
Introduction: Reconsidering Recycling

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When citizens recycle waste, we consider this an act of responsible ‘green’ citizenship. Today’s consumers query the environmental impact of their consumption. Shoppers wonder whether the goods they buy are properly recyclable; others translate their concerns for the environment into a daily practice of separating, storing, collecting and transporting reusable waste. Most European consumer-citizens have incorporated recycling into their daily routine. Today, modern recycling is usually seen as a product of the 1970s, when grass-root movements and environmental policies generated new consumer practices.¹ The assumption is that recycling only gained widespread public support from industry, politics and consumers a few decades ago.

The principle of returning waste to the production cycle – a process that came to be called *recycling* around 1970 – has a much longer history, however. Discarding and reusing are an integral part of our lives. Like the systems of producing or consuming, the practices of discarding and recycling goods depend on their historical context. The Western world’s post-war shift to a society based on discarding things after their first use is – in the history of humankind – the exception rather than the rule. In this special issue, we reach further back in time than the well-established 1970s as the anchor point for recycling history, to argue that recycling is neither an invention of the affluent post-modern environmental era nor driven exclusively by ecological concerns.

This issue employs a broad understanding of ‘recycling’. The authors use the term as an analytical tool rather than a historical actors’ category of analysis to understand the similarities and differences, the continuities and ruptures between past and current forms of waste recovery. In the early twentieth century, waste utilisation was called ‘re-use’, ‘salvage’ and ‘recuperation’. It involved two processes: people’s appropriation of old things for reuse and industry’s technological transformation of old into new

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The special issue resulted from discussions from the workshop *Re/Cycling Histories: Users and the Paths to Sustainability in Everyday Life*, May 2011, organized with the logistical and financial support of the Rachel Carson Center in Munich and the Deutsche Forschungsgemeinschaft (DFG). We are grateful to both.

¹ Matthew Gandy, *Recycling and the Politics of Urban Waste* (London: Earthscan Publications, 1994).

materials. In today's terms, 'recycling' similarly includes both: the ordinary reuse of items and the fundamental transformation of materials.

The articles that follow focus on municipal waste: how twentieth-century European communities dealt with and recycled private household waste. The articles of this special issue are not representative of waste studies in general. In the world of waste, municipal waste accounts for a smaller proportion than industrial waste from the mining, construction and trade sectors. Moreover, the initial production of consumer goods generates more waste than their final disposal. Most citizens are confronted only with their own so-called 'post-consumer waste' because most wastes are hidden from consumers' sight.² The history of 'post-consumer waste' is deeply entangled with the social transformation of urbanisation and the rise of mass consumption in the twentieth century. The authors thus address the experiences and daily practices of ordinary European citizens.

Remarkably, while many share the belief that waste and recycling represent fundamental challenges for the future of the human race, only a few studies deal with recycling – and when they do, the era of the environmental movement dominates.³ We believe the omission creates a lost opportunity because histories of waste and recycling invite historians to engage in more interdisciplinary conversations about material culture, daily life and the environment. Such case studies bring together the insights of social history and the young field of environmental history.⁴ Environmental historians focus on the effects on nature, 'green' politics and legislation, the intellectual roots of ecological thinking and, more recently, 'environmental injustice'. Our contributions combine such perspectives with the classical concerns of social history such as class, gender and ethnicity as well as social movements and everyday

² The categories of 'industrial' or 'hazardous waste' have only been introduced since the 1960s. Thus far, detailed historical studies on production waste are lacking. Environmental historians have studied the environmental impact of industries pertaining to emissions or wastewater but have left out the issue of material wastes. These were either reused in other industries or buried on-site.

³ They include: Gandy, *Recycling*; Samantha MacBride, *Recycling Reconsidered: The Present Failure and Future Promise of Environmental Action in the United States* (Cambridge, Mass.: MIT Press, 2012); Finn Arne Jørgenson, *Making a Green Machine: The Infrastructure of Beverage Container Recycling* (New Brunswick, NJ: Rutgers University Press, 2011); Raymond G. Stokes, Roman Köster and Stephen C. Sambrook, *The Business of Waste: Great Britain and Germany, 1945 to the Present* (Cambridge: Cambridge University Press, forthcoming, 2013); Roman Köster, 'Vom Recycling zur Mülllawine und zurück', *Politische Ökologie* 30 (June 2012), 17–22; Reinhold Reith, 'Recycling: Stoffströme in der Geschichte', in Sylvia Hahn and Reinhold Reith, eds, *Querschnitte 8: Umwelt-Geschichte: Arbeitsfelder, Forschungsansätze, Perspektiven* (Vienna, Munich: Oldenbourg, 2001), 99–120; Timothy Cooper, 'War on Waste? The Politics of Waste and Recycling in Post-War Britain, 1950–1975', *Capitalism Nature Socialism*, 20, 4 (2009), 53–72.

⁴ Environmental historians such as Tucker or Cronon integrate social and environmental history: see Richard P. Tucker, *Insatiable Appetite: The United States and the Ecological Degradation of the Tropical World* (Berkeley, Los Angeles, London: University of California Press, 2000); William Cronon, *Nature's Metropolis. Chicago and the Great West* (New York, London: W. W. Norton & Company, 1991). See also: Stephen Mosley, 'Common Ground: Integrating Social and Environmental History', *Journal of Social History*, 39 (2006), 915–33. For overviews on environmental history, see the special issue of *Vingtième Siècle: Revue d'histoire*, 113, 1 (2012); Frank Uekötter, *Umweltgeschichte im 19. und 20. Jahrhundert* (Munich: Oldenbourg, 2007); Carolyn Merchant, *The Columbia Guide to American Environmental History* (New York: Columbia University Press, 2002).

life. In particular, we focus on the instrumental, everyday role of consumers and their civic engagement with constructing, maintaining and changing the infrastructures of waste and recycling.⁵ Finally, we see social history's turn towards 'entangled' histories with transnational perspectives as a valuable prompt to environmental history, which has often concentrated on regional case studies.

The articles place the recycling of waste in the broader context of twentieth-century social history. At the start of the century, thrift and reuse were daily routines in people's lives. In the decades that followed, waste became part of national autarky policies, then post-war recovery and economic boom, before becoming entangled with the 1970s environmental turn. The articles trace continuities and discontinuities of waste salvage between the First World War and the later decades of 'green' recycling in Western Europe; they question to what extent the 1970s recycling politics reinvented earlier waste recovery strategies to reframe them as novel acts of responsible 'green' citizenship; they explore how the initial actors of 'green recycling' were driven by previous experiences of scarcity, particularly in wartime. Recycling has been in part a strategy to deal with limited personal income; in part to exploit nations' resources in times of war; and in part to save the planet throughout the era of environmental activism. The case studies examine how recycling, while inspired by material scarcity at the beginning of the twentieth century and by the growing lack of disposal sites for materials in times of abundance, resulted in practices that were motivated by neither exclusively economic nor environmental concerns, but were rather the outcome of changing political, economic, social and cultural contexts.

Beyond the limited records of 'green' recycling, we offer three vistas into this uncharted territory of history. First of all, waste and recycling provide a more comprehensive and even novel understanding of twentieth-century consumer culture. Secondly, the case studies cover the entire century in order to highlight the lasting effects of war and crisis on twentieth-century European history. By extension, and therefore finally, the articles challenge common periodisation.

Multiple meanings of 'green' recycling

The environmental movement appropriated, remarkably perhaps, a key term from its ideological opposite: 'recycling'. The engineering term 'recycling' once referred to the 1920s oil industry technology of returning the production residues back into the refinery process. The waste trade employed terms like 'salvage', 're-use' and 'recovery'. Since the 1960s, the engineering term has come to embrace many diverse players with differing, even conflicting, values, and to include economic, political, social and environmental meanings. Since then, national governments and environmental activists in western Europe and the United States of America have construed 'recycling' as the main solution to the problems of mass-consumer society

⁵ Frank Trentmann, ed., *Governance, Citizens, and Consumers: Agency and Resistance in Contemporary Politics* (Basingstoke: Palgrave Macmillan, 2007); Adri Albert de la Bruhèze and Ruth Oldenziel, eds, *Manufacturing Products, Manufacturing Consumers* (Amsterdam: Amsterdam University Press, 2009).

– in particular the exploitation of limited resources and the production of waste. The technology of recycling has been considered a key strategy for conserving finite resources, reducing energy consumption and pollution, and even creating new jobs.⁶ Environmental activists and cultural critics alike mobilised the idea of conservation-conscious recycling to contest consumer society – a ‘throwaway society’ that many Europeans associated with corporate America in particular.

