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“GO NOT FAR TO DINE” Pedagogical Approaches to Sustainable Consumption in the Eighteenth-Century Studies Classroom and Beyond

Marlon Pareja, Sher Li Ong, Michelle
Merrill, and Samara Anne Cahill

What became clear at the recent Post-Secondary Education for Sustainability in Asia Conference (Nanyang Technological University, Singapore, 5–6 February 2015) was the urgency of sustainability efforts across Asia, particularly in response to natural disasters and particularly in relation to water sustainability. Over a dozen Asian nations were represented at the conference, yet delegates shared a sense of the pressing need to expedite practical reforms of both policy and pedagogy. The presence of delegates from Malaysia and Thailand, nations with miles of jagged

coastline; from islands such as Singapore, Hong Kong, Taiwan; and from nations who are still recovering from the shattering destabilization of tsunamis, earthquakes, and hurricanes (Indonesia, Philippines, Japan) demonstrated that such concerns as access to clean water are urgent and real for diverse populations in Asia. For this reason there is a unique immediacy in sustainability discourse in Asia that could galvanize sustainability conversations across the globe.

The pedagogical approach to cultivating sustainability awareness—also known as Education for Sustainability (EfS)—is of particular importance because it is specifically oriented to future generations and global citizens.¹ In sustainability pedagogy, urgency unites the concerns of contemporary Asia and eighteenth-century studies. John Sitter—a scholar at the forefront of the recent eighteenth-century studies intervention in the environmental canon—has written a trenchant critique of academic responsibility in an era of species-threatening climate change.² As Sitter sees it, academia has largely neglected to attend to the contemporary “climate emergency” and has thus failed to recognize that the “duty to preserve knowledge is not merely custodial but dynamic because, in [Samuel] Johnson’s elegant formulation, ‘the only Way to preserve Knowledge is to increase it.’”³ In his own classroom Sitter “expand[s] the idea of what counts as context [t]o . . . include climate history, changing fossil fuel use, and population history as relevant to literary production” and “introduce[s] students to the idea of the Anthropocene Age and its putative starting point in mid-eighteenth-century England” (170). In other words, Sitter not only recontextualizes the specific sites of literary production, but also brings history to life in a new context. Students in the twenty-first-century classroom, unlike their eighteenth-century counterparts, are confronted with the possibility of anthropogenic environmental degradation.⁴ In Sitter’s view, it would be irresponsible for instructors to approach

¹ For a recent consideration of environmentalism and urgency, see the Winter 2015 issue of the journal *Green Humanities*: “Eco-Gencies: Eco-Critical Responses to Contemporary Environmental Crises.” Website: <http://www.greenhumanities.org>.

² For an invaluable defense of the place of eighteenth-century studies in an environmentalist canon that has so far privileged Romanticism, see Erin Drew and John Sitter, “Ecocriticism and Eighteenth-Century English Studies,” *Literature Compass* 8, 5 (2011): 227–239.

³ John Sitter, “Academic Responsibility and the Climate of Posterity,” *Interdisciplinary Studies in Literature and the Environment* 21, 1 (Winter 2014): 165, 167.

⁴ Sitter makes a similar point in distinguishing between eighteenth-century physico-theology and contemporary eco-theology, the latter of which would be “unimaginable without a strong sense of planetary peril.” See John Sitter, “Eighteenth-Century Ecological Poetry and

the literary canon as if the classroom is not part of a wider environment facing possible collapse. Eighteenth-century studies—on the page and in the classroom—must adapt to include contexts of environmental import such as urban sanitation, pollution, and resource management.

While most eighteenth-century environmental criticism, or ecocriticism, has understandably focused on deforestation—trees are one of the few natural resources that are and were experienced as finite by both the contemporary and early modern worlds—it is possible to read eighteenth-century texts through the lens of sustainable consumption of all kinds of resources.⁵ That lens enables students to consider the contemporary and historical dimensions of consumption—including the disproportionate depletion of certain resources; urban sanitation and pollution issues; labor conditions; mono-crops; animal cruelty; and the constellation of issues surrounding socioeconomic status, transportation costs, and access to high quality, fresh, organic produce. Such a perspective necessarily examines a global rather than a Eurocentric context and it also cultivates systems literacy, one of the most important concepts in sustainability studies. As mentioned in the introduction to this special feature, Gillen D'Arcy Wood defines "systems literacy" as "an evolved form of interdisciplinary research practice and pedagogy that calls for intellectual competence (not necessarily command) in a variety of fields in order to better address specific, real-world environmental problems."⁶

Since a systems approach could be used to contextualize the literary representation of consumption of any number of resources, this article will focus on how students in the eighteenth-century classroom and in their own research can focus on water use as a way of exploring the various environmental problems that result from unsustainable water consumption. Water consumption impacts pollution, sanitation, public health, and even the availability (or affordability) of other resources. In other words, the guiding principle for the model of undergraduate pedagogy and research that we outline here is the

Ecotheology," *Religion & Literature* 40, 1 (Spring 2008): 12.

