

Den gränslösa människan:  
Hur människor passerat gränsen  
– och alltid hittat tillbaka igen

*Sverker Sörlin*

KTH Historiska studier

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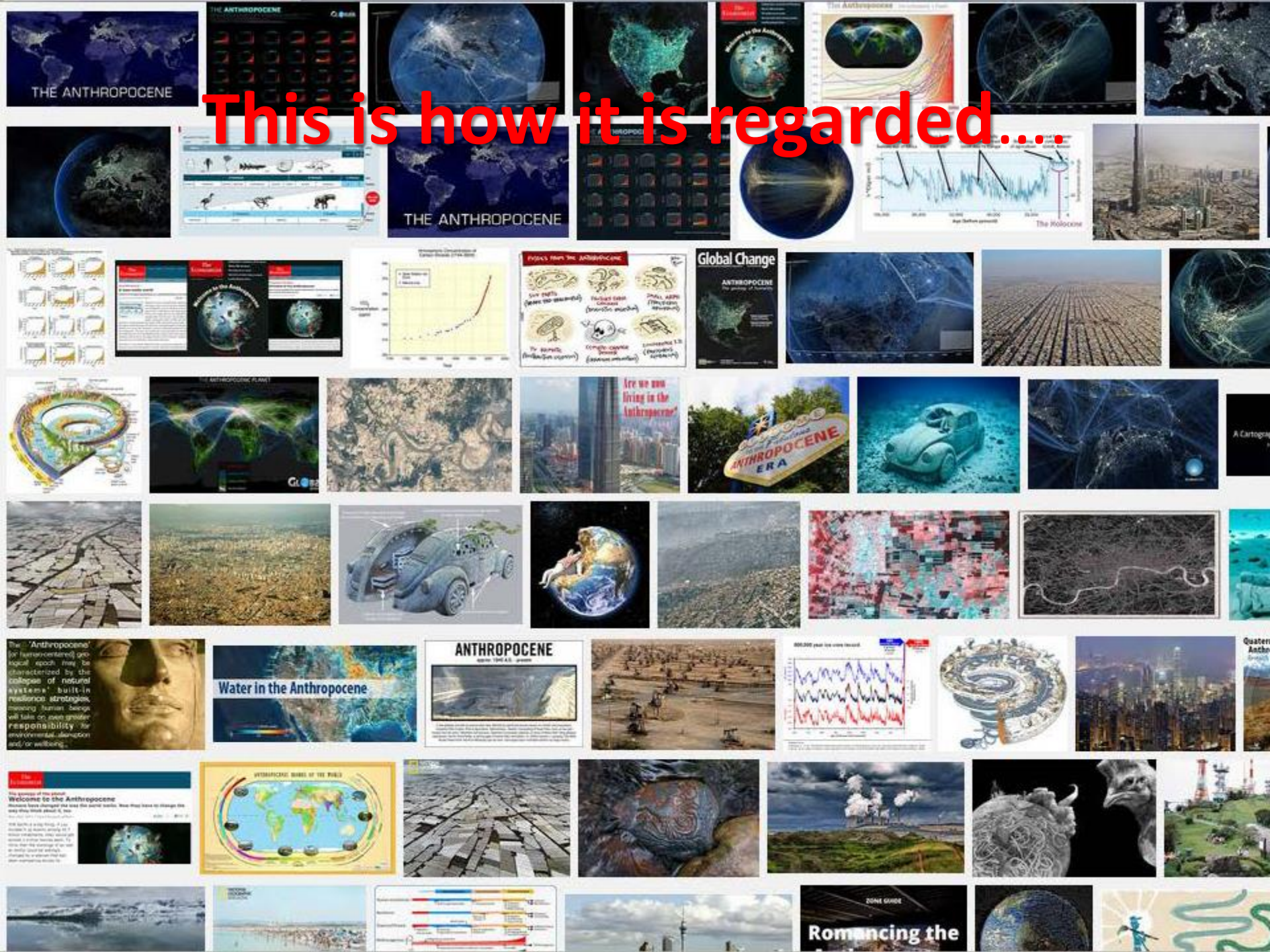
KTH Environmental Humanities  
Laboratory

