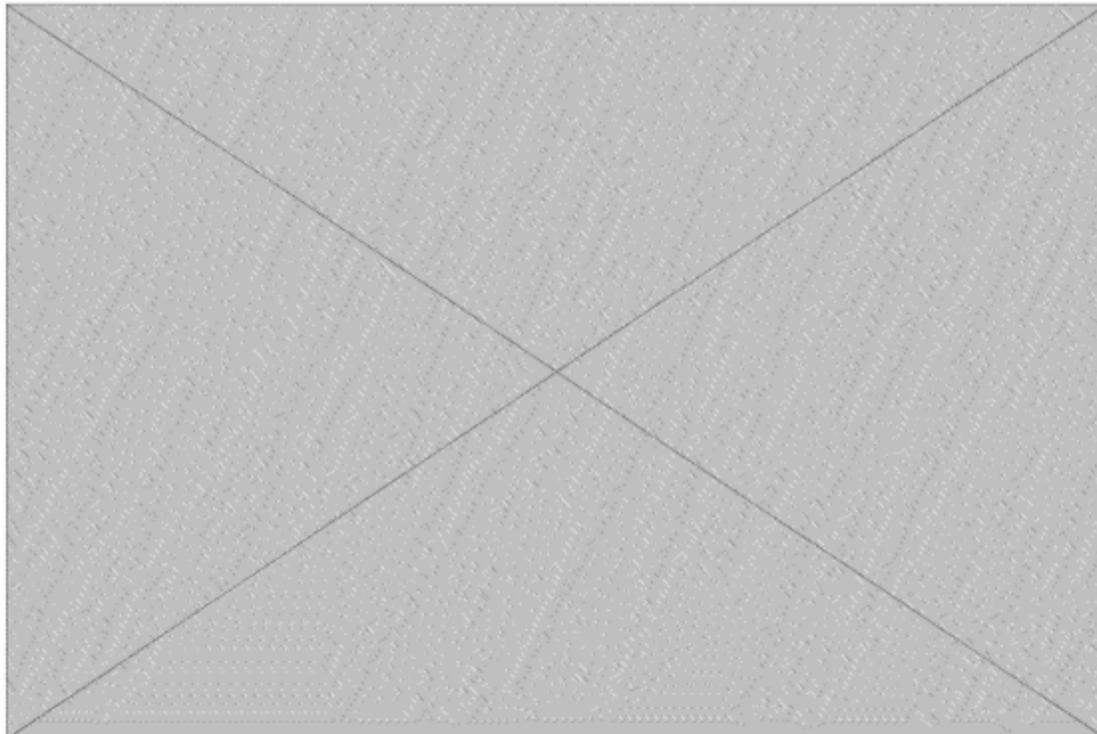


Forgot to mention you, in the case that you already did not see it.

## The Game-Changing Cookbook

**Nathan Myhrvold's 2,400-page 'Modernist Cuisine' upends everything you thought you knew about cooking**

Nathan Myhrvold



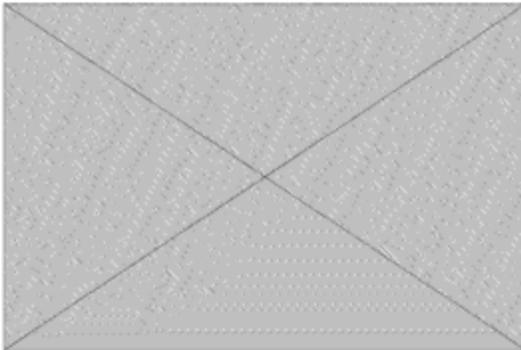
Here's the recipe for the most astonishing cookbook of our time: Take one multimillionaire computer genius, a team of 36 researchers, chefs and editors and a laboratory specially built for cooking experiments. After nearly four years of obsessive research, assemble 2,400 pages of results into a 47-pound, six-volume collection that costs \$625 and requires four pounds of ink to print.

To call inventor Nathan Myhrvold's "Modernist Cuisine: The Art & Science of Cooking," on sale next month, a "cookbook" is akin to calling James Joyce's "Ulysses" "a story." The book is a large-scale investigation into the math, science and physics behind cooking tasks from making juicy and crisp beer-can chicken to coating a foie-gras bonbon in sour cherry gel. There is precedent in this genre—science

writer Harold McGee has published popular books explaining kitchen science, and chefs Thomas Keller and Ferran Adrià have written about sous vide and other techniques of avant-garde gastronomy—but nothing reaches the scope and magnitude of Mr. Myhrvold's book. While it will likely appeal to professional chefs, within its pages are insights that even the humblest home cooks can use to improve their meals. The book puts traditional cooking wisdom under scientific scrutiny, destroying old assumptions and creating new cooking approaches.

