



Shock of the Old, or, the Uruguayan view of world history

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resumen

Es precisa una comprensión más profunda del mundo tecnológico (así como del mismo concepto de 'tecnología'). Si no disponemos de una historia de las tecnologías en uso que sea aplicable difícilmente dispondremos de una historia aplicable de la invención o de la innovación. Necesitamos unos cambios radicales de orientación. En primer lugar, debemos evitar confundir lo que está en uso con lo que resulta de la innovación. En segundo término, debemos estudiar por separado el uso y la innovación, y examinar sus conexiones de maneras nuevas. En tercer lugar, debemos reconocer que nuestros conceptos implícitos de invención y de uso son altamente parciales, puesto que se refieren a un conjunto atípico de tecnologías en lugares atípicos.

En 1859 una sociedad dirigida por James Lowry, natural de Belfast, fundó una ciudad en un lugar llamado Fray Bentos. Estaba situada en la parte uruguaya del amplio y navegable río Uruguay, uno de los dos que alimentan el Río de la Plata. En las afueras de la ciudad (que más tarde se conocería como Fray Bentos), LEMCO (la Compañía del Extracto de Carne Liebig) elaboraba su extracto concentrado de carne de acuerdo con la tecnología de Liebig.

Este y otros casos sugieren que necesitamos, como mínimo, una nueva orientación del tiempo tecnológico. En lugar de las líneas del tiempo convencionales de la modernidad, que son pautadas por invenciones específicas, precisamos de un sentido de las invenciones y las tecnologías en uso que combine las antiguas y las nuevas en formas complejas. Al emplear dicho concepto buena parte de nuestra reflexión sobre las bases de la tecnología devendría inútil. La mayor parte de nuestras actuales racionalizaciones de la innovación son tediosamente repetitivas, especialmente cuando nos dicen que estamos viviendo en un mundo radicalmente nuevo en el cual nada puede aprenderse del pasado. Lo que deberíamos aprender del pasado es cuán viejo resulta esta argumentación, y cómo de equivocada ha resultado casi siempre.

palabras clave

Historia de las tecnologías
Tiempo tecnológico
Mundo tecnológico

abstract

A deeper understanding of the technological world (as well as of the concept of 'technology') is needed. If we have not a usable history of technologies in use, we hardly have a usable history of invention and innovation either. We need a decisive set of shifts in focus. First, we need to avoid conflating what is in use with what is being innovated. Second we need to study both use and innovation separately, and examine the connections in new ways. Third we need to recognise that our existing implicit accounts of both invention and use are highly partial, covering an atypical set of technologies in atypical places.

In 1859 a private company led by the Belfast-born James Lowry founded a town in a place called Fray Bentos. It was on the Uruguayan bank of the very wide and navigable River Uruguay, one of two rivers which feed into the River Plate. Just outside the town, later to be itself named Fray Bentos, LEMCO (Liebig Extract of Meat Company) made its Liebig concentrated meat extract.

This case, and many others, suggest that we need, at the very least, a new sense of technological time. Instead of the standard timelines of modernity measured out in particular inventions we need a sense of inventions and technologies in use in which old and new merge in complex ways which render our ideas of novelty, on which so much of our thinking about technology is based, rather useless. Most arguments for innovation today are tediously unoriginal, not least in that they tell us that we are living in radically new world which can learn nothing from the past. What we should learn from the past is how old this argument is, and how wrong it has nearly always been.

keywords

History of technologies
Technological time
Technological world

Our thinking about technology is deficient. We don't learn from experience. Instead, we are over impressed by apparent novelty, by speed, noise, and general whizziness. We seem locked into the banalities of a now passé futurism we otherwise despise. We need a grown-up way of thinking about the past, present and future of technology, one that draws on what we know collectively about its uses, and our shaping of it. We need to be able to make what should be obvious actually obvious. This would allow us to debunk the puerile discourse on technology which surrounds us. That is more important than one might think since the argument that the world is changing radically due to one or two technologies is one of the most common and insidious propaganda tools, usually now used by those who wish to keep everything much the same. If we want more real novelty, technological or otherwise, we need to know technological world much better than we do.

The term 'technology' has an interesting and complex history of changing meanings. In recent decades the term has become very closely associated with invention, innovation, creativity, and the future. Today in some media 'technology' seems to mean little more than novelties in IT. Students of technology study 'research and development', patents, the early stages of technical developments. Yet this very narrow focus is not acknowledged, so that again and again studies of invention are made to stand for studies of technology and society. But to study technology in society one needs to study something rarely looked at: technologies that are in wide use, and how these are used.

