

The bread we waste

The past, present and future for the world's wasted food



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Louis Paulian, talking to Parisian chiffonniers (rag-pickers) in the early 1880s, recorded the ways they dealt with bread scraps: "If they're clean," the chiffonniers told him, "we eat them, and if they're too dirty, we make the bourgeois eat them... We never waste anything." In Parisian households of the time, the cooks usually gave clean bread straight to the chiffonniers, but they threw the dirty bread in the bin. Clean bread went home and was dipped in soup to soften it and make it fit to eat – this is hard stale baguette we're talking about. If there was a surplus of good quality waste bread, it was sold on, via a middleman, mainly to feed the children of poor Parisian tradespeople who were being reared by women in the suburbs.

Soiled bread had plenty of uses; the best was fed to pigs, rabbits and poultry, and the chiffonniers' horses, if they had them. Bread that was so disgustingly filthy that the animals would refuse to eat it would be roasted in an oven and then sieved. The coarse crumbs that wouldn't go through the sieve were sold to restaurateurs in the Quartier Latin for breadcrumbs. These restaurants were used by students, who bought their dinner for 90 centimes, and neither knew nor (Paulian suggests) cared that their hams and cutlets were coated with bread that had been rejected by animals. The burnt powder that was the residue of this process was made into tooth-cleaning powder and 'chicory' which was sold in grocers' shops. Thus the lower echelons of the bourgeoisie had their leavings returned to them, and were made to pay for it.

The evolution of solid waste management

Before the industrial revolution, resources were relatively scarce. So household goods were repaired and reused, and food and garden waste were used as animal feed or to make compost for use on the land. As cities grew with industrialisation and people worked long hours to earn a living, they no longer had the time or the ability to do this themselves: large numbers of people found an economic niche as 'street buyers' or 'rag-pickers', collecting and using or selling materials which would otherwise have been, or had already been discarded, as waste. Or even before the householder thought they were superfluous: Henry Mayhew, writing in 1851, describes how 'women, often wearing suspiciously large cloaks and carrying baskets', and often in the early morning, would call at houses where there was a cook and buy dripping by the lump. The cook thought she was entitled to this perk; this view was only sometimes shared by her employer, though most 'quietly made up their minds to submit to it'. The dripping was then sold to poor people as a substitute for butter.

But not everything had a ready value – particularly what we now call 'residual wastes' accumulated in the streets. This was made up of household wastes, human and animal excrement, soil and stagnant water, combined in a foul-smelling mud. Many attempts were made over the centuries to clean up, driven both by a practical concern to

keep the streets clear of obstruction, and by the disgusting smell. 'Rakers' were periodically employed by English towns to remove waste from the streets; they took out anything saleable and often gave or sold the residue to farmers (depending on how rich it was in vegetable wastes and more particularly horse manure from the streets). However, most of these initiatives did not last; the poor were more concerned with where their next meal would come from, and the rich objected to paying to clean up for the poor.

At the end of the 18th century, quantities of residual household waste in London were increasing fast. But the rapid growth of the city also meant that coal ash (from domestic heating and cooking) was in demand, both for brick making, as local clay was in short supply, and as a soil conditioner, to help bring more land into production for corn or vegetables. So the London Parishes began to let contracts, effectively granting an exclusive franchise to a private contractor to collect the 'dust' and sweep the streets in their area. A network of 'dust-yards' sprang up across London, where a small army of workers sifted through the waste and produced various fractions for sale. One of these was 'soft-ware', i.e. the kitchen scraps and street sweepings. Mayhew also describes pigs and chickens being kept on the dust-yards, foraging among the waste.

The dust trade in London peaked around the 1830s, and the parishes began to have to pay for their annual contracts. This coincided with cholera arriving in England from India, which led eventually to the first clear linkages between such infectious diseases and poor sanitation conditions, and to a series of Public Health Acts. By 1875, householders were required to keep their waste in a 'movable receptacle'; local authorities were responsible for emptying this receptacle at least once a week.

The bread we waste

Between 1850-1900, municipal authorities became stronger, and generally set up their own 'public cleansing' departments. As time went on, these formal waste collection services gradually 'squeezed out' the informal recycling sector, though war did temporarily bring recycling back to prominence in the 20th century. In the second world war, bins were placed on street corners for food wastes, which was used as pig-swill on municipal farms, or boiled up as 'Tottenham puddings' which were sent by rail to pig farming areas.

The focus of solid waste management remained on waste collection, getting waste 'out from under foot', for a century – right up to the emergence of the environmental movement in the 1960s. Successive legislation banned open dumps and gradually ramped up environmental standards on landfill gas and leachate and on air pollution from incinerators.

Ironically, this increase in environmental control has coincided with a rapid growth in the amount of waste. Every person in the UK generated on average 300 kg of household wastes in 1980, but more than 500 kg in 2005. This explosion in quantities may be attributed to increasing living standards, and also to the rise of consumer packaging and disposable products.

Are we wasting more food?

It is difficult to compare the amount of food waste today with that in the past, because we don't have the historical data. We can get an impression of the changes with increased living standards by comparing the food content of municipal solid waste in cities in rich and poor countries today. The lower the income of a city, the lower the quantity of municipal solid waste that is generated, but the higher is the proportion of putrescible and vegetable (i.e. mainly food) waste. Data are notoriously poor and unreliable, but figures for Asia suggest that a low-income city might generate 60-90 kg food waste per person per year, compared to perhaps 90-120kg in a middle-income city and (according to WRAP's figures) around 120 kg in the UK.