#### More

- **My 30-Course Dinner at Nathan's: The Most Exciting Meal of a Food Writer's Life**



Ryan Matthew Smith, *Modernist Cuisine*

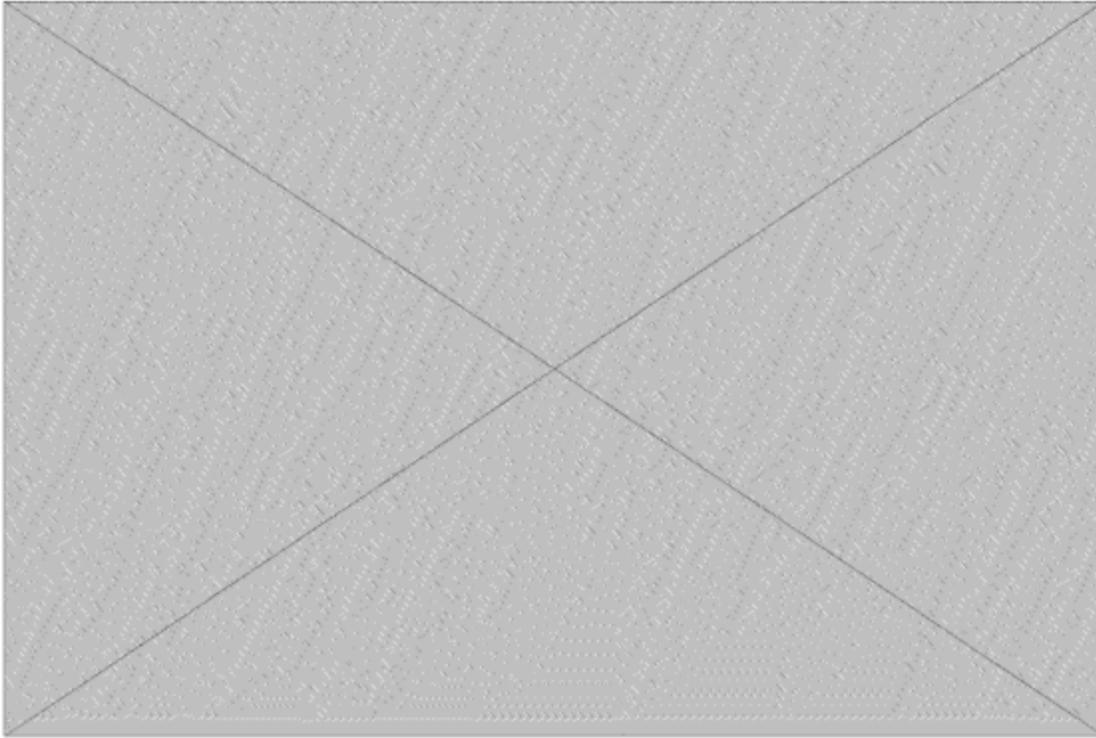
#### "Beef Stew"

The man behind the tome is a former chief technology officer for Microsoft and an inventor of hundreds of patents (he invented an electromagnetic car engine and is seeking a patent for his French fries treated with starch and placed in an ultrasonic bath). Though many of Mr. Myhrvold's 51 years have been devoted to math and science—by the age of 23, he held two master's degrees and a doctorate in mathematical physics from Princeton—in the 1990s, his passion for food began to loom large. First, he got deeply into barbecue (he was on the "team of the year" at the Memphis World Championship Barbecue Cooking Contest in 1991), and then moved onto haute cuisine.

"My career at Microsoft really was getting in the way of my cooking," said Mr. Myhrvold. After leaving Microsoft in 1999, he launched Intellectual Ventures, an invention and patent firm, and in 2007, with help from two young, scientifically-minded chefs, Chris Young and Maxime Bilet, he began work on the book. When publishers balked over the size and scope of the project, Mr. Myhrvold said, he ditched the conventional route and decided to self-publish through his publishing company, the Cooking Lab.

To call inventor Nathan Myhrvold's "Modernist Cuisine: The Art & Science of Cooking," on sale next month, a "cookbook" is akin to calling James Joyce's "Ulysses" "a story."





Among the book's revelations: Expensive pots and pans are a waste of money. Organic food is no healthier than non-organic. Black coffee cools off faster than coffee with cream.

We pored over the book and selected some of our favorite counterintuitive nuggets of wisdom. You'll never think about frying, boiling or making pizza the same way again.

