KOBAL COLLECTION

As a further artistic touch, the name of each plant is shown in an individualized ornate, scroll-like frame. The Bauers celebrate the glory of the commonplace — peas, grapes, carrots, beets — with the occasional insect, and in one case a house sparrow, enlivening their plates.

If a necessary attribute of a coffee-table book is that the illustrations are more important than the text, it would be unfair to use this epithet for *A Garden for Eternity*. But the text is idiosyncratic. It is partly a general history of botanical discovery in the eighteenth century and partly a collection of biographies of people associated with the *Codex*.

There is more detail about various other figures, though, and a touch of the theatrical approach with the inclusion of a "dramatis personae" and the description of Boccius as the book's "second hero". Its first hero is Nikolaus Joseph Jacquin. Jacquin, from Leiden in the Netherlands, was a noteworthy figure in medicine, chemistry and botany, and an exemplar of the holism of education and culture that has been largely lost in our age of specialization. In addition to many works on botany, Jacquin wrote a treatise on pharmacology. He was also a trained artist, producing more than 2,000 coloured copperplates during his career.

Although an important figure in Austria, being a professor of chemistry and botany at the University of Vienna and director of the university's botanical gardens, Jacquin does not seem to have been particularly closely involved in the *Codex*. He is described in *A Garden for Eternity* as "probably" being an adviser in its creation. But his biography is interesting. His botanical explorations took him to the Caribbean, where he named the mahogany tree. Plants collected over a four-year period on this trip (1755–59) were destroyed by ants, and so Jacquin turned instead to painting *in situ*, laying the foundations of his book, *The Natural History of Selected American Plants*.

As the *Codex* neared completion, the ageing Boccius presented it to the Prince of Liechtenstein in 1799. In exchange, the prince gave his support to the monastery's efforts to help the sick and poor, as the Liechtensteins were major landowners in the Feldsberg area. The *Codex* was kept in the Liechtenstein library in Vienna for 150 years. However, with the approach of Soviet troops towards the end of the Second World War, it was first moved to a mine in the Salzkammergut and then smuggled into Vaduz in Liechtenstein, where it remains.

A Garden for Eternity is the first partial publication of the *Codex*'s contents. It is a contribution to botany, art and history, and introduces a long-hidden treasure to the world. Further information on the *Codex Liechtenstein* (in German) is available at http://www.bgbm.fu-berlin.de/bgbm/research/data/lack/. ■

Ryan J. Huxtable is in the Department of Pharmacology, College of Medicine, University of Arizona, Tucson, Arizona 85724-5050, USA.

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The science behind the dish: fine cooking can reap gustative rewards from chemistry.

From chemistry to cordon bleu

The Science of Cooking
by Peter Barham
Springer: 2001. 244 pp. £19.95, $34.95

Etienne Guyon

Nicholas Kurti, a physicist from Oxford who died in 1998, was better known for his low-temperature work on nuclear magnetism than for his interest in fine cooking or his role in promoting molecular gastronomy as a respectable field of scientific investigation. Nevertheless, the science behind cooking fascinated him, and he used to say it was paradoxical that we should know more about the temperature of a star than of a soufflé.

Kurti's enthusiasm was, writes Peter Barham, one inspiration behind this book. And just as scientists have embraced cooking, so some fine cooks over the years have concerned themselves with the scientific aspects of the culinary art, including the eighteenth-century adventurer Count Rumford, court patissier Marie Antoine Carême in the early nineteenth century, and the celebrated gastronome 'Curnonsky' half a century ago. The interest remains alive today and is exemplified by *The Science of Cooking*.

Given the gustative rewards that result from understanding the science of cooking, and its importance to the food industry, this keen interest is not surprising. For readers of *Nature*, developments in the physicochemical study of what is known as 'soft condensed matter' (in France we use the less attractive expression *matière molle*, or sometimes *objets fragiles*) are an added incentive to explore this area. Although the three expressions imply different realities, they actually correspond clearly to various states of food.

The Science of Cooking will also be stimulating for amateur cooks with an interest in following recipes and understanding how they work. They will find anecdotes and, sprinkled through the book, scientific points of information, such as how the colour of fish meat is determined by the density of the living fish relative to that of the water it lives in.

I had, however, a few concerns about the book. The first is generic and unavoidable. The book is a little short on basic explanations of such subjects as interfacial and colloidal physics, polymers and gels, and granular matter, which are subtle physical ingredients of cooking science. The intricate chemistry of cooking — for example, the famous Maillard reactions between amino acids and carbohydrates that give meat its taste — is not explained in any depth.

