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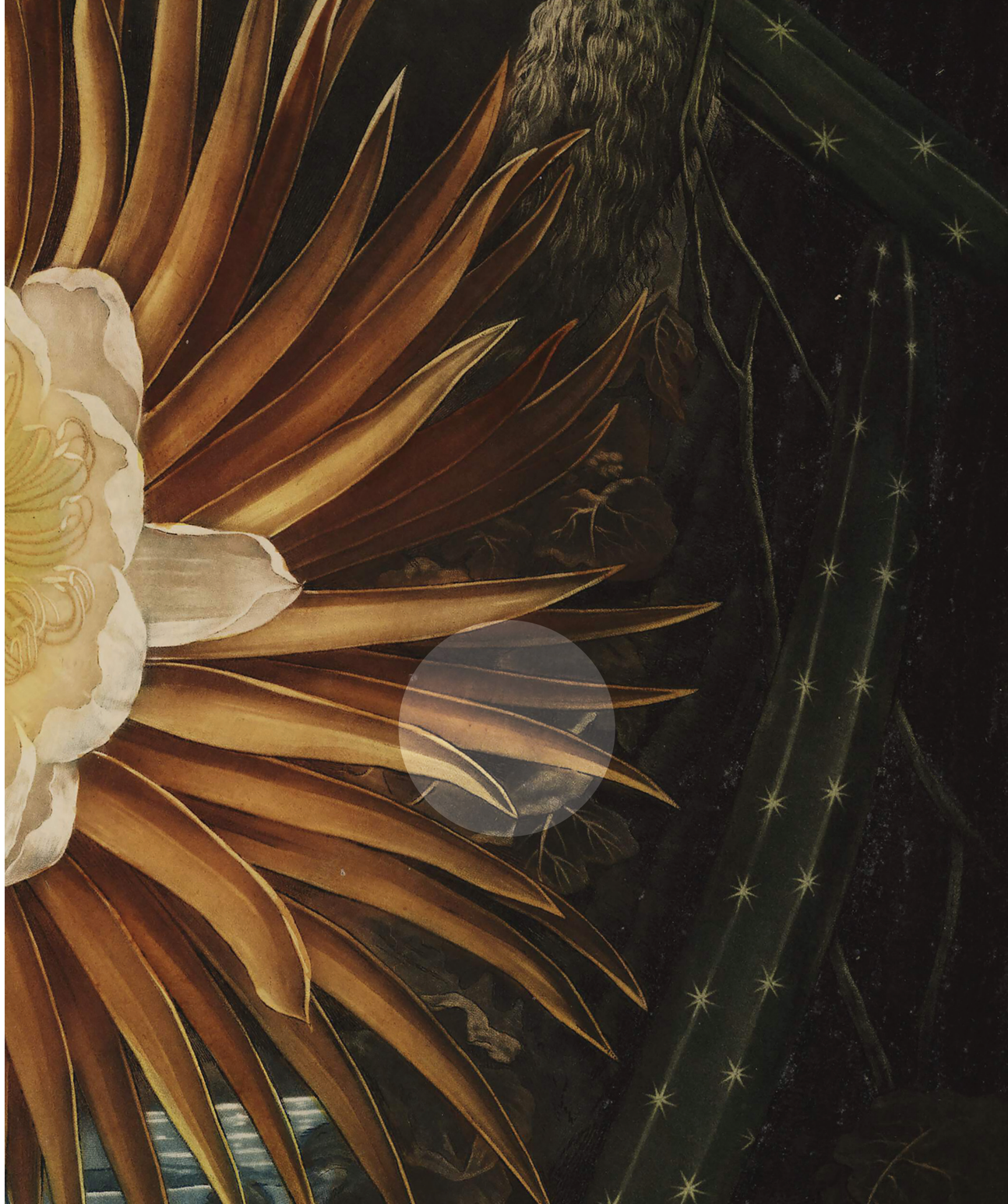

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botanic /bəˈtænɪk/

noun

• of or relating to botany or plants.

• designating or relating to herbal or botanical medicine.

