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LAREG

RANDSTAD
51°55'51"N 4°28'45"E

SIZE	8,287 KM^2
POPULATION	7,100,000
DENSITY	1,500/KM^2
ELEVATION	-6,7/69 M
TIME ZONE	CET/CEST (UTC+1/2)

RANDSTAD — URBAN DELTA LANDSCAPE

Andreas René Dittrich

PROLOGUE — EUPHORIA OF CAPABILITY

In former days of the Netherlands there were great masters living. Their skills in engineering within the constant struggle for ground really made them to creators of land where water once was. In their euphoria they used these skills very uninhibitedly, almost equal to *Terraforming*[1] but also as a community, in a social consensus, against their common enemy, the water. Inch by inch, polder by polder[2], along with the acquired space, the cultural dimension of the Dutch land reclamation was growing. In between this *Blue* of the ditches and canals on the one side and this *Green* of the polders on the other side, Dutch cultural landscape took shape.

In present days the sea level is rising on the one hand. On the other hand, the uninhibited draining continuously causes the land to sag. Trying to mediate by mere pumping, consumes in some places already more energy than money can be earned in fields and greenhouses. Nowadays, progressive urban sprawl as well as traffic arteries and distribution nodes of globalisation increasingly come to the fore of scenic. In the Netherlands, particularly the Randstad is more and more determined by this new *Grey*. Here, also the old masters have become modern. They are no longer creating the land, but consuming it by sealing the Green with Grey and disconnecting it from the Blue. Their Grey of concrete fixes now one single spatial condition statically, as private property or public infrastructure, and at the same time temporally, as cemented decades. With-out this basically inherent flexibility of landscape, these pumps will have to keep on running further and faster, forever.

In future days of the Randstad, demands of society towards landscape will probably be others. To define them at present resembles a weather forecast. As many attempts of Dutch spatial planning show, these demands can only be planned vaguely for upon this uncertain foundation. But certainly future demands will not remain static, taking into account social dynamics and climate change alone. Yet an *intermediate level* can be temporally permanent for the Randstad. It is a spatially unique tissue between former days and present days that gives structure to the landscape and remains permanent and thus strong enough to provide space for new *Euphoria of Capability*, even in future days, again and again, perpetually.

THE LAYER OF MANMADE NON-MORPHOLOGY

The Netherlands are framed in the north and west by the North Sea, on the south by Belgium and to the east by Germany. With a population almost reaching 17 million, the population density is today at about 400 inhabitants per square kilometre. At state level, we are talking about one of the highest population densities in the world.

As a depiction of space the Netherlands emerged once in relation to the Habsburg Upper and Lower Rhine regions of the late Middle Ages. The former "Upper Landing", located in present-day Austria, and the Lake Constance area, today conceptually and territorially no longer exists.

The altitude of the Netherlands now ranges from -7 meters north-east of Rotterdam to only 321 meters up on the Vaalserberg in the south-east. An expres-sion of this flat land can also be found linguistically. The Dutch themselves describe their landscape as deep or low.

The citizens do not live evenly distributed in their country. In the provinces of North Holland and South Holland about half the population urges on a fifth of the territory. Caused as well by this reason, the colloquial language term "Holland" for the whole of the Netherlands is derived from these provinces. Here can also be found the area known as "Randstad Holland" – a city square with Amsterdam, Utrecht, Rotterdam and, The Hague.

Taken as a whole, the Netherlands – following the course towards the North Sea – morphologically appears like a slightly bent *Mega Plain*. Only very occasionally topographic elevations like the Vaalsberg appear. This gentle relief still reflects the favourable location as a border space between in-land and sea, and is one of the morphological origins of this landscape. During the Euphoria of Capability the landscape for centuries has repeatedly been reshaped and standardized comprehensively. Originally, the morphology was dominated by glacial swamp basins as well as gravel and sand areas. Typical upon these were oak-hornbeam forests, marshes or peat- and alluvial forests. Within natural and small-scale elevation changes, low-nutrient and nutrient-rich areas, land and water or sweet water and salt water milieus took turn.

