

persistence'. In contrast, our cities are often celebrated for their sense of reinvention and fluidity. Are we too solicitous to context when working in the countryside? Many visual and literary narratives place great emphasis on the contrasting virtues of the rural and the urban. This was astutely described in Raymond Williams' book *The Country and the City*, an exhaustive exploration of the way in which the rural is defined very much as the 'non urban'. It becomes a haven of bucolic tranquillity and respite from the relentless stimulation of the city. Christos Zografos examines this further,² setting out the countryside as a strange combination of the utilitarian and hedonistic. The hedonistic landscape can celebrate an open panorama of moorland – its value has been, since Queen Victoria's grand tours of the Highlands, in putting a price on seclusion. On the other hand the utilitarian countryside, whether the flatlands of East Anglia or the Flow Country in Sutherland have, in their times, been subject to intense, unsentimental exploitation since the Agrarian Revolution. Anyone who strays off the well-beaten track on the west coast of Scotland can sometimes be astounded at the lack of any sensibility many crofters have for their environment in search of a decent living.

A training in architecture instills a reverence for elegant realisation. When allowed to in the hands of a talented designer, a building becomes an exquisitely considered and controlled whole. In some of the best work in rural contexts, an almost timeless story held by a site is synthesised into a beautifully finished summation of generations of cultural and physical accretion. In the countryside, a landscape of the sublime might coerce architects to be over-reverential in their approach to design. We often like our architecture to be provocative in the city, but the economic, social and cultural tensions can be as sharp and exhilarating in the Northern Highlands too. A contemporary vernacular built 'by the people not for the people' is often found in the spaces peripheral to the home, as in a fluid, ramshackle hinterland so well described by Alan Pert.

To those looking to a productive rather than a sublime landscape, good architecture is underrepresented and often unreported. However redress is certainly not to be achieved by being critical of the authors'

approach. Instead, it is unforgivable that so much countryside has been given over to the kit house and tin portal. Some architects such as Alan Dickson of Rural Design work across the boundaries of the protected and productive landscapes on the West Coast addressing a wide client base and diversity of programme with buildings that sometimes challenge context. *NORD*'s work at East End Sawmill shows dexterity and ambition in delivering architecture from a more utilitarian brief. I therefore have no doubt that all of this article's authors could engage with this agenda. However, we also need braver patrons making a living on the countryside who can go beyond simply saying 'It's a fine view but you can't eat the scenery'.

JOHN BRENNAN
Edinburgh

John Brennan is Senior Lecturer in Environmental Design at the University of Edinburgh

Notes

1. Paul Oliver, *Dwellings: The House across the World* (Phaidon: Oxford, 1987).
2. Christos Zografos, 'Rurality Discourses and the Role of the Social Enterprise in Regenerating Rural Scotland', *Journal of Rural Studies* (2007), 38–51.

Illustration credit:

arq gratefully acknowledges:
A. Lee

On water, landscape, and architecture

It was a pleasure to read the three articles in **arq** 15.3 on water in early modern garden theory and practice. As an outsider to the fields of European garden history who works on Mughal waterworks of roughly the same period, as well as water in contemporary landscape architecture, I learned much from these papers and was once again impressed by the wealth of extant historical texts, drawings, and scholarship.

Designers from Palissy to the Perraults, da Caus, Evelyn, Whately, and Morel inspire reflection on the current state of research on water in architecture and landscape architecture. Interestingly, they convey relatively few of the mundane modern concerns about water as the 'enemy' of the architect,¹ though they must have faced the age-old problems of leaking roofs, windows, and basement foundations – and associated hazards of mold, rot, and

corrosion. Anyone who has chased leaks knows how consumingly important, aggravating, and technically fascinating they can be. Of course many modern architects celebrate water in design, as exemplified by Charles Moore's lifelong passion for water from his doctoral dissertation to a late-career volume on *Water and Architecture*.²

