

Molecular Gastronomy vs Molecular Cooking

I was very pleased that *Food Technology* magazine published a long article on “molecular gastronomy” in the June '08 issue. But there was a major mistake. Molecular gastronomy is not part science and part culinary art. It is a scientific discipline, part of food science, which Nicholas Kurti and I introduced in 1988, while preparing the International Workshops on Molecular and Physical Gastronomy.

Much confusion exists over the terms *molecular gastronomy*, *molecular cooking* (or *cookery*), *culinology*[®], and *cookery science*. Let me define the terms and explain the differences.

Cooking is a technique (sometimes an art) and the objective is to make food. It takes place in a home or restaurant kitchen. Choosing the right ingredients for cooking, for example, is not a science such as chemistry and physics, but rather a skill. On the other hand, molecular gastronomy is a science. It is performed in a laboratory.

Nicholas Kurti and I first called it *molecular and physical gastronomy*, which was later shortened to molecular gastronomy. The word *science* has many different meanings, but here it was used to designate sciences like chemistry and physics. Science uses the experimental method (hypothetico-deductive method), where theories are produced after studying quanti-

tatively phenomena and refuting the models by making theoretical predictions and then testing them by experiments. In short, the main aim of science is finding mechanisms of phenomena. Producing knowledge has nothing to do with producing food.

Furthermore, science is not technology. Thus, *applied science* cannot exist. Application involves technology (from *techne*, doing, and *logos*, study). When examining mechanisms

I defined molecular cooking as a culinary trend using 'new' tools, ingredients, and methods. Molecular gastronomy is science and science only.

of phenomena, the goal is not to apply knowledge (application), but rather to produce it.

All three fields—technique, technology, and science—are important. But they are different. And this is why I proposed some years ago to make a distinction between molecular cooking and molecular gastronomy. I defined molecular cooking as a culinary trend using “new” tools, ingredients, and methods. Molecular gastronomy is science and science only.

Finally, let's examine the terms *culinology* and *cookery science*. *Culinology* is trademarked ... Can you imagine science such as chemistry, physics, or astronomy being protected with a trademark? According to the Clemson Univ. Web site www.clemson.edu/foodscience/culinology.htm,

culinology “is the blending of the disciplines of food science and culinary arts.” This is a mistake. Can you really “blend” science and art? Science is an activity which produces knowledge while art produces emotion. You probably cannot blend science and art as these activities have different methods and goals. (Of course, I don't deny that you can learn some scientific results while being an artist.)

The Web site definition of

from the meaning of science in “food science,” where it means “experimental science.”

Much of the confusion for these terms rests with Nicholas Kurti and me. Even in my Ph.D. thesis I was confusing science and its technological and educational applications. But it was clear to Nicholas and me that molecular gastronomy was science. Accordingly, the program of molecular gastronomy was changed in

culinology then states: “By combining the knowledge of basic science with the creativity of culinary arts, students develop a unique skill set that will enable them to define the future of food through the creative process of developing new food products.” Granted, students can be trained by being taught the results of science but that does not necessarily make them scientists. And innovation is a question of technology, not science—where the goal is discovery, not invention.

Strictly speaking, *cookery science* is also faulty as it means the “science of cooking.” Cooking is not science, it's a technique. Of course, you can play with words and say that there is a science of any profession, as science comes from the Latin word *scire*, knowing. But this is very different

2003 to make it clear that it is science and science alone.

Molecular gastronomy is not the *science of deliciousness*. It is the scientific discipline which explores the many phenomena that occurs during culinary activities and transformations. It uses the experimental method to solve differential equations. Some chefs may use the results of molecular gastronomy to cook, but they do not solve differential equations. They may be doing molecular cooking ... but certainly not molecular gastronomy. **FT**

Hervé This, a Member of IFT, is Scientific Director of the Foundation Science & Culture Alimentaire (Academy of Sciences) and Physico-Chemist, INRA Team of Molecular Gastronomy, UMR 214 INRA/Institute of Life Sciences and Technology and Environment (AgroParisTech), 16 rue Claude Bernard, 75005 Paris, France (herve.this@paris.inra.fr).