⁵ On the primacy of deforestation in early modern legislation and environmental consciousness, see: Tom Keymer, "Weeping Dryads, Wealden Iron, and Smart's 'Against Despair': Preromantic Ecology?" *Durham University Journal* 87, 2 (1995): 269–77; Robert Markley, "'Gulfes, Deserts, Precipices, Stone': Marvell's 'Upon Appleton House' and the Contradictions of 'Nature,'" in *The Country and the City Revisited: England and the Politics of Culture, 1550–1850*, eds. Gerald MacLean, Donna Landry, and Joseph P. Ward (Cambridge: Cambridge University Press, 1999), 89–105; Andrew McRae, "Tree-Felling in Early Modern England: Michael Drayton's Environmentalism," *Review of English Studies* 63, 260 (2011): 410–30.

⁶ Gillen D'Arcy Wood, "What Is Sustainability Studies?" *American Literary History* 24, 1 (Spring 2012): 4.

cultivation of systems literacy, but water consumption will be the subtextual concern since it has an obvious global impact on populations ranging from developing nations (Bangladesh) to developed economies (California).

Further, continents may be far apart, but the oceans of the world connect them, historically allowing for transnational and transcultural connections previously unimaginable. Indeed, the introductory article by Prasannan Parthasarathi and Giorgio Riello in the Fall 2014 edition of *Eighteenth-Century Studies* (dedicated to considering “The Maritime Eighteenth Century”) augurs well for an exciting new era of ocean-oriented scholarship in eighteenth-century studies.⁷ The present article—cowritten by Filipino scholar Marlon Pareja, Malaysian graduate student Sher Li Ong, and Asia-based American scholars Michelle Merrill and Samara Cahill—extends this new field of scholarship, within a global context, to the teaching of eighteenth-century texts in the twenty-first-century classroom.⁸ Our foci for exploring water consumption in literature were both the “odor” caused by inadequate urban sanitation and the relationship between consumption and the availability of fresh water. As subjects for research and pedagogical innovation these foci relate to “systems” concerns such as urban metabolism, sanitation management, water sustainability, and socioeconomic justice. Systems literacy acknowledges the nonlinear complexity of biological processes and phenomena and it encourages organizing raw scientific data into narratives including the “production of models, case studies, and analyses of human-environmental interrelationships that look to an operational horizon, and are legible to collaborators in the sciences, social sciences, and policymaking.”⁹

To better prepare the present world as it evolves into the future, students should be able to grapple with environmental sustainability problems in the classroom. Sustainability problems are almost always so-called “wicked problems,” rife with dilemmas and interacting variables, and resistant to direct solutions.¹⁰ A central theme of EfS is to help students cope with such wicked

⁷ Prasannan Parthasarathi and Giorgio Riello, “The Indian Ocean in the Long Eighteenth Century,” *Eighteenth-Century Studies* 48, 1 (Fall 2014): 1–19.

⁸ For an excellent guide to teaching general environmental concerns in the eighteenth-century literature classroom, see Erin Drew, “Teaching and Learning Guide for: Ecocriticism and Eighteenth-Century English Studies,” *Literature Compass* 10, 4 (2013): 301–10.

⁹ Wood, “What Is Sustainability Studies?,” 13.

¹⁰ Richard Buchanan, “Wicked Problems in Design Thinking,” *Design Issues* 8, 2 (Spring 1992): 5–21; Horst W. J. Rittel and Melvin M. Webber, “Dilemmas in a General Theory of Planning,” *Policy Sciences* 4, 2 (1973): 155–69.

problems by considering how things are interconnected.¹¹ This requires finding ways to encourage students to reach across borders of academic disciplines; see links, parallels and consequences in the past and present; and meaningfully connect what they learn in their classes to their own lived experiences and future prospects. Practitioners of EfS in postsecondary institutions have therefore advocated learner-centered pedagogical approaches, particularly those that require students to solve problems and work together in interdisciplinary teams, as the best way to promote these kinds of systems understandings and border-crossing skills.¹²

Our essay is a step to bringing systems literacy and sustainability into the eighteenth-century literature classroom. We offer some thoughts on how to incorporate a "systems" approach to teaching undergraduates and supervising undergraduate research projects; it is not meant to be an exhaustive overview of how water consumption and sustainability could be taught. Indeed, many eighteenth-century works could be included on a "systems literacy" syllabus devoted to studying the interconnections between water consumption, odor pollution, demographic shifts, government responsiveness, luxury consumption, and urban sanitation standards. Not only the more obviously relevant *Robinson Crusoe* and *Gulliver's Travels*, but also Anne Finch's "Upon the Hurricane" (1713), Jane Barker's *A Patchwork Screen for the Ladies* (1723), and Oliver Goldsmith's "The Deserted Village" (1770) are just a handful of many other texts that could be used as the basis of an interdisciplinary, eighteenth-century studies undergraduate course on sustainability.