The second morphological origin of the Dutch landscape is also related to water. On the home straight towards the North Sea, the rivers Rhine, Meuse and Scheldt formed the Rhine-Meuse delta in the west of the Netherlands. With its alluvium and river banks, this *Alluvium Delta* was the greatest Dutch landscape with laminar flow deposits for more

than 6000 years. Formerly natural dynamics in the delta morphology, such as transportation of materials, floods or tides, were constantly fixed through engineering in the Euphoria of Capability and are now almost frozen into one single status. Even minimal material handling, just a twitch of former dynamism, is now just seen as siltation of waterways.

Along the third morphological origin of marshes and tidal coast – once a natural *Costal Gradient* between water and land – nowadays more than 3000 km of dike constructions protect against storm surges from the North Sea and in the inland against floods of the rivers. Without this achievement of engineering, about 40% of the land today would be flooded. Large parts of the dikes against the North Sea were built as part of the Delta Plan and after the flood of 1953[3]. Upcoming groundwater today also has to be constantly pumped out of the landscape.

All three morphological origins of the Dutch landscape: – *Mega Plain, Alluvium Delta* and *Coastal Gradient* – are nowadays reshaped simultaneously in a cultural and a constructional way. Solely in the east near Utrecht and in the south-west near The Hague are located sand ridges and sand dunes which are elevated by several meters. Coming into existence partly after the last ice age, they formed the first settlement centres on original topographic elevation. Naturally existing flood protection in this case preserved from manmade deformation to non-morphology.

These morphological origins are perhaps still latently visible in the landscape, for the experienced observer perhaps even permanently. But why –at the level of Dutch Everyday Landscape – they are no longer alive and thus turned into this nothing?

THE LAYER OF ONCE TOTAL EVERYDAY LANDSCAPE

Particularly older settlements of the Netherlands showed clear orientation on the various morpho-logical origins. Without engineering knowledge wide areas of the Netherlands were not habitable at that time. So cities like Utrecht in the south-east developed upon the highest natural elevations of the Netherlands, as well as Ammersfoort and Hilversum evolved on the Pleistocene sandy areas in the east. The Hague in contrast was founded in the waterproofed sand dunes landscape with a view to-wards the North Sea.

However centuries before the Peace of Westphalia of 1648, the year of birth of the present-day Netherlands and state autonomy, the constant struggle between the Masters and the water began.

New land was reclaimed in polders, drained with channels, pumped empty with windmills and dewatered into the sea and the rivers. Many flowing waters were thereby dammed from the active river system and served to drain the polder landscape. In the beginning of the *Euphoria of Capability*, due to technical reasons, the water could only be pumped up around one meter higher. Laboriously, several windmills were set in a row so as to overcome at least in stages the difference in height to the highest channel or river. Later on, in the course of technical development, a sophisticated system of moats and channels of towing was connecting all the cities and ports together so efficiently that a transport system with a fixed time cycle was born. First steam-driven pumps appeared in place of a drainage powered by windmills. As a result, efficiency, predictability and stable water levels occur instead of wind dynamics as unpredictable whim of nature.
In the polders itself, the *Euphoria of Capability* invented vegetation sequences of rush, reed, rape and various crops to dry the ground and to make the landscape arable for the following farming. Endless peat forests were laid dry, the wood was built in and the peat was fired. Peat depletion and the marsh body sagging caused by the efficient drainage system resulted soon into a reversal of the relief in the landscape. The river sediments of the alluvium were now relatively higher and thus preferred for settlements in the following period. So the port city of Rotterdam and Amsterdam were founded in the now embanked alluvium of the Rhine delta and on levees along the diked watercourses. The rivers Rotte and Amstel became their namesake.
Already the original *Mega Plain* was an expression of favoured natural spatial position as a border space between sea and inland. The *Euphoria of Capability* transformed it into a favoured economic position. Situated between the North Sea as the gateway to Asia and later on to America and the inland of Europe, the Rhine was converted into the main artery of goods transportation into the continent. Up to the 17th century, the Netherlands developed into a trading force, and favoured spatial position became economic prosperity of cities, citizens and merchants this way.

