Between Polity and Space - The Coast of Europe: 

a Cosmopolis

AA School of Architecture

Diploma Unit 4
Brief 2016-17

John Palmesino and Ann-Sofi Rönnskog
The European project is a complex architecture unfolding across wide spaces and long durations, marked by setbacks, delays, dead-ends, accelerations, differential change, development and simultaneous growth and decay. Its development articulates cohabitation by structuring and re-structuring the relations between polities and their spaces of operation. The work of Diploma 4 inquires into the uncertainties linked to the multiple territorial transformations of contemporary Europe in the new geological epoch of the Anthropocene – a new epoch of destabilising and unstable grounds, where territories acquire more visibility and torque. The Coast of Europe is a project to transform, re-negotiate and reshape contemporary territories of the European project.

How do we measure and structure the bonds between a polity and the specific forms it inhabits on the Earth? We enquire into the multiple territories of the European project as elements of the construction of inhabited space, as makers of its geometry. To sense, measure, survey, articulate, modulate and allocate resources and work is to govern the bonds between law and the Earth. We consider the coastal territories of Europe as architectures undergoing complex re-arrangements, changes and transformations. Overlapping processes are reassembled and formed into a non-deterministic architecture. Today the dynamics shaping Europe operate beyond locality engaging circulations that become more radical and visible along the coasts. It is at the coast of the European peninsula that the uncertainty of the European project is moulding new spaces of radical cohabitation.

Remote sensing technologies are deployed to analyse and envison the shifts in agency brought by the intrusion of the Earth, and the complex knowledge event of climate change, into the European project. No longer a stable background to be measured and structured, away from a set of resources to be used, protected, enhanced or exploited; the Coast of Europe is a complex aggregate of interdependent processes. They form assemblages where there is no direct availability for inhabitation, where architecture acts amongst many transformative forces.
A cosmopolis in the making

Today the conflicts and wide circulations that carve and reconfigure Europe’s spaces are exposing how the stable, certain condition of the European juridical architecture is being intensified and opened on all sides.

A cosmopolis is in the making, where different cosmopolitical forces collide and coalesce. This cosmopolis does not share a natural and muted backdrop: it cuts through and interrupts existing processes and establishes new borders. It does not share any point of view: it is a lateral space of multiple interactions.

The central hypothesis of the research project is that architecture both registers and transmits: it is a transfer technology that operates through the structuring of borders, containment, access and seclusion. It operates by assembling and re-assembling, by acquiring and disposing, by enumerating and distributing. Architecture is enquired into as being shaped by and forming processes of cohabitation.

This hypothesis is tested through a series of projects that engage with the unfolding of the European project. The engagement encounters the multiple overlapping lines and folds that characterise the complex transformation of the cohabitation structures linked to the imperial aftermaths of Europe. The engagement questions simultaneously processes and forms of material disposition and organisation, and forms and practices of institutional organisation: it addresses architecture as a process that links, connects, contains, severs and secludes people and things.

The project is that of a coast: the spatial dimensions of a flank, a side, where different regimes interact and exchange. To think of the European project as the project of the coast of Europe is to engage with differential juridical regimes, of global circulations and relays. It is to think of architecture as a practice acting amidst a multiplicity of other form-generating practices.

Uncertainties

The European peninsula is the seat of a restless movement of people, stimulated in its development by the surpassing of the uncertainties and insecurities caused by the overlapping trajectories of ideas, laws, goods, money, people, arts, disease, riches, flora and fauna. The transfers associated with the ever ongoing movements shaped insecurity and uncertainty, fed by a constant ferment of ideas, circulations and exchanges, marked in the long-distance relations, spanning the seas surrounding the peninsula as well as its valley, plains and passes.

The constant movement and unsettling that characterise the European project are inscribed directly in the material spaces of the peninsula, in the architecture of its cities, landscapes, languages, and institutions: a constant dynamic which erases, transcribes and re-writes the structures of co-habitation of this rather small region at the West of the largest landmass of Asia and at the edge of the Atlantic expanses, as well as its physis and material infra- and intra-structures.

The research and design work at Diploma 4 is an engagement with the European project, its accelerations, set-backs, blockages, expulsions, developments, progress, erosions, wars and transfers: how to think of Europe when it is being provincialised? How to envision an architecture of constant negotiations with the European history, with its multiple neighbours, with its imperial aftermaths? How to understand the dynamic and non-centred processes shaping its physical, economic, juridical, infrastructural and artistic environments?