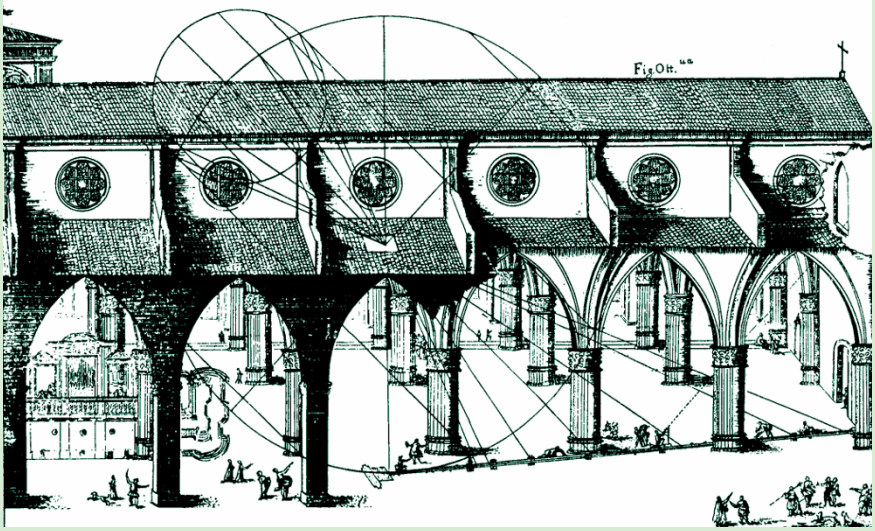
On the other hand, detailed descriptions might have been too technical for the wide audience the author is writing for. One possibility would have been to use illustrations alongside the descriptions given in the book — pictures are, in fact, absent except in the introduction. Personally, I prefer cookery books to include photographs of the recipes.

The choice of recipes is also rather traditional and does not do justice to the present interest in the science of cooking. Restricting a chapter on sauces to a vinaigrette and a mayonnaise is too limiting. I would have at least liked to read about a Béarnaise or a hollandaise, given the different type of emulsion (coated butter) involved in these sauces and the associated subtle stability problems. Cooking meat at a fairly low temperature is an interesting alternative to the high temperatures of grilled meat and deserves more attention; it is the secret of an Argentinian *asado* as well as of a *braisé*. Finally, for a book that presents itself as a science book, the lack of references is a significant omission.

Despite these remarks, the book is a pleasant read and is an invitation to become better acquainted with the science of cooking. ■

Etienne Guyon is at the École Normale Supérieure, 45 rue d'Ulm, 75005 Paris, and at the Université Paris-Sud, 91405 Orsay, France.

Science in culture



The Bologna Meridian from G. D. Cassini's *Meridiana* (1695).

Cassini's craft

Contributions of a seventeenth-century astronomer.

Martin Kemp

Spectacular images of Jupiter's 'red spot' — assembled from data sent back by the latest space probe to skirt the planet — made the pages of many newspapers in the first days of 2001. Such probes have regularly been named after famous explorers of the heavens and Earth. Galileo is still orbiting Jupiter after five years, and Magellan let us look afresh at Venus in the early 1990s. By contrast, the name assigned to the new joint NASA–European probe, which is due to rendezvous with Saturn in 2004, rings a less obvious bell in the popular mind. How many people, outside the world of astronomy, could say what Cassini has done to merit such an accolade?

In fact, the choice of name is unusually apposite. Gian Domenico Cassini was renowned for his exceptional mastery of the astronomer's subtle art of educated seeing. He exploited the new generation of giant refracting telescopes to enlarge our knowledge of both Jupiter and Saturn. Cassini provided tables of the motions of Jupiter's satellites, formulated rotation periods for Jupiter and Saturn, established the oblate shape of Jupiter, and observed Saturn's surface belts and four of its satellites. In 1675, six years after his move to the splendid new observatory in Paris, he discovered the "Cassini Division" in the ring of Saturn. He also played a valuable role in the confirmation that the planet's 'ears' corresponded to a ring.

Astronomy at the highest level was then, as now, a matter of international prestige and big money. Scale was crucial if precise observations were to be made — one of the lenses sent to Cassini's Parisian observatory boasted a focal length of 136 feet. One factor, however, that distinguished the patronage of astronomy in Cassini's time from that of our era was the role of the Church. Notwithstanding the unhappy episode of Galileo's forced retraction of his Copernicanism, the Church generally found astronomers' revelations of the divine geometry of the heavens much to its liking.

The Church did more than provide an intellectual and theological base for astronomers during the sixteenth and seventeenth centuries. For example, the great cathedrals and basilicas, which enclosed by far the largest interior spaces, could be set up as massive scientific instruments, most notably as locations for extended meridian lines. These numerous church meridians attracted considerable public interest as well as serving their functions of time-keeping, astronomical recording and calendar reform.

Notable among the church meridians is that found in the city of Bologna, where the devout Cassini first came to prominence. The city acquired its first meridian in 1576, when Egnatio Danti opened a small aperture in a chapel wall of the massive late Gothic basilica of San Petronio, and inlaid a line across the floor in order to track, as closely as was practicable, the direction of the midday sun as it slanted across the tiled pavement. In 1655, Danti's meridian was replaced by Cassini's meticulously engineered device, its inset metal strip aligned due north and passing diagonally with breathtaking precision between the massive piers of San Petronio. Bernard de Fontenelle hailed the feature as "a new oracle of Apollo where the sun can consult with confidence about all the difficulties of astronomy".

For his part, Cassini promised the "illustrious nobles" in charge that "the kingdom of astronomy is now yours". Restored on a number of occasions, not least by the astronomer himself in 1695, its enduring beauty provides testimony to his importance, which is now appropriately recognized through the 'new' Cassini. ■

Martin Kemp is in the Department of the History of Art, University of Oxford, 59 George Street, Oxford OX1 2BE, UK.