook Book*.

<sup>217</sup> Roxanne's Restaurant, "Philosophy: Why Switch to a Living Foods Diet" [on-line]; accessed 27 July 2003; available from <http://www.roxannes-restaurant.com/html/>.

happy to warm food to at least 46 °C and still call it raw. McGee says that muscle fibres of meat start to shorten at 54 °C, but that the protein molecules start to uncoil from their natural configuration at about 38 °C.<sup>218</sup> Ralph Hancock, in *The Oxford Companion to Food*, says that the collagen in meat starts to denature at 60 °C.<sup>219</sup> Chef Christine Manfield has prepared chicken and fish by ‘setting’ the protein at a temperature as low as 50 °C. She has experimented with lower temperatures but without success, and says that the optimum temperature to set protein is 55 °C. At this temperature, meat will take from three to five hours (depending on the density of the flesh) to achieve a ‘set’ texture, while retaining its jewel-like translucency.<sup>220</sup>

## 7.21 Searing

While *The Oxford Companion to Food* describes searing as “cooking the surfaces of a piece of meat briefly at a high temperature ... before reducing the heat and allowing cooking to finish more gently”, a number of chefs and cooks today sear meat and fish briefly and then remove it from the heat altogether. Searing meat does contribute to its flavour by encouraging the browning reaction that occurs when a combination of carbohydrates and proteins are exposed to high heat (known as the Maillard Reaction).<sup>221</sup> Tuna and salmon are popular served in this way, as is steak served very rare, or ‘blue’. The question is whether this deliberate ‘undercooking’ is in fact ‘cooking’. All the questionnaire respondents indicated that they thought it was (Table 1). Yet many people served a rare steak or piece of fish would send it back to the kitchen complaining: “This isn’t cooked, it’s still raw!” Flandrin observes: “in every country rare cooking is reserved for the meats people truly like, while everything else is overcooked.”<sup>222</sup>

## 7.22 Blanching

Typically today, blanching refers to plunging a food briefly into boiling water before removing and refreshing it in iced water to arrest the cooking process. *Larousse* also defines it as bringing food to the

<sup>218</sup> McGee, *On Food and Cooking*, 109.

<sup>219</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “protein,” by R[alph] H[ancock].

<sup>220</sup> Christine Manfield, conversation with author, 2 August 2003, and E-mail to author, 4 August 2003.

<sup>221</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “searing,” by L[aura] M[ason].

<sup>222</sup> Jean-Louis Flandrin, “Dietary Choices and Culinary Technique, 1500–1800,” in *Food: A Culinary History from Antiquity to the Present*, eds. Jean-Louis Flandrin, Massimo Montanari and Albert Sonnenfeld, trans. Clarissa Botsford et al. (New York: Columbia University Press, 1999; reprint, London: Penguin Books, 2000), 415.

boil from a cold water start, the preliminary frying of potatoes for chips, and the vigorous beating together of egg yolks and castor sugar.<sup>223</sup> Blanching can whiten, its most literal meaning (for example rabbit), facilitate peeling (for example tomatoes or nuts), set the colour of green vegetables before freezing or heating in butter, or be an end in itself.<sup>224</sup> Many green vegetables require no further preparation than blanching before being served, and Saunders talks of a Japanese dish, *torishashi*, which consists of salted chicken pieces dropped briefly into boiling water then refreshed in iced water, a type of chicken sashimi.<sup>225</sup>

### 7.23 Sun Heat

The Ancient Romans believed that the sun was capable of ‘cooking’ foods. Plants grown on the most ‘civilised’ land (gardens and orchards), such as fruit, salad greens, onions, leeks, carrots and herbs were considered ‘*cocta*’, or ‘cooked’, by the sun. Such plants could therefore be consumed without any further heating, in salads, or in the case of grapes by being made into wine. Even grains and legumes, which were grown on ploughed land (slightly less ‘civilised’ than the gardens and orchards as it had to be ploughed anew each year), were considered partially cooked by the sun, as they could sprout and bring forth new life. They could be stored in their dried state without the fear of decay associated with ‘uncooked’ animal flesh. Interestingly, once the grains were roasted and milled to make flour, they could no longer produce new life and so the flour was considered ‘uncooked’ (despite having had heated applied in the roasting process) and therefore “apt to decay and the same taboos as dead flesh.”<sup>226</sup> More recently, Alice B. Toklas describes a version of gazpacho cooked by the sun: Spanish muleteers coat an earthenware dish with a mixture of olive oil, salt and garlic, add chopped cucumbers and tomatoes in alternate layers with breadcrumbs, top this with oil, wrap the dish in a wet cloth and place it in the sun. The meal is ‘cooked’ by evaporation, and when the cloth has dried out it is ready to eat.<sup>227</sup> Bread dough is often put in a warm sunny spot to ‘prove’, is this not part of the cooking process? Butter, and even chocolate, can be melted by the heat of the sun; both could then be used in sauces that may not require any further heating. Would such a preparation not be part of the cooking process?

