

# The original global food system

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The idea of planetary boundaries, within which human life can “develop and thrive for generations to come”, was launched in 2009. Even then, we had crossed three boundaries, all intimately tied up with food production. But the process of “using up” resources, rather than simply making use of them, to supply our food is a much older pattern. In his book *Diet for a Large Planet*, Chris Otter, professor of history at Ohio State University, makes a powerful case that it was the British Empire that set the pattern, outsourcing the production of its food around the world. If food could be produced more cheaply elsewhere, then it made sense to do so, as long as the reckoning did not have to account for the wider costs.

Over the past few years, we have become used to the idea of global food systems in which basic foods, like soybeans or frozen chickens or apples, criss-cross the ocean, moving from where they're cheapest to grow to where there are markets that'll pay. And that seems like a quite modern idea. It isn't.

**Chris Otter:** There are these initially luxury products which are produced overseas—17th and 18th century—but really, the super outsourcing of food is a 19th-century phenomenon that develops not by the British importing beef that just happens to be grown elsewhere in the world, but specifically by exporting their animals overseas to produce herds, which replicated the type of meat that the British were used to. Meat with a certain type of fat content.

We're talking here about shorthorns and Herefords and Aberdeen Angus. The story is the same for lamb and the same for bacon, with the exporting of British animals overseas, sometimes cross-bred to produce animals which are capable of living in, for example, New Zealand and so forth. But the genetic lines are originally British and if you notice, in America you still eat a lot of Angus and Hereford beef today.

**Jeremy:** These animals were developed by scientific breeding. It wasn't Mendelian genetics yet, but they were developed to satisfy a homegrown market.

**Chris:** They were. I wouldn't necessarily use the word scientific, I'd say it's more empirical, but the aim is to produce an animal which produces as much meat as possible in a short space of time.

**Jeremy:** What was the impetus? Was it that the British population was already growing and outstripping home demand or was it that somebody saw an opportunity of say, exporting Herefords to the American West or Argentina or wherever it might be?

**Chris:** Well, it's a combination of factors. Obviously, population growth was happening, but this population growth could perfectly easily have been fed domestically. Indeed, its meat consumption could probably have been satisfied domestically. It's more a question of economics and technology. In the early 19th century, there were competing economic theories about how Britain should be fed, how wealth should be produced, how progress should happen.

A dominant strain of political economy stated that if you could outsource something cheaply, this made sense. What I call the large-planet thinking was that there were no economic, no political reasons standing in the way of using the entire world to feed yourself, with the idea being that it made sense for Britain to use her land and resources for what she was best suited for, which was industry and urban progress.

Therefore, outsourcing food production was perfectly feasible. Therefore, you'll find people saying things like, "If we don't grow any wheat any more at all, well, that's okay. Someone else will grow for us. There'll be a world market for this." Because of the rise of cheap transports, because of the cheap labour on the frontiers, the price differentials narrowed sufficiently to make this extremely profitable.

**Jeremy:** To be clear, the reason it was so cheap, was because the British didn't care much about anyone who was already on the land and they didn't care much about the land itself. There was so much of it out there.

**Chris:** I do think the history of New Zealand is interesting here. It's literally Antipodean. It's about as far away from Britain as you can get.

The idea of using New Zealand as pasture land for Britain, particularly for the production of lamb, but also the production of butter and cheese, that's fairly startling and that's really where this large-planet thinking becomes most apparent. The idea that distance is really no object.

What we call food miles today are of no consequence. What we think of as the amount of energy being expended to import that food, again is inconsequential. The fact that you could do that and make it economically viable is also pretty surprising too.

**Jeremy:** To be sure, it took a lot of technology to get the food back to the home market in good condition. Refrigeration for one thing. Wheat, of course, is much easier than meat to ship. You don't need to keep it cold, just dry, but there's another twist to the wheat story. You couldn't just send English wheat to be grown elsewhere like you could English sheep or cattle.

