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**Meet ‘Schmeat': Say Hello to the Stem-Cell Hamburger**

A long-awaited — if faintly unsettling — food product is unveiled

By [Catherine Mayer](http://science.time.com/contributor/catherine-mayer/) Aug. 05, 2013

True beef or not true beef? That is the question two volunteers sampling a burger in front of an invited audience in a [London](http://topics.time.com/london/) theater attempted to answer earlier today. Expensive food is often served as performance art, and this version of the global fast-food staple may be the exemplar of that form: it had taken three months and eaten up $331,400 to develop in a laboratory. “It’s close to meat,” mused the first taster, Hanni Rützler, a nutritional scientist, swallowing the too-solid flesh with some difficulty. “This is kind of an unnatural experience,” confessed the second taster, Josh Schonwald, a writer, as he chewed on history. He meant the lack of ketchup.

“Schmeat” — or “cultured beef” as the patty’s progenitor, Mark Post, a professor of physiology and biomedical technology at the University of Maastricht in the Netherlands, calls the culinary product of stem cells harvested from a cow’s shoulder and laboratory-nurtured into strips of muscle — is hailed by its proponents as a potential solution to several juicy existential problems. The demand for cheap meat has been met at a high price to the environment, human health and animal welfare. In Britain, beef eaters have found themselves at the sharp end of experiments with industrialized farming and food production: an epidemic of bovine spongiform encephalopathy in the 1990s, spread by feeding cattle, natural herbivores, with the remains of other cattle infected with the disease; a foot-and-mouth epidemic a decade later, intensified by intensive farming; and this year the revelation that the “beef” in certain prepared foods was actually horsemeat. You might think the world would lose its appetite for meat, but demand is threatening to outstrip supply. We are, said Rützler, at “peak meat.” Schmeat production, once scaled up to bring prices down, could help feed the world and reduce some food-industry practices promoting [climate change](http://topics.time.com/climate-change/).

The ambitions for schmeat are huge, but the taste evidently falls short of a standard burger. The problem is a “technical bottleneck,” Post (whose name rhymes with cost) told the audience at the Riverside Studios in West London. He looked ill at ease on the set, which had been constructed to resemble a TV cooking show. In his earlier career as a physician specializing in pulmonary and vascular conditions, Post learned to grow tissue to repair the damage that can be caused by fatty diets. Now he is trying to figure out how put tasty fat into his burgers, by culturing the right kinds of fat cells.

The quest to develop in vitro meat is riven with apparent contradictions. Can this most processed of processed foods be healthy? Is it possible to solve problems created by our greed for meat by making more meat more cheaply? Ten years ago, Oron Catts, an artist based at the University of Western Australia  and former research fellow at the Tissue Engineering and Organ Fabrication Laboratory, Harvard Medical School, explored some of these issues by devising an art installation in Nantes, France. He cultured schmeat frogs’ legs, then served them up. Several of his tasters spat out the meat. “My concern is that we’re going to see renewed trust in the idea that we can use technology to solve the problems created by our use of technology,” he says.

Post produces his burger by macerating the cattle-muscle cells in a broth that includes fetal-calf serum, obtained by slaughtering pregnant cows, yet his work is lauded by some vegetarians. “Our goal is to promote foods that don’t use[animals](http://topics.time.com/animals/) at all,” says Ingrid Newkirk, president of the animal-rights organization People for the Ethical Treatment of Animals (PETA). “But enormous swaths of the population can’t bring themselves to become vegan, so it’s logical to support in vitro meat if its goal is to reduce suffering.”

PETA has funded research into in vitro meat for 17 years, says Newkirk. The deep-pocketed mystery backer of Post’s project was unveiled in London along with the burger: Google’s co-founder Sergey Brin. In a short film screened before the burger tasting, Brin acknowledged that some critics dismiss the prospects for mass-produced schmeat as “science fiction.” He added, “I actually think that’s a good thing. If what you’re doing is not seen by some people as science fiction, it’s probably not transformative enough.”

A 1973 science-fiction movie starring Charlton Heston and Edward G. Robinson imagined a future world of food shortages in which the hungry proletariat has come to depend on a processed miracle foodstuff, Soylent Green, also the title of the film. But Soylent Green supplies are also dwindling. The cultured-beef tasting recalled a food-riot sequence in that movie as restive audience members, noticing that the volunteers had left more than half of the burger behind and desperate to try this scarcest of delicacies, pleaded for scraps. Post denied the requests, declaring he was saving the leftovers for his kids.

But that’s probably as far as anyone wants to go down the Soylent Green road. When Heston’s character penetrates the factory in which the food is made, he discovers (spoiler alert!) that the miracle is a nightmare, manufactured from the corpses of euthanized old folk. Cultured beef is actually a little stranger (if a lot less scary) than Soylent Green — living tissue that has never been born. If this really is the food of the future — and the most optimistic estimates suggest schmeat won’t make it into the supermarkets for another 10 or 20 years — it will have to overcome what Kenneth A. Cook, president of the U.S. environmental-health research and advocacy organization Environmental Working Group, calls “the ick factor.” Says Cook, who flew to London for the event: “If consumers don’t accept it, it won’t work. It will end up having been a science experiment.” All the same, he adds, the technology is “worth a look.”

And that is what cultured beef’s bizarre theatrical debut was all about: drawing attention — and funding. It looked like madness, but there was method in it.