The environmental movement was not strictly European, but transatlantic at first. The movement was fuelled by English-language publications and events like Earth Day, based in the United States, the 1972 Club of Rome report *Limits to Growth* and Kenneth Boulding’s 1966 *Economics of the Coming Spaceship Earth*. Boulding defined the emerging economy of the West as an exploitative, consumptive and polluting ‘cowboy economy’, obsessed with a high material throughput. Using the metaphor of earth as a spaceship, he pleaded for a ‘spaceman economy’ to replace the wasteful economy: a new economy based on a cyclical system of reusing and recycling rather than wasting resources. In 1970 the US President Richard Nixon co-opted the environmental movement by calling for a future of ‘recycling of materials’ to handle the escalating waste and conserve the earth’s resources.⁷ Expanding on the Recovery Act (1970), the solid waste management programme of the newly established Environmental Protection Agency (EPA) commissioned a study of salvage markets two years later.⁸ In the early 1970s, the first kerbside collections of household waste started as community-based and direct actions for the environment: grass-roots groups collaborated with local authorities and municipal waste managers to collect discarded materials for recycling.⁹

While many socialist countries continued waste utilisation programmes after the Second World War, the concept and discourse of recycling remained distinctly Western European, Scandinavian and American. Scandinavian and Western European countries, either simultaneously or immediately, followed the US example in terms of legal measures, institution building, and national and local recycling programmes. By the 1970s, the English term ‘recycling’ had found its way into (West) German, Dutch and French (*recyclage*). If waste had previously been discussed in terms of litter and urban hygiene challenges, now it was being reframed in terms of its threat to the environment. In this discursive shift, for many citizens and activists the disposable

⁶ Gandy, *Recycling*, 14.

⁷ Reinhold, ‘Recycling’; Stephen Macekura, ‘The Limits of the Global Community: The Nixon Administration and Global Environmental Politics’, *Cold War History*, 11, 4 (2011), 489–518; Jacob Darwin Hamblin, ‘Environmentalism for the Atlantic Alliance: NATO’s Experiment with the “Challenges of Modern Society”’, *Environmental History*, 15, 1 (2010), 54–75; Michael R. Vickery, ‘Conservative Politics and the Politics of Conservation: Richard Nixon and the Environmental Protection Agency’, in Tarla Rai Peterson, ed., *Green Talk in the White House: The Rhetorical Presidency Encounters Ecology* (College Station, Tex.: Texas A&M University Press, 2004), 113–33.

⁸ Arsen Darnay and William A. Franklin, *Salvage Markets for Materials in Solid Wastes* (Kansas City: United States Environmental Protection Agency, 1972). The cover shows the ancient symbol of the World Snake (Uroboros) to symbolise the circularity of recycling.

⁹ For New York, where kerb-side recycling started between 1970 and 1973, see: MacBride, *Recycling*, 49–85; Adam Rome, “‘Give Earth a Chance’: The Environmental Movement and the 1960s”, *The Journal of American History*, 90, 2 (2003), 525–54.

(glass and plastic) bottle – an innovation that industry marketed as a convenient alternative to the deposit system – came to symbolise Europe’s reviled entry into a ‘throwaway society’.

Four forces converged in the modern recycling movement. First, on a local level, municipal waste experts joined forces with grass-roots activists in organising on-street collection facilities and recycling centres. These experts began to see recycling as a way to solve the problem of diminishing places to dump municipal waste. Secondly, governments supported the environmental movement nationally. States began to view ‘recycling’ as a promising policy instrument to protect domestic resources against producer cartels; such national security policies could counteract the decreasing global resources and the imbalances of trade. That argument became even more compelling after the 1973 oil crisis when prices of raw materials skyrocketed. Thirdly, the European Economic Community (EEC) established the Directive on Waste (1975) and a Waste Committee (1976), frameworks for waste and recycling policies in the transnational arena that initially were not always effective. To the EEC’s policy makers, the environment issue became an ideal domain to show the community’s political viability for its citizens, although it would take at least two decades before waste recycling policies became a reality.¹⁰

Fourthly, industry became an important stakeholder in recycling. The packaging and bottling industries quickly adopted schemes like the European on-street glass-collecting container (‘bottle bank’); these schemes would forestall the more radical legal measures that many national governments threatened to issue against disposable packaging in response to activists in the street.¹¹ Industry began to participate in recycling as a lobbying tool to promote goodwill. For their part, when issuing legal measures, national governments were not exclusively motivated by the battle against environmental degradation. In Norway, for example, a high tax on disposable containers was also aimed at protecting the local beverage industry against multinational corporations, like Coca Cola, that wanted a share of the country’s market. For the traditional scrap trade, local and national recycling programmes stabilised prices in the volatile secondary materials market and offered the embattled small-scale family businesses access to the highly profitable ‘green’ recycling industry.¹²

In considering the convergence of several stakeholders in the West over recent decades, we should not lose sight of the global context. Since the 1970s consumer

¹⁰ Jan-Henrik Meyer, ‘Appropriating the Environment: How the European Institutions Received the Novel Idea of the Environment and Made it Their Own Research College “The Transformative Power of Europe”’, Kolleg-Forschergruppe (KFG) Working Paper no. 31 (Berlin: Free University Berlin, 2011). Only in 1985 was a directive on packaging liquids issued, but it was left to national governments whether to introduce bottle bills or negotiate agreements with industry.

¹¹ Gandy, *Recycling*, 24; for the US see MacBride, *Recycling Reconsidered*; Robert Friedel, ‘American Bottles: the Road to No Return’, paper presented at ‘Re/Cycling Histories: Users and the Paths to Sustainability in Everyday Life’, Rachel Carson Center for Environment and Society, Munich, 27–9 May 2011.

¹² For the US, where the traditional scrap firms now called themselves ‘Original Recyclers’, see Carl A. Zimring, *Cash for your Trash: Scrap Recycling in America* (New Brunswick, NJ: Rutgers University Press, 2005), 138–42; for Germany and Great Britain, see: Stokes et al., *Business of Waste*.

citizens in Europe and the United States have come to adopt recycling as the most manageable daily task to reduce their environmental footprint. At the same time, western environmental regulations promoting recycling measures have altered the international waste trade globally by moving the waste to other places: not only does the Global North massively import consumer goods manufactured elsewhere; it also exports potentially harmful wastes, often exported as valuable 'resources' to poorer countries with less restrictive environmental and labour regulations.¹³

Few in-depth studies exist on the 'green' recycling of individual countries; nevertheless, we have some details on the United Kingdom, France and West Germany.¹⁴ In 1970, the United Kingdom established the Department of the Environment. Like elsewhere, the nation's environmental discourse considered the issue of domestic waste a key future challenge. By 1975, the British government had established the National Anti-Waste Programme, based on the paper 'War on Waste: A Policy for Reclamation' (1974). This title was strategic, indicating that the government's policy drew parallels with times of war, as we will see later. The Waste Management Advisory Council (1975) was established to deal with waste and recycling. While the council represented the interests of local government and the industrial waste trades, by the 1980s its schemes became more market-oriented.

West Germany formulated a national waste law in 1972. Its newly established EPA or Umweltbundesamt (1974) issued a study on waste and recycling in preparation for a comprehensive programme to restructure municipal waste services and the waste industry (the Abfallwirtschaftsprogramm of 1975).¹⁵ Although the government initially took the lead, since then, action by citizens and their calls for separate collection have driven West Germany's recycling policies. The city of Konstanz pioneered a state-funded study on separate waste collection.¹⁶ Glass recycling, however, became the real success story. It was the alternative to wasting the non-returnable glass bottle that was replacing the industry's deposit system: environmentally conscious citizens were willing to carry their bottles to centrally located containers even without the incentive of the old deposit system. By the late

¹³ Emily Brownell, 'Negotiating the new economic order of waste', *Environmental History*, 16 (2011), 262–89; Catherine Alexander and Joshua Reno, *Economies of Recycling: The Global Transformation of Materials, Values and Social Relations* (London, New York: Zed Books, 2012).

¹⁴ For Great Britain, see Cooper, 'War'; Stokes et al., *Business of Waste*; the French and West German developments are being researched by Heike Weber in a larger, comparative project on twentieth-century household waste under the title 'Nach dem Konsum: Zur Geschichte des Hausmülls im deutsch-französischen Vergleich, 1890er bis 1970er Jahre'.

¹⁵ See the corresponding ten volumes, *Materialien zum Abfallwirtschaftsprogramm '75* (Berlin: Umweltbundesamt, 1976). For German waste politics: Jakob Calice and Heike Weber, 'Germany', in Carl A. Zimring and William L. Rathje, eds, *Encyclopedia of Consumption and Waste: The Social Science of Garbage* (Thousand Oaks: Sage, 2012), 319–21.

¹⁶ Rolf Schiller, 'Getrennte Hausmüllsammlung: Untersuchung über die Trennung und Verwertung von Papier, Glas aus Hausmüll, dargestellt am Beispiel der Stadt Konstanz: Abschlußbericht' (Friedrichshafen, by order of the Bundesminister des Innern and the Umweltbundesamt, Dornier System GmbH, 1977).

1970s, the glass industry operated recycling bins in almost all West Germany except the most rural areas.¹⁷

As early as 1971, France's environmental minister M. Pujade commissioned two waste studies, known as GEERS (Groupe d'Études sur l'Élimination des Résidus Urbains) and Gruson.¹⁸ The reports urged industry and consumers to avoid wastefulness (*gaspillage*); they called for industry and engineers to design longer lifespans for consumer products; and appealed to consumers to take responsibility for waste and recycling. As in West Germany, the studies discussed legally banning the disposable bottle to protect municipalities against the skyrocketing costs taxpayers had to bear in dealing with the issue of expanding waste. Despite the early interest in recycling, France eventually led Europe when it came to generating growing amounts of plastic waste. The disposable PVC (polyvinyl chloride) plastic bottle, first introduced by Vittel in 1968, was soon adopted by the mineral water sector at large.¹⁹ In 1976, the agency ANRED (Agence nationale pour la récupération et l'élimination des déchets) was established to promote recycling of waste. Simultaneously, at the local level, the municipalities of Le Havre, Lyon and La Rochelle initiated household paper, plastics (mostly PVC) and glass recycling programmes between 1973 and 1975. By 1977, over 500 French towns, totalling 2.8 million citizens, participated in glass recycling. Here too, only a few people collected other kinds of materials.²⁰ As elsewhere, national waste regulation lagged behind the initial calls of green advocates represented by studies like GEERS. In the 1980s and 1990s, France's political and technical elites construed recycling as a means of rational resource recovery rather than a way to combat environmental degradation.²¹

The heated arguments of the early 1970s resemble today's radical calls to achieve a sustainable society either through 'degrowth' – contracting economies by downscaling production and consumption – or through cradle-to-cradle – an approach to consumer goods that designs their complete recycling from the very beginning.²² In the 1970s, such ideas soon fell on hard times when the economic recession of the 1980s, combined with the pro-growth and anti-regulation conservative movements,

¹⁷ Klaus Lösch, 'Probleme des Abfallaufkommens und der Abfallbeseitigung dargestellt am Beispiel bundesdeutscher Städte', PhD thesis, University of Bremen, 1984, 166.