This era of Dutch history is also referred to as the Golden Age[4] in which social welfare only served as the cradle for an overall social change. The emergence of humanism created a climate of tolerance towards religion, freedom of speech, the liberal arts, and especially towards the natural sciences. As a result, the rate of urbanisation main-

ly due to immigration from abroad was far advanced during the Golden Age. A dynamic range of labour and know-how developed and the newly reclaimed land between the trading centres and transport systems became the fertile hinterland of this era. In turn, the economic boom and population growth further boosted the *Euphoria of Capability.* Once seemingly impregnable morphologies, such as re-mains of deep marsh sinks or whole bays were inte-grated into the network of canals, ditches and dikes. They became accessible by paths and roads and their spaces were finally assimilated as plot structures and field plots of the *Dutch Everyday Landscape.*

So, favoured natural spatial position, euphoric art of engineering and humanism were the origin of the *Dutch Everyday Landscape.* However, designing lineally and thereby in the language of the time was only feasible by a social consensus. All of them, workers, farmers, citizens, merchants, engineers and officialdom, formed theirs space as a culture over a period of 500 years. A limited, fertile hinterland of course had to be optimally cultivated and drained for an increasing population. Culturally lineal however means to subdue (water) nature and to superimpose its natural morphologies and processes with new, *Secure Everyday Landscape*.
This Terraforming on earth was multiple within the space of time, massive and comprehensive and therefore entire and total in the Netherlands.
When their day's work of centuries was done, their *Euphoria of Capability* perfectly shaped, a feeling of sublimity pervaded them. The achievement embodied the spirit of their time so beautifully, that the Dutch landscape itself became subject of its own De Gouden Eeuw[4] in painting and art. For the first time ever, landscape moved to the centre of painting. What the painters saw, was a figured nature, this Green tamed now lineally behind this Blue of a *Total Everyday Landscape*.

What they painted was Dutch cultural landscape.

But at the beginning of the 19th century the *Euphoria of Capability* seemed to vanish suddenly. Economic stagnation diminished the need for a fertile hinterland. The few remaining natural rags could not be dried out with the state of engineering at that time and thus not made arable. Ultimately, the Netherlands were also forced to send many soldiers to the Grande Armée[5]. Their helping hands lacked the land keeping the dikes up and the polders permanently dry. As a result, dike failures and

flooding appeared constantly. At that time it was even seriously considered to fully abandon large parts of the polders. The nation had become too weak to keep the land dry.

Ironically the old enemy, the water, sparked new hope. First hesitantly, then massively steam engines took over the work of many hands. The pumping stations powered by wind were replaced since the second half of the 19th and in the 20th century by motorized pumping stations, which were steam-powered in the beginning, then driven by diesel and eventually electrically. Especially the pumping dry of new polders was now possible in unprecedented dimensions. This technical progress, but above all the growth impulses provided by the spatial connection with the Ruhr region[6] along the Rhine generated a new wave of euphoria and re-sulted in still the most powerful stage of the Dutch land creation. Flevoland in the IJsselmeer was created and even deep marshes like the Haarlemmermeer near Amsterdam, today´s location of the airport Schiphol, could be drained. The Dutch encountered the devastating disaster of the great flood of 1953 with the last Euphoria of Capability to date: The implementation of the Delta Plan.

THE LAYER OF THE GLOBAL AND AUTONOMIC RANDSTAD

The conceptual birth of the Randstad convenes with the great wave of suburbanisation after World War II. At that time, all its centres had in the end been able to transfer their once diverse response to morphological circumstances by urban spatial and functional characteristics. So it is correct, to under-stand the Randstad really as a polycentric metropolitan area. It is not one city, but a collection of differently figured ones, not one of which reaches the million size. At the same time, the Randstad represents 8000 km2 of space with nearly 8 million people, 40 % of the Dutch population.