Invention-centred technological timelines are deeply entrenched in our understanding of technology and history. The technology of 1900 is taken to be the motor car, electricity and synthetic chemicals; that of 1950 rockets, nuclear weapons and power, and computers; that of 2000, biotechnology, information technology and nanotechnology. But put so crudely it might seem hard to believe that we think of technology in this way, but these technologies (with same variants of course) in these periods are the bread and butter of historical texts, museum displays, TV documentaries, and many of the so-called long-wave theories of economic development. To judge from the close consensus about technologies and periods when they are significant, we all seem to know, without realising it, the same account of the trajectory of modernity. Yet a moment of reflection will reveal the sheer improbability of this picture – most of the technologies had a small impact at the time they are featured, and some had a decidedly negative impact even decades later. What we have is an account highly biased toward the early stages of a very few technologies chosen for no well-argued or even explicit reason. The great mass of important technologies is missing, especially from the period when they were most important.

But that is only the beginning of the problem, for most studies of technology of the past and present are studies not of all inventions or innovations, but rather of a selection of those that went on to become widely used, or are conventionally believed to be important for the future. In short, just as we don't have a usable history of technologies in use, we hardly have a usable history of invention and innovation either. Yet we think we have both.

We need a decisive set of shifts in focus. First, we need to avoid conflating what is in use with what is being innovated. Second we need to study both use and innovation separately, and examine the connections in new ways. Third we need to recognise that our existing implicit accounts of both invention and use are highly partial, covering an atypical set of technologies in atypical places. One important result will be that we will have a transformed sense of technological time.

A few years ago, Naomi Klein's *No Logo* was all the rage in anti-globalisation circles, and indeed beyond. Klein's argument was that we were moving in to a radically novel world in which money was made in marketing and design (the logo) while production was put out to the global poor working in wretched conditions. Her argument, like so much North America radical criticism is little more than an evaluative inversion of orthodox accounts. There is consensus about the novelty of globalisation and its nature, and disagreement only about its costs and benefits. Yet a broader account of what technology was significant and when, and what was invented at a particular time, shows up the limits of this kind of approach.

In 1865, a brilliantly marketed new product appeared in Europe. Liebig's extract of meat, was named after the greatest of chemists of the early nineteenth century, the Hessian Justus von Liebig, from 1852 to his death in 1873, the Professor of Chemistry in Munich. Liebig had improved a process for turning meat into a concentrated extract (which was of negligible nutritive value), and lent his huge prestige to the Anglo-Belgian enterprise, the Liebig Extract of Meat Company (LEMCO), directed by an Hamburg-born engineer. Liebig's name, and reproduced signature, became a hugely powerful brand. The company produced illustrated advertising cards which figure in the history of advertising, and the rarer ones change hands for hundreds even thousands of pounds in antique shops today. The extract of meat was renamed OXO in the 1890s for the British market, a brand which is important to this day. Even more evocative is another trade-name, Fray Bentos, which is associated by Britons over about 40 with corned beef and tinned meat pies. Not everyone was aware that this was not just a trade name, but a place name too.

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guayan bank of the very wide and navigable River Uruguay, one of two rivers which feed into the River Plate. Just outside the town, later to be itself named Fray Bentos, LEMCO made its Liebig extract, and later OXO and corned beef. It also produced hides, fertiliser, fat, dried blood and other by-products. The factory was enormous not just by South American, but by European standards too. While Britain killed its own cattle in comparatively tiny slaughterhouses, as it would do for very many decades to come, the Fray Bentos plant was perhaps, by the early 1890s, but only briefly, the largest single slaughterhouse in the world. It despatched over 200,000 head of cattle a year and employed over one thousand workers at busy times. Few European plants of the time employed more. This scale of operation is all the more remarkable because Liebig was not then freezing or chilling meat, the business of some of the greatest enterprises of the New or indeed old worlds, the Chicago meatpackers like Swift and Armour. These meatpackers would themselves come to Uruguay and Argentina, to supply meat mainly to Britain, easily the largest importer of meat in the world. Nearly half its meat (and more in London) came from the other side of the equator.

In the early 1920s the Fray Bentos factory was extended and rebuilt. Two key new facilities were built – a new slaughterhouse, and a gigantic cold store. Then the whole complex was taken over in 1924 by the Vestey family, the only real rivals to the American meatpackers. They renamed it the Frigorífico Anglo del Uruguay. From then on 'Fray Bentos' branded products, as well as OXO, came from elsewhere, including a Liebig plant further up the river Uruguay, but on the Argentine side, in a place now called Pueblo Liebig.