Oxford English Dictionary, 3rd Edition

IN THIS ISSUE

MATTHEW GANDY

FORENSIC ECOLOGIES AND THE BOTANICAL CITY

Matthew Gandy is Professor of Geography at the University of Cambridge and an award-winning documentary film maker. His books include *Concrete and Clay: Reworking Nature in New York City* (2002), *Urban Constellations* (2011), *The Acoustic City* (2014), *The Fabric of Space: Water, Modernity, and the Urban Imagination (2014), Moth* (2016), *The Botanical City* (2020), and *Natura Urbana: Ecological Constellations in Urban Space* (2022).

GEOGRAPHY, BOTANY

What does it mean to regard urban space through a botanical lens, or even a "botanical gaze"? Might this be a portal into a different way of seeing or experiencing urban space? The practice of urban botany holds connotations far beyond the scientific field, ranging from the metaphorical appropriations of the Chicago School to emerging interest in the nonhuman labor of plants within the multi-species city. Clearly, the very idea of urban botany conjures up an intricate field of cultural and ecological intersections, linking specific spaces of nature to an array of global connections and material traces. In my London garden I have been constantly amazed by the strange and often unfamiliar plants that spontaneously colonize any patch of bare ground. A plant called caper spurge (*Euphorbia lathyris*), for example, is of Mediterranean origin, thought to have been introduced for medicinal use in the Roman era, while another species, Canadian fleabane (*Erigeron canadensis*), originating in North and Central America, is simply an adventive species that is indicative of more recent global interactions.[1] If we regard urban plants more closely, and especially the spontaneous flora of marginal spaces, this presents a different kind of analytical vantage point to an animal-oriented conception of urban nature.[2]

In this brief article I want to explore the meaning of forensic ecologies in an urban context, drawing on the insights to be gained from a botanical reading of urban space. I am using the term "forensic ecologies" to denote a conceptual synthesis between the critical paradigm of forensic architecture and the role of indicator species derived from fields such as forensic entomology, forensic archaeology, and other longstanding approaches to the precise reconstruction of past environments.[3] Notably, an emphasis on forensic ecologies can produce counter hegemonic data wherein new knowledge serves to challenge existing foci of power. The discovery of rare plants on marginal urban sites can form the basis of a legally grounded socio-ecological challenge to the speculative dynamics of capitalist urbanization. In the case of Berlin, for example, the sociologist Jens Lachmund's study of the Südgelände former railyards shows

how a forensic approach to the collection of data on ruderal flora and fauna was successfully deployed in the 1980s and 1990s to protect a fragment of *Stadtwildnis* (urban wilderness) from development, eventually leading to the creation of an urban nature park.[4] Similarly, in London, the discovery of rare plants in the Walthamstow Marshes such as adder's-tongue (*Ophioglossum vulgatum*) helped to provide the area with a degree of legal protection as a Site of Special Scientific Interest in 1985 after a long-running campaign led by local activists since the 1970s.

The question of rarity is highly context specific. By noticing interesting plants in unexpected places, the urban botanist can illuminate overlooked dimensions of the ecological dynamics of urban space. The history of urban botany can be read through the shifting definitions of weeds and "non-weeds" as different facets of nature become regarded as "plants out of place." Indeed, even the same species can pass through successive stages of cultural symbolism as an object of curiosity or cultivation followed by a phase of neglect or cultural disappearance only to dramatically reappear as an object of contestation and anxiety. A prominent example in European cities is the tree-of-heaven (*Ailanthus altissima*), originating from China and Vietnam, that was first introduced as an ornamental curiosity, then recommended for municipal arboriculture as a drought-resistant street tree in the 1950s and 1960s, but later resurfacing as a "feral" component of urban vegetation in parts of Europe, North America, and elsewhere with dense stands developing along railways, roadsides, and other interstitial spaces.