The first centre of the metropolitan area is Amsterdam in the north-east. With its grown annular structure of transport- and drainage channels and the large drainage area of the Haarlemmermeer, it is the capital and an important financial and cultural centre of the Netherlands.

Rotterdam is the second centre. Although the original structure was almost completely destroyed in World War II, it flourished again as an engineering and drainage work of art, lying sometimes several meters below sea level and, as the waterfront of the Netherlands, it has a high-rise skyline, a post-modern face of a city on the

water. Its function as an industrial and transport centre is still being expanded constantly.

The Hague is the third centre. With only a few drainage channels but many former sinks of old dune landscape, it is the seat of government and home to many international institutions such as the International Criminal Court.

Utrecht in the south-east finally is the fourth centre. Once built, due to the natural flood protection without comprehensive drainage structure, its function as a transport hub along the waterways to Amsterdam and Rotterdam has been complemented with a motorway turnstile and now extended with exhibition and conference centres.

After World War II, the suburbanisation of the Randstad was no longer orientated along morphological or structural characteristics but only followed, as often observed, transport infrastructure and administrative boundaries. New roads were mostly laid ribbon-like around the four centres of the Randstad and Almere in the north-east, newly created in the 1970s on the drawing board. As a re-sult, urbanisation completes the pictures of a ring shaped agglomeration. Unlike centrally structured cities such as London, Paris or Berlin, the Randstad does not build an "administrative unit" but consists of 20 municipalities and four provinces. This mosaic of management is again reflected spatially in the process of urbanisation.

Apart from lacking administrative coordination a fundamental change of the Dutch became apparent, especially from the middle of last century. The reason for the faceless urbanisation of the Randstad was a change of the *Euphoria of Capability*, of a "land creation" into a mentality of land consumption, the mere use of space. Global nodes and autonomous structures were placed upon the once Total Everyday Landscape. Today, the dense road and rail system, supplemented mainly by the waterway Rhine in the south of the Randstad, build up new, global arteries. Besides the ports of Amsterdam and Europoort Rotterdam especially the inter-national airport Schiphol causes fractures with the once created Total Everyday Landscape. So it is not surprising rather significant, that Albert Plesman, founder of the Dutch airline KLM, named the region Randstad at the beginning of the 1940s, when sitting in an airplane he discovered that the expanding cities approximately formed a hem.

The Dutch landscape has always been space of trade and exchange with the world. The resulting new systems of global freight and passenger traffic, however, are no longer seeking for con-

nection between everyday (trade) systems, city and hinterland such as in the Golden Age. Today their high frequency appears along with the autonomy and density of the new global arteries and notes. As comparable with Austria, the Netherlands have now become a global transit space. From inland the pipelines run through the country to the global air-and seaports.

The Randstad has therefore now become a functional part of the Blue Banana [7]. Outwardly, on this global European level, the Randstad appears as a functional unit and well networked. Inwardly, the Randstad is structured into nine individual city-regions that on the residential level only cooperate with each other to a limited extend, despite differing emphasis in administration, commerce, culture and transport. Inhabitants of these regions, for example, make their purchases almost exclusively in their own centre and three quarters of the employees work in the city in which they live. On the other hand, companies have primarily external connections with companies in other parts of the Netherlands or abroad and therewith cause the major part of frequentations on the pipelines between the centres through their global flow of goods. Commuting and individual traffic mainly occur in another direction. Since in the course of suburbanisation living and working in the Randstad have often been separated spatially, employees frequently commute between their residence and the centre. Yet, space- and traffic-intensive businesses in recent decades often moved to the outskirts and thus generate commuter traffic with the centre.

Especially on the weekends, however, crowds of people move much further on in one direction – To the centre of the Randstad. Perhaps for this reason, the Randstad is almost never referred to without this inside, its alleged centre, the Green Heart.

In this regard and at his time Plesman spoke of this space simply as "central area". This inner space of the Randstad only became known as the "Groene Hart" through the Dutch land use planning of the 1960s. It owes its existence to former natural conditions and at the same time it explains the origin of the hemline figure of the Randstad.