If the new is often much older than we think, so the old lasts longer than we imagine. And here too Fray Bentos provides a brilliant example, and not only as a brand. For the nineteenth century buildings and plant, and that of the 1920s, was to be in use until the late 1970s. For example, millions of cans of corned beef were produced every year using 24 machines dating to the 1920s. Lack of investment doomed the plant in the long run, but the continued use of old equipment ensured that it was preserved. Today the old Liebig/Anglo plant is one of the most extraordinary industrial monuments in the world. It has surely the only remaining slaughterhouse from the period. One can still walk up the ramp the cattle went, and follow the procedure from stunning with the pole-axe (kept till the end), and killing, bleeding, eviscerating, cutting and chilling. One can see the pipe which took the blood to a 1860s building where it was boiled down for fertiliser, and the chutes which took the hide and offal down to lower floors of the killing building. The cold – store is a remarkable concrete structure, which elsewhere would be converted into a stunning museum of modern art. We also have what must be the most

perfectly preserved British office of the interwar period, a fine collection of prime movers, refrigeration equipment, electrical generators, boilers and much else.

It is little wonder that part of the plant is now a museum which goes under the strange name of 'Museum of the Industrial Revolution'. But it is excellent title, for the Liebig/Anglo plant is perhaps the only memorial of vitally important and lost-lasting set of technologies of the late nineteenth and early twentieth centuries. For anyone interested in industrial and technological history, or in the history of killing, of globalisation, of food preservation, of refrigeration, of the modern office, it is a must-see, not merely because of its antiquity, but because it is a unique record of working and producing life over the period 1862 to 1979.

It is not just the Fray Bentos factory which makes Uruguay of interest to the historian of global technology. With moderate good fortune, a southern Spaniard or Italian would have multiplied their income many times over moving to the River Plate in the first half of the twentieth century; today the reverse would be true. As a result Uruguay, has a particularly high concentration of old machines still in use, the product of a rich past and strong relative decline since and low population growth. Most obvious are the old cars still on the road, including the odd Hudson from the 1940s, a Ford Model A from the 1930s or Ford Popular from the 1940s; and many 1950s Ford and Chevrolet light trucks. The population of such vehicles has declined as they have been exported to the antique car markets of the northern hemisphere. Horses are still a commonplace, and draw carts which collect plastic for recycling in the city; they are everywhere on the fringes of towns and in the country. Traffic on the few rural roads is very light and hitchhiking common. Fruit is of a taste and colour and shape which no longer exists where Sainsbury and Carrefour rule.

If it is a museum it is not of the distant past but of a quite recent modernity. Yet this is a museum in a place where none of these technologies of the twentieth century were invented. Neither Liebig's extract, nor the refrigeration equipment, nor the motor car, or the Hereford cattle, or the modern citrus plant or the Tannat grape were originally made by locals. By the standard definitions of what is significant in the history of technology, Uruguay does not exist, yet as an intensive user of imported important technologies of the twentieth century, it was much more important than many parts of the North. Andalucía or Calabria never had such riches in the early twentieth century.

The special conditions of Uruguay make visible what is common to the whole world, including the richest parts. Everywhere, most technology is imported from somewhere else. Even in Britain or Japan, invention is highly concentrated and specialised, and no



more the common property of Britons or Japanese than it is of Uruguayans. Most technology in both countries has origins abroad too. In Britain as in Uruguay a great deal of old stuff is still in use, from Victorian sewers and railway lines, to a high proportion of the houses we live in. The old and the new, if such terms make sense, intermingle in both places.

Consider the Falklands war. It is perhaps not so surprising that Argentina had a cruiser built in the USA in the 1930s (the ill-fated *Belgrano*) and an aircraft carrier built in Britain 1945; what is less well appreciated is that Britain bombed Port Stanley airport with aircraft designed in the 1940s and sunk the *Belgrano* with torpedoes designed in the 1920s. That is not a measure of British backwardness for the USA bombed Vietnam, Iraq and Afghanistan, and Iraq again with B-52 bombers designed and built in the 1950s.