<sup>223</sup> *Larousse Gastronomique*, 1988 ed., s.v. “blanching.”

<sup>224</sup> *The Oxford Companion to Food*, 1999 ed., s.v. “blanch.”

<sup>225</sup> Alan Saunders, “The Raw Deal,” *Good Weekend: The Sydney Morning Herald Magazine*, 21 December 2002, 40.

<sup>226</sup> Dupont, 118–119.

<sup>227</sup> Alice B. Toklas, *The Alice B. Toklas Cookbook* (N.p.: Michael Joseph, 1954; reprint, Kent Town: Wakefield Press, 1995), 52–53.

## 7.24 Body Heat

Body heat is another source of gentle warmth. Mark Kurlansky relates a story told to him by chef John Ash about a lunch he shared with M. F. K. Fisher. Fisher split a long baguette, filled it with mayonnaise, cheese, ham and rocket, then wrapped it in plastic wrap and instructed Ash to sit on it. After an hour, she announced that lunch was ready and asked him to stand up. Ash says:

She unwrapped the loaf, which was now highly compressed and warm from my body heat. She sliced it into nice little finger sandwiches, and served it with some little cornichon pickles on the side and a glass of nice Sonoma Pinot Noir, as I recall.<sup>228</sup>

## 7.25 Digestion

The Ancient Romans considered plant foods to be wholly or partially cooked by the sun. They also considered that cooking of these foods continued inside the human stomach and that such food was transformed into living tissue. Animals, on the other hand, began to decompose even while they were alive, as life is a process of gradual decay from birth to death. Animal products were therefore not considered to undergo further cooking in the stomach through digestion, but continued to rot, and so were not transformed into living tissue.<sup>229</sup> The Ancient Greeks also viewed digestion as a form of cooking, as did Europeans, throughout the Middle Ages, until the eighteenth century.<sup>230, 231, 232</sup> Of the questionnaire respondents, 15% considered digestion to be a form of 'cooking' (Table 1).

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<sup>228</sup> John Ash, personal communication with Mark Kurlansky, 1999, quoted in Mark Kurlansky, *Choice Cuts: a Selection of Food Writing from Around the World and Throughout History* (London: Jonathan Cape, 2002), 36.

<sup>229</sup> Dupont, 121.

<sup>230</sup> Mazzini, 143.

<sup>231</sup> Flandrin, "Seasoning, Cooking and Dietetics," 316.

<sup>232</sup> Flandrin, "From Dietetics to Gastronomy," 427–428.

Now we come to food preparation techniques that definitely attain a temperature that would meet the most stringent definition of the application of heat, but which may not fulfil the criteria of 'cooking' for those who apply a creative element to it.

## 7.26 Pasteurisation

Pasteurisation involves the heating of foodstuffs (most frequently dairy) to kill potentially harmful bacteria and thus extend its keeping time. The temperature at which food is pasteurised depends upon the time it is exposed to heat, but it must be at least 62 °C (for 30 minutes) to ensure its effectiveness. More common for milk in Australia is 71–74 °C for 15–40 seconds. UHT (Ultra Heat Treated) pasteurisation, at 130–150 °C for 2–10 seconds, provides an even longer shelf life; milk treated in this way does however develop something of a 'cooked' taste.<sup>233</sup> Is pasteurisation 'cooking'? It involves the preparation of foodstuffs by the application of heat, yet only 45% of questionnaire respondents considered it to be 'cooking' (Table 1).

## 7.27 Microwaving

McGee notes that microwaving has been a popular cooking method since the 1970s. Even from his scientific standpoint however, he also notes its drawbacks: meat cooked at high speed can lose more fluid, resulting in a drier texture and difficulty in determining degree of 'doneness', and the absence of visually appealing browning and the flavour associated with it.<sup>234</sup> As previously noted, Rolls, thinks "chicken cooked in a microwave is an offence to food", and also complains about the absence of browning. Santich says: "The single greatest obstacle to acceptance of the microwave is its indifference to the senses."<sup>235</sup> Surely controlling how much a piece of meat is cooked and minimising its fluid loss; being able to create the wonderful texture, flavour and aroma of browned foods; and using the sense of smell, which tells us so much as we lean over the simmering pot adjusting the seasonings, are all

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<sup>233</sup> Studd, 21.