As in the post-glacial the sea level raised, an extensive swamp- lagoon- and marsh- landscape emerged in the Green Heart, consistently below sea level. At that time, the Euphoria of Capability technically was still in its infancy. Reclamation of this space was not yet feasible and its colonisation still completely excluded. The settlements of Amsterdam, The Hague, Rotterdam and Utrecht were therefore at a respect-

ful distance hemline to this inhospitable landscape, located upon a natural flood protection, or in areas that were closer to the sea and thus easier to dewater. Only at the peak of the Golden Age until the mid-19th century the masters here, too, succeeded defeating the (water) nature. But even afterwards the area was sparsely populated and as "the new land" it was a play of colours from green and blue. Over time and due to the rapid growth of the different cities along the hem the metropolis Randstad developed decidedly around this space of "non-city".

For a long time, however, from the perspective of spatial planning, this was neither spatial quality nor spatial potential but rather a kind of "green reserve" for the exorbitant population increase expected some day in the Randstad. Only in the 1980's when it became more and more obvious that economic and population growths were more likely to stag-nate, this attitude changed. At that point, the planning intention was to resurrect these reserves and "backyards" of the global arteries and note system as a National Landscape of the Netherlands[8]. Holistically an area of cities, villages, landscapes, natural and cultural history should be preserved and developed further. However, the spatial planning created functions like the "green lung", recreational area and nature reserve, or "green buffer area". Roads, canals, lakes, forests, dunes, green-houses and tulip fields, corridors and peat meadow areas, river areas, mudflats and marshes of this inner space were only understood as functional units, which were simply to limit, to protect or to expand.

Even until today the term Randstad alone does not describe any spatial quality.

It originates from a time of global economic growth and still connotes a functional economic area, for a hem of national and international arteries and nodes within the global system of the Megalopolis Blue Banana. The spatial and temporal coherence between "before" and "after" thus also remains functional. No space quality can arise.

Without that coherence, as well, the term Green Heart degenerates into an empty metaphor.

THE MEDIATING TISSUE OF URBAN DELTA LANDSCAPE

The Randstad today is neither one single city nor a bare accumulation of many small towns. Nor it is a lost region, only covered by arteries and nodes of global, autonomous systems. Even the Grey of sub-urbanisation didn't change the old range of colours everywhere. Today its centre is no longer only a "non-city", a

mere hinterland only dominated by the Blue and Green of the former Total Everyday Landscape.
Many functional levels, individual and societal interests, but also temporal and spatial layers are adding up to this space today. It has become very complex, versatile as the demands towards it and very colourful. Now, it is Urban Landscape. Like so many landscapes of this kind, this one is also fighting within all the complexity and compromises not to lose its spatial quality and after all become colourless in the end.
The attempt to consider now a "polycentric metropolitan area Randstad, with its green heart" just as a "Urban Delta Landscape" in the Netherlands, is a first step to maintain spatial quality. Initially this approach is an appeal to rediscover the basic essence of every landscape, its geomorphology which alone really has greatness and power to spatially grasp all the complexity, social demands and societal colours.

An Urban Delta landscape is able to deploy this morphological force when its water may become the law again.

Ever since the Dutch live along with and against water. During the Euphoria of Capability they learned as engineers and as a community to create land where water once was and ultimately to deformate it to non-morphology. But it is unnatural to fixate a landscape of water in one spatial and temporal condition. To preserve it today is already costly and perhaps in the future in this form and dimension impossible, due to climate change.
Instead of pumping further and faster forever, the character of a delta landscape can be rediscovered instead. Simply allowing water dynamics, leaving space for not fixable or glacial sediments and accepting unpredictable water levels may help to mediate between rising sea levels, inland flooding and sinking soils. At the same time, it could mean to partly rediscover the morphology and give it some space, again.
Natural sinks such as in the vicinity of Rotterdam, relic areas of peat- and marsh forests or manmade lakes caused by peat depletion like Reeuwijkse Plassen near Gouda or Westeinderplassen south-west of Amsterdam could be spaces for this water dynamics. Equally, sunken polder areas, sagged by intensive land use and hyper-efficient dewatering or the natural water course of the Rhine-Meuse delta offer this possibility. All in all, they outline possible structures for a *permanent tissue of water* composed of fresh and salt water environments of future delta morphology.
But to define this space as *Urban Delta Landscape* does not just mean to break

a lineally Blue and release dynamics. What differs from former natural delta landscape and what can make it unique within the ranking among other cultural landscapes and metropolitan regions, is more.