¹⁸ Groupe d'Études sur l'Élimination des Résidus Urbains (GEERS), ed., *Déchets solides: Propositions pour une politique: Rapport du groupe d'études sur l'élimination des résidus solides* (Paris: la Documentation française, 1974); Claude Gruson, *La Lutte contre le gaspillage: Une nouvelle politique économique, une nouvelle politique de l'environnement* (Paris: Ministère de la Qualité de la Vie; Groupe Interministériel d'Évaluation de l'Environnement, 1974).

¹⁹ See Nicolas Marty, 'L'Articulation entre normes et marchés: La Construction de la qualité de l'eau embouteillée en Europe, XIX^e–XX^e siècles', Mémoire inédit présenté pour l'habilitation à diriger des recherches, Université de Perpignan via Domitia, 2009.

²⁰ See J. Colardeau, 'La Collecte sélective', *Techniques et sciences municipales*, 10 (1977), 401–5.

²¹ Reiner Keller, *Müll: Die gesellschaftliche Konstruktion des Wertvollen: Die öffentliche Diskussion über Abfall in Deutschland und Frankreich* (Opladen: Westdeutscher Verlag, 1998).

²² Protagonists of the 'degrowth' debate include Serge Latouche and Niko Paech, among others. See Michael Braungart and William McDonough, *Cradle to Cradle: Remaking the Way We Make Things* (New York: North Point Press, 2002).

provoked a general political backlash. The backlash brought into power conservative governments in the United States (Reagan), the United Kingdom (Thatcher) and West Germany (Kohl), which promoted pro-growth and neo-liberal ideas in the national arena as well as in transnational bodies like the UN.²³ Locally, however, the practice and ideology of recycling were sustained because of the decline in available landfill capacities and the opposition of citizens to incineration along with their personal commitment to recycling. Again, local initiatives overrode national policies.

While the US and Western European developments were similar in many ways, there were also notable differences. First, the United States shifted to mass consumerism as early as the inter-war years; most Western European countries only started to do so in the late 1950s and 1960s.²⁴ Secondly, thrift and reuse practices in these decades – despite a discourse to the contrary – were never abandoned entirely in Europe. Thirdly, governments embraced consumerism as a mechanism for economic growth, while at the same time a critique of the prodigal American consumer style thrived among intellectuals. Fourthly, many European cities lacked the kind of space for disposal sites that were available to US urban centres, even though some Western European regions outsourced their waste to Eastern European countries, like Czechoslovakia and the German Democratic Republic (GDR), and to their former colonies in order to prolong landfilling. By and large, Western European waste managers were prompted to look into recycling schemes earlier than in the United States. In the end, the environmental movement's success, particularly in West Germany and Scandinavia, prompted the European Union rather than their American counterparts, to lead globally in the principle of 'reduce, reuse and recycle' (the so-called '3 Rs').²⁵ In the 1990s, EU policy put recycling on the top of its agenda: the 1999 European landfill directive forced member states to substantially reduce landfill waste.

²³ See also Matthew Hilton, 'The Cold War and the Kitchen in a Global Context: The Debate over the United Nations Guidelines on Consumer Protection', in Ruth Oldenziel and Karin Zachmann, eds, *Cold War Kitchen: Americanization, Technology, and European Users* (Cambridge, Mass.: MIT Press, 2009), 341–61.

²⁴ For the distinct paths into mass-scale societies, see for example: Heinz-Gerhard Haupt and Claudius Torp, eds, *Die Konsumgesellschaft in Deutschland, 1890–1990: Ein Handbuch* (Frankfurt am Main: Campus, 2009); Emanuela Scarpellini, *Material Nation: A Consumer's History of Modern Italy* (Oxford: Oxford University Press, 2011); Sabine Hausteil, *Vom Mangel zum Massenkonsum: Deutschland, Frankreich und Großbritannien im Vergleich 1945–1970* (Frankfurt am Main: Campus, 2007); Oldenziel and Zachmann, eds, *Cold War Kitchen*.

²⁵ On the leading role of the European Union, see: Jan-Henrik Meyer and Bruno Poncharal, 'L'Européanisation de la politique environnementale dans les années 1970', *Vingtième Siècle: Revue d'histoire*, 113, 1 (2012), 117–26; Meyer, 'Appropriating the Environment'; Jan-Henrik Meyer, 'Green Activism: The European Parliament's Environmental Committee promoting a European Environmental Policy in the 1970s', *Journal of European Integration History*, 17, 1 (2011), 73–85. While the EU framework has been important, European nations have engaged in different waste treatment methods; less than 20% of municipal waste is landfilled in the Netherlands, Denmark, Belgium and Sweden, over 70% is landfilled in Greece, the United Kingdom and Portugal. These figures should be seen as rough estimates. Philippe Chalmin and Catherine Gaillochet, *Du rare à l'infini: Panorama mondial des déchets 2009* (Paris: Economica, 2009).

Waste and recycling histories: understanding consumer culture

Waste has always been part of our social fabric.²⁶ In the nineteenth century, however, the hygiene movement began to banish material leftovers from what its advocates considered polite society. Social scientist Martin O'Brien argues that the capacity to deny waste rather than the act of discarding itself is the true hallmark of industrial societies.²⁷ Likewise, Gay Hawkins believes that the disposability of, distance from and denial of waste characterises modern consumer societies.²⁸

Banishing waste from the mind has affected scholarship as well. Consumer history and material culture studies have neglected waste as a serious topic for historical inquiry. While the interdisciplinary field of 'waste studies' is thriving, historians have yet to mine the field as a potentially rich vein for historical excavation. Remarkably, we know a great deal about how, why and when people purchased consumer goods over the past century or so. Yet, when it comes to how twentieth-century consumers cared for, repaired, reused and discarded their things, there is scant scholarship to go on. Anthropology shows how people reappropriate, hand over and get rid of things. The classic 'waste theories' of anthropology have taught us that dirt is a matter-out-of-place (Mary Douglas) and that things have no intrinsic, but only transient, value. Things can be discarded as 'valueless' one moment and be reinscribed new values the next (Michael Thompson). Such theories have been refined by case studies on how people sort out things as waste in profoundly symbolic ways.²⁹ Social, development and feminist studies insist that – in the world of waste too – race, class and gender rule. Women have shouldered the burden of separating, collecting, storing and discarding waste while impoverished and marginalised groups are left to eke out a living through scavenging and the like.³⁰

²⁶ On the many facets of waste in society, see Zimring and Rathje, *Encyclopedia*; see also: Heike Weber, 'Abfall', in Stefanie Samida, Manfred K. H. Eggert and Hans Peter Hahn, eds, *Materielle Kultur: Ein interdisziplinäres Handbuch* (Stuttgart: J. B. Metzler, forthcoming, 2013).

²⁷ Martin O'Brien, *A Crisis of Waste? Understanding the Rubbish Society* (New York and London: Routledge, 2008), 6.

²⁸ Gay Hawkins, *The Ethics of Waste: How we Relate to Rubbish* (Lanham: Rowman and Littlefield Publishers, 2005).

²⁹ Mary Douglas, *Purity and Danger: An Analysis of Concepts of Pollution and Taboo* (London: Routledge, 1966); Michael Thompson, *Rubbish Theory: The Creation and Destruction of Value* (Oxford: Oxford University Press, 1979). Nicky Gregson has analysed the 'divestment' strategies through which citizens dispose of things: Nicky Gregson and Louise Crewe, *Second-Hand Cultures* (Oxford, New York: Berg, 2003); Nicky Gregson, Alan Metcalfe and Louise Crewe, 'Practices of Object Maintenance and Repair: How Consumers Attend to Consumer Objects within the Home', *Journal of Consumer Culture*, 9, 2 (2009), 248–72; Nicky Gregson, *Living with Things: Ridding, Accommodation, Dwelling* (Wantage: Sean Kingston, 2007). A rich scholarship exists on the literary and cultural constructions of dirt and, more generally, the metaphors of rubbish or garbage, see for instance: John Scanlan, *On Garbage* (London: Reaction Books, 2005).