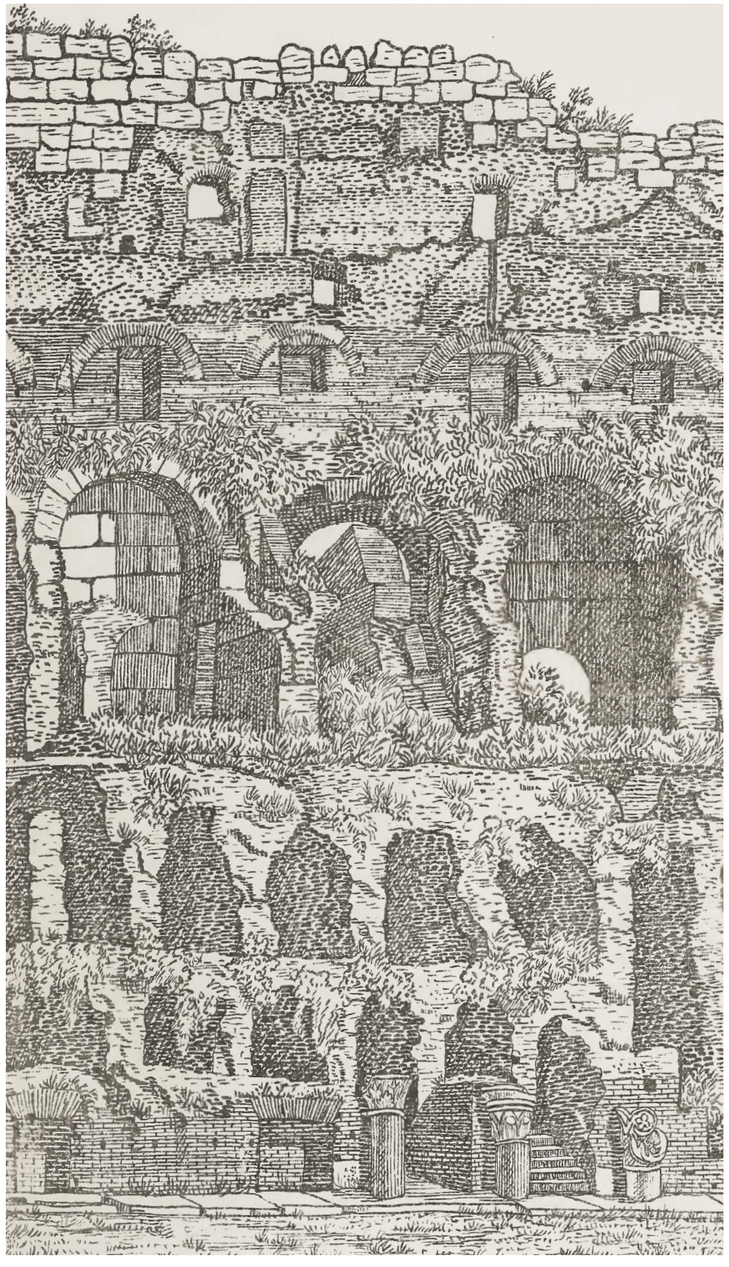
The compulsion to remove urban weeds can be characterized as a recurring facet of bourgeois environmentalism and the quest for spatial order in the modern metropolis.[5] Consequently, a fascination with weeds forms part of a longstanding counter discourse that we might gather under the umbrella of "observational paradigms" within urban ecology that reaches back to early studies of post-industrial ecologies, ballast floras associated with ports, or the distinctive assemblages of plants associated with old walls and ruins. In Richard Deakin's classic study of the ruins of the Roman Colosseum, for example, published in 1855, over 400 species of plants are recorded from across Europe, North Africa, and further afield, yet the unification of the modern Italian state in the 1870s led to a "clean up" of this and many other archaeological sites in which botanical traces of the past were effectively erased.[6] Urban ruins offer a double aesthetic under modernity: on the one hand we encounter a complexity of form associated with processes of decay and abandonment, which has sometimes been elided with neo-romanticist cultural tropes; and on the other hand, we can observe specific kinds of unusual ecological assemblages, such as those associated with the eroded mortar in old walls, which is often alkaline and can support ferns and other plants associated with biotically rich rock crevices that occur on limestone cliffs or even specialized kinds of alpine habitats.