Do the fields of landscape and garden design embrace water in more broadly appreciative ways? Perhaps, though it is worth recalling that the common law doctrine of drainage treats it as a 'common enemy' that every landowner has a right to repel.³ Modern grading and drainage plans must meet grade at boundaries, accept runoff from upstream properties, and not unreasonably alter the quantity, velocity, or quality of flows downstream. Stormwater drainage is a field of competition and creative engagement among landscape architects, civil engineers, environmental scientists, and regulators. Contemporary landscape architects have produced studies of iconic waterworks, water experience, and functional aspects of water in design.⁴ Indeed, some place water at the centre of their practice.⁵

I imagine the editors curated these three essays, but they must have been fascinated by the many points of comparison that they raise. Juliet Odgers' essay on John Evelyn's house at Wotton (pp. 237–47) may feel most familiar for a modern reader. Evelyn's practical attention to leaky pipes, cisterns, and pipe networks concern designers today. These practical matters were part and parcel of his broader conservation philosophy of improvement, *oeconomie*, stewardship of domestic possessions, and perhaps even his ideas about the 'History of the Trades' in Book 2 of the *Elysium Britannicum*. His emphasis on the significance of the trades brought to mind current efforts to shed light on virtual water trade (i.e., flows of water embedded in the production and international trade of goods and services), in which the former secrets of the industrial water supply chain are being quantified and managed.⁶ Odgers' discussion of Evelyn's struggle as a translator of Lucretius' *De Rerum Natura* which ran counter to his personal convictions underscores the intellectual level of design inquiry, a central characteristic in each of the essays.

John Dixon Hunt's essay

compares the Renaissance garden waterworks of Palissy and da Caus with the naturalistic water systems of Whately and Morel (pp. 231–6). While their gardens took dramatically different forms shaped by different cultural contexts, they shared a commitment to the jointly mechanical, intellectual, and artistic inquiry that manipulates and transforms flows of water in designed landscapes. Hunt points out that some of the most deeply religious figures, like Palissy, were also some of the most rigorously independent observers of nature, challenging received wisdom about hydrologic processes (a point that recurs in Nina Hofer's essay on the Grotto of Tethys). I like Hunt's formulation of this work as metaphysical, not so much in a religious or philosophical sense as in aspects of water that are beyond the physical.

Hunt opens and closes his essay with a reference to William Butler Yeats' meditation on 'Ancestral Houses', in which water flows, 'choose whatever shape [they] will / And never stoop to a mechanical / Or servile shape, at others' beck and call.'⁷ Reflecting on the work of designers from Palissy to Morel and others, he turns this phrase around to question whether human agency does not in fact manipulate water to its 'beck and call'? This query initially brought to mind Yi-Fu Tuan's essays on *Dominance and Affection* about the nature of fountains, gardens, and bonsai which, like pets, are loved insofar as they yield to human will.⁸ On reflection, the answer I took from Hunt's article is that the garden designers and places he presents are not reducible to power relations or the power of hydraulics, and that their works may resonate more with Yeats' puzzling question, 'What's water but the generated soul?'⁹ At a time of countless infinity pools that want for a sense of the infinite, and fountains whose precision hydraulics issue from small apertures in perfect tubular arcs that descend into equally small inlets in computer-synchronized bursts, one has a keen appreciation for human hydraulic genius yet perhaps only vague sense of higher wonder. There are important exceptions that searchingly link experience, experiment and meaning, as in a recent volume on *Wasser bewegt: Phänomene und Experimente* and another on *Deep Immersion*.¹⁰

Nina Hofer's article on the *Grotte de Téthys* at Versailles (pp. 249–60) offers an extraordinary spiraling

account of Charles and Claude Perrault's historical succession of designs and water symbolism. The history of these waterworks, their allusions, and orchestrated experience are conveyed through graphic as well as textual inquiry. Hofer traces the flows of water and ideas associated with Tethys, oceanic mother and subterranean source of all rivers; her granddaughter Thetis mother of Achilles; the diurnal cycling of the sun god Apollo; and analogies between water power and regal *puissance* of the French Sun King. Indeed, each essay speaks of relationships between water and water power. For Evelyn, it was the power of water mills and trades; for the Grotto of Tethys the powers of water, fountains, myth, and kingship; and for Palissy perhaps the power of discourse between *Theorique* and *Practise* (though royal power was not strong enough to force Palissy to renounce his religious convictions in the Bastille where he died).