To develop permanent spatial quality, a *tissue of Urban Delta Landscape*, three limitations of cultural landscape have to be overcome: functional, spatial and temporal separation of structures.

Functional separation: The Dutch spatial planning in dealing with the Randstad and the Green Heart shows, how functions of space can be described accurately but only in a functional way. Housing, recreation, work and nature should definitely become connected by the organising principle of water. Besides, the 5th Planning Report for a National Landscape Green Heart names seven criteria of quality: spatial diversity, economic and social functions, cultural diversity, social justice, sustainability, attractiveness and human dimension. But how these spatial qualities are to be designed, remains vague. Separation of functions can neither fulfil these criteria as well. Only in the functional coherence, considered as landscape structures altogether, there is an opportunity for quality of space.

Spatial separation: The visible spatial separation between city and country was characteristic for the development of the Netherlands for centuries. Even today, the Regional Planning tries with red and green contours to maintain this condition as far as possible and to restrain or guide the development of settlements. Transitional areas in between are rarely designated in terms of colour and space. Large parts of the Green Heart are already part of this suburban space. There are almost no specific functional descriptions for it or even qualitative development goals. Its development continues thus largely inadequate and thus less appropriate. At the same time about nearly 700,000 of the 7 million inhabitants of the Randstad live in the once rural area of the Green Heart. Here the population density is already Dutch average. In total, the space has long since become Urban Landscape - city and country can no longer be separated within it. The qualification of this *spatial coherence*, a mediation between town and countryside, can only be achieved through a further development of the suburban structures of the Randstad.

Temporal separation: More than 700 years of Dutch history of land creation have generated a network of temporal and spatial structures. Once it was Total Everyday Landscape. Today these structures can be found as a palimpsest[9] or still under active land use. The landscape is characterised by a pixel mosaic

of plots within the polders, ranging between strictly squared and narrow rectangular shape and in the dimensions of a few hundred square meters to several hectares, connected with various crops and cultivation methods. Plots of same shape and size are bundled into units – landscape modules. This phenomenon can be seen clearly in comparison, for example, between the surroundings of Gouda and Almeere. The bundles can be traced back to various periods in the development of land reclamation.
The drainage technology of the polders determines the alignment and orientation of the plot figures in the polders. It follows the artificially and naturally existing slope towards the North Sea or inland waters. Differentiations in ditch- and channel width or lifting height and pumping power are further signs of periods of development. The precisely drawn perpendicular drainage ditches show even today a once made division of the polders. Sometimes the drainage ditches were also aligned to landmarks such as church spires. Naturally, drainage and plot figures follow each other. They form a tissue that has synchronously been developed over the centuries. Access roads and regional roads, now often part of the Dutch cycling network, complement this tissue. Alleys and windbreak hedges follow them, interrupted by linear settlements, also known as band settlements or street villages.
These structural levels are complemented by offcut spaces of homogeneous surfaces. Several lakes, like Langeraarse Plassen or Braassemermeer, generated by the peat depletion, have been preserved and now serve as fresh water storages and for recreational uses. Remaining stocks of natural marshes complement these offcut spaces. In the heart of the Randstad there are no more vast woodland or forests, like for example in Germany or in the South-East of the Netherlands. The formerly dominant spatial impact by extensive wetlands or peat- and marsh forests has been dissolved to a pixel mosaic of plot structures in the course of deformation to the Total Everyday Landscape. All of these are spatial signs and characteristics of the Dutch cultural landscape. Within a *temporal coherence* these become signs of time. Then these are the levels of the development of the *Euphoria of Capability*.