**PROBLEM #1: Your pan-fried food comes out soggy and greasy.**

**SOLUTION: Use more oil.**

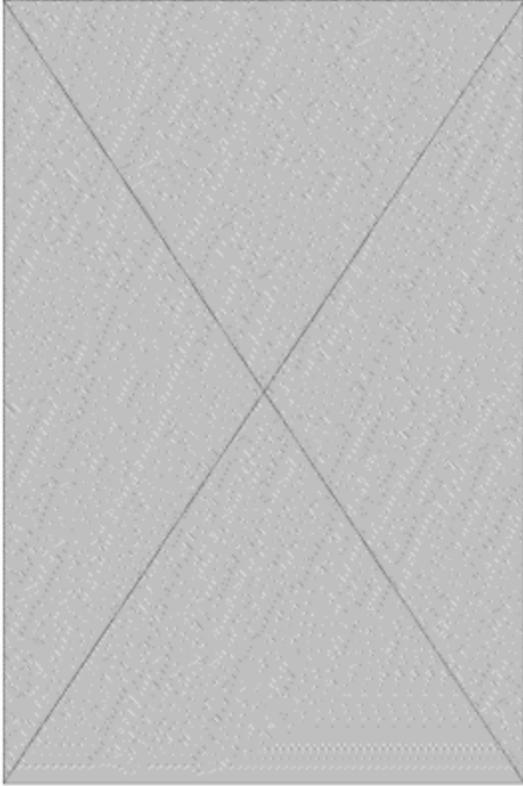
Before shallow-frying, pour oil into a pan that is equivalent to nearly half the depth of your food. Heat it well and fry the food. When done, drain on a rack and blot excess oil with paper towels. The food will be crisp and less greasy than if you had skimped on the oil.

**WHAT'S GOING ON:** When food heats, water escaping from the food creates a tiny layer of steam that lifts the food off the bottom of the pan. If there's not enough oil in the pan, the food will not make contact with the oil. That means that instead of frying, it steams, and then merely absorbs the oil, sponge-like, upon contact. With a thick enough layer of oil the food will have full surface-contact with the oil and will fry—and properly fried food does not actually absorb much oil.

**PROBLEM #2: The first batches of your deep-fried food don't come out crispy enough.**

**SOLUTION: Use a bit of old oil.**

Each time you deep fry, cool down the used oil and keep a couple of tablespoons in the refrigerator. Next time you deep fry, add about a tablespoon of the old oil to the pot along with fresh oil, and bring it to temperature for about 10 minutes before frying.



'Modernist Cuisine'

'Modernist Cuisine'  
by Nathan Myhrvold  
2,400 pages  
\$625

**WHAT'S GOING ON:** It's a "free-radical reaction." When deep-frying in perfectly fresh oil, escaping water from the food creates a barrier of water and steam. This prevents even browning. However, after several batches of food have had contact with the oil, free radicals begin to break down the oil into natural emulsifiers, changing the oil's chemical structure and allowing it to get in closer contact with the food.

**PROBLEM #3:** You love Neopolitan-style pizza, but don't want to invest in a brick oven.

**SOLUTION:** Make an oven out of a steel sheet.

Get a ¼-inch-thick sheet of steel from a metal fabricator (Google a local one), have it cut to the size of your oven shelf and insert it in the rack closest to the broiler. Preheat the oven at its highest temperature for ½ hour, then turn on the broiler and slide your pizza onto the metal plate. It should emerge perfectly cooked in 1.5 to 2 minutes.

**WHAT'S GOING ON:** Pizza in a brick oven cooks at about 800 degrees—way hotter than the highest setting of most home ovens. The metal sheet is more conductive than a brick oven's stone, so it can cook just as fast at a lower temperature.

**PROBLEM #4:** You can't make perfect fish.

**SOLUTION:** Broil it in wine.

In an oven-proof pan, lay a piece of fish on a bed of onions, fennel or another aromatic. Pour wine to nearly cover the fish, leaving only the skin uncovered. Place the pan under a hot top-heated broiler and cook until the skin is crisp; the exact timing will vary widely depending on the thickness of the fish and other factors. Remove from broiler, insert a digital thermometer and wait until the fish reaches the desired temperature (somewhere between 120 and 130 degrees is often optimal). If the fish does not reach temperature, heat the pan gently on the stove top until it does. The fish will be tender, with crispy skin.

**WHAT'S GOING ON:** "Evaporative cooling" is at work here. The alcohol in the wine evaporates so rapidly that it cools the wine, keeping it from getting too hot and overcooking the fish. Meanwhile, the broiler crisps the skin to perfection.

**PROBLEM #5: You want homemade chicken stock, but you don't have eight hours to kill.**

**SOLUTION: Chop small to chop time.**

Pulse the ingredients (typically, carrot, onion and celery) in a food processor until very finely diced; remove vegetables, add boneless chicken pieces and puree. Chop chicken wings into tiny pieces. Brown all the chicken, then add vegetables and cover with water. Simmer for an hour. The stock will attain the same flavor it would have taken 8 hours with large chunks.

**WHAT'S GOING ON:** "Fick's first law of diffusivity" is at work. This principal indicates that flavor molecules have a shorter distance to travel if the pieces of food are smaller, and thus will be extracted more quickly.

Write to Katy McLaughlin at 