We begin with an example of project-based pedagogy to encourage the study of odor pollution before turning to a Philippines-developed pedagogical approach to raising consciousness about water consumption that could also be applied to eighteenth-century studies pedagogy. We conclude with an overview of an actual undergraduate honors student's research project on odor pollution and eighteenth-century London and how it might be extended in various ways through systems thinking.

¹¹ Fritjof Capra and Pier Luigi Luisi, *The Systems View of Life: A Unifying Vision* (Cambridge: Cambridge University Press, 2014); Paul Clarke, "Sustainability and Improvement: A Problem 'of' Education and 'for' Education," *Improving Schools* 12, 1 (2009): 11–17; David W. Orr, *Earth in Mind: On Education, Environment, and the Human Prospect* (Washington, DC: Island Press, 2004); Stephen Sterling, "Whole Systems Thinking as a Basis for Paradigm Change in Education: Explorations in the Context of Sustainability" (PhD dissertation, University of Bath, 2003).

¹² E. Melanie DuPuis and Tamara Ball, "How Not What: Teaching Sustainability as Process," *Sustainability: Science, Practice, & Policy* 9, 1 (2013): 64–75; Thomas Seager, Evan Selinger, and Arnim Wiek, "Sustainable Engineering Science for Resolving Wicked Problems," *Journal of Agricultural and Environmental Ethics* 25, 4 (2012): 467–84, doi: 10.1007/s10806-011-9342-2.

* PROJECT-BASED LEARNING: ODOR POLLUTION AND URBAN
SANITATION *

Odor is a problem that links together concerns about aesthetics, social status, urban planning and community design, human health, evolutionary biology, and environmental conditions. Our response to odor has a deep evolutionary history. Odor perception gives us clues about the chemicals in our surroundings. The earliest animals used odor detection and discrimination to locate food, determine the status of possible mates, and avoid things that were likely to harm them or make them ill. While the human ability to perceive and discriminate between odors is much less than that of your average dog or pig, recent studies suggest we nonetheless have the ability to distinguish over one trillion different scent compounds.¹³

Our revulsion at certain of these trillion odors is likely to be an evolved response, encouraging us to avoid harmful materials. For instance, we tend to be repulsed by fecal odors; perhaps we generally find the feces of herbivores (horses, rabbits) less revolting than the feces of carnivores (dogs, cats) and omnivores (pigs, humans) because herbivore droppings are less likely to carry pathogens that would be most harmful to us than are the droppings of carnivores and omnivores. Similarly, we tend to have aversive responses to odiferous people because such individuals were likely less hygienic and therefore more likely to host communicable diseases or parasites. Human ancestors who avoided the sources of such unpleasant odors were more likely to survive and successfully rear offspring than those who did not.

Likewise, the smell of things decaying is noticeable and aversive. These odors are mostly generated when bacteria break down once-living matter, be it melon rinds in the kitchen trash or the carcass of a whale washed ashore. Even the bacteria involved in tooth decay make their contribution to bad breath. Many of these bacteria (or their waste products) can cause illness.

To turn to a classroom application: one pedagogical approach might involve asking students to find the worst-smelling neighborhoods or areas near where they live (admittedly, this is not without some risk to the student), determining the source or cause of said stench, and coming up with sustainable alternatives to alleviate the problem and any attendant health concerns. The following are sample directions and questions for a team project of this

¹³ C. Bushdid, M. O. Magnasco, L. B. Vosshall, and A. Keller, "Humans Can Discriminate More than 1 Trillion Olfactory Stimuli," *Science* 343, 6177 (21 March 2014): 1370–72, doi: 10.1126/science.1249168.

nature that could tie together students’ investigation of literature and their understanding of applications in their daily lives.

PROJECT STEP 1. FIND THE ODOR AND SURVEY THE SITE

Your team should start by doing some primary research. Remember that we dislike certain odors for good, adaptive reasons that evolved to safeguard our health. You may want to wear protective gear (filter mask, gloves) if your investigations bring you very close to the source of the odor. Also, be vigilant and careful; work in a team if your research takes you to places that might not be safe.

Where do persistent bad odors originate in your neighborhood, or at your school? Discuss the options with your team, or take a walk around to investigate. Choose one of these stink sources for your team to investigate.

Spend some time at the site to learn more about it. What’s causing the stench? How far does the offensive odor travel, and in what directions (hint: what is the prevailing wind direction in that area)?

Describe the people who are most often found within range of the stink. Who has to smell it, and how often? What is your perception of their socioeconomic status? Does anyone have a job that requires them to come into close proximity with it? What is the social status associated with that job?

STEP 2. ROOT CAUSES

The root causes of your odor may be determined through more primary “fieldwork” research, and/or secondary research using information resources online or at your library.