This seems to suggest that we do waste more food as we get richer, although not by a huge margin. But these figures can be misleading: most of the food wasted in low- and middle-income cities is inedible (e.g. coconut husks in season in Sri Lanka or water melon rinds in China), with a proportion due to spoilage and poor storage conditions. In the West today, less inedible food actually reaches our homes. Refrigeration has largely eliminated early spoilage. Nevertheless, according to WRAP's excellent work, we are throwing away a third of all the food we buy, and at least



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The bread we waste

half of that is food that could have been eaten, if we had only managed it better.

Even this underestimates the extent of our profligacy. The municipal waste data for low- and middle- income cities tends to include markets, shops, cooked food stalls and restaurants, as well as household waste; whereas the UK data includes only the proportion of commercial waste collected by local authorities, and so excludes most distribution centres, supermarkets and restaurants. Adding in food waste elsewhere in the supply chain would greatly increase the WRAP figures for food that is produced and distributed, but never eaten.

Changing attitudes

In the past, the poor didn't waste food; they couldn't afford to. This at least is in sharp contrast to the WRAP survey figures that show that poor families waste just as much food as well-off ones do nowadays. Poor people in the past were hungrier, and if they grew food for themselves, knew the value of it. Where they did have waste food, it would often be fed to animals – even in the penurious rural households Flora Thompson describes in her memoir 'Lark Rise' there was pot-liquor to feed to the pig. The lower classes in towns also kept pigs – sometimes in houses – and also chickens, which were ready receptacles for any food waste.

Lower middle-class households hashed up left-over food; the better-off expected their servants to eat left-overs. Ladies were expected to waste food, though. In her novel based on the real life of her father's old nurse, Grand-Nannie, Noel Streatfeild describes how young girls were instructed to leave a little food on their plates for 'Mr Manners.' This was partly to show that, as ladies, they were immune to the carnal temptation of food, probably also because slim figures had already become fashionable. However, when the First World War broke out and food became scarce, Grand-Nannie had to tell her charges that from now on they must clear the plate. This message clearly needed to be given all over again when the Second World War started: 'A clear plate means a clear conscience' a wartime poster exhorted Britons - 'Don't take more than you can eat.' There is some evidence that these attitudes hang on in public consciousness; WRAP's study found that older people waste less food.

It seems that the overall affluence of today's Western society, and the way in which food is sold and eaten, makes its citizens, rich and poor, behave like the rich of the past. Only nowadays there is hardly anyone (human or animal) to consume the leftovers.

Our food waste is a global issue

Does it matter that we are wasting more food, and in particular more food that could have been eaten? Clearly it's good if people no longer need to eat other people's leavings, but food wasted represents money lost to a household: between £250-£400 per year according to WRAP.

Another part of the answer is that, if the food waste goes to landfill, it will generate methane, which is a powerful greenhouse gas. Solid waste management is estimated by the Intergovernmental Panel on Climate Change (IPCC) to

contribute around 1.5% to global emissions (measured as carbon dioxide equivalent); one study suggests that the quantities emitted could quadruple by 2050 if developing countries collect and landfill all of their wastes.

This contribution seems relatively small. Nevertheless, the waste industry has already acted to mitigate the problem, with the EU setting stringent targets to divert wastes from landfill. The UK has over the last 10 years increased recycling and composting rates for municipal solid wastes from around 6% to more than 30%, with further increases to come. More local authorities are rolling out separate collections systems for food waste, which will go to composting or

anaerobic digestion (which produces methane for use as an energy source and a compost-like product). Supermarkets similarly are developing systems that will allow them to compost or digest pre-packaged fruit and vegetables that have gone beyond their sell-by date.

Mitigation at the 'end-of-the-pipe' by diverting waste from landfill, and recycling organic nutrients back to the land, is a necessary part of any solution, but it actually misses the main point. Huge amounts of energy go into producing the food we eat. Vast quantities of grain are grown to feed our cows, pigs and chickens. Fruit and vegetables are available in our supermarkets all the year round.

The carbon footprint of an organic tomato grown outdoors in your own garden in the summer is relatively low. But that for a Dutch tomato grown in winter in a heated greenhouse with the use of fertilisers, pesticides and irrigation, is huge, even before it is refrigerated, transported, stored and sold. The food we eat is responsible for around 20% the UK's entire carbon footprint. So if around half of the food produced is never used (increasing the WRAP figure of a third of the food we buy, to allow for wastage further up the distribution chain), and half of that could have been eaten, then we are squandering 5% of our total carbon footprint on food

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produced only to be thrown away. This completely dwarfs the carbon savings we can potentially make by diverting some of this food waste from landfill to composting or anaerobic digestion.

Even this understates the ethical issues. As Gandhi said: 'There is a sufficiency in the world for man's need but not for man's greed'. We are wasting the world's resources to grow food that we don't even eat, when millions in developing countries are starving.

What solutions can we find? The larger ethical issues of the distribution of the world's resources, or the nature of the globalised free-market economy, or the power of the global agri-industry, will no doubt be picked up by others.

From a waste management perspective, we have made a start, both with the '3Rs' – reduce, reuse, recycle – and with behaviour change. WRAP's Love Food, Hate Waste campaign is making a difference. Supermarkets are beginning to offer smaller packs of food, or offering promotions on multiple purchases of complementary items rather than the ubiquitous 'buy one and get one free' (the acronym, BOGOF, seems peculiarly apt). Charities such as FareShare redistribute surplus food from the food industry to community organizations. And composting is once again on the increase.

But, whatever your perspective, there is still much work to be done. ■

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