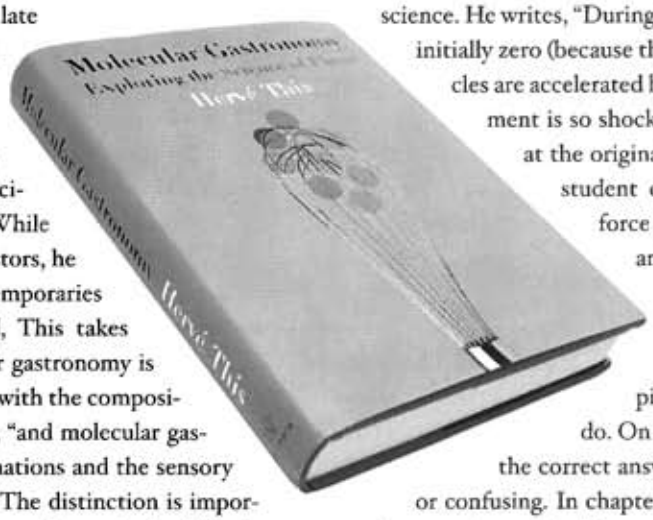
WHAT ABOUT THIS?

TECH TALK A RECENTLY TRANSLATED TREATISE ON CULINARY SCIENCE INADVERTENTLY RAISES QUESTIONS WHILE EFFECTIVELY ANSWERING OTHERS. DAVID ARNOLD WEIGHS THE BOOK'S VALUE TO AMERICAN CHEFS ALONG WITH THE AUTHOR'S PROPRIETARY CLAIMS.

Hervé This, the internationally famous French scientist, author, and food personality, is the world's leading promoter of the term "molecular gastronomy." This (pronounced TEESS) and three-star chef **Pierre Gagnaire** make up one of the world's best known and most successful scientist/chef duos. This is a terrific speaker—warm, engaging, and funny. His demonstrations and experiments are short, easy to perform and understand, and sometimes revelatory. *Molecular Gastronomy*, his first book translated into English, was, therefore, eagerly anticipated as a work that could fundamentally change the way we look at cooking. Unfortunately, *Molecular Gastronomy* falls short on its promise.

The book's introduction establishes a definition and history of molecular gastronomy. This' discussion is notable for two reasons. First, This maintains that he and the late physicist Nicholas Kurti invented molecular gastronomy in an intellectual vacuum (see the molecular gastronomy timeline below) and that no one was interested in the subject of science and cooking prior to his efforts. While he acknowledges some historical ancestors, he ignores the contributions of his contemporaries and immediate predecessors. Second, This takes great care to delineate what molecular gastronomy is and what it is not. "Food science deals with the composition and structure of food," he writes, "and molecular gastronomy deals with culinary transformations and the sensory phenomenon associated with eating." The distinction is important and useful, because it encapsulates the attitude shift that allowed science to migrate from the industrial kitchen to the restaurant kitchen. Less useful, and more puzzling, is This' insistence on separating what he does as a scientist from the parallel efforts of his peers. He takes great pains to distinguish between science, craft, and technology. He does not use the term "molecular cooking," he says, because cooking is a craft, not a science. Chefs are not molecular gastronomists, he says, because a chef "aims for the production of goods, not knowledge." Technology is not part of molecular gastronomy, he claims, because technology deals with techniques and application of knowledge instead of knowledge itself. But many chefs are indeed expanding knowledge related to the behavior of ingredients and many are advancing craft, knowledge, and technology simultaneously.



The book is a series of two to three page chapters grouped into four sections. Each section has a theme, but each chapter tackles a separate subject. The first section analyzes classic recipes and techniques, the second section deals with some scientific discoveries of interest to gastronomy, the third section focuses on using science to improve foods, and in the final section, This expounds on "A Cuisine for Tomorrow." The extremely short chapters bombard the reader with a large number of disjointed topics; three pages do not provide enough information to sink your teeth into. With a few notable exceptions, there is little of practical use for the chef—this book is a reader and not a reference. This also tends to use cursory and oversimplified explanations of complex phenomena, while using highly specific scientific jargon that will leave many chefs scratching their heads.

Most troubling, This sometimes plays fast and loose with his science. He writes, "During free fall, the force [on a particle] is initially zero (because the rate of fall is zero), and the particles are accelerated by the downward force." This statement is so shockingly wrong that it merited a look at the original French. As a high school physics student can tell you, during free fall, the force on an object is not initially zero and the velocity (rate of fall) has no bearing on the forces acting on the particle. Is this nit-picking? Perhaps, but this is the sort of nit-picking scientists are supposed to do. On other occasions, This ends up with the correct answer, but his explanations are faulty or confusing. In chapter four, This wonders what ingredient in quenelles and quiches cause them to rise: they both share cream and eggs, he says, but since cream doesn't expand when heated and eggs do, it must be the eggs. On the next page, he credits the water in the egg (which turns to steam when heated) for the puffing power in quenelles. But wait: cream also has a high proportion of water. The water in the egg is necessary, but not sufficient for puffing. It is the network of protein in the egg that allows the steam to be trapped and cause puffing. This knows this but does not make it clear and leaves readers with an incorrect impression. Soon after, while discussing the related topic of soufflés, This writes, "it has long been supposed that soufflés rise because they contain air bubbles that expand upon heating. A simple calculation shows that this effect can generate an expansion of only about 20 percent." It is the steam generated by heated water, he says, that causes most of the rise. He passes over the heart of the matter: the initial air/protein/water bubbles are vitally important, because they

Photo by Lynn Berry

Left: In the laboratory Hervé This breaks food down to a science and is ceaselessly on the lookout for more inventive ways to cook. Center: At the charter "International Workshop on Molecular and Physical Gastronomy" in Erice, Sicily, Elizabeth Cawdry Thomas and Nicholas and Giana Kurti in 1992 discuss the topics of the day. Right: Author Harold McGee, one of the pioneers in culinary science.

provide a place for the steam to go and a network to hold the gas. It is those initial bubbles that make a soufflé rise, but it is not the air trapped within them that does the actual work. Without these initial bubbles, there can be no soufflé. These are not isolated examples.