KSLA 2015-11-04

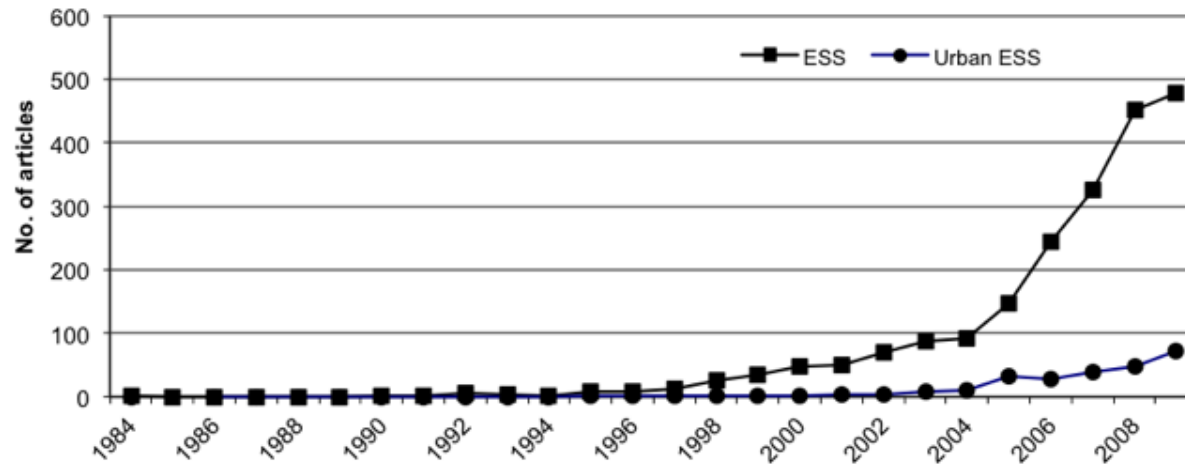


WELCOME  
TO THE *Fabulous*  
**ANTHROPOCENE**  
**ERA**

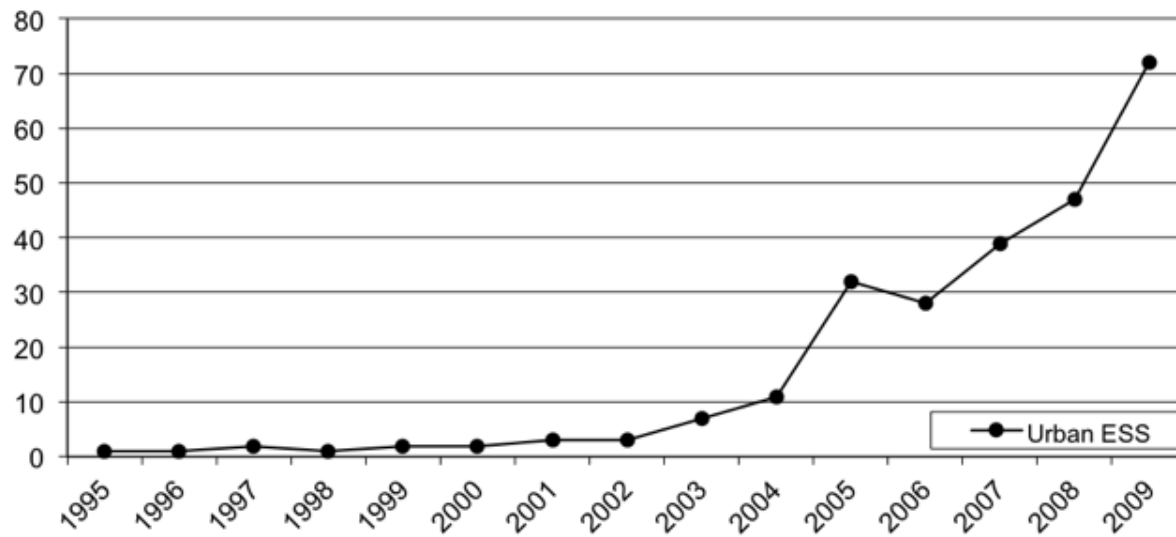
This is how it is regarded....



(a) Number of articles in peer-reviewed journals



(b) Number of articles in peer-reviewed journals



# Brief history of ESS concept

Early use among nature conservationists – saving species is saving money 150 years ago (Barrow 2009).