<sup>234</sup> McGee, *On Food and Cooking*, 618–619.

<sup>235</sup> Santich, 6.

essential elements of cooking. Evidently some people consider them essential, as only 85% of questionnaire respondents indicated that they considered microwaving to be 'cooking' (Table 1).

### 7.28 Combining Convenience Foods

Increasingly kitchens are becoming places of food 'assembly' rather than food 'preparation'. As discussed above, assembly can sometimes be a worthwhile cooking technique, when it involves combining quality produce in a skilful way. Now, however, many foods come pre-prepared, bottled, dried or frozen; even boiled white rice can be purchased frozen from supermarkets, requiring only heating. The question is: does this heating constitute 'cooking'? A 'meal' can be prepared by pouring boiling water over instant noodles and leaving them to soak while a bottled sauce is heated, then the two combined. There is some disagreement as to whether this constitutes 'cooking', even though it involves the application of heat to food, with only 58% of questionnaire respondents willing to call it 'cooking' (Table 1).

### 7.29 Re-heating Pre-cooked Products

What of using pre-cooked products, or leftovers, to create a new dish? Here the application of heat is combined with an element of creativity. Miroton, a dish dating back to at least the late seventeenth century, consists of sliced, cold cooked meat (usually beef, which could be purchased from a *rôtisseur*) heated in butter with sliced onions until the meat and onions are fried.<sup>236</sup> Gallimaufry, a similar dish from the Middle Ages, was made from roasted chicken or mutton, fried and mixed with onions, wine and seasoning. At the time, it was a feast dish, but later it came to mean a badly prepared or unappetizing dish.<sup>237</sup> The fact that the names of these dishes have come down to us through time suggests that they were regarded as dishes in their own right, even though they were made from meat cooked for a previous meal. This raises the question of whether food can be 'cooked' only once? Are subsequent applications of heat just 're-heating' or further 'cooking'? Beeton, in her *Book of Household Management*, makes the

<sup>236</sup> *Larousse Gastronomique*, 1988 ed., s.v. "miroton."

<sup>237</sup> *Larousse Gastronomique*, 1988 ed., s.v. "gallimaufry."

note “Cold Meat Cookery” next to a number of recipes in the chapters dealing with beef, lamb, veal and poultry, indicating that these are recipes to be prepared from pre-cooked meat.<sup>238</sup>

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<sup>238</sup> Beeton, 277–495.

## 8 CONCLUSION

The above analysis would suggest that our simple word “cook” actually has a number of nuances: from the basic dictionary definition of applying heat to food, through the more complex criteria, used by many chefs, of bringing about an irreversible transformation in food, to everything involved in the preparation of food. There is also the idea that cooking requires some sort of creative element and should at least aim to be ‘good cooking’. This is compounded by the fact that in English we use the same word as both noun and verb, which leads to the question: isn’t ‘cooking’ ‘that which cooks do’? To this we add the problem of understanding what is meant when a food, to which heat has been applied, is described as ‘not cooked yet’, meaning that it has not been cooked to the point that suits the palate of the individual concerned; or when someone says “That’s not cooking!” of a very rudimentary food preparation, nonetheless involving heat.

When we ask: “Can you cook?”, we are enquiring about much more than someone’s ability to apply heat to foodstuffs. The question covers a much larger range of knowledge: selection of ingredients, knife skills, understanding of suitable combinations, as well as methods of heating food. We often mean “Can you cook *well*?” or “Are you a *good* cook?”. Surely, “Can you cook?” is a nonsensical question if it only refers to the ability to apply heat to food, such as putting a frozen TV dinner in the oven or microwave. Furthermore, there are processes which clearly involve the application of heat to foodstuffs, such as pasteurisation, which many people do not consider to be ‘cooking’, while processes such as acidifying, which do not involve heat, are considered by many to be ‘cooking’. This indicates that despite the dictionary definition, the mere application of heat to foodstuffs is not sufficient to warrant the designation ‘cooking’.