To establish functionally, spatially and temporally a *permanent tissue* of the *Urban Delta Landscape* of the Randstad therefore means:
. To design functions of space only in coherence, and thus to develop them as a basis for spatial qualities of the landscape.

. To overcome restrictions of Urban Landscape through spatial coherence, so that suburban space can be a mediator between city and country.
. To produce a temporal coherence between former days, present days and future days, without denying temporal fractures.

This tissue stretches from the cores of the centres, towns and villages with their harbours, canals, districts, squares, parks and streets consciously via the structures of the suburban space, with its retention facilities, boat channels, piers, parking lots, residential, commercial and access roads to the depicted structural levels and homogeneous offcut spaces of the once Total Everyday Landscape in the Groene Hart.
The water, the Blue, is always the organising principle and linkage between the Green and the Grey. Finally, a metropolitan public transport network makes the entire space of the Delta landscape accessible along this tissue. At its ends, elements of new water dynamics may be, standing for a rediscovery of landscape quality of an Alluvium Delta or a Costal Gradient. New functions of space such as greenhouse- tulips- or recreational landscapes, floating residential landscapes, aquacultures or Climate Forests[10] fit in as landscape values and economical values between the permanent structures of the tissue, as well as global systems and new infrastructures.
They all connect without reserve, if we design them within a temporal coherence, as part of the development of an Urban Delta Landscape. It is natural then, to structure them as part of this *Tissue of Water*. Water has suddenly become law again.
The next *Euphoria of Capability* is the one of creating water. The painters of tomorrow, they will see it, this *Urban Delta Landscape*.

They will be longing to paint it again.

ENDNOTES

[1] Terraforming: Refers to the future shaping of planets like Mars or Venus to a habitable environment for humans. Parameters such as temperature, oxygen content or the availability of water are to be adjusted to human needs mainly through technical measures.

[2] Polder: Terrain in the vicinity of water, which is lower than the surrounding water table and is permanently separated by dikes. Ground and rain water is collected through a system of canals (Dutch: Slooten) and in the case of low-lying polders divert-ed at low tide with support of pumping systems.

[3] The Delta Plan and the flood of 1953: The Delta Plan is a protection system against floods and storm surges with permanent levees and temporarily lockable areas. Its implementation began in 1958. It comprises the regions of Zeeland, South Holland and North Brabant. The Dutch coastline to the North Sea was shortened by technical structures (Deltawerken), such as locks, weirs and dams from 355 km to 60 km. The flood in 1953 was the catalyst for the development of the Delta Plan. It was the largest flood in recent Dutch history with more than 1,800 casualties. The combination of a spring tide and a severe storm over the North Sea caused the level to rise by several meters. Widespread flooding, especially in the province of Zeeland, south of Rotterdam, was the result. It took ten month until the last dikes were repaired.

[4] The Golden Age of the Netherlands: (Dutch: de Gouden Eeuw) Around one hundred year lasting economic, cultural and political heyday of the Netherlands. It included about the 17th Century and had a fundamental impact on art and painting, especially on landscape painting.

[5] Grande Armée: Name of the Imperial French Army between 1805 and 1815 under the Emperor Napoleon 1st.

[6] Ruhr region: Spatial landscape designation for the Ruhr area in Germany.

[7] Blue Banana: Megalopolis or agglomeration of cities and metropolitan regions in Northwest Europe. It ranges straplike between the Irish Sea and the Mediterranean Sea and is one of the most important concentrations in Europe in terms of popu-lation, economy, science, culture, capital, media, transport, infrastructure and settlement.

[8] National Landscape of the Netherlands: Conceptual circumscription of the spatial planning of the Neth-erlands. Comprises and describes coherent and characteristic landscapes and natural areas for the Netherlands.

[9] Palimpsest: Designates a landscaped tissue of actions and relationships but also historical enrolments. (André Corboz)

[10] Climate Forests: Denote the idea of a redesign of functionally intact and spatially adjusted peat and alluvial forests that can store greenhouse gases simultaneously in their biomass and in theirs soils.

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