

# Q&A: The molecular master chef

Twenty-five years ago this week, food writer **Harold McGee** published a *Nature* paper on the science of whipping egg whites in copper bowls. Here he explains how he first developed an interest in science and cooking.

## Why were you drawn to the science of cooking?

As an undergraduate I went to the California Institute of Technology planning to study astronomy, but I ended up doing literature. When it proved difficult to get a tenure-track position, I thought of recouping my interest in science by writing about it. Around this time, Stephen Hawking was writing about black holes and Lewis Thomas about medicine — no one was covering the science of everyday life. Several of my friends were getting together at weekends to cook, so that subject suggested itself. Someone asked me why beans cause flatulence, and I thought it would be fun to find out.

## What sparked your 1984 paper in *Nature*?

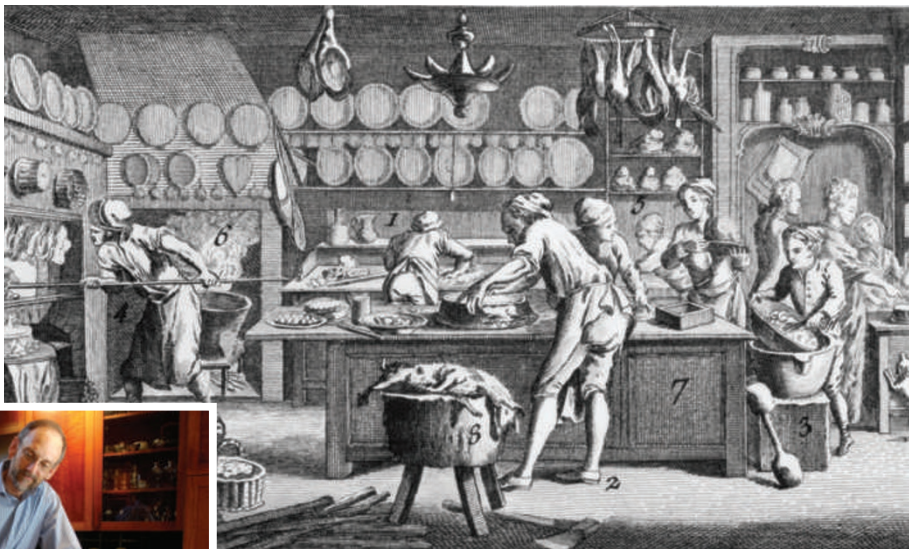
I was looking for illustrations for my book *On Food and Cooking* and found a picture of a pastry kitchen in an eighteenth-century French encyclopaedia, in which a boy was using a copper bowl to whip egg whites. I thought that if that idea had been around for centuries I should look at it. My wife had just started teaching at Stanford University in California, and her colleague at the Carnegie Institution near Stanford had a spectrophotometer, so we decided to experiment. We found a link between how the functional behaviour of egg whites changes when a protein in the egg whites, ovotransferrin, absorbs copper from the surface of the bowl (see *Nature* 308, 667–668; 1984).

## How did the editors respond to it?

They were generally positive and showed no signs that there was anything out of the ordinary. I remember someone said the science looked sound although the subject was fluffy.

## What inspired you to write *On Food and Cooking*?

There was a vast body of information about the science of food and food manufacturing, but not much application of it to cooking. So I waded into that literature to translate



The techniques of eighteenth-century French chefs inspired Harold McGee (left) to study why copper bowls are best for beating egg whites.



it for the average cook. My initial thought was to write a question-

and-answer book, focusing on the practical side of cooking. Before I'd even finished a chapter I was approached by a publisher. I told him about the myth that searing meat seals in the juices, and he said: "That is as interesting as how to cook or not cook a piece of meat." That changed my perspective, and I tried to write a portrait of the various ingredients.

At the time I was writing for the reader who enjoys eating and some cooking, and I thought the cookery profession didn't need a basic book like this. But I was disabused of that idea when the book came out. Students at culinary institutions told me they asked their teachers, "Why do it this way?" and the teachers replied, "Don't ask questions, this is the way it's done, just do it." I think there has been a huge change within the profession — chefs are now much more interested in innovation.

## What are you working on now?

I'm just finishing the book I intended to write in the first place: a practical book that's going to be short; a kitchen manual. Then I have a longer-term project about taste and smell and flavour, subjects I've been interested

in since the 1970s. Back then, no one really understood how those sensations developed, either the molecules in food responsible or the human mechanisms for detecting them and processing the information.

## And what do you like to cook?

My mother is part east Indian, so when I was growing up in Chicago we had curries. You could smell it streets away when I was walking home from school with my friends. They thought the smell was appalling but those same smells made my stomach rumble. I love the long, slow process of putting together all those spices, onions, fresh ginger and garlic and so on into a really complex sauce. It turns out that Mexican food is based on many of the same principles. Those are my two favourites.

Interview by **Daniel Cressey**, a reporter for *Nature*.

### Corrections

Meg Urry's book review 'Myth of the missing mothers' (*Nature* 458, 150–151; 2009) incorrectly referred to two contributors as the daughters of editor Emily Monosson. They are the daughters of Anne Douglass, a scientist at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

Mark Buchanan's book review 'Bringing clarity to complexity' (*Nature* 458, 411; 2009) incorrectly referred to "the late Jim Crutchfield", who is still very much alive.

Our sincere apologies to all concerned.