We cook for a number of reasons and cooking does of course often involve the application of heat; as discussed, we find heated foods appealing. We also find cold foods appealing, and I believe the above examples have shown that there are many food preparation techniques, not involving the application of heat, which are nonetheless ‘cooking’. The above analysis of cooking in all its forms has shown that ‘cooking’ operates on numerous levels. While it does often involve the application of heat, it also refers to all the procedures cooks perform in the preparation of food whether or not heat is involved. The steps performed before heating, such as peeling, chopping and stuffing; during heating, such as basting, stirring and turning; and after heating, such as slicing, arranging, and blending, are all part of ‘cooking’. As are

the many food preparation techniques that are an end in themselves without the application of heat, such as fermenting, curdling, pickling, smoking and drying. They are 'cooking' because they are procedures that are carried out by cooks in the process of taking ingredients in their natural form and preparing them for the dining table. They are 'cooking' because they involve the irreversible transformation of a raw food into an edible food, something that is 'culturally marked' as fit for human consumption, something that is safe for human consumption and, often, something that is preserved for later human consumption. 'Cooking', I believe, occurs whenever food is prepared for consumption by any process involving an irreversible transformation of that food.

## 9 APPENDICES

### 9.1 “Cooking Processes” Questionnaire

**Which of the following processes, if any, would you call "cooking"?**

The examples are only guidelines, if you don't consider the given example to be cooking, but there are other instances of the process which you would call cooking please note at the end

- Baking (e.g. pastry and cakes)
- Grilling
- Roasting
- Frying
- Steaming
- Boiling
- Braising
- Basting
- Blanching (e.g. plunging spinach into boiling water and immediately removing and refreshing in iced water)
- Searing (e.g. placing a piece of fish or meat on a hot grill very briefly to brown the outside)
- Microwaving
- “Sous-vide” – heating a boil-in-a-bag meal
- Re-heating pre-cooked products/leftovers
  - e.g. pre-made stocks and sauces used in commercial kitchens
  - e.g. reheating leftover roast meat and adding new ingredients to make a casserole
- Combining convenience foods (e.g. instant noodles and simmer sauces)
- Application of heat below 48°C as practiced by the raw food movement
- Melting (e.g. chocolate or butter to make a sauce)
- Heating to room temperature (e.g. softening butter to make a cake)
- Leaving out in the sun (e.g. proving bread dough)
- Pasteurisation (e.g. milk)
- Irradiation
- Heating potential foodstuffs for purposes other than eating (e.g. medicine, making plasters, poultices, glue, paste, paints...)
- Heating non-foods leather shoes, belts etc... to soften enough to eat (e.g. to prevent starvation when no other food available)
- Digestion
- Smoking
  - cold smoking (e.g. smoked salmon, smoked cheese)
  - hot smoking (e.g. smoked trout)
- Drying (e.g. beef jerky, sun-dried tomatoes)
- Dehydrating (e.g. modern dried fruit making)
- Curing (e.g. modern gravlax)
- Putrefaction (e.g. ageing meat, traditional gravlax/surlax/rakefisk/hákarl/rakørret)
- Fermenting (e.g. kimch'i, sauerkraut, yoghurt)
- Curdling (e.g. cheese making)
- Pickling (e.g. making cornichons or pickled mushrooms)
- Acidifying (e.g. ceviche)
- Marinating (not necessarily with acid)
- Pouring a warm marinade over ingredients
- Seasoning (e.g. sugaring fennel)
- Tenderising
  - by pounding
  - with enzymes (e.g. papaya juice)
- Whisking
  - e.g. making mayonnaise
  - e.g. making a cold dessert such as a fruit fool (mashed fruit and whipped cream combined)
- Churning (e.g. ice cream)
- Pounding/Grinding (e.g. pesto, curry pastes)
- Chopping, dicing, mincing (e.g. steak tartare, kibbeh naya, raw larb)
- Cutting and allowing to stand (e.g. making a salsa: mixing cut ingredients & leaving so the flavours can 'marry')
- Slicing (e.g. sashimi, carpaccio)
- Blending/pureeing – e.g. soups such as gazpacho
- Juicing (e.g. fruit and vegetable juices)
- Filtering (e.g. collecting the clear juice drained from raw tomatoes to make a cold 'tomato consommé')
- Soaking (e.g. sprouting seeds, rehydrating dried fruit/vegetables)
  - e.g. sprouting seeds
  - e.g. rehydrating dried fruit/vegetables/mushrooms
- Assembling (e.g. a salad or sandwich, dressing an oyster)
- Freezing (e.g. cucumber to make a salad of softened cucumber)

## 9.2 "Continuum" Questionnaire

Which of the following preparations, if any, would you call "cooking"?