“Nature’s services” coined in the 1970’s (Westman 1977)

**Daily (1997)** published “Nature’s Services” in 1997. Costanza et al (1997) calculated total global “value” (!).

Mainstreamed into policy arenas through **The Millennium Ecosystem Assessment in 2005**

Exponential use in research publications, and increasingly so in policy and practice documents.

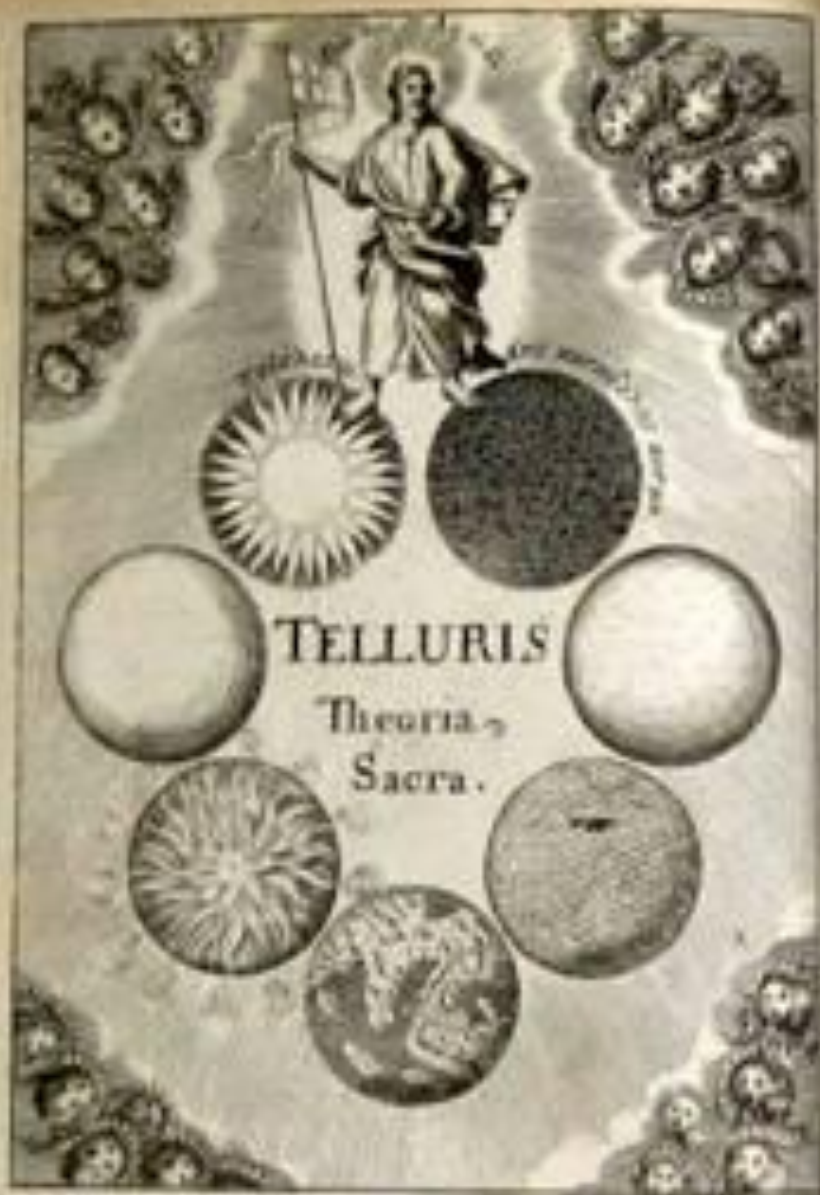
For urban areas - key publication is **Bolund and Hunhammar 1999** - with case study Stockholm

Ecosystem services - now a main frame for talking about ‘nature’.

# MILJÖPOLITIKENS SPELPLAN



- Christian Azar, Johan Rockström, Henrik Smith, Sverker Sörlin et al., *Miljöpolitikens spelplan: Rapport från Miljöforskningsberedningen* (Stockholm: Fritzes, 2014).



TELLURIS  
Theoria Sacra:

*ORBIS NOSTRI*  
ORIGINEM & MUTATIONES  
Generales, quas  
Aut jam subiit, aut olim subiturus est,  
COMPLECTENS.

