

RED ECOLOGIES:
AN ENCOUNTER WITH THE POST-INDUSTRIAL
LANDSCAPES OF ESCH-SUR-ALZETTE

Matthew Gandy

'Il est coloré en rouge par
du fer oxydé, et cette teinte est
d'autant plus foncée, que ce
colorant se trouve en plus
forte dose.'

Johann Krombach,
'Flore du Grand-Duché de
Luxembourg' (1875, 8)¹

'Personne n'y avait soupçonné
une telle diversité.'

Mike Ulmerich and
Gilles Biver (2011, 4)²

The idea of 'red ecologies' seems somewhat paradoxical since the colours 'red' and 'green' lie directly opposite one another on a 12-part colour wheel. If green is closely associated with ecology, vegetation and life itself, red seems more related to destruction, fire, aridity and synthetic materials. In Michelangelo Antonioni's film *Red Desert* (1964), for instance, set in the industrial zone of Ravenna in northern Italy, the colour red is used to symbolize modernity, chemical industries and a sense of alienation within polluted environments. But the deployment of colour by Antonioni is also a source of aesthetic fascination, as indicated by his engagement with experimental developments within the visual arts, even extending to painting infrastructure installations red to accentuate the chromatic features of the landscape.³ In this essay I want to reflect on the significance of 'red' from a variety of vantage points, using an expanded conceptualization of red ecologies to unsettle some of the existing conceptualizations of nature and landscape under late modernity.

If we consider the colour red in relation to the Minett region of southern Luxembourg and the former industrial zones in and around Esch-sur-Alzette, there are three meanings that stand out: the characteristic reddish coloration of the soils produced by the oxidation of iron deposits; the political aesthetics of industrial modernity and the once powerful labour movement that characterized the region; and the unusual ecologies that have emerged in the midst of the rusting debris left in the wake of industrial decline. The distinctive red soils – perhaps more

- 1 Johann H.-G. Krombach, *Flore du Grand-Duché de Luxembourg. Plantes phanérogames* (Luxembourg: J. Joris, 1875).
- 2 Mike Ulmerich and Gilles Biver, 'Les crassiers, des zones refuges pour des espèces menacées,' *regulus* 4 (2011) : 10–11.
- 3 See Matthew Gandy, 'Landscapes of Deliquescence in Michelangelo Antonioni's *Red Desert*,' *Transactions of the Institute of British Geographers* 19, no. 2 (2003): 218–37.

accurately described as scarlet with their deep orange-red colouration – are thus a natural feature but also an indicator for the presence of the iron ore deposits that drove the industrialization of the region.

The French term used for many of these abandoned sites is ‘crassier’, roughly equivalent to the English ‘slag heap’, but with different cultural connotations in relation to the contemporary naming of post-industrial sites. The Terres Rouges crassier, for instance, which serves as the inspiration for this exhibition, has become far more than an anomalous zone but is the focus of ongoing critical reflection about the future of post-industrial landscapes. In terms of the interpretation of these kinds of redundant landscapes, an interesting intervention by Brunella Danna-Allegrini and Marion Henry makes a distinction between the composition of slag heaps, which is geological in origin, and the emergent form, which initially derives from an intense phase of human activity, including technical approaches to the handling of vast quantities of waste, followed by a gradual predominance of ecological processes.⁴ A further conceptual frame for engaging with the changing significance of post-industrial sites is provided by cultural historian Susanne Hauser. She notes an interplay between the ‘turn to memory’ and the ‘turn to nature’ since the 1960s as part of emerging strategies for the reimagining of derelict spaces. Hauser refers to ‘the symbolic reorganization of space’ as the earlier emphasis on site clearance or industrial renewal has become adapted to fundamentally changed circumstances.⁵ Questions of landscape aesthetics, collective memory and scientific curiosity that have entered policy deliberation as narrowly utilitarian discourses are opened up to a wider range of voices and concerns.

A first step in this process of re-imagining marginal landscapes is noticing what is already present. The crassier landscapes of southern Luxembourg can be characterized by three features in particular: the undulating topographies produced by the by-products of mining; a spontaneous profusion of plants in a formerly barren vista; and a striking sense of space and openness as these rocky landscapes meet the sky. On my own visit to the Terres Rouges crassier on the morning of 8 September 2021, my field notes mention ‘the play of light across the landscape’ as the sunlight periodically broke through bands of grey cloud to reveal paler coloured ridges of stony ground. Yet the Terres Rouges

- 4 Brunella Danna-Allegrini and Marion Henry, ‘Charleroi: Slag Heaps and New Landscape,’ *InForma* 12 (2020): 32–38.
- 5 Susanne Hauser, ‘Derelict Land in European Cities: Concepts and Designs,’ *Jahrbuch für Wirtschaftsgeschichte* 2 (2001): 56. See also Ellen Brae, *Beauty Redeemed: Recycling Post-industrial Landscapes* (Basel: Birkhäuser, 2015).

crassier is not quite what it seems: this vast site has not been completely removed from the arena of industrial production since trucks can be observed taking waste materials away to be used as aggregate for road building and other construction purposes. The landscape is thus a kind of low-grade extractive frontier that remains inaccessible to the local community.