The impetus of the work is to address architecture knowledge—that is the complex event of associating ideas to entities, sense and thought to things—as the locus where contemporary practices of cohabitation can coalesce and form an ecology dedicated to peace and conviviality, rather than to violence, expulsion, war.

In this sense, to start a project on architecture knowledge from uncertainty is to address simultaneously the agency of our polities, groups, associations, individuals, as well as the transformative processes of non-human material structures, both living and inanimate.
Territories in the Anthropocene

A new intensification is shaping the relations between human activities and their material basis. The Anthropocene is the new geological epoch where the world-system dominates and impacts the earth system at new and unprecedented scales and intensities. It sets in motion a series of reverberations and oscillations that scatter long-established boundaries and it opens up a new set of divisions of time and space. Territories are the specific forms of the links between the earth and humans, between the earth system and the many world-systems that humans shape.

Territories evolve in time and in space, they are a dynamic system, shaped by a vast array of individual interactions, local contingencies and specific sets of agents. The particular forms of those interactions, and their relative stability over time, shapes vast systems of coherence and power, they establish the forms of the relation between humans, and between us and natural resources, processes and forms.

The rise, development, articulation and organisation of territories divides time and establishes boundaries and borders in space. These divisions are as dynamic as their counterparts. The rise of new territories cuts across established relations, in their wake new articulations are formed, and previous ones disrupted and severed.

The conceptualisation of these moments of transition, the relations to the material traces and the human histories of these transformations, is what guides and forms aspirations of knowledge, governance and influence over human spaces and earth processes. The Anthropocene is reshaping these aspirations, reallocating and redistributing agencies, establishing new power relations and new links between atmospheric chemistry and human political action, between ocean circulations and infrastructures, between sedimentation processes and engineering, between energy and natural resources extraction and the forms of globalised economy and war.

A series of Anthropocene tipping points, of rapid transitions away from the long-established forms of modern world-systems and from the territories of the Holocene, are investigated in the projects of Diploma 4. They characterise how the concept of the Anthropocene is resonating across human spaces, cutting through notions of government and planning, survey and management of resources, modifying scientific practices and their relation to humanities, setting in spin forms of cohabitation.

A dark, new space is opening up, where only small glimpses of new territorial structures taking form are visible.
The peninsula

Europe’s landform is marked by two vast depressions to the North and to the South, flooded by the oceans to form two parallel chains of seas that penetrate deep into the interior.

The European peninsula, with its outreaches, bays, meanders, and straits is a unique set of environments, urban structures and political organisations in constant transformation. It is defined in the North by the North Sea – Baltic Sea lane that connects the Atlantic to Russia. In the South the Mediterranean – Black Sea chain stretches from Gibraltar to the Caucasus.

The Coast of Europe is a set of territories open on all sides, where international and non-state polities are reshaping the forms of cohabitation and construction of human landscapes. These landscapes are continuously re-written, reshaped and reconfigured to form a stratification process, a non-centred space where post-almost quasi-semi-neo-colonial practices undo and reconnect authorities and territories.

Today the coast of Europe is not only marked and shaped by natural forces: it is a complex mixture and accumulation of biological, geological, social, cultural, economic, technical and urban structures that form a crucial system that is re-negotiating and adapting its material forms in the face of the pressures of globalisation and geopolitical changes.

It is a complex contemporary urban and metropolitan system ensconced within a number of rapidly changing natural forces and processes: an architecture.

The 136106 km of European coastline, ranging over four seas—the Mediterranean, the North Sea, the Baltic and the Black Sea—and two oceans—the Atlantic and the Arctic Ocean— are almost equal in length to the Equator. With almost 50% of the nearly 500 million inhabitants of the EU-22 coastal countries, the coast of Europe is a vital and strategic element for its future.

The European space is transformed by accumulation, addition, superimposition, intensification and consolidation, rarely by outright replacement or elimination. The project for the re-modernisation of Europe investigates how architecture can engage with the layered and differentiated modalities of growth and change—combining intensification, preservation, modernisation, stagnation, downturn, stasis, decay, growth, conservation, dispersal, abandonment, erosion, consolidation, densification—that are reshaping the territories of Europe and its Seas. The project is defined by the arrangements of motions into which it enters, which is always composed and recomposed by individuals and collectivities.