What is the source of the stink’s source? If it is waste of some kind (feces, household trash, industrial byproducts), whose waste is it? If it is the byproduct of some kind of production or processing, who is purchasing the finished goods, and why? Who is profiting from their sale?

STEP 3. 21ST-CENTURY SOLUTIONS

What are some proposed solutions to the odor pollution? Could it be treated with chemical or industrial processing? Are there any ways to reduce the production of the source, or utilize the waste for another purpose that might be less problematic or polluting? (Remember that in natural living systems,

waste from one organism is usually consumed or broken down by different organisms and the component materials thereby returned to the nutrient cycle of the system.)

STEP 4. 18TH-CENTURY SOLUTIONS

Would the odor source have been a larger or smaller problem in the eighteenth century? How did they try to deal with it? Are any of these traditional solutions still viable? Are there any modern solutions that might have been practicable with Enlightenment-era technology, if they had only known about them? What biases or cultural norms might have precluded the application of these solutions?

* PROJECT-BASED LEARNING: WATER CONSUMPTION *

To turn from urban sanitation to the broader issue of sustainable water consumption: water scarcity presents an immediate and major threat to sustainable development as it is complicated by population growth and economic factors.¹⁴ While population growth and rapid economic development contribute to water consumption or stress, changing consumption patterns may become a major cause of water scarcity.¹⁵ In the coming years a much larger share of world population will be affected.¹⁶

Students could also use a tool based on the concept of the “water footprint” and used in the Philippines, a nation particularly beset by an impending water shortage. The water footprint (WF) can be defined as the volume of water used to produce a unit of product at the place where the product is actually produced, or alternatively as the volume of water that would have been required to produce the product in the place where the product is consumed.¹⁷ It is a consumption-based indicator of water use

¹⁴ R.Koudstaal, F. R. Rijsberman, and H. H. G. Savenije, “Water and Sustainable Development,” *Natural Resources. Forum* 16, 4 (1992): 277; J. Liu and H. H. G. Savenije, “Food Consumption Patterns and Their Effect on Water Requirement in China,” *Hydrology and Earth System Sciences Discussions* 12, 3 (2008): 887.

¹⁵ Liu and Savenije, “Food Consumption Patterns,” 887.

¹⁶ I. Shiklomanov, *World Water Resources, A New Appraisal and Assessment for the 21st Century* (Russia: World Water Resources Monographs, 1991), 16.

¹⁷ A. Y. Hoekstra and A. K. Chapagain, “Water Footprints of Nations: Water Use by People as a Function of Their Consumption Pattern,” *Water Resources Management*, 21, 1 (2007): 37.

defined as the total volume of water that is used to produce the goods and services consumed by an individual or community. It takes the direct and indirect water consumption of an individual, institution, a country or the whole world.¹⁸

While water stress is often a direct result of population growth and economic development, food consumption patterns may potentially become one of the main causes of water scarcity. Using water in relation to an experiential approach to water management education will truly expose the learner to his or her total water demand and the effect of his or her consumption patterns on the global or national water supply.

Almost 90 percent of an individual's water requirement is needed for food production.¹⁹ Water scarcity, therefore, may originate from insufficient water needed for food production. For example, about 1 to 2 cubic meter of water is required to produce 1 kg of cereal and even more water is needed to produce the same weight of meat.²⁰ We can therefore say that human beings "eat" thousands of liters of water each day—the value is dependent on each individual's food consumption patterns. A typical American diet, for instance, requires twice the amount of water as a vegetarian diet with the

¹⁸ Measuring water sustainability is usually limited to national water use accounts (statistics on water withdrawals in the different sectors of the economy). They are restricted to "blue water accounts" (related to production and thus excluding (a) "green" and "grey water accounts," (b) accounts of internal and international virtual water flows and (c) water accounts related to consumption. This practice creates unsustainable water use because it ignores "green" and "gray" water resources (Falkenmark 2003). M. Falkenmark and J. Rockström, "The New Blue and Green Water Paradigm: Breaking New Ground for Water Resources Planning and Management," *Journal of Water Resources Planning and Management* 132, 3 (May/June 2006): 129–32; Maite M. Aldaya, Ashok K. Chapagain, Arjen Y. Hoekstra, Mesfin M. Mekonnen, *The Water Footprint Assessment Manual: Setting the Global Standard* (New York: Routledge, 2011), 10. Green water is essentially the rainfall that is directly consumed by plants to produce biomass. Blue water is the water that occurs in water bodies and groundwater that can be used for irrigation. Gray water is the amount of freshwater used to dilute pollutants. Junguo Liu, Alexander J. B. Zehnder, and Hong Yang computed that over 80 percent of the consumptive water used for crop production globally is green water. See Liu, Zehnder, and Yang, "Global Consumptive Water Use for Crop Production: The Importance of Green Water and Virtual Water," *Water Resources Research* 45 (2009): 1–15, doi:10.1029/2007WR006051. For this reason, it is imperative to study water scarcity in the context of blue, green, and gray water interaction and relate it to how food consumption patterns will affect water sustainability.