The spontaneous dynamics of nature in post-industrial landscapes hold wider implications for reimagining regional cultures in the wake of industrial decline. For what is left of the original working-class communities, these relict landscapes represent a kind of ‘vanished prosperity’ that has nourished in some cases a political shift towards more reactionary and nativist modes of political mobilization.⁶ Yet a reimagining of these spaces can contribute to a very different set of more progressive social and environmental discourses. The provision of walkways and access points, for instance, can facilitate the rediscovery of these landscapes as a source of leisure and the gradual emergence of new ecological imaginaries. Furthermore, the recognition of ‘cosmopolitan ecologies’ reflects how the complex histories of globalization can unsettle narrowly nativist or regionalist conceptions of cultural landscapes. These are emergent ecologies that mirror different facets of global history as well as the specificities of place. Yet the idea of cosmopolitanism also holds ambiguities in relation to the idea of modernity as a universal construct and its intersection with globalized constellations of knowledge, science and cultural identity.⁷ The challenge for the interpretation of post-industrial ecologies is to hold onto these different elements: the universal and the particular, the global and the local. The intersection between bio-physical processes and post-industrial landscapes raises many interesting questions about nature, place, memory and modernity. How, for example, should we interpret the meaning of ‘ecological authenticity’ in relation to these damaged landscapes? In what ways do individual and collective memories intersect to produce distinctive narratives of landscape change? In realizing a new kind of ecological imaginary for this post-industrial border zone, we should also consider how the revalorization of abandoned landscapes might also exacerbate existing socio-economic inequalities.⁸ There are tensions within landscape design discourse, for example, that can remain latent within the aesthetic or ecological evaluation of specific sites. Any design must necessarily entail a series of inclusions and exclusions, both human and non-human, as one kind of cultural formation replaces another.

- 6 Danna-Allegrini and Henry, ‘Charleroi,’ 35.
- 7 See Matthew Gandy, *Natura Urbana: Ecological Constellations in Urban Space* (Cambridge, MA: The MIT Press, 2022).
- 8 See, e.g., Luc Laboulle, ‘Gentrifizierung ohne Grenzen,’ *Land* 12 February 2021.

In contrast to the Terres Rouges crassier, the 267 ha Brucherbiert-Lallengerbiert nature reserve to the south-east of Esch-sur-Alzette is an example of a post-industrial landscape that has already been transformed into a new kind of park devoted to both outdoor sports and the protection of biodiversity. In this case, a former ‘Martian landscape’ of dusty red craters, left over from open-cast mining activities, became a gradual focus of scientific attention because of the profusion of interesting plants, including several species of orchids. The transformation of this abandoned landscape into a *zone protégée* (protected zone) has involved a complex series of negotiations between different interest groups to produce a somewhat uneasy coexistence. My own site observations in September 2021 suggest that this park is heavily used, with multiple traces of mountain-bike tyre tracks visible across the sandy paths. There are also elements of ‘musealization’ on display through the use of signage to explain why the site is protected and also to encourage visitors to minimize the disturbance of flora and fauna (although the means of enforcement are unclear). I use the term musealization in this context to denote an *in situ* institutionalization of cultural or ecological remnants rather than an alternative emphasis on the placing of artefacts in museum-like settings.⁹ What is of interest here is a late-modern manifestation of a ‘didactic landscape’ that can be traced to the display of taxonomic knowledge in early botanical gardens.