³⁰ See David N. Pellow, *Garbage Wars: The Struggle for Environmental Justice in Chicago* (Cambridge, Mass.: MIT Press, 2002) and his *Resisting Global Toxics: Transnational Movements for Environmental Justice* (Cambridge, Mass.: MIT Press, 2007); Martin Medina, *The World's Scavengers: Salvaging for Sustainable Consumption and Production* (Lanham: AltaMira Press, 2007); Delphine Corteel and Stéphane Le Lay, eds, *Les Travailleurs du déchet* (Toulouse: Editions Érès, 2011); Martina Schäfer, Irmgard Schultz and Gabrielle Wendorf, eds, *Gender-Perspektiven in der sozial-ökologischen Forschung* (Munich: Oekom, 2006).

The histories of production to consumption will only be complete if the ‘final’ stages of the human–thing relationship are included in our accounts. O’Brien argues that ‘industrial societies are and always have been throwaway societies’ while other authors claim that waste is intrinsic to capitalist production. Historical analyses refute such sweeping assessments, however.³¹ Case studies indicate that waste is a historically contingent concept. Definitions of waste as well as the composition and amount that communities generate differ in time and place. Societies negotiate whether waste should be treated as unwanted junk that needs to be disposed of; as potentially hazardous material in need of special treatment; or as valuable matter that can be reused. Waste is a gauge of society’s underlying principles – about its values, norms and beliefs. For example, only at the end of the nineteenth century and shortly after the separate disposal of faeces by urban sewage systems did ‘household’ and ‘municipal’ waste become distinct subcategories of ‘urban waste’: the spatial limitations of expanding cities and rising consumption habits had overburdened traditional disposal systems. These challenges prompted new specialisations and forms of knowledge. Terms like the German ‘Müll’ or the French ‘ordures ménagères’ for ‘domestic’ waste entered the vocabulary to account for the new phenomenon of ‘urban waste’ linguistically.³² Institutionally, large cities established municipal waste services to deal with the increase.

To what extent waste actually increased in the twentieth century is difficult to assess, however. Historians face an enormous challenge to make even the simplest comparisons from one city to the next because definitions of what constituted ‘municipal waste’ and the statistics that cities maintained vary wildly. Household refuse consisted of three elements: ashes and sweepings; food leftovers; and scrap materials like paper, leather or glass. Often, food leftovers and scrap materials were recovered and recycled. In 1930s New York, residents threw 1.5 kg of waste daily in their municipal trash bins, their European counterparts 500 g or less.³³ While American urbanites wasted more foodstuff than Europeans, their cities often had factories that processed ‘garbage’ (the American term for food leftovers) into grease and manure.³⁴ By contrast, many European cities transported the organic waste directly to the urban periphery as fertiliser – a tradition that continued in Paris well into the post-war era.³⁵

³¹ O’Brien, *A Crisis*, 6.

³² Sabine Barles, *L’Invention des déchets urbains, France: 1790–1970* (Seysse: Champ Vallon, 2005), 237–9; Ludolf Kuchenbuch, ‘Abfall: Eine Stichwortgeschichte’, in Hans-Georg Soeffner, ed., *Kultur und Alltag: Soziale Welt, Sonderband* (Special Issue) 6 (Göttingen: Schwartz, 1988), 155–70.

³³ Hans Martin, ‘Die moderne Müllverwertung unter besonderer Berücksichtigung der landwirtschaftlichen Nutzung’, PhD thesis, Landwirtschaftliche Hochschule Bonn-Popelsdorf, 1930, 9.

³⁴ Martin V. Melosi, *Garbage in the Cities: Refuse, Reform, and the Environment* (Pittsburgh Pa.: University of Pittsburgh Press, 2005); Carl Henneking, *Die Müllbeseitigung in nordamerikanischen Großstädten* (Leipzig: Leineweber, 1907).

³⁵ See Barles, *L’Invention*; Heike Weber, ‘Les Ordures ménagères et l’apparition de la consommation de masse: Une comparaison franco-allemande (1945–1975)’, in Charles-François Mathis and Jean-François Mouhot, eds, *Une protection de la nature et de l’environnement à la française?* (Seysse: Champ Vallon, 2013), 141–56.

Notwithstanding the statistical challenges, we are able to say something about the meanings of waste and how it was organised.

Zsuzsa Gille has introduced the concept of ‘waste regimes’ in her study on Hungarian industrial waste recovery to indicate that each society organises its waste and recycling materials in structurally different ways depending on time and place. ‘Waste regimes differ from each other according to the production, representation and politics of waste’, she states.³⁶ Gille also reminds us that each waste category has its own material ‘agency’, so to speak – waste piles, for instance, cannot be stored forever and might be toxic. The notion of ‘waste regime’ as a parallel to ‘consumption regime’ may be particularly useful in understanding them as related, interlocking systems that change over time. Two seminal studies have done so, while also going beyond the traditional perspective of urban sanitation.³⁷ In her now classic *Waste and Want* (1999), Susan Strasser describes how relationships between people and everyday objects changed in the United States during the transitional period between 1880 and 1930, when production and consumption methods shifted to mass consumption.³⁸ While an American housewife around 1900 still had a vast knowledge of how to maintain, repair and eventually reuse things (maintaining a ‘stewardship of objects’ and engaging in the art of ‘bricolage’ to create useful things out of leftovers), such knowledge was lost once an affluent consumer society replaced a society governed by scarcity. In response, United States municipalities began to establish waste disposal infrastructures. Waste, once a private responsibility, was redefined as a community concern that posed risks to public health. In her study on nineteenth- and twentieth-century Paris, Sabine Barles shows how the city’s residents provided resources for industry with their waste (rags for paper production, bones for charcoal in sugar refineries and household residues for agriculture) and why they stopped at different times with different materials.³⁹ In short, these studies indicate the close relationship between production, consumption and waste regimes. Within the domain of waste regimes, recycling – the focus of this special issue – is the linchpin of production, consumption and waste. Implied in the practice of recycling is a definition of what comprises ‘waste’. Waste to some (households) is a ‘resource’ to others (industry and the state). In this sense, recycling brings us to the core of a waste regime’s policies and ideologies.

³⁶ Zsuzsa Gille, *From the Cult of Waste to the Trash Heap of History: The Politics of Waste in Socialist and Post-socialist Hungary* (Bloomington Ind.: Indiana University Press, 2007), 34.

³⁷ Urban sanitation studies have contributed many studies on waste, among them the following more recent ones: Melosi, *Garbage*; Peter Payer, ed., *Sauberes Wien: Stadtreinigung und Abfallbeseitigung seit 1945* (Vienna: Holzhausen, 2006); Stéphane Frioux, ‘Les Réseaux de la modernité: Amélioration de l’environnement et diffusion de l’innovation dans la France urbaine, fin XIXe siècle–années 1950’, PhD thesis, Université Lumière – Lyon II, 2009.

³⁸ Susan Strasser, *Waste and Want: A Social History of Trash* (New York: Metropolitan Books, 1999).

³⁹ Barles, *L’Invention*; Sabine Barles, ‘Les Chiffonniers, agents de la propreté et de la prospérité parisienne au XIXe siècle’, in Corteel and Le Lay, *Les Travailleurs du déchet*, 45–67; Sabine Barles, ‘A metabolic approach to the city: nineteenth- and twentieth-century Paris’, in Dieter Schott, Bill Luckin and Geneviève Massard-Guilbaud, eds, *Resources of the City: Contributions to an Environmental History of Modern Europe* (Aldershot: Ashgate, 2005), 28–47.

Thrift, abundance and reuse in twentieth-century European consumer cultures

The traditional ‘recycling mentality’ of the pre-industrial world along with an everyday ‘economy of makeshifts’ was still in place at the time of the First World War.⁴⁰ The rag-and-bone trade and the waste-processing industry prefigured the recycling experts and industries of our time.⁴¹ These trades and industries provided a living for the urban poor; the second-hand trade enabled them to participate in consumer culture. In a way, these sectors were the opening act of modern nineteenth-century European consumer cultures.⁴² Seen in the perspective of the *longue durée*, nineteenth-century ideas of sanitation, municipal waste infrastructures and the emerging affluent society introduced a new phase in recycling practices. Like the French *chiffonniers* (Barles) and the American rag-and-bone men (Strasser), scrap collectors and merchants functioned as informal, yet pivotal, mediators between consumers and producers until the early twentieth century.⁴³ Indeed, the articles in this issue demonstrate that the cultures of thrift and reuse were still firmly rooted in twentieth-century history – much more so than the current scholarship focusing on the culture of abundance-for-all has led us to believe.

Nineteenth-century hygiene movements and the building drive to construct municipal water, sewer and waste infrastructures are often interpreted as the precursors of 1970s environmental activism. Both concerned the ‘correct’ arrangement of leftovers once they had left the realms of production or consumption. The sanitary movement saw urban wastes as health hazards that should be removed from city centres immediately. Those who collected, transported, traded and processed the waste – mostly people from marginalised social groups like the Jews and the Roma – were further discriminated against as unhygienic. Hygiene reformers began to favour ‘sanitary’ throwaway packaging ranging from paper to (later) plastic.⁴⁴ Urban sanitary engineers, however, cared less about the sanitary aspects of the waste once it was removed from the city and dumped in the countryside. Waste was simply banned out of the sight of ‘respectable’ middle- and upper-class citizens and left to regions and

⁴⁰ Reinhold Reith, ‘Recycling im späten Mittelalter und der frühen Neuzeit: Eine Materialsammlung’, *Frühneuzeit-Info*, 14 (2003), 47–65; Donald Woodward, ‘“Swords into Ploughshares”: Recycling in Pre-Industrial England’, *The Economic History Review*, 38 (1995), 175–91.