¹⁹ Liu and Savenije, "Food Consumption Patterns," 887.

²⁰ J. A. Allan, "Virtual Water: A Strategic Resource Global Solutions to Regional Deficits," *Ground Water* 36, 4 (2005): 545–46, doi: 10.1111/j.1745-6584.1998.tb02825.x; Liu and Savenije, "Food Consumption Patterns," 887.

same nutritional intake.²¹ Unraveling the relationship of food consumption patterns and water consumption will help formulate appropriate water and food policies.

Energy water productivity is defined as the energy produced by one unit of water, and is calculated by dividing the energy content of a food crop by its WF. Data on energy content for different nations can be found on the Food and Agriculture Organization (FAO) of the United Nations Statistics Division website.²² Cereals and starchy roots have the highest energy water productivity while animal products generally have much lower energy water productivity. To support a population on a largely meat-based diet requires more land, energy, and water than to support a population on a plant-based diet.²³

Recently the Philippines was ranked second in terms of vulnerability to natural disasters,²⁴ so changing food consumption patterns will become a major threat to the Philippine water availability. It is therefore imperative that the Philippines strengthen “green water” and “gray water” management and improve its agricultural resources and technology. Together with other methodologies, water footprints should be included in determining national water accounts. This will help in formulating an ecosystems-based water management program.

Given current global concerns regarding freshwater access and availability, how do we translate this to an educational tool? How do we initiate a paradigm shift in how we see water? Two pedagogical tools were developed to do this in the Philippines: a Microsoft Excel-based program and an experiential method of analysis. Both approaches were utilized and students were requested to submit a report detailing their experiences and their realizations.

The students were first tasked to compute their water footprint based on their respective direct and indirect water consumption using a Microsoft Excel-based water footprint calculator. Processing was done after the activity.

²¹ D. Renault and W. W. Wallender, “Nutritional Water Productivity and Diets,” *Agricultural Water Management* 45, 3 (2000): 275–96.

²² FAOStat homepage: <http://faostat3.fao.org/home/E>

²³ David Pimentel and Marcia Pimentel, “Sustainability of Meat-based and Plant-based Diets and the Environment,” *American Journal of Clinical Nutrition* 78, 3 (September 2003): 660S–663S. <http://intl-ajcn.nutrition.org>

²⁴ John Vidal, “Philippines Rockets Up List of Countries Most Vulnerable to Disaster,” *The Guardian*, 14 November 2013, <http://www.theguardian.com/global-development/2013/nov/14/philippines-disaster-vulnerable-haiyan>. *The Global Climate Risk Index 2014* compiled by Sönke Kreft and David Eckstein for German thinktank Germanwatch can be downloaded at: <http://germanwatch.org/en/download/8551.pdf>.

Using a focus-group discussion method, reactions were generated and learning was noted.

As a home activity, the students were then tasked to compute their actual direct water consumption by direct observation following a table provided. The students were requested to fill-out the table and together submit their documentary evidence (such as pictures) and brainstorm how they could efficiently utilize water. Focus group discussions showed that the two activities made the students realize the importance of decreasing their consumption of water and encouraged them to reduce their respective water footprints. While this approach is particularly urgent for classrooms in the Philippines, the current vulnerability of the Philippines to water shortage is a warning to all other nations.

Access to clean water is a problem with a long history, and water shortages are not absent from eighteenth-century literature. Indeed, finding fresh supplies of water is a significant concern in many travel narratives, most famously in *Robinson Crusoe* (1719) and *Gulliver's Travels* (1726). Students of eighteenth-century literature, in addition to the projects proposed above, can imagine the experience of water shortage through role-playing as Crusoe, Gulliver, or other travelers of the eighteenth century. Students might also pursue research projects on the amount of water that luxury textiles such as silk and calico required, or the different water footprints of the average diets of elites and working-class members of society.

Further, given the very different attitudes to domestic and imported textile production propounded in the fiction and nonfiction of Daniel Defoe, Jane Barker, and Jonathan Swift, students could estimate, for instance, the water footprints of products of England's domestic woolen industry as they compared to those of imported Indian cotton calicoes as a way of understanding what was at stake in the economic arguments of Defoe, Barker, and Swift and how these economic concerns informed their fiction.²⁵ Using a "systems" approach, students could pursue an interdisciplinary research project on how anti-calico legislation, British colonial policy, and the trade flow of water-expensive products like Indian textiles might have affected the relative water supplies, economies, and quality of life standards in both England and India. But to return to odor.