**Chris:** In the case of wheat, it's slightly different in that the kinds of wheat demanded by a public becoming increasingly used to white bread and later mass-produced white bread, did not grow particularly easily in the British Isles. The kind of wheat that was grown in the British Isles was quite good for making things like scones and cakes and flatbreads with, but its gluten content was quite low. Whereas the sorts of wheat that initially grew in the black soils of the Ukraine, and were taken over to the United States and planted across the United States wheat belt and up into Canada, and then through various selection techniques were perfected? These were far better for producing. Here it's not a case of exporting the types of animal you want and then reaping the benefits, it's a case of actually using conditions around the globe to produce something that would be harder to produce at home.

**Jeremy:** Again, the milling, the turning the wheat into flour was done at home, as it were. That value-adding process was done at home?

**Chris:** It was, but not always. There were obviously enormous flour mills developed in the United States exporting flour. It's easier to export grain in its raw state than it is to export flour. What you see in Britain is a collapse of a lot of local milling. Those rather melancholy ruined windmills you see all over Britain, that dates to the late 19th century. They're concentrated in very large ports, mills, in places like Hull or London or Liverpool.

**Jeremy:** It's worth noting that by 1909, more than four-fifths of the bread eaten in Britain was made from imported wheat. Then what about sugar? It's hard to think of sugar as a food, although of course, poor British factory workers were eating a lot of that bread as their main source of energy with plenty of jam. That and sweet tea. Both of those reflect a deliberate policy to make sugar a cheap necessity, rather than an expensive luxury.

It was slavery that made sugar cheap. Even after the end of legal slavery, sugar remained cheap. Thanks to plantations in Cuba, Java and other colonies that were pretty much like slavery for the workers. Then what happened?

**Chris:** I push the story forward into the 19th and 20th centuries and look at the strange history of sugar beet which is, from the point of view of a large-planet philosophy, a rather strange idea. The idea that you would start growing something on your own soil that you can get very cheaply from overseas was for some political economists, a very anomalous move.

It was a move that was developed, in particular, in Central Europe. In the 18th century, the chemical identity of sugar from beet and sugar from cane was established, and Napoleon actually plays a fairly important role in this. During the Napoleonic Wars, the French obviously lost a lot of their economic connections. Napoleon was very keen to use French scientific enterprise to develop the beet industry.

While this waned a little bit after Napoleon, it was taken up later in France and in Germany and in German states as a way of ... We'd had a rather different approach to food and the economies of foods. Their idea here was that they will create an indigenous industry which will generate cheap food of their own. They put a lot of scientific effort into this and into refining these beets, which as I point out in the book, are arguably the most radically changed of all the plants and animals we're talking about here. The rise of Silesian sugar beet is probably the most dramatic. In Britain, where a very different economic ideology is dominant, attempts to home grow sugar beet are largely unsuccessful in the 19th century, but post World War I, in that sphere of slightly changing economic thinking, the sugar beet industry begins.

In the '20s and '30s, Britain develops its own sugar beet industry. These plants are dotted across the East of England. I grew up not far from one. By World War II, it was producing I think between a quarter and a third of Britain's sugar beet.

**Jeremy:** After the first World War, how much of the change in where the sugar is coming from is down to anti-German sentiment? Or is it purely economic?

**Chris:** It's not necessarily anti-German sentiment, no. I don't think it was the equivalent of selling Volkswagen Beetles after World War II when people went around smashing them. The German beet fields ruined the state after World War I anyways, so the industry ... That said, under the Nazis, sugar beet becomes again a big deal in Germany. It's seen as an ideal autarkic industry. You can use its waste products to feed pigs. This is all a part of autarkic sugar beet, potato, pig economy.

**Jeremy:** I'm intrigued also by the way that sugar becomes fuel and the development of sweet tea, of tea breaks, of jams and cookies and all the rest of it. Most of the sugar we eat these days is not pure, white sugar that we put into your coffee, it's hidden in food. Was that to use up sugar or was it deliberately to fuel the workers?