⁴¹ On that point see Zimring, *Cash for your Trash*, who has analysed the American scrap trade with a focus on metal scrap.

⁴² Jon Stobart and Ilja van Damme, eds, *Modernity and the Second-Hand Trade: European Consumption Cultures and Practices, 1700–1900* (Basingstoke: Palgrave Macmillan, 2010). On the importance of second-hand markets for textiles, see: Laurence Fontaine, ed., *Alternative Exchanges: Second-Hand Circulations from the Sixteenth Century to Today* (Oxford: Berghahn Books, 2008).

⁴³ For twentieth-century Beijing, Goldstein identifies similar functions of scavengers, stating that ‘we might even be able to chart a changing imaginary of citizenship, society or nationhood through the changing daily-life habits and rhythms of recycling in urban China over the last century.’ Joshua Goldstein, ‘The Remains of the Everyday: One Hundred Years of Recycling in Beijing’, in Madeleine Yue Dong and Joshua Goldstein, eds, *Everyday Modernity in China* (Seattle: University of Washington Press, 2006), 260–302, here 261.

⁴⁴ For the US see Strasser, *Waste and Want*.

people on the ‘fringe’. To the sanitary engineers and policy makers, this method was the most cost-effective; they also considered it a salvage technique. After all, waste, mostly organic material at the time, eventually decomposed into soil; many cities used their waste either as fertiliser or landfill material to reclaim land.⁴⁵

Most waste histories describe a sharp decline in the scrap trade. Peddlers and second-hand dealers, however, were still important for handling urban waste in several European countries in the early twentieth century (see the articles by Jørgensen and Weber in this issue).⁴⁶ While considered unhygienic by hygiene reformers and sanitary engineers, nevertheless these entrepreneurs were valued for their recycling efforts as a way to conserve precious national resources. In Germany around 1910 there was one rag-and-bone man or woman per 1000 inhabitants – a rate that bottle banks would manage to achieve in the 1970s. Metal, iron and rags were the most important scrap materials, but waste pickers collected much more. In inter-war Berlin, a waste picker was estimated to collect large daily amounts of rags (75 kg), old paper (100 kg), metal (2 kg–3 kg), iron (50 kg) and empty bottles (60 items).⁴⁷ For the United States, Strasser has described the shift from reuse to a throwaway culture, and environmental historians have insisted that a prodigal lifestyle existed as well.⁴⁸ In Europe, the shift to a culture of abundance occurred substantially later than in the United States. The shift was contested from the start. While the famous US home economist Christine Frederick advised housewives in the inter-war years to use disposable – and thus ‘hygienic’ – paper products instead of reusable materials and argued that waste could be ‘creative’ because products were not made and used to last, her French counterpart, Marguerite Lamy, disagreed. Countering Frederick’s celebration of US abundance, Lamy instead praised the French housewife’s method of reusing materials: she was the ultimate specialist in *l’art d’accommoder les restes*.⁴⁹ Such ‘stewardship’ of things was probably also true for Germany.⁵⁰ An examination of household accounts of 3000 German working-class families in the 1930s concluded that 33%–50% of the money

⁴⁵ For the American tradition of waste landscaping, see Craig E. Colten, ‘Chicago’s Waste Lands: Refuse Disposal and Urban Growth, 1840–1990’, *Journal of Historical Geography*, 20 (1994), 124–42; on France or Germany: Barles, *L’Invention*; Susanne Köstering and Renate Rüb, eds, *Müll von gestern? Eine umweltgeschichtliche Erkundung in Berlin und Brandenburg* (Munster: Waxmann, 2003); Weber, ‘Les Ordures ménagères’.

⁴⁶ See Carl Zimring, ‘Dirty Work: How Hygiene and Xenophobia Marginalized the American Waste Trades, 1870–1930’, *Environmental History*, 9 (2004), 80–101; Timothy Cooper, ‘Challenging the “refuse revolution”: War, waste and the rediscovery of recycling, 1900–1950’, *Historical Research*, 81, 214 (2008), 710–31.

⁴⁷ See Ernst Schein, ‘Organisation und Technik des deutschen Rohproduktenhandels’, inaugural dissertation in Economics (Inaugural-Dissertation, Wirtschaftswissenschaft), Handelshochschule Berlin, Ohlau, 1931, 24.

⁴⁸ See John McNeill and George Vrtis, ‘Thrift and Waste in American History’, in Joshua J. Yates and James Davison Hunter, eds, *Thrift and Thriving in America: Capitalism and Moral Order from the Puritans to the Present* (Oxford: Oxford University Press, 2011), 508–35.

⁴⁹ Marguerite Lamy, *Bien acheter pour mieux vivre* (Paris: Dunod, 1932; citations from 2nd edn, 1933), 13–14.

⁵⁰ See the following special issue on repairing, edited by Georg Stöger and Reinhold Reith: *Reparieren oder die Lebensdauer der Gebrauchsgüter*, in *Technikgeschichte* (Special Issue: Repair and Maintenance), 79, 3 (2012), 227–53, here 232. The following data stems from: Anne Sudrow, ‘Reparieren im

spent on footwear and 25% on textiles was for repair. In short, saving and repairing were part of ordinary families' lives in Europe.

During the cold war, the United States offered Europe a vision of the future ruled by abundance, where shortage would be a thing of the past and where citizens entered a social contract as consumers. In the early 1950s, it was indeed a vision rather than a practice that only went into overdrive much later. Throughout Europe, East and West, post-war shortages and austerity reinforced the existing practices of reuse well into the early 1960s.⁵¹ At the historic moment when American social critic Vance Packard attacked US-style consumption and wasting in his 1960 bestseller, *The Waste Makers*, Western European and Scandinavian governments and industries began to encourage housewives of all social classes to abandon the wartime and post-war culture of thrift. Policy makers had to shift housewives' prevailing 'moral economies', as the example of disposable glass introduced in the European West in the 1960s shows.⁵² As late as 1965, the French packaging industry's trade journal complained that housewives wanted to keep glass, still valuing it as 'a valuable material worth saving' ('un matériau noble que l'on conserve'). Although industry believed they appreciated the convenience of not having to return empty bottles, many French housewives resisted discarding glass containers, reusing them instead for storage.⁵³

Early criticism was mounting in Europe. The growth of post-war household waste prompted a widely shared public critique of nascent affluent society. Municipal waste services in many countries began to realise that cities were being left to pay for the growing waste streams. When West German bottlers announced in 1967 that they planned to replace the traditional deposit system with the 'non-returnable' packaging principle, many municipal waste services realised they would not have the capacity to process the additional volumes of waste.⁵⁴ Consumer citizens began to reflect critically on their role as 'waste makers', as the contributions by Oldenzil and Veenis, and by Westermann show in more detail. In the end, bottle banks and glass recycling were the political compromises to support industrial, municipal and civic interests. Finn Arne Jørgensen presents the case of Norway's waste regime in this issue. Norway encouraged packaging recycling from the outset by aligning the interests of businesses such as brewers and distributors, national economics, policy makers and consumers. Before resorting to high taxation to discourage non-returnable bottles,

Wandel der Konsumregime: Bekleidung und Schuhe in Deutschland und Großbritannien während des Zweiten Weltkriegs', 173–84.

⁵¹ On British austerity politics, see: Ina Zweiniger-Bargielowska, *Austerity in Britain. Rationing, controls, and consumption 1939–1955* (Oxford: Oxford University Press, 2000).

⁵² For the term 'moral economies', see Edward P. Thompson, 'The Moral Economy of the English Crowd in the Eighteenth Century', *Past and Present*, 50 (1971), 76–136. Here we use the term in the plural to indicate that, while individuals, institutions and groups are motivated by values, morals and mentalities, they do not necessarily share unified moral systems. See also the *Moral Economies of Modern Societies* research programme of the International Max Planck Research School: www.mpib-berlin.mpg.de/de/forschung/doktorandenprogramme/imprs-moral-economies (accessed 12 Apr. 2013).

⁵³ See 'Le verre perdu', *Emballage* (1965), 161–3, here 163.

⁵⁴ See Roman Köster, 'Abschied von der "verlorenen Verpackung": Die Geschichte des Recyclings von Hausmüll 1945–1990', in *Technikgeschichte* (forthcoming 2014).

the Norwegian Ministry of Social Affairs reached a gentleman's agreement with the bottlers and breweries in the 1960s to abstain from switching to non-returnable containers. Jørgensen shows that Scandinavia's key to success for recycling post-consumer waste resulted both from convenience and morals: consumer recycling became as convenient as it was ethically meaningful. Norway's welfare state system and sensible consumer mentality helped to ensure Norwegians' loyalty to recycling practices.

Focusing on plastics and people's changing perception of them in the years around 1970, Andrea Westermann demonstrates how uneasy Germans felt about the mounting plastic litter well before the energy crisis and long before consumer associations took on the issue of environmentally responsible consumption.⁵⁵ Plastic became the iconic material in the critique of affluent post-war consumer society. Introduced as hygienic and consumer-friendly by producers, the new material came to symbolise consumerism and choice. By the late 1960s, however, plastic was redefined as an environmental risk. Westermann explores a rich collection of letters sent by concerned consumers of all social backgrounds to the Ministry of the Interior, the agency responsible for environmental issues, to demand alternatives. One concerned citizen wrote: 'natural resources are wasted pointlessly. It has to be brought to the public's attention that recycling of materials has to replace the ideology of disposability'. Others spoke of the 'antisocial throwaway bottle (here today, gone tomorrow)', the costs of which the community had to bear. Citizens demanded its abolition. These correspondents claimed their right to know more about the potential hazards and toxicity of everyday consumption in order to make informed choices; they demanded alternatives to the emerging throwaway mentality. While unable to prevent European industry's adoption of wasteful mass-scale consumer goods, these older 'moral economies' in West Germany and Norway (and the Netherlands, as we will see), did shape European forms of 'consumer-recycler-citizenship'.