²⁵ For a discussion of the rivalry between Defoe and Barker on the issue of domestic and imported textiles, see Samara Anne Cahill, "Novel 'Modes' and 'Indian Goods': Textile Nationalism in *A Patch-Work Screen for the Ladies* and *The Lining of the Patch Work Screen*," *Studies in Eighteenth-Century Culture* 44 (2015): 163–84.

* UNDERGRADUATE LITERATURE RESEARCH PROJECT:
ODOR POLLUTION AND URBAN SANITATION *

So far we have outlined some project-based approaches to studying both odor pollution and water consumption in the classroom. Beyond the classroom, one potential approach for an undergraduate pursuing an independent research project is to begin by identifying odor in fictional and nonfictional representations of the eighteenth-century urban environment. Instructors could furnish examples of canonical texts such as Jonathan Swift's "A Description of a City Shower" (1710) and Tobias Smollett's *Humphry Clinker* (1771) while the student—after performing keyword searches using the *Early English Books Online* (EEBO) and *Eighteenth-Century Collections Online* (ECCO) databases—could locate relevant noncanonical texts such as Pierre-Joseph Buc'hoz's *The Toilet of Flora* (1772; 1775) to put in conversation with the better known texts. Having selected these primary texts, the student would then construct a theoretical and analytical framework by identifying pertinent secondary sources on the historical or contemporary causes and consequences of odor pollution.

Odor pollution refers to an environmental situation where there are problems with odor dispersion and abatement, and is considered a form of environmental pollution.²⁶ It can be seen as an indicator of the lack of circulation in urban centers, both in terms of waste disposal and economic circulation. The excessive use of perfume indicates an inefficient system of circulation, in that economic wealth is not being circulated where it is most required—improvements in public health and sanitation—while expensive luxury items available only to those who can afford them further pollute the communal air. As Matthew Bramble, the intelligent if somewhat curmudgeonly and oversensitive patriarch of the multiple-narrator epistolary novel *Humphry Clinker* observes of a fashionable dance at Bath, the air was "*a compound of villainous smells, in which the most violent stinks, and the most powerful perfumes, contended for the mastery.*"²⁷ Bramble admits that he has an "uncommon sensibility," but his comments throughout the novel suggest that his physical sensitivity, though tending to jaundice his perspective, is not

²⁶ Peter-Schulze Lammers and Arief Sabdo Yuwono, "Odor Pollution in the Environment and the Detection Instrumentation," *Agricultural Engineering International: the CIGR Journal of Scientific Research and Development* 4 (2004): 1.

²⁷ Tobias Smollett, *Humphry Clinker*, ed. Shaun Regan (London: Penguin, 2008), 76. Italics in the original.

altogether inaccurate. Excessive perfume use can overpower the senses just as much as any other odor pollution. Yet that excess indicates how strong the environmental odor pollution must already be and that there is an unhealthy lack of proper air circulation. The cost of perfume, particularly in the eighteenth century, registers the fact that while all socioeconomic levels could be affected by poor air circulation, the most economically advantaged members of society could at least mitigate its effects with perfume.

Bramble may be oversensitive, and he certainly does not theorize perfume use as an index of socioeconomic injustice, but he does furnish a top-notch example of eighteenth-century systems thinking in a lengthy comparison of his quality of life and sustainable estate management in rural Wales and the pitiable condition of clean water availability, hygiene, health, labor standards, animal cruelty, transportation time, government regulation, and fresh produce availability in London.²⁸

Similarly, in Jonathan Swift's "A Description of a City Shower," London is plagued by the "double Stink" of its open sewer.²⁹ The odor pollution is so severe that Swift's speaker advises city dwellers to "go not far to dine, / You'll spend in Coach-hire more than save in Wine."³⁰ Similarly to Smollett's contrast between the quality of life in the country and city, Swift underscores the connections between inadequate urban infrastructure and public health regulations, the shared vulnerability of all Londoners, the need to use transportation to avoid London's filth (subject to affordability, of course), the kinds of products that can be consumed on a limited budget (the speaker seems to be identified with the needy poet who cannot afford transportation, but even those who can afford it must choose between traveling in a coach and saving money on wine). These lines highlight the limitations in urban movement and urban living that are a consequence of severe odor pollution.

The speaker further emphasizes the shared physical vulnerability of Londoners by noting that "various kinds" are brought together as a result of this urban environment, which in itself illustrates poor urban circulation within a confined space.³¹ London's lack of a proper sanitation system is given further emphasis in the famous final lines of Swift's poem, in which the refuse from "butchers' stalls," "Drown'd Puppies," "Dead Cats," and "Filth

²⁸ Smollett, *Clinker*, 133–38; the comparison can be found in Matthew Bramble's letter to Doctor Lewis (London, June 8).

²⁹ Jonathan Swift, "A Description of a City Shower," in *The Writings of Jonathan Swift*, eds., Robert A. Greenberg and William B. Piper, (New York: Norton, 1973), 519.