What are the patterns of these changes? How can architecture affect them? How are inhabited spaces shaped by the multiple uncoordinated initiatives and forces that characterise today’s European connection and relations? How to fathom their differences? How does architecture interact with their internal form-generating processes? How to modify, accelerate, hinder, divert, consolidate or shift them? How can architecture guide innovation in the relation between space and society? What is needed for something new to appear?
Observing transformations

We start in the middle: surrounded by ongoing processes, shaped by a multitude of transformative trajectories. To observe transformation is to elicit from the environments we inhabit the different elements for the formation of a project: architecture is conceived of as a knowledge event, which builds lasting and consequential connections between the forms of polities and the forms of material spaces.

As a first step in the work, we focus on a detailed analysis of the current state of affairs of the territories along the coast of Europe. Each student analyses the different processes that are reshaping a particular section of the European coast, revealing the internal and external dynamics of transformation of the physical, cultural, economic and institutional spaces.

We activate architecture at different levels of magnification: observing the territories as complex assemblages of procedures, networks, infrastructures, populations, historical processes, ecologies, natures and urban spaces, we trace the specific ways by which these territories are wrought and reshape their physiognomy in relation to globalisation, climate change, economic change and the complex mobilities and circulations that characterise contemporary Europe at an age of its institutional reorganisation.

The analysis takes the form of a complex set of visual and textual representations, including surveying, mapping, timelines, diagrams, photography, models etc. that constitute a series of portraits of specific parts of the coast of Europe and the ways they are re-establishing, adapting, maintaining, intensifying and transforming their structures.

A polyptych

The first weeks of the research project works out a preliminary set of visual and spatial analysis of the contemporary transformations that carve the spaces of operation of the analysed territories.

We investigate the geopolitical relations, the current state of affairs of the economic circulations and population mobilities, the prominent aspects of each specific shoreline and its evolutive dynamics. Through the construction of a polyptych that assembles visual images of the main issues and actors shaping each stretch of coast, we build a visual essay and an argumentation about the current state of affairs and the prominent forces operating in the areas we are studying.

The polyptych is an archive of contemporaneity, marking the multiple sources and fields that contribute to forming Europe today. The work at Diploma Unit 4 will place particular attention to the formation of a strong and individual visual language that supports analysis and argumentations.

A polyptych image, a set of many series of images taken from a variety of archives, is a way to start in the middle of things, with architecture in the middle of spaces where transformations are apparently not interacting one with the other. Aby Warburg’s Mnemosyne Atlas indicates here the laying out of a plan of images in movement: a plan in geometric sense, where the gathering and assemblage of trajectories, timelines, forces and narratives reshapes the very idea of the possibility of direct intervention.

This enquiry would resonate with Warburg’s ‘Nameless Science’, which too swiftly can be called back to rank, demanded to display production, products and be tagged down and defined, recalled to systematic ordering principles and founding knowledge. Yet, a polyptych image may be a way of operating from the middle of disjunctions and separations, it may be a way into radical negotiations with a plurality of transformation processes, of undoing ordering protocols.
An atlas of change

A further element in the preliminary investigations is the production of a rigorous architectural cartography of contemporary European coasts, mapping and tracing the transformations in climate change, population dynamics, trade relations, ecological dynamics, maritime traffic, economy structural changes, recreation and tourism, energy consumption, security and surveillance, transports and resources, water dynamics. The architectural documents, remote sensing analysis, surveys and spatial analysis form a coherent atlas of change that contributes to the identification of the potentials of the coast.

An integrated analysis of the mutually interacting and self-arranging interplay of dynamic structures can reveal hidden potentials. In thinking architecture as a specific mode of knowledge production, we can address these morphological processes and make them intelligible. In this sense, architecture can be both the subject and the method of innovative research on the complex contemporary urban and metropolitan phenomena, and their interaction with the natural space about us.

In particular, the research reads and constructs change in space in real time and develops an understanding of contemporary territories and their structure-generating processes aiming at identifying their potentials. These analyses outline and trace at the same time the specific disciplinary field, and reflect on the confines and borders, on the openings and connection points, on the frames and separations of architecture practice. They aim at conceptualising architecture in its dynamic relations with other intellectual and professional fields on the move, in mutual articulation and re-organisation.