The articles on France, Great Britain, the Netherlands, West Germany and Scandinavia suggest that Europe took different paths into mass consumer societies than the American archetype. Inside and outside the transatlantic story of recycling, however, future studies of waste and recycling in East European consumer cultures are needed to identify all the different European dimensions. Socialist nations developed a wide spectrum of recycling practices to economise domestic production, well before the Western turn towards recycling. They had to cope with scarce domestic resources and cold war embargoes in the capitalist global trade of raw materials. Yet, it was the West rather than the East that came to articulate and monopolise the recycling discourse while ignoring the various socialist experiences. Although a growing body of research on Eastern Europe has shed light on consumption and environmental issues, details of recycling practices and policies under socialist regimes are largely

⁵⁵ Consumer organisations were engrossed with developing product tests and rational-economic guides to consumer choice rather than responding to the awakening of the environmental movement and its fundamental critique of consumer society's waste streams, see Matthew Hilton, *Prosperity for All: Consumer Activism in an Era of Globalization* (Ithaca, NY: Cornell University Press, 2009), chapter 1.

unknown. This is remarkable to say the least, because, in socialist regimes, recycling governed people's daily experiences.⁵⁶ Based on case studies of Hungary, the GDR and the Soviet Union, we can nevertheless sketch a few trends.⁵⁷

Both the GDR and Hungary's waste regimes initially focused on the recovery of industrial – in particular – metallic waste. Gille even talks of a Hungarian 'metallic waste regime'. The GDR also depended on scrap for its steel production, but studies suggest that households contributed substantially to the post-war recycling efforts conducted by the VVB Altrohstoffe (People's Enterprise for Old Raw Material Resources). The GDR case is particularly suggestive because the socialists continued some elements of the National Socialist waste regime.⁵⁸ As in wartime Germany, socialist citizens were urged to collect kitchen scraps for pig feed. Socialist youth organisations like the Junge Pioniere initiated collection drives for metal, bones, paper and rags, but also for glass containers, plastics, hair, rubber and cork. Around a third of the textiles and papers and half of the bones recovered in the 1950s came from private households.⁵⁹ Citizens who delivered such household waste to the government's collection centres were compensated through a barter system comparable to Germany's salvage collections during the two World Wars. For instance, in the 1950s, 2.5 kg of used paper would earn the East German citizen either five rolls of wallpaper or ten sanitary towels; 1 kg of bones was worth one bar of soap. In the early 1980s, the government targeted household waste with the

⁵⁶ On the culture of reuse in the Soviet Union, see: Ekaterina Gerasimova and Sofia Chuikina, 'The Repair Society', *Russian Studies in History*, 48 (2009), 58–74. On consumption in East Germany: Ina Merkel, *Utopie und Bedürfnis: Die Geschichte der Konsumkultur in der DDR* (Cologne, Weimar, Berlin: Böhlau, 1999); Milena Veenis, *Material Fantasies. East German Expectations about the Western Consumer World* (Amsterdam: Amsterdam University Press, 2012). Paul Josephson's fascinating environmental histories of the Eastern bloc unfortunately do not cover the issue of waste, see Paul R. Josephson, *Would Trotsky Wear a Blue Tooth? Technological Utopianism under Socialism, 1917–1989* (Baltimore, Md.: Johns Hopkins University Press, 2010) and his *Resources under Regimes: Technology, Environment, and the State* (Cambridge, Mass.: Harvard University Press, 2005), featuring waste disposal on three pages (186–9).

⁵⁷ Gille, *Cult of Waste*; on the GDR see Susanne Hartard and Michael Huhn, *Strukturanalyse des SERO-Systems der DDR im Hinblick auf Effizienz und Eignung unter marktwirtschaftlichen Bedingungen* (Bonn: Umweltbundesamt, 1992); Susanne Hartard and Michael Huhn, 'Das SERO-System', in Hermann Behrens and Jens Hoffmann / Institut für Umweltgeschichte und Regionalentwicklung et al., eds, *Umweltschutz in der DDR: Analysen und Zeitzeugenberichte, ii: Mediale und sektorale Aspekte* (Munich: Oekom, 2008), 309–34; Jakob Calice, "'Sekundärrohstoffe: eine Quelle, die nie versiegt': Konzeption und Argumentation des Abfallverwertungssystems in der DDR aus umwelthistorischer Perspektive', University of Vienna, *Diplomarbeit*, 2005; Jakob Calice, 'Garbage recycling rhetoric in the GDR: an environmental historic perspective', *Trans-disciplinary Journal of Emergence*, 3, 2 (2005), online at: <http://textfeld.ac.at/text/713/> (accessed April 12, 2013); Dirk Maier, "'Mehr Achtung für den Lumpenmann": Altstoffeffassung und Materialwirtschaft in der DDR der 1950er und 1960er Jahre', in Mamoun Fansa and Sabine Wolfram, eds, *Müll: Facetten von der Steinzeit bis zum Gelben Sack* (Mainz: Zabern, 2003), 131–9; Joachim Haun, 'Systemvergleich markt- und planwirtschaftlicher Wirtschaftssysteme im Hinblick auf die wirtschaftliche Entwicklung der Abfall- und Sekundärrohstoffwirtschaft im Bereich häuslicher Rückstände', PhD thesis, Regensburg, 1998; Bernd Spindler, *Die Verwertung von Sekundärrohstoffen in der DDR* (Bonn: Gesamttdt. Inst., 1985); Olga Gurova, 'The Life Span of Things in Soviet Society', *Russian Studies in History*, 48, 1 (2009), 46–57.

⁵⁸ Haun, *Systemvergleich*, 41.

⁵⁹ Maier, 'Mehr Achtung', 136.

SERO system or Sekundärrohstoffeffassung (Collection of Secondary Resources). By this time, however, household waste represented only a minor share of all recycled materials (less than 5% in 1988), the programme did reduce the GDR's municipally collected household waste by a third.⁶⁰

Indeed, recycling politics suited socialist consumption regimes. They had no marketing use for disposable packaging like throwaway bottles, which helped Western companies brand their products in a global market. Moreover, households continued to practice reusing and storing. In short, socialist consumer cultures represented true 'repair' or 'storage' societies. Things were mended and repaired; materials were stored for barter later on.⁶¹ However, socialist waste regimes also led to many paradoxes that undermined their original goal: Hungarian and East German production site managers purposely produced waste to fulfil the state's scrap recycling plans; stockpiles of waste decayed while waiting for recycling.

Around the 1970s, waste and recycling politics in Eastern Europe were partly reframed as a means of limiting the environmental degradation caused by production. Despite such ideological borrowings across the Iron Curtain, more characteristically, socialist regimes sought to restructure and centralise waste to achieve greater efficiency. In fact, no knowledge transfer or best practices exchange between East and West ever occurred. This is remarkable considering the GDR's SERO system was well ahead of Western initiatives to recycle domestic waste. Only in the early 1990s, when a reunited Germany was developing policies for a so-called *Kreislaufwirtschaft* (loop economy) that led to the 'Green Dot' system, did policy makers briefly study the GDR's SERO system.⁶² To the consternation of many East Germans, SERO soon disappeared. After 1989, when the socialist bloc was transformed into market economies, countries like Hungary became the EU's favourite dumping ground for waste. There had been a precedent for this trade. During the cold war, the GDR had systematically imported waste from West Germany, the Netherlands, Austria and Italy to obtain foreign currency. These details suggest that the history of recycling during socialist times not only promises to be a potentially rich research area, but could also serve as an important correction to the Western European and American bias of environmental history.

War and recycling

Twentieth-century European history has been profoundly shaped by times of war (the First and Second World Wars) and crisis (depression and post-war reconstruction). So have the experiences of consumption, recycling and reuse. Governmental austerity plans to deal with wartime raw material shortages turned a range of things previously

⁶⁰ Hartard and Huhn, *SERO-System*.

⁶¹ Gurova, 'The Life Span of Things'.

⁶² The resulting report is the study by Hartard and Huhn, *Strukturanalyse*. On united Germany's 'Green Dot' system see Bette K. Fishbein, *Germany, Garbage, and the Green Dot: Challenging the Throwaway Society* (New York: Inform, 1996).

considered ‘waste’ into ‘resources’. From then on, waste was of national, economic, strategic and ideological importance. Housewives were urged to save and reuse paper, food leftovers, bones and other materials. Most governments initiated waste salvage drives as a means to mobilise both people and ‘unused’ resources. While such national waste collections were cast as patriotic acts of the home front to support the war effort, in effect, they exploited children and housewives as unpaid waste collectors. The drives not only failed to improve citizens’ living conditions; they contributed first and foremost to the war machinery. The drives actually put an extraordinary burden on citizens, in particular on women.