This' book is most enjoyable—and most wacky—in the last section, where he takes on cuisine of the future. Only here do we get a good look at This playing with chemicals and equipment and doing what he does best. Taking traditional Chinese preserved eggs as a departure, This proposes an array of fascinating chemically altered eggs, including one that is completely translucent. He proposes the generation of new double-cooking techniques through permutations of 10 standard processes: roasting then microwaving, steaming then broiling, acidification then frying, and so on. He talks of adding chemicals to wine and enzymes to cheese. This is the fun stuff that makes most chefs recoil in horror. Too bad he saved it for the end.

Molecular gastronomy time line The history of molecular gastronomy is actually several histories: the history of "molecular gastronomy" as a discipline (This received his Ph.D. in it, the first of its kind, in 1995), the history of molecular gastronomy as a series of influential workshops held in Erice, Sicily, starting in 1992, and the history of the term itself. In recent years, the movement has appeared to expand even more than it actually has as writers and industry insiders refer to any use of science or experimentation to advance the art of cooking as "molecular gastronomy." **Ferran Adrià** of **El Bulli**, for example, is often referred to as part of the molecular gastronomy movement, though he was cooking experimentally before anyone had heard of molecular gastronomy and does not like the association. This inflated definition is to This' historical advantage.

Here is how This presents the history: "In 1988, the Oxford physicist Nicholas Kurti and I were preparing the first of a series of international workshops on the physical and chemical aspects of cooking, and we realized we needed a pithy phrase that would describe this new field of research." Thus, he says, is born molecular gastronomy, the term, the movement, and the workshops. A look at original documents and interviews with participants, however, reveals another story. The workshops in Erice, which introduced molecular gastronomy to the world, were not initiated by This or by Kurti, but by a little credited figure, Elizabeth Cawdry Thomas. Molecular gastronomy was not the term used to describe the workshops until well after 1988. Furthermore, This' claim to a "new field of research" is a stretch considering that Kurti had done a series of BBC television shows on the subject of science in the kitchen in the 1960s; Harold McGee had published *On Food and Cooking*, the magnum opus on "the physical and chemical aspects of cooking," in 1984; and that people have been interested in the subject for hundreds of years. Elsewhere, This writes, "I have to repeat that Molecular Gastronomy has many patrons and many precursors.... However, Molecular Gastronomy had only two founders, and Nicholas is to remain in the history as one of them...." Of course, This is the other (see *Molecular Gastronomy: A Scientific Look to Cooking* by H. This at *www.college-de-france.fr/chaires/chaire10/page_herve/Molecular_Gastronomy.pdf*). No doubt, This is the world's foremost promoter of his brand of molecular gastronomy, but he has left out some important players involved in the founding. Here is a time line of the workshops:

1969 Nicholas Kurti, the eminent British physicist, gives a lecture to the Royal Institution entitled "The Physicist in the Kitchen" and does a television show for the BBC on the subject.

1984 Harold McGee publishes *On Food and Cooking*.

1988 Elizabeth Cawdry Thomas, a cooking teacher in Berkeley, California, attends a scientific meeting at the Ettore Majorana Centre for Scientific Culture in Erice, Sicily, with her scientist husband. She has dinner with an Italian scientist, Ugo Valdrè, and the two hatch the idea of presenting a workshop on the science of cooking at the center. Thomas approaches director Antonio Zichichi, who is enthusiastic about the idea. They realize that the event should be as serious and rigorously scientific as possible. Thomas is friends with Kurti and immediately suggests him to Zichichi as a prime participant. Zichichi tells Thomas to go forward with the planning. Thomas has not yet heard of This. ➤

This and Kurti meet on the subject of the workshops. (This implies they created the term "molecular and physical gastronomy" at this time, although Kurti's documents through 1991 refer to the proposed workshop as "Workshop on Science and Gastronomy.")

1990 McGee publishes *The Curious Cook.*

McGee joins the planning of the workshop, whose principle organizer is now Nicholas Kurti, at Thomas' invitation.

Zichichi grants official permission for the workshop in Erice, and the date is set for August 1992.

Official documents refer to the organizers as Nicholas Kurti, Harold McGee, and Hervé This. Thomas is not listed. Asked in 2006 why she was not included, Thomas replied, "I think it's because I was not a scientist, and they wanted to appear as scientific as possible. Kurti was a famous physicist, McGee had written the most important book on the subject, and This was writing for a science magazine and doing a lot of the legwork." Thomas participated in every one of the molecular gastronomy workshops, and Kurti always gave her credit verbally.

1991–1992 "International Workshop on Molecular and Physical Gastronomy" appears for the first time on official documents relating to the workshop. McGee and Thomas feel the term was chosen because it "sounded scientific" and seemed to "fit with the other events" that were going on at the center.

August 1992 The first "International Workshop on Molecular and Physical Gastronomy" is a success, largely due to This' ability to attract top scientists and sponsors.

1993 Citing distance and difficulty of communication, Kurti and This ask McGee to step down as an official organizer of the workshops. McGee does.

1995 This earns his Ph.D. in Molecular Gastronomy.

1998 Kurti dies. This drops the word "physical," and the workshops are now called simply "Molecular Gastronomy." ■