Non-deterministic architecture

The second block of work for the project of re-modernisation of the coast of Europe focuses on the existing potentials inscribed in the material and cultural processes of each section of the territory.

The principal issues at stake in a selected region are identified, examined and the various dynamics combined to produce an integrated spatial plan that can guide the multiple forces towards a synergy and innovation in the use of resources.

The focus on the patterns of land consumption, on population density, on the urban architecture, on the physical articulation and organisation of activities in space is structured to work out a new engineering for the future of specific contested territories.

We work to set the main priorities facing selected portions of the coast, understanding how architecture can intervene and modify existing transformation dynamics. The integrated plan is based on the establishment of a clear territorial image and at the same time one that allows for multiple changes and transformations.

Instead of prefiguring a final and stable form, the projects set out a number of differentiated modalities of change. They work across boundaries and disciplinary expertise, and try to shuffle what is apparently divided. The interrelate, intersect and interact with a number of existing initiatives and agents, take advantage of mutualities and interconnections between different flows and processes.

Contemporary territories are a perpetually re-organising field of forces in movement, a specific combination of transformation processes in dynamic combination.
Fathoming differences

The third phase for the project outlines the details of specific architectural interventions. The elements of the integrated plan are further developed and refined, shaping different ways and strategies for bringing change into being.

The dimensions of how to intervene, of what is to be done can only appear within a set of real forces, a field of actions and initiatives that are initiated by a plurality of subjects and that operate across, above and beneath a number of authorities. The dimensions of the architecture project are confronted with the existing processes of transformation and its differentiated rhythms.

In this sense, architecture acts as a practice amongst other practices: inter alia. The works will in this phase envision tactical pointers: here are the constraints, some constrictions, blockages, there openings, new paths for the creative re-appropriation of underused resources and potentials.

Projects will work out in detail a number of architectural elements that form the hallmarks of the integrated plans. The focus in this term will be on exactitude: how can architecture guide the multiple and complex transformative processes? Where should architecture address precision?

How does architecture incorporate visibility that can structure the public sphere and organise the many sectorial rationalities that shape it?

In this term we work on specific architectural and territorial devices that can be used as tactical markers in the strategy envisioned by the integrated plan. The emphasis will be on potential of revision, adaptation within a framework of consequentiality and non-ambiguity. The different designs mark the limits, alternatives and possible new horizons for the sustainable future of the coast of Europe. The architecture of the plan is outlined in its details, using different modes of representation, with a strong emphasis on measure, surveying and digital imaging.

Principal impetus of this phase of the unit work is the definition and argumentation of the design in relation to the project of re-modernisation of the coast of Europe: can architecture be conceived as the construction of propensities towards change?

Each project will outline and work out an architecture as precise as possible both in choice of language and in expression of the subtleties of thought and intention. Each student produces an in-depth vision for the re-modernisation of a part of Europe’s shores, each project will be conceived as partaking in the production of a common public sphere, where critical models of artistic, theoretical, political, technological, cultural, urbanistic concerns can productively be discussed and represented.

Aftermaths, reverberations, inscriptions: the work of architecture knowledge was to figure and to outline against clear backdrops. Uncertainty needed to be kept at bay, framed, stabilised. The intensifications of the interactions between human activities and the Earth System are reconfiguring notions of agency, leading to an architectural renegotiation of the spaces and boundaries of practices.

To measure, survey, articulate, modulate and allocate resources and work: to govern the bonds between inhabitation and the Earth, specific forms, architectures and territories need to be outlined. Institutions need to be shaped and consolidated. On land, these forms appear to be stable, carved into the surfaces of the planet. At sea and in the atmosphere, the geometry of the ordering of the world appears ephemeral and fluctuating.

The geometry of inhabitation is exposed to two simultaneous shifts: in the agency of measurement and in the agency of what is measured. To fathom, to sense, to measure, to survey, to apportion, to assess are today practices that seem to generate instability, inequality, laterality and rapid oscillations rather than quiet, balance, steadiness. The architecture of this simultaneous double shift is linked to a transfer of agency: firstly, a complex movement of reallocation of capacity to act from human institutions to complex machinic and algorithmic systems of measurement, where economic growth marks the arrow of time. Secondly the reconstitution of nature away from a set of resources to be used, protected, enhanced or exploited to a complex aggregate of interdependent processes that can form assemblages where there is no availability for inhabitation.
Devices of transformation

Architecture is a constructive enterprise, a diverse, interdependent and contingent system that does not operate through pre-existing structures of thought and values. The condition of uncertainty within which the architectural project operates is not only linked to the reduced availability of information and knowledge, it is constrained within the structure of the "mechanism" that produces the international space itself.