How can we best characterize the socio-ecological assemblages associated with post-industrial landscapes? The undulating topographies of waste materials produce distinct patterns in terms of temperature and humidity with most sites experiencing significantly warmer microclimatic conditions than the surrounding landscape. Post-industrial ecologies are often marked by high levels of species diversity that can flourish across these varied topographies and unusual substrates including many organisms ordinarily associated with dunes, stony ground or warmer regions. The increasing scientific interest in marginal spaces has unsettled existing conceptions of which landscapes or organisms should be the focus of concern within conservation biology. The ecologist Peter Keil, for instance, refers to ‘the conservation of urbanized nature’ in relation to the Ruhr district, spanning a spectrum of both native and non-native species, that can take advantage of various kinds of ruderal or nutrient-poor ecological niches.¹⁰ Critical here is an emphasis on forms

- 9 See, e.g., Pınar Aykaç, ‘Musealization as an Urban Process: The Transformation of the Sultanahmet District in Istanbul’s Historic Peninsula,’ *Journal of Urban History* 45, no. 6 (2019): 1246–72.
- 10 Peter Keil, ‘Species Diversity and Industrial Nature,’ in *Rust Red: Landscape Park Duisberg-Nord*, ed. Peter Latz (Munich: Hirmer, 2016), 120.

- A Brucherbiert-Lallengerbiert, Esch-sur-Alzette (2021). The typical adventitious plants or ‘pioneer species’ in these post-industrial landscapes include silver birch (*Betula pendula*).



of novelty, vulnerability and rarity irrespective of the origins of different species. Indeed, this emphasis on unusual ecologies within human-modified landscapes offers a different way of conceptualizing biodiversity discourse. Interest in post-industrial ecologies connects with new fields of scientific interest in ‘novel ecosystems’ along with wider discussions about the meaning of nature within the Anthropocene. For most ecologists, the Anthropocene denotes a dangerous escalation in biodiversity loss but for a few outliers there has been an enthusiastic embrace of multiple processes of change, including the emergence of new forms of nature.¹¹ There is clearly a tension, however, between resilience-oriented conceptions of the Anthropocene and alternative vantage points which acknowledge the limits to human control over nature. In this respect, post-industrial ecologies intersect with emerging interests in ‘urban rewilding’ and the sequential removal of fragments of nature from human control.

We should note, however, that this interest in the ecology of industrial zones is not a new phenomenon. Long before the emergence of urban ecology as a clearly defined scientific subfield, there is extensive evidence of interest in the flora and fauna of human modified environments. We can trace the fascination with industrial ecologies back to the nineteenth century: a series of botanical studies were carried out for cities in the Ruhr district such as Bochum and Düsseldorf, for example, that gave special attention to the unusual or unexpected plants associated with industrial areas.¹² Similarly, in Luxembourg, the botanist Johann Krombach published a comprehensive flora in 1875, which begins with a survey of the huge variety of geological and hydrographic formations. Krombach discusses at length the red soils of the industrial south, which he divides into various shades of red, yellow and grey, depending on the mix of substrates and the degree of oxidation. His survey of the flora of Luxembourg draws attention to a number of interesting plants associated with industrial areas and disturbed ground such as many-seeded goosefoot (*Lipandra polysperma*) growing in ‘uncultivated spaces and rocks near the steel mills of Berbourg’. Other typical ruderal plants recorded by Krombach include mugwort (*Artemisia vulgaris*) growing in ‘décombres’ (rubble) and ‘lieux incultes’ (wastelands). Krombach also notes wormwood (*Artemisia absinthium*) growing in the ‘ruines du château d’Esche’. It is noteworthy that Krombach’s survey does not deploy a simplistic distinction between ‘native’ and ‘non-native’ species, focusing

11 See Gandy, *Natura Urbana*.

12 Hans Höppner and Hans Preuss, *Flora des westfälisch-rheinischen Industriegebietes unter Einschluß der Rheinischen Bucht* (Dortmund: Friedrich Wilhelm Ruhfus, 1926).

more closely on the spontaneous dynamics of plants, including categories such as ‘sporadique’, ‘subsponané’ and ‘espèce cultivée’.¹³

In a contemporary context we find that plants provide extensive insights into the ecological dynamics of post-industrial landscapes. More recently, the botanical emphasis on unusual ecologies has been expanded to take account of studies from entomology, herpetology, ornithology and other fields. In 2011, for instance, the natterjack toad (*Bufo calamita*) was discovered at the Ehlerange crassier, just north of Esch, and is one of only three known sites for this endangered amphibian across the whole of Luxembourg. In particular, the distinctive crassier landscapes once dominated by steel mills have been reconceptualized as *zones refuges* that harbour many endangered species.¹⁴ In October 2020 the Minett region of southern Luxembourg, which includes Esch-sur-Alzette, was designated as the country’s first UN biosphere reserve in a striking indication of how global biodiversity discourse has shifted towards the greater recognition of the ecological value of post-industrial landscapes.