- |                          |   |
|--------------------------|---|
| <input type="checkbox"/> | Strawberries baked in the oven with butter, sugar and brandy and served with ready-made vanilla ice cream     |
| <input type="checkbox"/> | Strawberries baked in the oven with butter, sugar and brandy  |
| <input type="checkbox"/> | Strawberries pureed; cream whipped; then the 2 folded together and served as a dessert                        |
| <input type="checkbox"/> | Strawberries pureed and served as a sauce   |
| <input type="checkbox"/> | Strawberries sliced and marinated in brandy then flambéed in a pan with melted butter and brown sugar         |
| <input type="checkbox"/> | Strawberries sliced and marinated in brandy then warmed in a pan with melted butter and brown sugar           |
| <input type="checkbox"/> | Strawberries sliced and marinated in brandy then warmed in a pan and served with ready-made vanilla ice cream |
| <input type="checkbox"/> | Strawberries sliced and marinated in brandy then warmed in a pan  |
| <input type="checkbox"/> | Strawberries sliced and marinated in brandy   |
| <input type="checkbox"/> | Strawberries sliced and sprinkled with sugar  |
| <input type="checkbox"/> | Whole strawberries dipped in melted chocolate   |
| <input type="checkbox"/> | Whole strawberries dipped in egg white & castor sugar   |
| <input type="checkbox"/> | Strawberries sliced and served on a plate with ready-made vanilla ice cream                                   |
| <input type="checkbox"/> | Strawberries sliced and arranged on a plate   |
| <input type="checkbox"/> | Strawberries arranged on a platter with some mint leaves for garnish  |
| <input type="checkbox"/> | Strawberries washed and placed in a bowl  |
| <input type="checkbox"/> | Strawberries pulled fresh from the ground and eaten in the garden   |

### 9.3 “Pairs” Questionnaire

Which of the following preparations, if any, would you call “cooking”?

- Cold smoking - smoked salmon (smoked at or below 29°C)  
 Hot smoking - smoking over a hot fire (e.g. hot smoked trout)
- Oven drying - tomatoes cut and placed in a low oven to dry  
 Sun drying - tomatoes cut and left on racks outdoors to dry in the sun  
 Drying in a dehydrator - tomatoes dried in an electric dehydrator
- Pickled cornichons - cucumbers salted overnight, rinsed and stored in vinegar  
 Pickled mushrooms - mushrooms boiled in seasoned vinegar, then stored in the vinegar
- Sauerkraut - cabbage leaves layered with salt and allowed to ferment  
 Tempeh - soy beans soaked, hulled & boiled for a short time then mixed with some tempeh from a previous batch & allowed to ferment
- Ham - pork coated in a salt and sugar solution for several days then hot smoked sliced and served  
 Gravlox - salmon covered in a mixture of salt, sugar and herbs for several days, then wiped clean, sliced and served
- Sashimi - slices of fresh fish served with soy sauce, wasabi and pickled ginger  
 Ceviche - slices of fresh fish combined with lime juice for 3 hours, drained, served mixed with fresh herbs, tomato, onion and chilli
- Mayonnaise - an emulsion of oil whisked into egg yolks  
 Hollandaise - an emulsion of melted butter whisked into egg yolks over a gentle heat (bain marie)
- Pesto - basil leaves, pinenuts, garlic, parmesan cheese and olive oil pounded to a paste  
 Curry paste - shallots, garlic, galangal, red chillies and shrimp paste pounded to a paste and fried off in coconut cream
- Gazpacho - tomato, garlic, cucumber, olive oil & sherry vinegar pureed, garnished with chopped tomato & cucumber, served as soup  
 Tomato soup - tomatoes pureed, mixed with cream, heated, garnished with chives and served as a soup
- Sandwich - 2 slices of buttered bread with slices of ham and cheese between them  
 Croque-monsieur - 2 slices of buttered bread with slices of ham and cheese between them, pan-fried in melted butter
- Seared tuna - a piece of tuna placed on a hot grill for 30 seconds on each side  
 Carpaccio - fresh beef sliced thinly, arranged on a plate and garnished with olive oil, balsamic vinegar and shavings of parmesan cheese
- Insalata caprese - tomatoes, bocconcini and basil sliced, arranged on a plate and dressed with olive oil, balsamic vinegar, salt and pepper  
 Lean cuisine - a frozen dinner removed from the freezer and heated in the oven for 20 minutes  
 Instant noodles - 3-minute noodles boiled, frozen broccoli heated in a simmer sauce and poured over the noodles
- Strawberry sorbet - strawberries pureed and combined with lemon juice and sugar dissolved in water, churned in an ice cream machine  
 Strawberry ice cream - boiling milk whisked into egg yolks, thickened over gentle heat, cream & pureed strawberries added, churned

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