This structure is opaque to the attempts to bring into evidence its persistent traits, it retracts in front of our comprehension efforts. In this light, the role of architecture and of the organisation of complex processes (cultural, social, technical, economical, scientific, urban) seem to be more that of inserting in the mineral space of the city, and in the topology of infrastructural networks, a set of propensities towards change in order to calibrate, intensify or stabilise the non deterministic transformative processes, rather than that of an overall prefiguration of a stable spatial configuration. It is an architecture of discontinuous and disetaeneous change. Agency, the capacity to act in worlds, is shaped by the endeavour to operate with and within increasingly rich matter and processes, by the recognition of the planet's future openness.

Negotiations

Negotiations are complex rounds of articulations of forms of polities. They are the procedures through which relations internal to a particular polity are composed, consolidated, and formalised. Internal and external systems are articulated through negotiations, where human and material processes are linked.

The processual gathering, display, debate, and formalisation of measurements, evidence, protocols, are the processes for a polity to measure and bind itself to the Earth and transform its territories. The documentation and processing of these measurements are at the core of all negotiations, forming the relation between polities and their spaces.

Who to represent in a negotiation, what issues to argue for, which hard-gridded evidence to produce and present, are the questions that shape the links between material processes and human structures. Negotiations are forms of division of knowledge production; they mark and carve borders and boundaries between specialised practices. Negotiations constantly form and recompose territories.
Imaging and measuring transformation in the inhabited territories are today undergoing fundamental changes, with an array of new sensing technologies being linked to the control, survey and monitoring of a world that is undergoing vast urban and material reconfigurations. How can architecture re-imagine the form of transformation of contemporary territories from the new remote sensing technologies that are currently dominating our automated image-production?

The research projects investigates two distinct contemporary strands of this development: on one side we inquire into how new remote-sensing technologies (from X-Rays in airports to Multi-beam sensors monitoring resistance of urban settlement to floods and earthquakes, from multispectral satellite recognition of urban military activities to sonic images of crumbling monuments) are shaping and carving contemporary spaces of operation and sovereignty, and on the other side we focus on the agency that these new technologies elicit and entail.

We investigate how the deployment of automatic image production in remote-sensing technologies and measurement of material change allows for a reinvention of architectural agency and action. Complex diagnostic technologies currently being developed entail new modes of measuring, testing and intervening into the complex material and organisational environments of contemporary human spaces. They have direct connections to the government and control of space. These technologies do not only advance the ways through which we can detect change and measure material transformation through time, they unfold new sets of procedures and modalities to control, contain, direct and modulate the interactions between human spaces and material structures. They form the basis of contemporary construction processes.

How heavy is a city?

This simple question opens up a wide range of avenues of technical inquiries and experimentations, leading to a higher degree of specificity of the design projects. The technical aspects of the projects will revolve around the inquiry into the material characterisations of a millenary shift characterising contemporary life on our planet.

The TS5 will assess and develop methods of inquiry into the extent, scale and intensity of the energy and material flows that sustain contemporary human life. We will consider these flows and their solidifications, encrustations, and severance as a process of construction over time and across space: as an architecture. The technosphere will be analysed in its dynamic formations: a large and rapidly growing collection of complex objects resting atop and within a vast and growing layer of waste, only minimally recycled back to sustain human life.

The TS work will focus on construction processes and innovative satellite remote sensors, geodesy, thermal images, radar refraction, 3D point clouds and other innovative image technologies in order to envision how complex material systems act and design solutions for their integration in coherent spatial arrangements.

The aim of these investigations in image production is to conceive of innovative interventions in complex construction processes, infrastructural deployment and integration of resources. Through a tight connection between TS and the Unit project, you will achieve a deeper understanding of the modalities to conceive of complex material systems and their delivery.
Work plan

The work will be a specific mixture of thinking and doing, with an emphasis on constructing complex thesis to influence and change the current state of affairs.

You will develop a strong architectural, theoretical, cultural, political, economic and technical argumentation and set forth an innovative way of shaping and re-organising architectural practice.