³⁰ Swift, "Description."

³¹ Swift, "Description."

of all Hues and Odours” are described as flooding along London’s “swelling Kennels.”³² The odorous waste and corpses of animals illustrate the inescapability of odor in London: the city is plagued with it and only the natural phenomenon of rain—over which humans have no control—can provide a remedy (and this only a temporary one).

In *The Anatomy of Disgust*, William Ian Miller describes odors as “pervasive and invisible, capable of threatening like poison” and acting as “the very vehicles of contagion.”³³ So perhaps Smollett’s Matthew Bramble is not so very oversensitive after all. Severe odor pollution makes itself manifest in many ways, affecting the populace not only physically but psychologically as well. In *Flushed*, W. Hodding Carter describes stench as so terrible that the population assumed “they were dying from the vapours.”³⁴ Moreover, this mapping of urban stench onto the bodies of London’s population could be seen as a greater representation of the sickness that “infected” the urban environment of London as a whole: the reluctance to circulate wealth from the most privileged members of society for infrastructural remedies to the *public* problem of clean water and air.

The problem with London’s infrastructure was not the lack of resources, but rather a lack of economic circulation. In fact, Lorna Weatherhill notes that the industrial expansion in the eighteenth century, alongside increasing imports of consumer goods, would suggest that there was a great deal of economic growth in London.³⁵ And as Roja Dove notes, perfume use in London began as a method to combat the Plague, and its use was later extended to mask London’s overpowering stench.³⁶ Furthermore, since perfume was made fashionable during this time, and was costly to make, it gained a reputation as a luxury item.³⁷ This is evident in Pope’s description of Belinda’s dressing table in “The Rape of the Lock,” which includes Arabian perfumes. Their foreign origins reflect not only the status afforded to perfumes, but their costly nature as well, especially since they are associated with precious gems from

³² Swift, “Description,” 520.

³³ William Ian Miller, *The Anatomy of Disgust* (Cambridge: Harvard University Press, 1997), 66.

³⁴ W. Hodding Carter, *Flushed: How the Plumber Saved Civilization* (New York: Atria Books, 2006), 99.

³⁵ Lorna Weatherhill, *Consumer Behaviour and Material Culture in Britain 1660–1760*, 2nd ed. (London: Routledge, 1996), 25.

³⁶ Roja Dove, *The Essence of Perfume* (London: Black Dog Publishing, 2008), 25–26.

³⁷ Dove, *The Essence*, 26.

India, suggesting that these two items are of considerable valuable.³⁸ In other words, while the entire population was suffering from the odor pollution caused by inadequate public infrastructure, those who were able to afford luxury imports like perfume bought them and used them to such an extent that someone like Bramble could describe the overpowering olfactory assault as vying with that of the pollution itself.

The ubiquity of perfume in eighteenth-century London is suggested by Buc'hoz's *The Toilet of Flora*, a guide to the art of preparing and applying perfumes that went through several editions. The guide is advertised as containing methods to “give force to beauty, and take off the appearance of old age and decay.”³⁹ This, in turn, suggests that perfume use during the time could be seen as a means to conceal and misdirect the attentions of the populace from the genuine problems with sanitation at hand. In the “Advertisement” of the guide, Buc'hoz goes on to state that “many natural blemishes and imperfections may be concealed” through the use of perfume (3) and that it may “avert the marks of age or decline” (5).⁴⁰ These descriptions highlight the way in which perfume and related products register the constant stench that afflicted London while these very products were available only to those who could afford them. In eighteenth-century London, both economic circulation and air circulation were in need of improvement. While Buc'hoz addresses women and targets their desire to conceal their bodily odors, his statements reflect the larger infrastructural problems facing London. The use of perfume serves as a temporary measure against the aging and declining circulation systems in the city, and served to conceal these major structural imperfections that continued to contribute to London's odour pollution.

This disjunction between the reality of urban stench and the attempts by city dwellers to mask the problem is again highlighted in *Humphry Clinker*. In Edinburgh, Bramble notes, there is no “stronger contrast, than the difference betwixt the outside and inside of the door,” illustrating the pressing reality

³⁸ Alexander Pope, “The Rape of the Lock,” in *Poetry and Prose of Alexander Pope*, ed., Aubrey Williams (Boston: Houghton Mifflin, 1969), 78–100.

³⁹ Pierre-Joseph Buc'hoz, *The TOILET of FLORA; or, A COLLECTION of the Most Simple and Approved METHODS OF PREPARING BATHS, ESSENCES, POMATUMS, POWDERS, PERFUMES, SWEET-SCENTED WATERS, and OPIATES for preserving and whitening the Teeth, &c. &c. with RECEIPTS for Cosmetics of every Kind, that can smooth and brighten the SKIN, give Force to BEAUTY, and take off the Appearance of OLD AGE and DECAY. FOR THE USE OF THE LADIES . A NEW EDITION IMPROVED* (London, printed for J. Murray, No. 32, Fleet-street, and W. Nicoll, St. Paul's Church Yard, 1775). *Eighteenth Century Collections Online*.