The emerging landscape discourse in Esch-sur-Alzette connects with existing attempts to recast ‘waste’ spaces as a vibrant focus of cultural interest. The incorporation of ‘damaged landscapes’ into park design has become a pivotal element in rethinking the meaning of nature across the so-called rustbelts of Europe and North America. The IBA (International Building Exhibition) played a critical role here, during the decade between 1989 and 1999, in organizing more than a hundred projects in the Emscher Zone based on ‘its explicit politics of integration and preservation of material remains, of buildings, machines, and infrastructures’.¹⁵ The Duisburg-Nord landscape park in particular, completed in the early 1990s, has served as an influential leitmotif for the reimagining of post-industrial landscapes. The winning design by Peter Latz and partners demonstrated how industrial landscapes can form the basis of a new kind of cultural synthesis between past and present. The idea for the park emerged from the need to articulate a different kind of regional cultural identity in the wake of industrial decline. In a throwback to the creation of nineteenth-century urban parks such as Jean-Charles Alphand’s Parc des Buttes-Chaumont in Paris, the programme of work can be conceptualized as an engineering feat as much as a landscape design project: unlike Buttes-Chaumont,

13 Krombach, *Flore du Grand-Duché*. His original description of the red soils reads: ‘Quoique cette couleur soit dominante, il a souvent une teinture tachetée, par suite de sa coloration en rose, gris vert, gris jaune, blanchâtre, suivant la quantité et la variété du liant.’

14 Ulmerich and Biver, ‘Les crassiers’.

15 Hauser, ‘Derelict Land’, 60.

however, where a disfigured landscape derived from former quarries and refuse dumps had been artfully hidden within a naturalistic setting, the Latz design for Duisburg-Nord placed the remnants of industrial modernity at its centre. Similarly, Richard Haag's design for the Gas Works Park in Seattle, completed in the 1970s, has also proved highly influential. Haag recalls how a national student design competition for the site in 1963 saw more than 130 entries yet not a single one chose to retain the gas holders or any other vestiges of the industrial past. In the case of Haag's successful design for the Gas Works Park, the retention of existing industrial structures became a pivotal element in the creation of a new public space that did not seek to conceal its polluted past. A distinctive feature of Haag's work in Seattle was the use of *in situ* bioremediation for toxic landscapes through the creation of an 'active bacterial bio-zone' rather than the removal of contaminated soil.¹⁶

The retention of 'rustbelt ecologies' as part of landscape design schemes has also become more global in scope. Examples include the Shanghai Houtan Park, completed in 2010, on a derelict industrial site. The design by landscape architect Kongjian Yu and the Beijing-based architectural practice Turenscape retains features from a former steelworks combined with a variety of planting schemes geared towards bioremediation goals such as water purification. Similarly, Kongjian Yu and Turenscape's design for the Zhongshan Shipyard Park in Guangdong, completed in 2001, incorporates many of the original structures within an ecological park. But does the emergence of a more globalized approach to post-industrial landscape design imply extended forms of 'generic urbanism' that are not necessarily rooted in the specificities of place or scientific knowledge? Interestingly, Kongjian Yu has taken a more cautious approach to the 'retained wilderness' aspect of recent landscape design projects in France, Germany and elsewhere. He has done so on the grounds that the apparent absence of human intentionality might also render the work of designers themselves less visible.¹⁷

How should we interpret complex post-industrial landscapes? Landscape historian Thaisa Way has adapted anthropologist Clifford Geertz's classic formulation of 'thick description' for place-specific forms of ethnographic fieldwork to develop 'thick sections' for the interpretation of landscape.¹⁸ In a similar fashion to the use of a botanical transect, this vertical perspective creates

- 16 Thaisa Way, 'Landscapes of Industrial Excess: A Thick Sections Approach to Gas Works Park,' *Journal of Landscape Architecture* 8, no. 1 (2013): 28–39
- 17 See William S. Saunders, ed., *Designed Ecologies: The Landscape Architecture of Kongjian Yu* (Berlin: Walter de Gruyter, 2013).
- 18 Way, 'Landscapes of Industrial Excess'.

a stratigraphic rendering of space that combines underlying geological formations with successive waves of human and environmental change. Less clear, however, is how aspects of collective memory might be woven into these diagrammatic representations. In particular, these landscapes hold traces of the immense inputs of human labour that have fundamentally reshaped existing topographies and created opportunities for novel ecological assemblages to emerge. These past accumulations of human labour hold a spectral presence over the contemporary landscape that becomes progressively more attenuated as the by-products of industrial production are gradually effaced by the spontaneous ecological dynamics of environmental change. The closure of industrial facilities produces an interface between the remnants of past human activity, including mines, quarries and other means of extracting value, and a new kind of synthesis between past and present. Processes of entropy and decay intersect with the successional dynamics of the landscape in a gradual shift towards a form of post-industrial woodland – to modify the ecologist Ingo Kowarik's use of the term 'wild urban woodland' – dominated by 'pioneer species' such as silver birch (*Betula pendula*) or aspen (*Populus tremula*) in a European context.¹⁹