The work at Diploma 4 consists of a year-long project for the re-modernisation of the Coast of Europe. The work will be organised as a complex thesis that proposes an integration of existing and proposed transformation processes for a selected territory of the Coast of Europe.

The work will be reviewed and discussed individually, with collective discussions and roundtables linking your individual project to the larger research.

The first two terms are conceived as a continuous workflow, marked by a three-week rhythm of development, which will bring you to develop your design in full detail. From the outset of the year, you will be working on the design: the preliminary work moves away from the notion of investigation as a practice that focusses on what is necessary to know before acting and thinking—research before design—and approaches the notion of the project as a space that generates, transforms and innovates agency. The third term will be dedicated to the full detail elaboration of your thesis.

The materials produced during the year will combine projects, analysis and strategies to form a clear and sustained argument for an integrated plan for the re-modernisation of Europe. The work at Diploma Unit 4 will place particular attention to the formation of a strong and individual visual language that supports independent architectural representation, analysis and thorough argumentations.
Thinking and doing

Diploma 4 acts as a think tank on the potentials of re-modernisation of the coast of Europe. Our research work starts with the hypothesis that the contemporary spaces of the coast of Europe can be much more than what they are.

How can we identify the current transformation processes that are shaping and moulding the inhabited spaces of the coasts of Europe? How can we activate architecture intelligence to surpass them and produce sites that are beyond what we already know?

Diploma 4 cherishes individual initiatives and interests, it is set up as a collaborative environment where different forms of learning architecture can find synergies and profit from individual differences and independent approaches.

The learning at Diploma 4 is a complex set of exposures to current debates and technical advancements in a plurality of domains and is aimed at moving the profession away from a technocratic condition. While directly activating specific proficiencies and techniques, expertise is considered as a tool to achieve integrated visions and to question what are the potentials for innovation in the spatial configurations and dynamics of contemporary Europe.

The unit is conceived as a conjunction of expert trajectories, where the role of the architect is constantly questioned and reconfigured in relation to the development of real-world problems. In this sense the unit advocates for an ecology of practices, where constant negotiations between a diversity of knowledges generates a reformulation of notions of the brief. Inherited questions are what seems to characterise the current cultural horizon, and the unit works are aimed at reconsidering what an agenda for change can be and what are the necessary conditions that need to be set in motion to implement change.

At Diploma 4 your work will be embedded in a vast network of researchers, designers, thinkers and practitioners that are at the forefront of the discussion on the transformations of contemporary space. Diploma 4 operates as a think tank, connected to a number of European and international institutions such as the Anthropocene Observatory, House of World Cultures Berlin, Centre for Research Architecture, Goldsmiths, University of London; the ZKM/HfG Karlsruhe, AHO Oslo, et al.

Through a rigorous observation, analysis and modeling of the transformations apparatuses that inform contemporary space, our research and design Unit will operate directly in the field, envisioning architectures and integrated spatial plans not as final and stable configurations, rather as shared spaces of reference for the multiple initiatives that contribute to innovation. We will be thinking architectural research not as a preliminary to action, rather as a mode of enquiry of the internal, autopoietic form-generating process and agencies of the contemporary territories.

You will work on specific architectural and territorial devices that can be used as tactical markers in the strategy envisioned by the integrated plan. The emphasis will be on potential of revision, adaptation within a framework of non-ambiguity. The different designs will mark the limits, alternatives and possible new horizons for the sustainable future of the coast of Europe. The architecture of the plan will be specified in detail, using different modes of representation.

The unit is aimed at students who are interested in developing independent and individual design and research, ready to engage in debates on the future of architecture intelligence and the potentials of the European space and its geopolitical structures. You will have a strong background in architectural culture and design, excellent visualisation skills and a vivid curiosity in exploring contemporary cultural practices and transformation processes.

www.aadip4.net
Reading list
Diploma 4


- Okwui Enwezor et al. (eds.) ‘Democracy Unrealized. Documenta 11 Platform 1’, Ostfildern: Hatje Cantz 2002


- Laura Kurgan, ‘Close Up at a Distance’, New York: Zone Books 2013


- Donella H. Meadows et al., ‘The Limits to Growth’, Signet 1972


- Isabelle Stengers, ‘Cosmopolitics I’, Minneapolis: University of Minnesota Press 2010