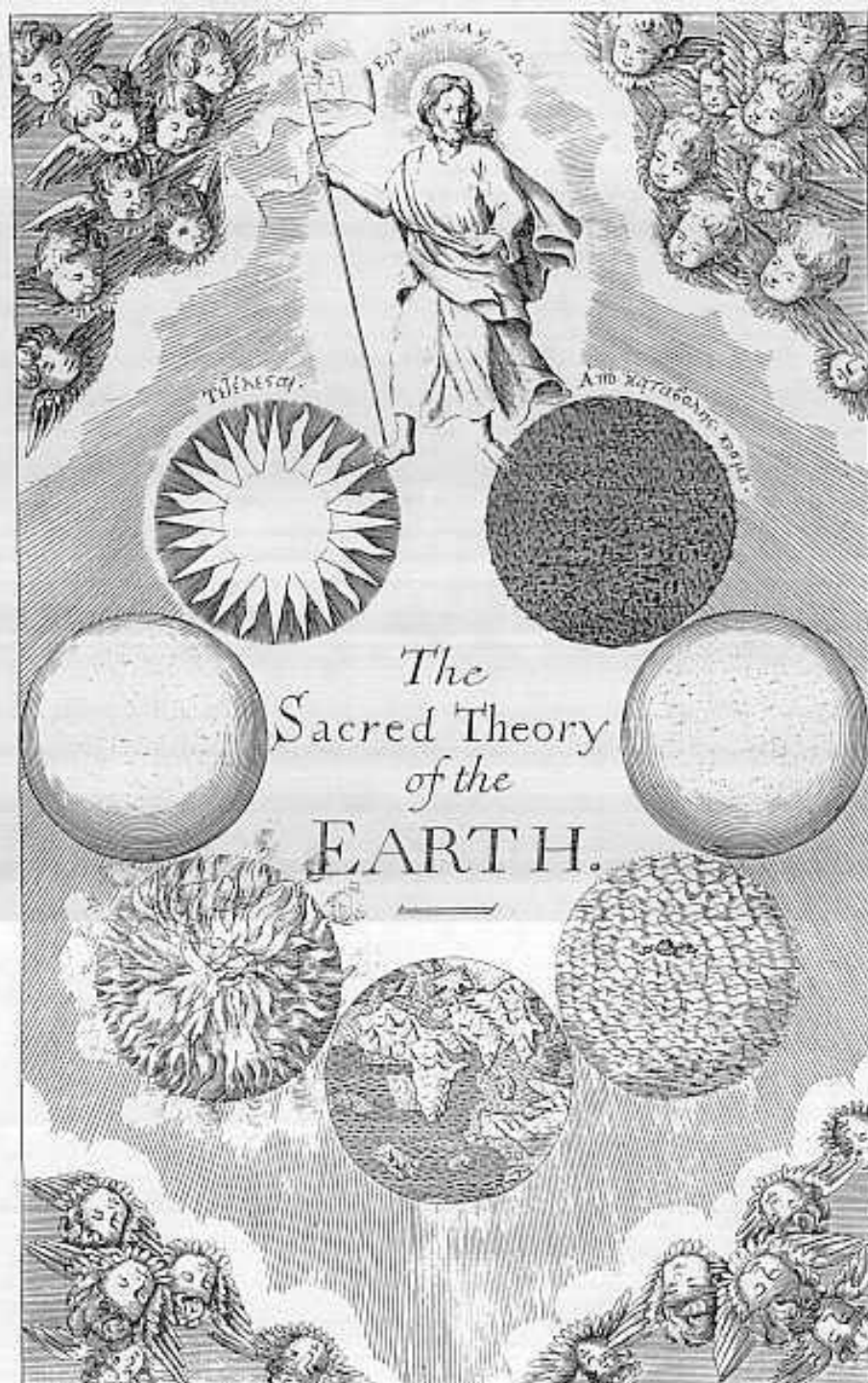
LIBRI DUO PRIORES  
DE  
DILUVIO & PARADISO.

EDITIO SECUNDA.