The idea of ordinary street corners serving as a botanical portal into global history connects with a critical taxonomic reading of urban space. The use of Latin plant names evokes a distinctive kind of abstract scientific cadence for the interpretation of spontaneous vegetation. There is a mysterious quality to scientific nomenclature that has enriched the arts-science interface as part of a variety of cultural and ecological investigations. Since sites of these kinds represent a cosmopolitan urban flora, the Linnaean taxonomic schema can be turned on its head so that the classificatory idioms of modernity can form the basis for a postcolonial reading of urban space. The binomial nomenclature devised by Linnaeus serves as a Janus-faced language of spatial discovery since the precise analysis of actually existing urban nature can dispel nativist conceptions of ecology and landscape. Every empty plot can produce a unique kind of global ecological assemblage through chance combinations of seeds brought by wind, birds, or even human feet. Marginal sites constitute a kind of experimental zone that attests to complex configurations of human and nonhuman agency.

With the extension of phytosociology or "plant sociology" to urban and industrial biotopes in the 20th century we find that Linnaean nomenclature has expanded to encompass specific kinds of plant assemblages associated with marginal spaces. No longer simply referring to a species these additional scientific monikers refer to a series of distinctive plant associations that characterize specific sites or substrates. In the case of marginal spaces in Berlin, for example, we often encounter a plant assemblage named as "Dauco-Melilotion Görs ex Rostański et Gutta, 1971," which is indicative of a characteristic combination of species that can emerge after several years on urban wastelands or *Brachen*. The name denotes a distinctive combination of plant genera derived from the carrot and clover families that has been widely deployed in the scientific appraisal of ruderal vegetation encountered in urban wastelands and similar kinds of sites.[7] An emphasis on putative "plant communities" can also point to alternative conceptualizations of the multi-species city that emphasize rhizomatic or mycelial connections between plants, fungi, and other organisms, and especially the kind of complex associations to be found in soil.

Urban soils represent a kind of living archive. The botanical investigations of the Brazilian artist Maria Thereza Alves have allowed the reconstruction of specific facets of global history such as the global reach of European colonialism and the ecological imprint of transatlantic slave trade routes. In the series of site-specific installations entitled *Seeds of Change* (1999–) Alves examines the flora associated with ballast waste in port cities to reveal how specific species were transported between different locations. The term "ballast" refers to the miscellaneous types of soil, stones, and other materials that ships use to balance out their cargoes but discarded on arrival at their destination. Working in collaboration with botanists, Alves found that soils from these former ballast sites can contain seeds that have remained dormant for decades or even centuries. In a recent iteration of her project *Seeds of Change: Antwerp*, first exhibited in 2019, Alves uses an analysis of ballast flora in Antwerp to uncover links with colonial atrocities committed in Congo, Guatemala, and elsewhere, as well as posing questions about the persistence of nativist doctrines in post-colonial European cities. The complexity of actually existing urban nature unsettles existing conceptions of bioregions or other kinds of bounded ecological phenomena. There is a queering of regional sensibilities that can encompass successive layers of cultural and ecological influences so that existing scientific discourse becomes disoriented in the face of unfamiliar socio-ecological configurations.

Patterns of urban vegetation can both conceal and reveal traumatic events: the scars left by wartime damage, geopolitical division, or economic upheaval can gradually disappear amid a carpet of plants. Over time a "wild urban woodland" can gradually envelop urban and industrial ruins – the roots systematically tearing through concrete surfaces or creeping plants forming a thick blanket of green over remaining structures. An example of this process is the gradual transformation of the wartime rubble mountain known as the Teufelsberg (Devil's mountain) in former West Berlin comprised from the debris produced by the aerial bombardment of the city in the closing stages of the Second World War.[8] In the 1970s this stony wilderness harbored many plants adjusted to warm and dry environments such as sticky-leaved goosefoot (*Dysphania botrys*) of Mediterranean origin and various species of tumbleweed (e.g., *Salsola* spp.) from the eroded landscapes of the American Midwest. In recent years, however, a dense forest of adventitious trees such as sycamore (*Acer pseudoplatanus*) has given the landscape a verdant appearance, an ecological trompe l'oeil, in which the recent hillside forest appears to connect with the ancient Grunewald forest toward the edge of the city. At ground level, however, as we enter the shaded interior of this urban forest we encounter the fragments of lost lives: small shards of tiles and other ceramic items that were once part of people's homes litter the surface of the ground in all directions.