**Chris:** I won't necessarily go too far into the conspiratorial theories here. Sugar, as I point out in the book, really permeates the British diet in the 19th century in a number of guises through food processing. Sugar starts to find its way into bread, it finds its way into beer and it's not simply because there's a desire to sweeten foods to appeal to the palate. Sugar also plays various other structural roles in food processing.

The rise in sugar consumption is not simply having a sugar bowl and you piling sugar into your tea – it's all these other hidden ways in which sugar enters diet are developing in the 19th century and they only develop further with the increasing amount of processed food in the 20th century.

**Jeremy:** It's interesting that sugar, probably like beef and wheat as well, but that goes through phases of being the greatest thing and really good for you and a super source of energy and eat lots of it, to being anathema and really bad for you and don't eat it anymore. That does seem to mirror slightly what society wants from its food supply.

**Chris:** I think that, again, of all foods that I discuss in the book, sugar is the most controversial and these controversies are old, stretching back into the early modern period when sugar was associated with all kinds of dissipated habits and health problems. As I note in the book, in the late 19th century, with a society that's – I wouldn't say energy obsessed, but certainly a society which is heavily industrializing, very keen on productivity – sugar is seen as the cheapest way of producing energy, that borders on being a drug but isn't.

These debates have not abated, but we are currently in a phase where we're almost achieving a consensus that sugar is, in many ways, a very bad thing. The Victorians, people like Florence Nightingale and so on, they didn't agree with this. The argument here was largely that sugar was a very beneficial thing, even beneficial to health and certainly beneficial to the economy. Sydney Mintz argues without sugar, the British economy probably couldn't have functioned.

**Jeremy:** Really?

**Chris:** This is the calorie gap that labourers need to get through the day. As I note in the book, the rise of candy, of sweetened chocolate bars, of sweetened tea, of tea breaks, vending machines giving you these bursts. Again, these are a part of the technologies through which this kind of food system operates.

**Jeremy:** Again, I'm very struck that what I think of as the bad effects of the food system are not nearly as recent as I thought they were. Time now to look at the other side of the large-planet idea. It's clearly in opposition to Frances Moore Lappé's famous book, *Diet for a Small Planet*. She urges us to think about the impact of what we choose to eat on the wider environment.

The large planet philosophy seems to have given no thought to what this outsourcing of food would do in the world beyond Great Britain. Maybe it's a bit much of me to expect people in the heyday of Victorian expansionism to be thinking about the downsides of their glorious enterprise.

**Chris:** I actually slightly disagree with that in the sense that I think they were some people who argued that there were dangerous consequences. For example, many of the early vegetarians weren't just opposed to eating meat on an ethical basis, but appreciated the fact

that it simply takes considering more land and resources to feed a cow that to feed a human the grain.

People like Malthus appreciated this, Adam Smith appreciated this. Shelley certainly appreciated this in his early writings on vegetarianism. I think that the idea that there were finite resources and that shifting to a meatier diet, using larger amounts of land ... Sure, the idea of a full-on Anthropocene and the kinds of issues it faces today could not have been predicted, but the dangers were understood.

I think that the historians are coming to realize that when we talk about something like the Anthropocene, that humans didn't walk into these blindfolded. Knowledge was there, which enables some people to critique what was going on. Critique, whether it be the vegetarians of the 19th century or the organic farmers of the early 20th century who I talk about, critique has always been there.

**Jeremy:** Then, part of the problem today seems to be that this British diet, meat, wheat and sugar, is almost aspirational in many parts of the world. We have a lot more people trying to eat this way than ... Even proportionally, we have a lot more people trying to eat this way now than were doing so in the middle of the 19th century. That seems to be the problem. How did the British diet become aspirational?

I don't mean the British diet, everybody poo poos that. Nobody thinks the British can cook, forget about that. But I mean, this idea of meat and sugar and refined wheat and things like that.