Hofer allows the reader to wait until the very end of the article to learn about a third Perrault brother, Pierre, who helped falsify the ancient theory, held from Aristotle onwards, about the subterranean origin of springs and rivers from a vast oceanic cavern called Tethys. I say helped to falsify the Tethys theory because it was Bernard Palissy who a century earlier had made the argument for rainfall as the origin of springs, based on direct observation. Palissy discerned that rainfall and infiltration on upper slopes could account for springs, streams, and surface waters downslope. Pierre Perrault empirically confirmed that watershed rainfall is more than

sufficient to account for surface stream flows a century later.¹¹

What are the odds of having three such different essays deal with grotto designers who combined mechanical and intellectual brilliance? I was struck by the shared interest among these designers in the flow of water and sap in plants, a fascinating scientific as well as practical phenomenon. In this case the Perraults seem to have been on stronger scientific ground at least insofar as they posited differential pressure as the basis for plant water uptake and transpiration. The search for a 'heart' in plants (Perrault) and gardens (Evelyn) is also intriguing at a time when ethicists are moving from animal rights toward the status of plants and vegetation.¹² I hope some day to read Whately, Morel, and Evelyn (e.g., *Sylva*) on the history of ideas about plant water use, which are less closely studied in hydrology than physical water flows.¹³

This topic raises a further reflection on the direction of water flows – largely downstream through rainfall, runoff, and gravity flow, as Palissy and Pierre Perrault discussed. But also upward through soils and plants into the atmosphere through evapotranspiration as Charles and Claude Perrault emphasised. Just as it is common these days to refer to buildings as one of the largest uses of energy, vegetation and soils are by far the largest uses of water on earth. These articles present a fascinating contrast between the view of water transport from soils to the atmosphere as a process of purification (Perrault), and the contrary view that rainfall is more pure than water pumped to higher ground (Evelyn).



Jal Mahal tank at the Nagaur palace-garden complex in Rajasthan, India

A Distant View and a Final Thought. Although those of us who work in regions such as South Asia lack such detailed historical treatises and drawings, we have fascinating water architecture to study, from stonelined tanks to riverfront ghats, groundwater stepwells, sacred rivers, and Indo-Islamic garden waterworks.¹⁴ Design expression in these systems was profound, even though their scientific and technological development lagged in the sixteenth and seventeenth centuries.¹⁵ Water depletion and degradation in South Asia (and many if not most other parts of the world) have prompted renewed emphasis on traditional water systems, both for what they may teach and also for what they must not inefficiently consume.¹⁶

This relationship between waterworks history and conservation raises a final question about John Dixon Hunt's opening clause on the apparent absence of water in Japanese dry gardens, where one might actually imagine an abundance of water, in the metaphysical sense that Hunt uses the term. This question is important for the conservation of historical structures that no longer hold water or have access to the volumes of water required by their original design, or where reconstruction is contemplated to make the fountains play again. In such cases, one may cultivate anew an 'aesthetic of emptiness' in which beauty is perceived in waterworks that fill seasonally, or not at all, like the impressive tanks in a Mughal-Rajput palace-garden complex at Nagaur, a hyper-arid region of Rajasthan, India. The volume of this tank has beauty in all levels of fullness and emptiness, to my eye. When empty it leads one to imagine the continuing evapotranspiration from the grand neem trees rising above the garden wall. Contra the aesthetics of emptiness, many visitors yearn to see the pools full and fountains playing – and these divergent yearnings may be a good topic for a future set of water essays in **arq**.

JAMES L. WESTCOAT JR.
Cambridge, MA

James Wescoat is an historian, geographer and landscape architect in the Department of Architecture at MIT, where he holds the Aga Khan Professorship in the Aga Khan Program for Islamic Architecture, a joint program between MIT and Harvard.