Most historical research concentrates either on chronologically and geographically limited cases or mentions daily survival strategies only in passing.⁶³ In contrast, the articles in this issue take a long-term perspective by considering the similarities and differences; continuities and disruptions; and transnational transfer (Weber, Oldenziel and Veenis, Jørgensen). Moreover, the case studies place the Nazi waste regime in a much broader European context as an entangled rather than separate national history of exceptionalism. While the net result of the wartime salvage drives remains unclear, the articles suggest we cannot overstate their ideological importance in mobilising citizens and their long-term effects on post-war recycling.

In both the First and the Second World Wars, belligerent Germany set the example. To cope with the naval blockade that cut the country off from the global market in raw materials Imperial Germany not only developed the culture of ‘*Ersatz*’ (substitute) products during the First World War but also resorted to waste recovery – most extensively after 1916. As Roger Chickering has shown, citizens in Freiburg were regularly confronted with salvage drives; by 1918, these national drives pried into private households, hunting for reusable resources in every last corner of cupboard or attic.⁶⁴ Because citizens in Germany had on average a much lower calorie intake than those in other warring nations, policy makers tried to claim any potential foodstuff, be it through municipal food-scrap collections, school-organised collections of acorns and chestnuts and reusing leftovers from slaughterhouses and food processing plants, as Weber’s article shows. Many urban housewives took the initiative to collect waste for reuse before the government systematically established waste salvage infrastructures. Taking a long-term perspective, Weber shows that the German waste regime of 1914 to 1918 was rooted in cultures of thrift and that the Nazis built on these experiences to take more radical measures later on. Other warring nations also instituted waste reclamation initiatives to mobilise people and materials; the British government collected everyday household waste during the First World War but only in the last few months of the war, in March 1918, did it create the National Salvage Council to

⁶³ See for instance, Roger Chickering, *Freiburg im Ersten Weltkrieg: Totaler Krieg und städtischer Alltag 1914–1918* (Paderborn: Schöningh, 2009); Eric Alary, Bénédicte Vergez-Chaignon and Gilles Gauvin, *Les Français au quotidien 1939–1949* (Saint-Amand-Montrond: Perrin, 2006). The few specific studies on wartime recycling and its post-war effects so far focus on one national case, namely Great Britain, see Cooper, *War*; Mark Riley, ‘From Salvage to Recycling: New Agendas or Same Old Rubbish?’ *Area*, 40, 1 (2008), 1–11.

⁶⁴ Chickering, *Freiburg*, 153–97.

push local authorities to conserve national resources.⁶⁵ The US government, when entering the war, also created a Waste Reclamation Service at the Department of Commerce.⁶⁶ Nevertheless, Germany was the leader in such initiatives.

The First World War's salvage drives were a dress rehearsal for the Second World War in 1939. Early on, most notably after 1936, the Nazis profoundly restructured the nation's waste flows based on their autarkic and war-driven economic policies.⁶⁷ In 1937, the country claimed that waste materials (both from industry and private households) represented around a twelfth of the economic value of the total input of raw materials. Paper recycling was even advocated as a means of saving 'German wood', but the Nazis' recycling had little to do with 'sustainable' resource use. Despite the enactment of the 1935 Law on Nature Protection (*Reichsnaturschutzgesetz*) and an easy alignment of Nazi ideology with conservation issues, the Nazi government's goals in waste politics were first and foremost expansionist and autarkist rather than conservationist in character.⁶⁸

When the Second World War broke out, Nazi-occupied countries implemented similar waste recycling methods. To what extent these drives were copied directly from or forced by the Nazis is an aspect thus far neglected in those studies that analyse how Nazis robbed and exploited foreign countries.⁶⁹ Oldenziel and Veenis describe how the local authorities instituted such measures in the German-occupied Netherlands. Chad Denton tackles this issue for Vichy France. According to Denton, Vichy France's salvage drives did not result from wartime frugality alone, as hitherto assumed, but were yet another example of Franco-German collaboration. The Franco-German drives instituted Nazi recycling methods and the 'Aryanisation' of scrap firms throughout the Vichy regime, in particular removing and deporting Jewish citizens. Many policies revived First World War experiences such as the scrap paper drives after 1916 and the acorn collection campaigns by schoolchildren in the academic year 1917–18. Denton and Peter Thorsheim show that, while the British and the French initially dismissed Nazi salvage drives as a sign of mismanagement of the economy and suppression of its citizens, when the war started they also resorted to similar measures, first voluntary, later compulsory. Conversely, Nazi Germany

⁶⁵ Henry J. Spooner, *Wealth from Waste* (London: Routledge Efficiency Books, 1918). See also: Cooper, 'Challenging the "refuse revolution"'.
⁶⁶ Stuart Chase, *The Challenge of Waste*, rev. edn (New York: League for Industrial Democracy, 1925), 9.

⁶⁷ On the Nazi waste regime, see Friedrich Huchting, 'Abfallwirtschaft im Dritten Reich', *Technikgeschichte*, 48 (1981), 252–72; Friedrich Huchting, *Prüfung alter Verwertungstechnologien aus Mangel- und Kriegszeiten: Forschungsbericht 10301104* (Berlin: Umweltbundesamt, 1980); Susanne Köstering, 'Pioniere der Rohstoffbeschaffung: Lumpensammler im Nationalsozialismus, 1934–1939', *WerkstattGeschichte*, 17, (1997), 45–65; Susanne Köstering, "'Millionen im Müll?'" Altmaterialverwertung nach dem Vierjahresplan', in Köstering and Rüb, *Müll*, 139–49.

⁶⁸ Franz-Josef Brüggemeier, Mark Cioc and Thomas Zeller, eds, *How Green Were the Nazis? Nature, Environment, and Nation in the Third Reich* (Athens, O.: Ohio University Press, 2006); Frank Uekötter, *The Green and the Brown. A History of Conservation in Nazi Germany* (Cambridge: Cambridge University Press, 2006).

⁶⁹ Also in Götz Aly, *Hitlers Volksstaat: Raub, Rassenkrieg und nationaler Sozialismus* (Frankfurt am Main: Fischer, 2005).

authorities closely monitored how their opponents introduced similar salvage drives, using the initiatives as an argument to legitimise the Nazi waste regime retroactively.⁷⁰

Allied countries felt more acutely the impact of the disruption in international trade during the Second World War; Great Britain took up recycling rapidly on the eve of its outbreak. Many British cities collected kitchen waste from 1939 and continued after the war until 1947. In Great Britain, separate waste collection became mandatory in 1941. Building on the previous work of the National Salvage Council, the British Ministry of Supply appointed a salvage controller.⁷¹ Thorsheim discusses the efforts to salvage paper. Propaganda campaigns asked citizens to save and collect old materials; dedicated ‘salvage stewards’ were appointed; and, as elsewhere, boy scouts, schoolchildren, women’s and housewives’ organisations – in particular the Women’s Voluntary Service – were mobilised to enforce waste collections. Beyond alleviating shortages, the salvage campaigns served ideological and psychological aims. The war economy also produced paradoxes when previously meaningful and precious objects like garden fences, old books and manuscripts were redefined as valueless: ‘leftovers’ to be destroyed for the sake of reusing their material value. While wartime recycling was promoted as an embodiment of thrift and efficiency, ultimately, Thorsheim argues, the campaigns functioned to feed the ‘wasteful’ war machinery. The US War Production Board also urged citizens to participate in salvage drives. In schools, ‘Paper Troopers’ carried out waste paper collections; likewise, silk and nylon stockings were collected. Housewives were reminded that glycerine, which could be made from waste fat and grease, was needed for the production of explosives. As imports of vegetable oil from the Pacific were shut off, the government urged women to deliver kitchen fats to the local meat dealer to help manufacture explosives.⁷²

The European experience of reuse initiatives for the war economy proved to be more profound and lasting than similar US programmes. In many countries and especially in Nazi Germany, the war salvage drives thoroughly penetrated citizens’ daily lives; these campaigns included deeply troubling excesses in Germany, Nazi-occupied countries and Vichy France, such as the expulsion of Jewish scrap merchants; the Nazi exploitation of property belonging to murdered Jewish citizens and political opponents; efforts to reuse debris after bombing; and the material exploitation of cultural treasures like church bells and wedding rings. Moreover, practices of reuse did not end with the war. They lasted for at least one to three decades of reconstruction after the war. According to Stokes et al., one reason why recycling continued after the war in Great Britain was the ‘technological momentum’ of the respective infrastructures. Once put into place and operating, some British cities

⁷⁰ See section ‘Das verhöhnnte Vorbild’, in *Propaganda-Mitteilungen vom Reichskommissar für Altmaterialverwertung: Nur für den Dienstgebrauch* [for official use only], (Berlin 1940), Section 2/1940, 5–6. *Propaganda-Mitteilungen vom Reichskommissar für Altmaterialverwertung. Nur für den Dienstgebrauch* (Berlin 1940), in the article ‘Das verhöhnnte Vorbild’, 5–6. The same rhetoric could be found in public propaganda.

⁷¹ Riley, *Salvage*.