⁴⁰ Buc'hoz, *The TOILET of FLORA*, 3, 5.

of urban odor pollution even when matrons who can afford “ornaments and propriety” are likewise in the habit of “discharging all their impurities from their windows” at night.⁴¹ The contrast between the elegance and vulgarity serves to show how the investment in perfume (or other luxury goods) is used to protect particular economic classes from odor, while the larger issue of sanitation remains unresolved. Furthermore, as Carter writes of the London context, the inadequate waste disposal system remained in place until the 1850s, emphasizing the extent of this misallocation of resources.⁴² Students interested in the dynamic of “circulation” could pursue this analysis by using Erik Swyngedouw’s work on “metabolic urbanization.” Swyngedouw applies a Marxist framework to the circulation of capital and commodities within cities and likens it to the circulation of water and sewage within the same city.⁴³ Severe and persistent environmental odor can be indicative of greater problems within large urban centers. Depictions of London, Edinburgh, and other major cities in the work of Smollett, Swift, and others, show that there was severe odor pollution throughout the eighteenth century, and that residents experienced the effects of the stench both physically and psychologically.

The importance of odor in terms of urban development and sustainability may be extended to a comparative case study between eighteenth-century London and present-day Tuvalu, a Pacific island-nation that faces a similar, and perhaps more severe, form of odor pollution. Matt Siegel writes that in Tuvalu, “what hits you first is the smell.”⁴⁴ This is because most of the island-nation of Tuvalu is constructed over large open pits where “household garbage mingles with wastes both human and animal.”⁴⁵ As seen from Swift’s poem and Smollett’s novel, this closely parallels the stench-filled atmosphere that affected London in the eighteenth-century. Furthermore, the infrastructure of modern-day Tuvalu bears similarities with the borrow-pits and dung-hills of eighteenth-century urban centers, and likewise, the citizens of Tuvalu live in an environment, where the air seems, to echo Bramble, to be loaded with contagion.” The ubiquitous smell in these two locations impacts the

⁴¹ Smollett, *Clinker*, 243 (Letter from Bramble to Dr. Lewis, July 18).

⁴² Carter, *Flushed*, 100.

⁴³ Erik Swyngedouw, “Metabolic Urbanization: The Making of Cyborg Cities,” in *In The Nature of Cities*, eds. Nik Heynen, Maria Kaika and Erik Swyngedouw (Oxon: Routledge, 2006): 31.

⁴⁴ Matt Siegel, “A Tiny Pacific Island Nation That Does Not Smell Like Paradise,” *The New York Times*, 16 October 2012, http://www.nytimes.com/2012/10/17/world/tuvalu-a-pacific-landscape-befouled.html?_r=0.

⁴⁵ Siegel, “A Tiny Pacific Island Nation.”

bodies that have to live in such an urban environment and indicates a lack of circulation—of water and of wealth—as well. After all, it was the airstrip built by the US military during World War II that initiated the decline in Tuvalu's environmental welfare.⁴⁶

In contrast to its eighteenth-century counterpart, Tuvalu has a fairly modest economy, surviving on "a combination of foreign aid and dividends" from the sale of its Internet domain name.⁴⁷ While the government of Tuvalu has approached potential donor countries in order to cover the costs of filling up these pits, a donor remains to be found. This case bears similarities to the case of London in the eighteenth century as Emily Cockayne notes that these problems are an "expensive business" to remedy.⁴⁸ The division between members of the upper classes of eighteenth-century London who could afford perfume and the lower classes that could not, likewise serves as a microcosm for the situation facing present-day Tuvalu, reflecting a division, on an international scale, between poorer and richer nations, and, thus, illustrating the way in which economic circulation on a global scale is also troubling.

The preceding is one of many possible interdisciplinary and transcultural ways of approaching the issue of urban sanitation and odor pollution in eighteenth-century literature and giving them a sense of immediacy by comparing them to contemporary phenomena.

* CONCLUSION *

Our overview is hardly exhaustive, but it does provide an idea of how eighteenth-century studies could answer John Sitter's call for pedagogical attention to contemporary ecological crises. Water shortage—partly caused by patterns of consumption, certainly hitting some populations harder than others, and related to odor pollution—is one environmental problem that is immediately pressing in the contemporary world and that also provides a lens through which to encounter eighteenth-century literature anew. Passing on resources to future generations—and literature is as much a resource as water—is, after all, the essence of sustainability.

⁴⁶ Siegel, "A Tiny Pacific Island Nation."

⁴⁷ Siegel, "A Tiny Pacific Island Nation."

⁴⁸ Emily Cockayne, *Hubbub: Filth, Noise, and Stench in England* (London: Yale University Press, 2007), 205.