**Chris:** Each of these particular raw materials has its own history. The history of the valorization and veneration of red meat in the Western worlds is far longer than the 19th century. The history of wheat being seen as a superior grain, again in the Western world, dates back centuries. The Romans venerated wheat too. Sugar is of slightly different genealogy, so there's a longer history to these things being aspirational. Milk we would also add to this.

Like driving a car and having air conditioning, these are all seen as parts of a Western lifestyle to which developing nations, as they develop, often aspired. The data are there to back this up. Any country undergoing economic development usually sees a shift

towards a meatier diet, so a diet richer in animal proteins. It's part of a package of a Western aspirational lifestyle.

As with our addiction to fossil fuels and our addiction to climate control and various other things, this is about other people wanting what the West has had, and feeling understandably as though they have a right to this too, but the problem is that the carrying capacity of the earth is too small. Hence the need for extra planets, and all of this extra-planetary thinking that I mentioned in the introduction of the book is largely, or certainly significantly, a consequence of the way that people in the west and particularly the British ate in the 19th century.

**Jeremy:** Yes, because they had a relatively tiny island and they colonized or bought or took large areas of the rest of the world.

**Chris:** That the British Isles itself is also a colonized space, where outside of the wealthier core of Southern England, the more remote and Celtic parts of the British Isles are also seen as places which is really where animals live rather than people. Ireland being the most obvious example of this. The Highland clearances are also part of this history. There's a history of domestic clearing followed by a history of colonial clearing. In many of its areas that there is very often violence, ejection of first peoples, the whole colonial project and the settlement project is also about settling animals as well as people. Settling animals on places where people have lived. This is something you see in Argentina as well as in North America and in Australia.

**Jeremy:** Chris Otter, author of *Diet for a Large Planet: Industrial Britain, Food Systems, and World Ecology*.

Although he mentioned Australia, when we originally spoke the current fuss over the UK's free trade deal with Australia was not yet in the news. Details aren't finally settled, though the press seems to think that the UK wants to announce a deal before June the 11th. That's the start of the big G7 meeting it's hosting and to which Australia has been invited.

Australia is insisting that any deal must allow it to export as much food, especially beef and lamb as it wants with no tariffs. That has farmers in the UK very upset. There's talk of UK agriculture being chucked under the bus. The basis of the complaint, as far as I can tell, is that Australian farmers aren't doing as much to protect the



environment and that's why their beef is cheaper even after traveling all the way to the UK. Which sounds exactly like the 19th century, when Australian beef was very much on the British menu.

I got in touch with Chris Otter again and I asked him as a historian, what he thought of the UK's farmers protests.

**Chris:** Pretty ironic given that this was precisely the system that developed in the 19th century, whereby access to the British food market was actively encouraged by free trading ideology. If we look back at the 19th century and try and look at parallels in terms of protests, what happened in 1846 with the repeal of the corn laws was that this actually didn't make initially very much difference to the fate of British farmers. In fact, prices remained steady for quite a few years, and this was sometimes known as the golden age of British farming.

By the 1870s, when the American wheat frontier was really opening up and cheap American wheat was beginning to reach the British market, we then see the general agricultural depression, which lasts for about 20 years, and during this period, many British farmers suffer heavily. Moving to the present what we see is a transformation in the British agricultural system again, post-1950, when the rise of new genetic varieties of wheat and new ideologies, which are less centred around free trade, and the European Union means that Britain becomes much more self-sufficient agriculturally after World War II.

I think by 1986, Britain is largely self-sufficient in foodstuffs. One fact here is Britain produces only 23% of its own wheat. In the late 1930s, it produces nearly 80%. What we may be seeing at the moment with Britain coming out of Brexit is the potential emergence of a new policy towards food, which might ironically be more similar to that developed in the 1840s and 1850s policy, where agriculture is not protected.

There is an encouragement of more sort of global trade, but that's speculation and historians are always quite wise to avoid speculation, but maybe one of the long term effects of Brexit might be, as I say, ironic re-emergence of a food regime that is closer to that of 1850 than that of 2000.

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