Notes

1. For example, William Rose, *Water and Buildings: An Architects Guide to Moisture and Mold* (New York: John Wiley, 2005); and Elmer Botsai and others, *The Architect's Guide to Preventing Water Infiltration* (New York: John Wiley, 2010).
2. Charles W. Moore, 'Water and Architecture', unpublished doctoral dissertation (Princeton, NJ: Princeton University, 1957); and idem., *Water and Architecture* (New York: Abrams, 1994).
3. James L. Wescoat Jr., 'Common Law, Common Property, and Common Enemy: Notes on the Political Geography of Water Resource Management for the Sundarbans Area of Bangladesh', *Agriculture and Human Values*, 7 (1990), 73–87.
4. For example, Robert L. France, *Handbook of Water Sensitive Planning and Design* (Boca Raton, FL: Lewis Publishers, 2002). Specialised works address every topic from rainwater harvesting to porous paving, irrigation design, stormwater design, and water reuse (e.g., Bruce Ferguson, *Porous Pavements* [Boca Raton: Lewis Publishers, 2005]).
5. For example, Herbert Dreiseitl and Dieter Grau, *New Waterscapes: Planning, Building and Designing with Water* (Basel: Birkhäuser, 2005); Anurada Mathur and Dilip da Cunha, *SOAK: Mumbai in an Estuary* (Mumbai: Rupa, 2009); and the Conservation Design Forum in Elmhurst, Illinois, USA.
6. Tony Allan, *Virtual Water*
7. W.B. Yeats 'Ancestral Houses', from *Meditations in a Time of Civil War* (1928).
8. Yi-Fu Tuan, *Dominance and Affection: The Making of Pets* (New Haven: Yale University Press, 2004).
9. Yeats, 'Coole Parke and Bailey 1931', and John Dixon Hunt, "'What's Water but the Generated Soul?': The Metaphysics of Water in the Landscape Garden', *Occasional Paper (Garden History Society)*, 2 (1970), pp. 3–17.
10. Andreas Wilkens and others, *Wasser bewegt: Phänomene und Experimente* (Bern: Haupt Verlag, 2009); and Robert L. France, *Deep Immersion* (Winnipeg: Green Frigate Books, 2003).
11. Asit Biswas, *History of Hydrology* (Amsterdam: North-Holland, 1970).
12. See Matthew Hall, *Plants as Persons: A Philosophical Botany* (Albany: State University of New York Press, 2011); and in South Asia Alison Findly on *Plant Lives: Borderline Beings in Indian Traditions* (New Delhi: Motilal Banarsidass, 2008).
13. James L. Wescoat Jr., 'The Ethics of Evapotranspiration', paper presented at the Carr Center for

Human Rights, Kennedy School of Government, Harvard University, 2012.

14. Julia A. B. Hegewald, *Water Architecture in South Asia: A Study of Types, Development and Meanings* (Leiden, Boston: Brill, 2002); Morna Livingston, *Steps to Water: The Ancient Stepwells of India* (New York: Princeton Architectural Press, 2002); and James L. Wescoat Jr., 'Waterscapes and Water-Conserving Design', *LA! Journal of Landscape Architecture*, 25 (2009): 83–87.
15. See Irfan Habib, *The Agrarian System of Mughal India, 1556–1707*, 2nd ed. (Delhi: Oxford University Press, 2001).
16. James L. Wescoat Jr., 'Water Shortages and Water-Conserving Urban Design in Pakistan', in *Pakistan's Water Crisis*, ed. by Michael Kugelman (Washington, DC: Woodrow Wilson Center, 2009); and idem., *Conserving Mughal Garden Waterworks*, Sir Bernard Feilden Lecture (New Delhi: Indian National Trust for Art and Cultural Heritage, 2007).

Illustration credit:

James L. Wescoat Jr.

Letters for publication should be sent to:

Adam Sharr
adam.sharr@newcastle.ac.uk

The Editors reserve the right to shorten letters