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By Chris Tachibana

## 72-Hour Ribs

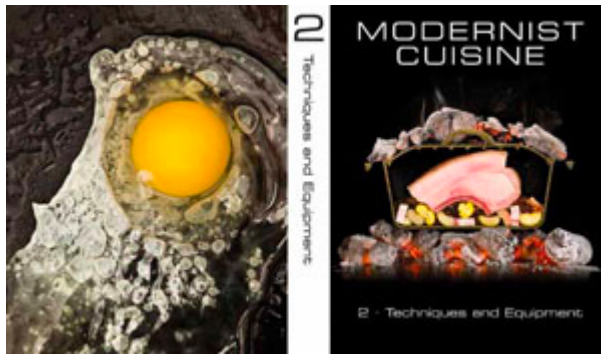


Photo by Ryan Matthew Smith from Modernist Cuisine: The Art and Science of Cooking

Raw beef short ribs go into a clear bag and the air is sucked out, encasing them in sealed plastic. The bag is immersed in a 54°C water bath; three days later the meat is deboned, blowtorched, and smoked. This is scientist/chef Chris Young's idea of barbeque. The recipe is just one of many that celebrate the scientific side of fine cuisine in a \$625, 2400-page cookbook of which he is a coauthor.

In 2001, Young was planning to study biomolecular structure in graduate school at the University of Washington, but decided academia wasn't for him. He'd always enjoyed cooking, so he decided to work as a chef, making money and planning his next career move. "Wow, was that naive," he now admits. A typical entry-level cook neither makes more money nor has more spare time than the average graduate student. But Young had found his calling. By 2003, after working at the Seattle restaurant Mistral, he was apprenticing with Chef

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Heston Blumenthal at The Fat Duck near London. “Initially, I don’t think anyone was aware of my science background,” he says. “I was just the prep guy in the back.”

### What other cookbook has a section on prions?

After a classic understudy move—stepping in for a chef who suddenly quit—Young was promoted to the main kitchen, where he chatted daily with Blumenthal about the science of food. “Then I started doing experiments for him,” says Young. After a conversation about gelling agents, Young read some technical papers and figured out how to create liquid-filled spheres tasting of anything from tomatoes to almonds using alginate, a seaweed-based polysaccharide that gels in the presence of calcium ions. Young was eventually anointed principal investigator in The Fat Duck’s experimental kitchen.

One evening in 2005, Nathan Myhrvold, former chief technology officer at Microsoft, wandered into The Fat Duck. Five years earlier, Myhrvold had started Intellectual Ventures, a company that buys, develops, and licenses patents. He transformed a 27,500-square-foot Harley-Davidson motorcycle repair shop near Seattle into lab space, where scientists work on inventions like a stratospheric shield to combat global warming and a laser mosquito zapper. In 2007, Myhrvold hired Young to work in the space’s culinary lab, where a 20-person team of cooks, photographers, and writers produced the six-volume *Modernist Cuisine: The Art and Science of Cooking*, a 40-lb tome scheduled to hit bookshelves in spring 2011.

It all started with sous vide, a method that cooks vacuum-packed food in tepid waterbaths. Leaving meat for days in warm water makes health inspectors nervous, but on the topic of food safety, Myhrvold said during a 2009 talk in Seattle, “essentially everything chefs are told is massively wrong.” He started the cookbook project to debunk sous vide myths by explaining microbiology to chefs who don’t have the time or expertise to read peer-reviewed scientific literature. Don’t overcook your meat because you’re afraid of trichinosis, says Myhrvold. These days, infection by the *Trichinella* parasite is uncommon—the United States averaged only 12 reported cases per year from 1997 to 2001, according to the Centers for Disease Control and Prevention. Wild game often carries the larvae,

though, so while 72-hour ribs are safe, Myhrvold says, “you don’t want bear carpaccio.”

Kathryn Boor, a professor of food science at Cornell University, agrees that sous vide can be safe, “as long as key factors are controlled.” If you maintain proper temperatures throughout cooking and refrigeration and don’t exceed recommended storage times, “it can give a high-quality and satisfying product,” she says.

But as it took shape, *Modernist Cuisine* evolved beyond sous vide. The book also covers heat transfer physics and the material science of gels. Among the book’s 26 chapters, one on microbiology features electron micrographs of noro-virus and *Trichinella* and cites articles on bacterial growth curves. And what other cookbook has a section on prions?

Presenting the beautiful science of food in *Modernist Cuisine* is Young’s current focus. He’s busy doing book publicity with no definite plans for his next project. But he says he isn’t worried about the future. “I work from the philosophy that if you do interesting things and do them well, there will be plenty of opportunities.” In the Intellectual Ventures kitchen, those opportunities just might come slathered in barbecue sauce.