These examples come from slow-growing rich countries. Far from being stuck in the past, poor countries have seen extraordinarily rapid transformation in the twentieth century, whether in terms of population growth or politics. Revolutionary governments have been found very largely in the poor world, and so has the most spectacular urban growth. New kinds of technologies of poverty emerged in the twentieth century which did not replicate the older technologies of rich countries. Thus Bogotá is not a version of early twentieth century London, nor is Lagos of Bucharest. Bogotá and Lagos are themselves nothing like what they were in 1900. They are new places. Yet when we speak of poor cities we invoke the idea of shanty towns defined by their lack of amenities common in the rich cities of 1900 let alone 2000 – piped water and sewerage systems, metalled roads, electricity, gas and so on. That is an important and necessary criticism. Yet we would do well to understand some of the new technologies of the new poor city, for they were not built with old methods. Born out of and sunk in misery, these new cities are made of industrial materials, from recycled machine-cut wood, cement, asbestos-cement, breeze blocks, and corrugated iron. The last is perhaps the great material of the poor world, and one whose reach is extending, including into very poor rural areas. Whole cities of tens of millions are now roofed with corrugated iron.

These new cities lie well outside our conventional understandings of modernity. When we insist on the centrality of standard processes of rationalisation to modernity, we leave a great mass of modern humanity out the story. These cities were not the products of town planning, building regulations, architects or engineers. Houses were built in small stages by owners as money allowed, not the divided labour of a great contractor.

Corrugated iron is an example, of many, of a rapidly expanding old industry. In a world in which, according to the New Economy

gurus, the digerati will rule a dematerialised and weightless economy, the seemingly old stuff grows everywhere. In today's technological world, to adapt the cliché, steel production is growing at 5%, the same sort of rate as in the great post- second world war boom. World trade in manufactures is booming, carried in great new container ships rather than the information superhighway. The world's shipping fleet continues to expand, and ports have become big news, along with the prices of copper, oil, and soybeans.

Remarkably, though only in terms of the usual models of modernity, the great pre-industrial fuel and construction material, wood, is becoming ever more important. Paper consumption increases, for all the talk of paperless offices. Packaging booms. Think, for example, of all those Amazon *books* in their cardboard covers arriving by *post*. Wood is also central to the economy of Fray Bentos. Today the main export from its small port is wood. For the last 20 years the Uruguayan government has encouraged eucalyptus planting, for growing this tree (of Australian origin, though long present in Uruguay) is more profitable than cattle. A few miles north of the town, which left without a great employer since the frigorífico shut, the Finnish firm Botnia is building a wood-pulp mill, the one great factory on the river. The alleged visual and chemical pollution claimed to be likely has caused Argentine environmentalists to mount perhaps the first private eco-economic war. They have, for months, blocked the first bridge across the Uruguay, also at Fray Bentos, severely interrupted the second at Colón /Paysandú 100 km to the north (Colón being the site of another former Liebig factory, less well preserved than Fray Bentos), and threaten the third crossing, at Salto, as well as ferry services from Buenos Aires.

For further evidence of the importance of wood, consider the case of IKEA. Ingmar Kamprad, the founder, is on some estimates richer than Bill Gates. He makes money from designing and selling *wood-based* furniture. In a supposedly post-Fordist age, in which mass production is thought of as a method of the past, it is mass-produced. Its biggest selling product is not a computer table, but the 'Billy' *bookcase*. IKEA subverts the modern and post-modern notions of what we are in another way – it has shifted part of the production and transportation of furniture away from specialist employed producers back to the household. He has created a new middle class urban peasantry, who like the self-builders of shanty towns (if the tasteless comparison be permitted) have to load, transport and built furniture.

The cases above, and many others, suggest that we need, at the very least, a new sense of technological time. Instead of the standard timelines of modernity measured out in particular inventions we need a sense of inventions and technologies in use in which old and new merge in complex ways which render our ideas of novelty, on which so much of our thinking about technology is based, rather

useless. We need new ways of understanding our productive and transformative capacities and their effects; we need perhaps a materialist account of our world which avoids the wholly critical stance of the environmentalists, who are to their great credit nearly the only group of thinkers today who try to get a sense of the material world. Having such an account will help us to think afresh about invention and innovation, and about developing policies to that help generate genuine novelty, as opposed to the current system of me-too replication both at the level of products, ideas

and policies. For this argument is not one against novelty – on the contrary, it calls for a new way of looking at the technological world partly in order that we may make a genuinely new world. Most arguments for innovation today are tediously unoriginal, not least in that they tell us that we are living in radically new world which can learn nothing from the past. What we should learn from the past is how old this argument is, and how wrong it has nearly always been