⁷² Hugh Rockoff, ‘Keep on Scrapping: The Salvage Drives of the Second World War’, NBER (National Bureau of Economic Research), Working Paper no. 13418 (Sept. 2007); online: www.nber.org/papers/w13418 (accessed 24 April 2013).

continued them until the 1960s, even though waste recovery did not prove to be economical.⁷³

For the Netherlands, Ruth Oldenziel and Milena Veenis explain how salvaging practices were based on the value systems which a generation of Dutch housewives had grown up with. Their case study of women activists who pioneered the Dutch glass recycling bins around 1970 shows how the women mobilised wartime saving habits – instilled during times of scarcity and German occupation – for a new purpose: the 1970s ‘green’ recycling movement in affluent and environmentally-aware societies. Introduced in 1972 and well ahead of other European examples, the bottle-recycling scheme was instigated by women activists who explained their activism in terms of their wartime experiences and the moral principle of conservation. The success of the Dutch glass containers represents the first tangible result of citizens’ willingness to take personal responsibility for the growing amount of household waste. As the authors argue, we should explore the ‘green’ recycling activism within the longer traditions of wartime preservation and the thrift culture of post-war recovery. This and other articles (Denton, Weber) also hint at the troubling issue of to what extent, in Nazi-occupied countries, the mobilisation of schoolchildren, women and ‘volunteers’ for the war economy replaced the deported Jewish and Roma peddlers who earned a living in the trade. To help the Fatherland, women and children were forced to take on countrywide recycling efforts without financial reward. In more recent times, the burden of recycling has rested almost exclusively on women.

Rethinking the periodisation of consumer and environmental history

The case studies suggest that a European history of waste and recycling challenges easy notions about historical shifts and periodisation. Many historians argue that industrialisation in the nineteenth century and the emergence of mass consumption in the twentieth century represent the major turning points: from a culture rooted in scarcity and reuse to a culture based on wastefulness and squandering of resources. Early modern societies were characterised by a diverse system of reusing, but the turning points for the nineteenth and twentieth centuries are less clear-cut.⁷⁴

Consider the turning point of the final decades of the nineteenth century: traditional reuse and waste separation methods, although discredited by the sanitary movement, were not abandoned as radically as histories of urban sanitation would have us believe. Nineteenth-century industrialising societies were still characterised by recycling and frugality.⁷⁵ Similarly, the shift towards an urban sewer system that flushed away human faeces, formerly used as manure in agriculture, marked urban

⁷³ On Great Britain: Stokes et al., *Business of Waste*.

⁷⁴ Reith, ‘Materialsammlung’.

⁷⁵ For the field of industrial production and the reuse of production wastes, see Pierre Desrochers, ‘How Did the Invisible Hand Handle Industrial Waste? By-product Development before the Modern Environmental Era’, *Enterprise and Society*, 8 (2007), 348–74.

Europe and America's first but slow and tedious steps into a culture of disposability. The shift took decades to catch on and differed from country to country. The change involved attitudes, morals and practices regarding how to treat materials correctly.⁷⁶ The transformation generated a long controversy about whether society should accept the loss of nutrients contained in faeces or seek alternative technological systems to preserve the nutrients as fertilisers for farmers. According to environmental historian Christopher Hamlin, this was 'probably the largest recycling campaign in history – in terms of scientific and industrial commitment, government concern and social and cultural importance'.⁷⁷ In the name of hygiene, most municipal waste services dumped urban waste somewhere on the edge of towns; at the same time, rag merchants 'recycled' scrap materials by extracting them from dustbins and dumps or by negotiating directly with households to sell their waste. Most dumping sites were allotted to tenants who employed poor workers to pick out reusable scraps. Animals and in particular pigs featured as informal 'recyclers' of food leftovers. Much waste, like wood and old papers, helped ignite domestic ovens and fires – thrown out only once central heating installations entered urban apartments in the post-war decades. The early twentieth century witnessed a continuous struggle over the meaning of hygiene, abundance and thrift.

In environmental and social history, the 1950s and 1960s have been considered another turning point. Christian Pfister claimed that the post-war decades, when fossil fuel prices dropped in relation to labour costs, formed the decisive tipping point from thrift to wastefulness, even labelling the phenomenon the '1950s syndrome'.⁷⁸ Although the extent of that change is largely unexplored, most scholars agree that Europe's mass consumption society began in these critical early post-war decades. Looking through the lens of recycling history, however, these periodisations become less sharply defined and even more problematic. The contributions show how the experiences of war and scarcity and the resulting cultures of thrift and reuse dominated Europe well into the 1960s, if not the 1970s. They pose the questions not only when, if at all, reuse and recycling practices vanished after the Second World War, but also whether post-war stories about the emergence of a culture of abundance have been as seamless and clear-cut as many consumer histories suggest.

Others identify the 1970s as the milestone in the human–environment relationship.⁷⁹ But while the discursive shift towards ecological thinking has

⁷⁶ Strasser, *Waste and Want*; Joshua Goldstein, 'Waste', in Frank Trentmann, ed., *The Oxford Handbook of the History of Consumption* (Oxford: Oxford University Press, 2012), 326–47. Goldstein argues that, unlike the West, Asian cities uphold their 'recycling system' in their periphery by reusing human excrement for manure.

⁷⁷ Christopher Hamlin, 'Sewage: Waste or Resource, A Historical Perspective', *Environment*, 22 (Oct. 1980), 16–20, here 17.

⁷⁸ Christian Pfister, ed., *Das 1950er Syndrom: Der Weg in die Konsumgesellschaft* (Berne: Haupt, 1995); Christian Pfister, 'The "1950s Syndrome" and the Transition from a Slow-Going to a Rapid Loss of Global Sustainability', in Uekötter, *The Turning Points*, 90–118.

⁷⁹ The '1970s diagnosis' of Patrick Kupper, 'Die "1970er Diagnose": Grundsätzliche Überlegungen zu einem Wendepunkt der Umweltgeschichte?', *Archiv für Sozialgeschichte*, 43 (2003), 325–48. See Uekötter, *The Turning Points*.

been radical, the same ‘ecological turn’ failed in material terms. The decade failed to generate a ‘redirection in the “material” relationship between mankind and its environment’.⁸⁰ Public awareness of pollution has increased, but closer examination shows that ‘environmental modernisation’ still relies heavily on end-of-pipe technologies such as waste dumping or incineration.⁸¹ On both sides of the Atlantic, green ‘recycling’ has been mobilised as the potent ‘circle’ metaphor – the much older idea that nature recovers everything in eternal life cycles.⁸² Green recycling often ignored the material and energy losses of recycling as well as the many forms of asocial and ‘un-ecological’ interventions like trading on black markets, exporting toxic waste in the name of ‘recycling’ and exploiting cheap labour.⁸³ Samantha MacBride even concludes that the American recycling movement has ultimately prevented more effective types of sustainable waste policies.⁸⁴ According to MacBride and others, ‘ecological citizenship’ is less about saving resources than about ‘feeling good’ as a consumer-recycler-citizen. Indeed, shortage-conscious European consumers of the early 1960s consumed far less than the environmentally-concerned ‘consumer-recycler citizens’ of the 2010s; more radical and often anti-consumerist alternatives within the European 1970s recycling movement have equally been silenced. Analyses indicate that any recovery gained by recycling locally has been outstripped by the steady growth of material inputs and outputs globally.⁸⁵ In short, we need to reassess the 1970s as a key turning point by taking a much more global and long-term perspective.

While the ecological turn has not throttled the exponential growth of resource utilisation that its advocates had hoped for, the ecological movement has placed recycling centre stage ideologically. Future studies should explore how recycling debates and politics have been intertwined with governmental policies of managing resource shortages; how Nazi Germany’s autarkic policies spread throughout occupied Europe; how unpaid women, schoolchildren and other volunteers came to replace doomed Jewish and Roma traders scraping together a living; how mass-scale

⁸⁰ Jens Ivo Engels, ‘Modern Environmentalism’, in Uekötter, *The Turning Points*, 119–31, here 130.

⁸¹ For environmental modernisation see Arthur Mol, David Sonnenfeld and Gert Spaargaren, eds, *The Ecological Modernisation Reader: Environmental Reform in Theory and Practice* (London and New York: Routledge, 2009). In much of the waste experts’ discourse in the 1970s and municipal politics, landfill was seen as the most environmentally-friendly disposal technology, see Heike Weber, ‘Modern Landfills’, in Zimring and Rathje, *Encyclopedia*, 470–4.

⁸² The idea had also inspired the nineteenth century issue of how to treat the faeces of urbanites, i.e. conserving materials in ‘circles’: Heike Weber, ‘Abfallrecycling – Bäume und Kreise als Leitmetaphern eines Schließens von Stoffströmen’, in Kijan Espahangizi and Barbara Orland, eds, *Stoffe in Bewegung: Eine historische Epistemologie der materiellen Welt* (Zeitenblicke, see online: www.zeitenblicke.de/, forthcoming).

⁸³ Critics have thus suggested we use the term ‘down’ cycling. See Alexander and Reno, *Economics of Recycling*; a prominent case is the ‘recycling’ of toxic e-wastes, see Elizabeth Grossman, *High Tech Trash: Digital Devices, Hidden Toxics, and Human Health* (Washington: Island Press, 2007).

⁸⁴ MacBride, *Recycling*.

⁸⁵ Fridolin Krausmann, S. Gingrich, N. Eisenmenger, K. H. Erb, H. Haberl and M. Fischer-Kowalski, ‘Growth in Global Materials Use, GDP, and Population during the Twentieth Century’, *Ecological Economics*, 68, 10 (2009), 2696–705.

consumer societies and modern forms of recycling have developed in tandem; the extent to which local, national and transnational recycling issues reinforced or undermined each other; and what role corporate America and the US government have played in sponsoring throwaway societies in Europe. We hope the special issue opens up new lines of inquiry for future research to analyse twentieth-century recycling in Europe more critically and in a broader global context.