The practice of urban botany is closely enmeshed with walking methodologies. Walking itineraries provide a multisensory immersion in urban space in which plants can provide rich insights into ecology, memory, and multi-scalar connections over time, connecting urban ecological discourse with histories of modernity, colonialism, and disparate cultures of nature. A botanical itinerary through urban space can be characterized by a certain gait or pace, as the walker becomes immersed in a kind of ecological reverie. There are sensory filters in play here too: as some things come into view others become invisible. Signs of life springing from the sidewalk become an intricate arrangement of lifeforms just as the hum of traffic recedes from conscious awareness. The texture or smell of leaves held in the hand can become an ecological microcosm in thrall to all the senses.

Botanical forays through urban space can constitute an "ecological ethnography" that is derived from slow and often repeated itineraries through different parts of the city. Marginal or overlooked spaces are transformed into sites of insight and discovery, even to the point of unsettling existing approaches within the ecological sciences. Indeed, an expanded conception of botany is an inherently interdisciplinary field that underlines an enduring arts-science interface associated with the meticulous observation of ordinary spaces of nature. Botany provides a distinctive way of experiencing urban space that extends to all dimensions of the human sensorium and beyond. By extending the practice of urban botany to the wider field of post-positivist forensic ecologies we can explore multi-scalar dimensions of urban space that connect with multiple human and nonhuman temporalities. The production of counter hegemonic forms of botanical knowledge can protect specific sites, reveal hidden histories, and also point to more complex configurations of agency.

1 See, for example, Robert E. Witcher, "On Rome's Ecological Contribution to British Flora and Fauna: Landscape, Legacy and Identity," *Landscape History* 34, no. 2 (2013): 5–26.

2 See Marion Ernwein, "Bringing Urban Parks to Life: The More-Than-Human Politics of Urban Ecological Work," *Annals of the American Association of Geographers* 111, no. 2 (2021): 559–76.

3 See Matthew Gandy, *Natura Urbana: Ecological Constellations in Urban Space* (MIT Press, 2022). For an introduction to the work of forensic architecture see Eyal Weizman, *Forensic Architecture: Violence at the Threshold of Detectability* (Zone Books, 2017).

4 Jens Lachmund, *Greening Berlin: The Co-Production of Science, Politics, and Urban Nature* (MIT Press, 2013). See also Ingo Kowarik & Andreas Langer, "Natur-Park Südgelände: Linking Conservation and Recreation in an Abandoned Railyard in Berlin," in Ingo Kowarik & Stefan Körner (eds) *Wild Urban Woodlands: New Perspectives for Urban Forestry* (Springer, 2005), 287–99.

5 Zachary J. S. Falck, *Weeds: An Environmental History of Metropolitan America* (University of Pittsburgh Press, 2010).

6 Richard Deakin, *Flora of the Colosseum of Rome; or Illustrations and Descriptions of Four Hundred and Twenty Plants Growing Spontaneously upon the Ruins of the Colosseum of Rome* (Groombridge, 1855).

7 Matthew Gandy, "Ghosts and Monsters: Reconstructing Nature on the Site of the Berlin Wall," *Transactions of the Institute of British Geographers* 47, no. 4 (2022): 1120–36.

8 See Volkmar Fichtner, *Die anthropogen bedingte Umwandlung des Reliefs durch Trümmeraufschüttungen in Berlin (West) seit 1945* (PhD dissertation, Free University, Berlin, 1977).

Opposite: Illustration of ruin flora in Richard Deakin's *Flora of the Colosseum of Rome* published in 1855.

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Editorial

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The Changing Nature of Botanic Gardens

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Green Gold: The Akkoub's Settler Ecologies

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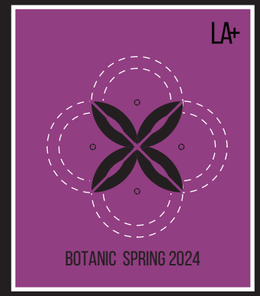

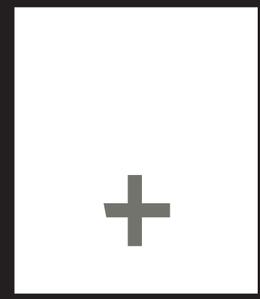

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