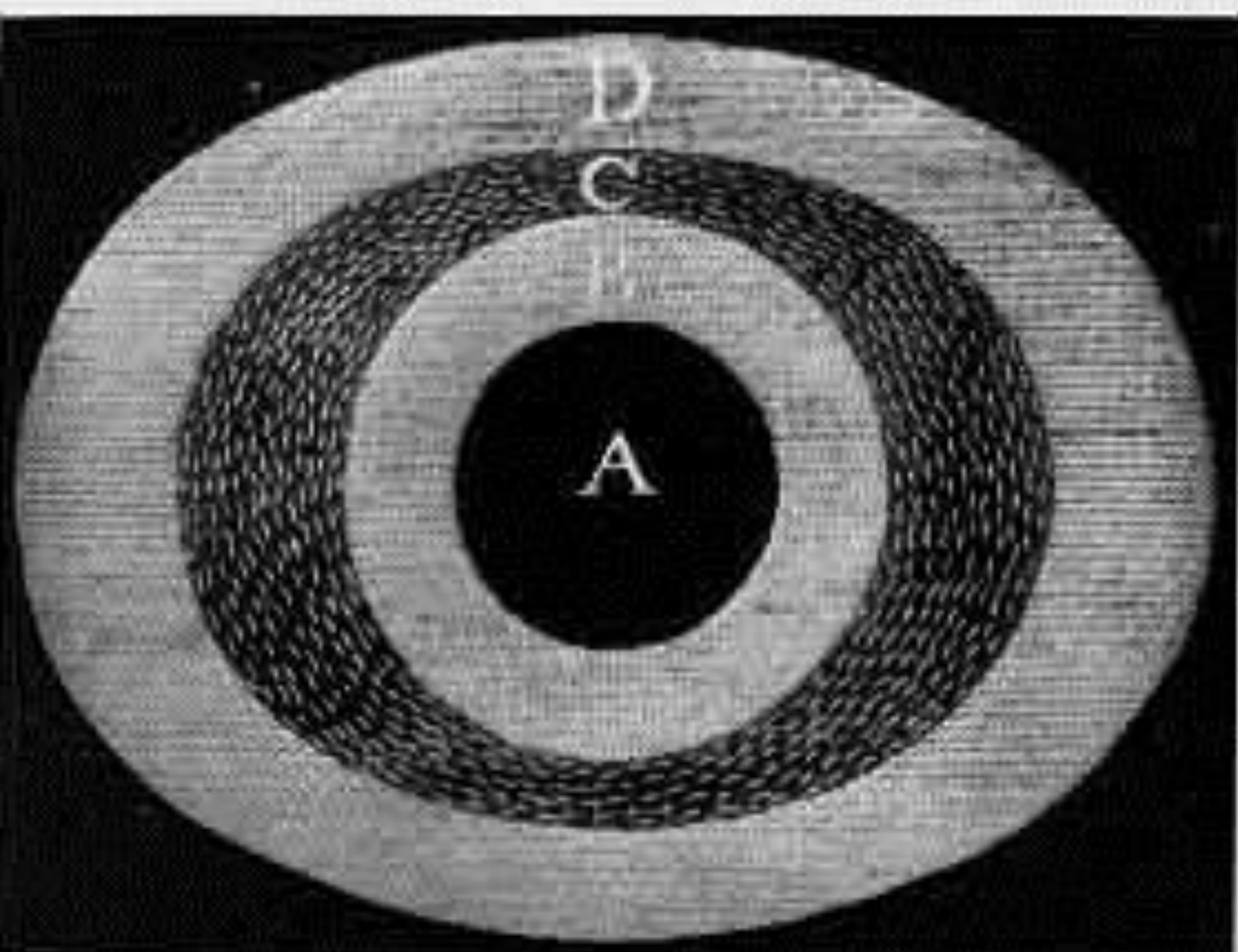
AUTHORE T. BURNETIO.

LONDINI.

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Pauline, MDC LXXXIX.