A focus on labour, landscape and changing patterns of trade and investment connects with the alternative analytical framing of 'political ecology' that first emerged in relation to resource conflict and environmental degradation in the global South but has subsequently been extended to a variety of urban and industrial settings in the global North. This neo-Marxian perspective, which has itself evolved into what is widely termed 'urban political ecology', to underscore an emerging focus on urban and industrial environments, shifts our emphasis from biophysical processes towards the circulatory dynamics of capital and the underlying drivers of disinvestment and devalorization.²⁰ But what might an urban political ecology perspective bring to the interpretation of post-industrial landscapes? I would like to emphasize four strands in particular. First, we can combine the analysis of 'circuits of capital' with the emergence of specific socio-ecological assemblages, including ecologies of disinvestment. Second, building on the insights of the Frankfurt School, there is the potential to articulate a more precise cultural critique of the aesthetics of ruination, in particular the ideological dimensions to neo-romanticist tropes of spatial emptiness or abandonment.

- 19 See Ingo Kowarik and Stefan Körner, eds., *Wild Urban Woodlands: New Perspectives for Urban Forestry* (Berlin: Springer, 2005).
- 20 See Matthew Gandy, 'Urban Political Ecology: A Critical Reconfiguration,' *Progress in Human Geography* (2021).

Third, the emphasis on interconnections at different spatial scales gathers the analysis of global commodity chains with locally specific kinds of ‘cosmopolitan ecologies’ that contain traces of human history. And finally, a relational perspective might highlight the spectral dimensions to the commodification of nature not only in the past but also within the present since many of the most polluting aspects to global production have not actually disappeared at all but have merely been relocated to ‘cheaper’ sites elsewhere. Above all, an urban political ecology standpoint places the role of social power, and its associated ideological constructs, at the centre of our analytical framework.

In summary, a post-industrial wasteland is not an ‘empty space’ but a vibrant zone of socio-ecological transformation. In making sense of such spaces we are constantly struggling with the limits of language since technical-sounding words such as ‘brownfield’ tend to emphasize a kind of toxic *tabula rasa* that should be revalorized with little attention to either the history or ecological value of specific sites. Indeed, it is useful to consider two etymological roots for terms used in relation to marginal post-industrial spaces. On the one hand, we have a range of words focused on various types of ‘wastelands’ or inherently unproductive land. On the other hand, however, we encounter a different set of terms originating in the idea of ‘fallow’ land that has been temporarily taken out of production to maintain its fertility. This agricultural connotation is to be found in the contemporary usage of terms such as the German *Brachflächen* and the Dutch *braakliggend land* or *onbebouwd terrein* whereas the French *friche urbaine* has its origins in the alternative emphasis on uncultivable land. Taken together, these terms form part of a modern lexicon of spatial marginality that is increasingly international in scope. The challenge for architects, planners and landscape designers is to find a balance between intervention and non-intervention that can retain connections to collective memory, spontaneous forms of biodiversity and the nurturing of more inclusive landscapes for human and non-human inhabitants alike. The conceptual terrain of ‘red ecologies’ provides an opening for thinking about post-industrial landscapes differently, not just in terms of the unusual aesthetics produced by oxidation, but also in terms of the interweaving of human and environmental history.

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TRANSMUTATIONIS

Jan Minne

The *EMBLEMATA* series by gardenist Jan Minne proposes a potential future for the Crassier Terres Rouges that emerges step by step. Its phases are defined by momenta created by nature itself. The series takes the current depleted reality (anno 2022) as its starting point. From there on, the Crassier is left to its own devices for years and years. Pioneering vegetation mutes into a forest. Young birches appear. Alder, chestnut, locust and oak trees further increase the forest’s density. Parallel, a handful of new architectures surfaces on the edge of the Crassier, leaving the ecology unaffected. The (pioneering) inhabitants are first observers. At the peak of the spontaneous renaturation process – offering an overwhelming nature – landscape interventions occur. The original water habitats are sustained and unfolded, while considered parts of Terres Rouges are brought back to their pioneering, lower vegetation. In the ‘final’ stage, the gardenist sows a new future in the one that is already there.