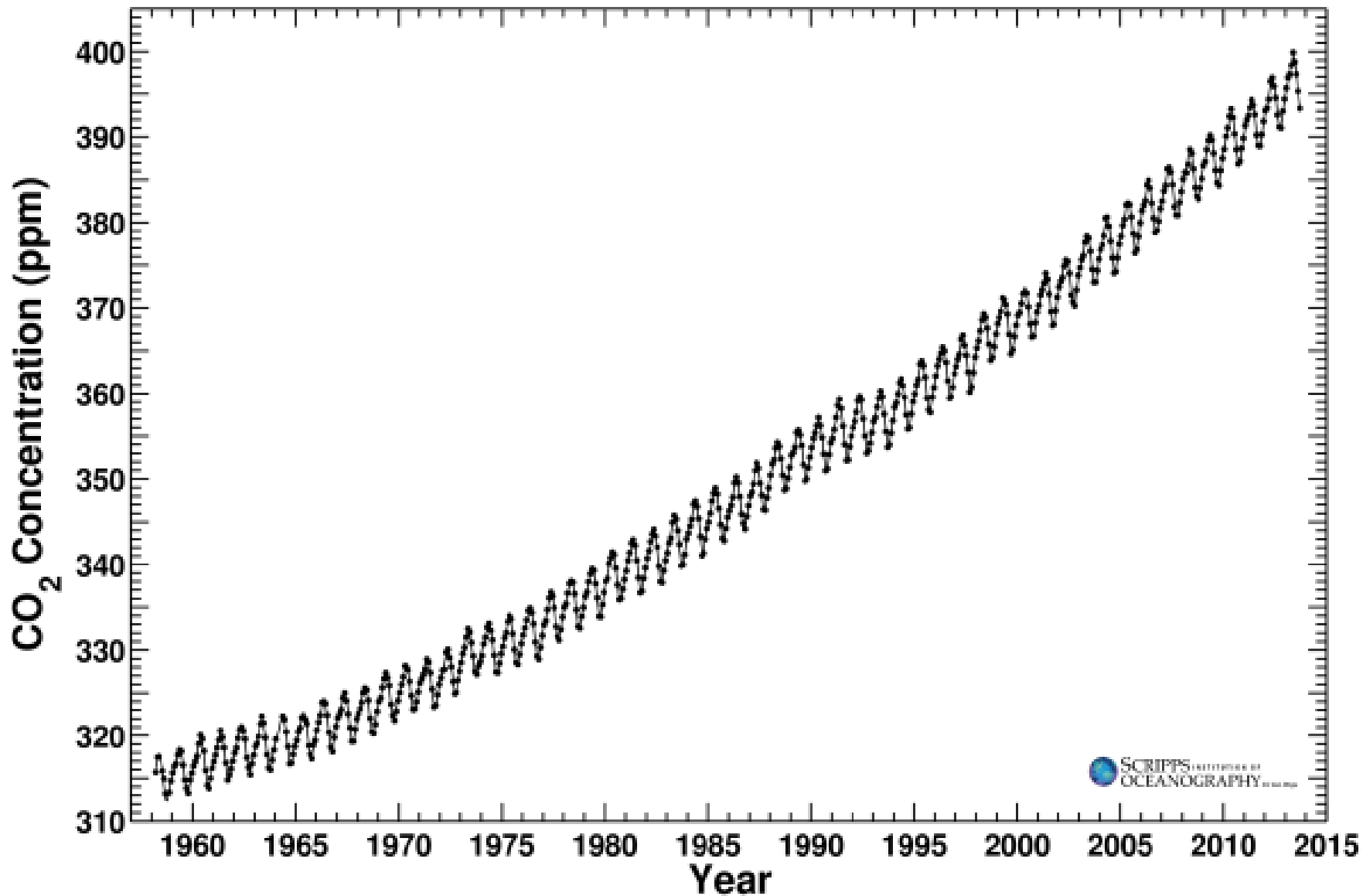
# Manua Loa Observatory, Hawaii.

<http://scrippsco2.ucsd.edu>



# Mauna Loa Observatory, Hawaii Monthly Average Carbon Dioxide Concentration

Data from Scripps CO<sub>2</sub> Program Last updated October 2013



Centigrade

# MEAN ANNUAL TEMPERATURE

Fahrenheit 34

(Winnipeg 32) 36

Petrograd 38

Moscow 40

Quebec 42

Stockholm 44

Riga 46

Montreal 48

Toronto 50

Copenhag. 52

Chicago 54

Boston 56

London 58

New York 60

Cuzco 62

Wash. 64

San Fran. 66

Tokio 68

Melbourne 70

Mexico 72

Shanghai 74

Cape Tn. 76

Los Ang. 78

Buenos A. 80

Yucatan 82

84

86

88

90

92

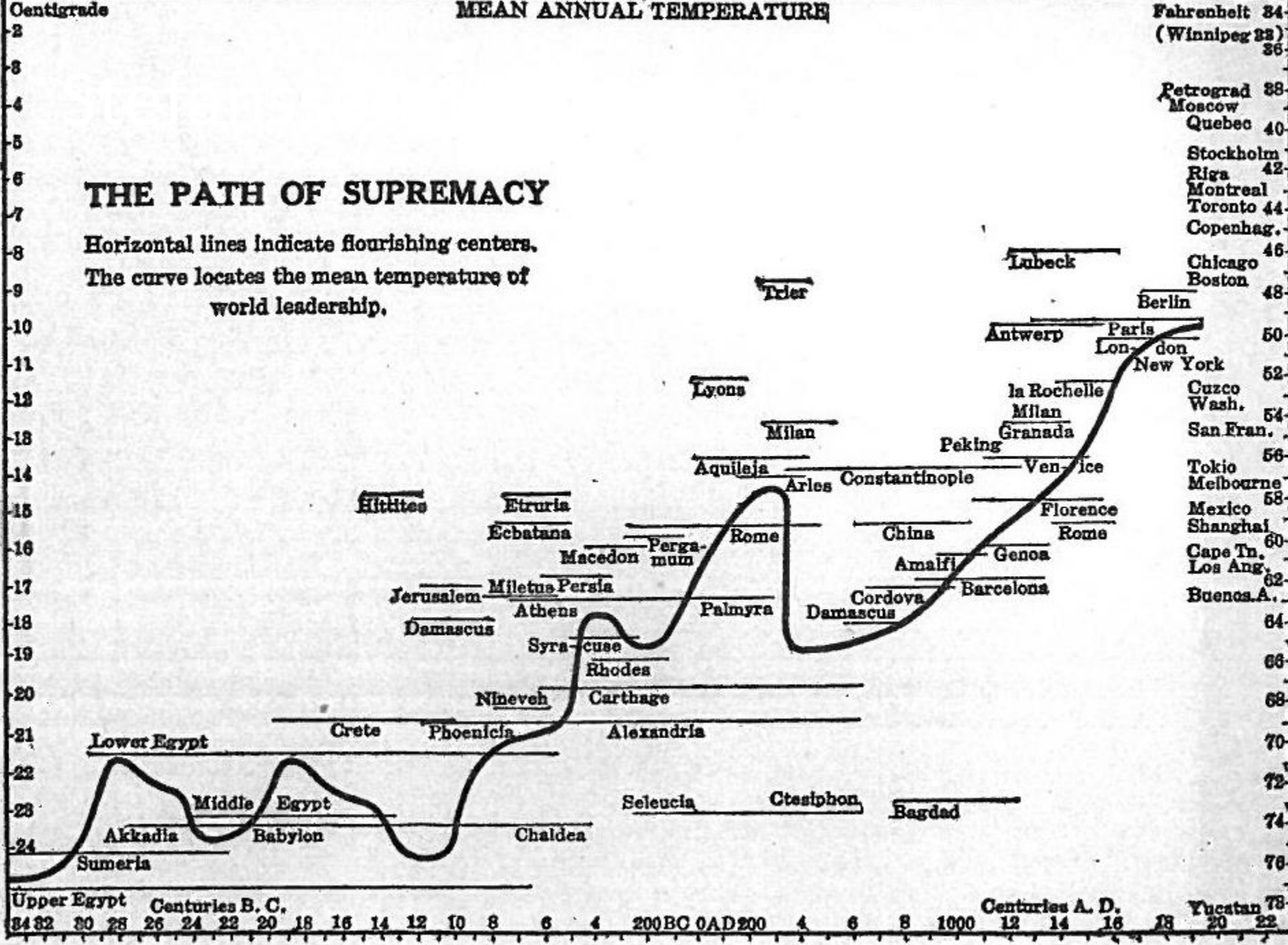
94

96

98

## THE PATH OF SUPREMACY

Horizontal lines indicate flourishing centers.  
The curve locates the mean temperature of world leadership.



Upper Egypt Centuries B. C.

Centuries A. D.

Yucatan 78

3432 30 28 26 24 22 20 18 16 14 12 10 8 6 4 200BC 0AD 200 4 6 8 1000 12 14 16 18 20 22

# Ever changing ways to talk about/value "nature"

- 1600-talet: anxiety, fear
- 1700-talet: utilitarianism, nature producer
- 1800-1950: "affection", nation, ecology
- 1950-2000: environment, sustainability  
(retreat of "nature" starts)
- 2000- : systems, limits, contracts,  
transitions, transformations, thresholds,  
cascades, crises, Anthropocene, "services" ...

Post-environmentalism?

# BECOMING SALMON

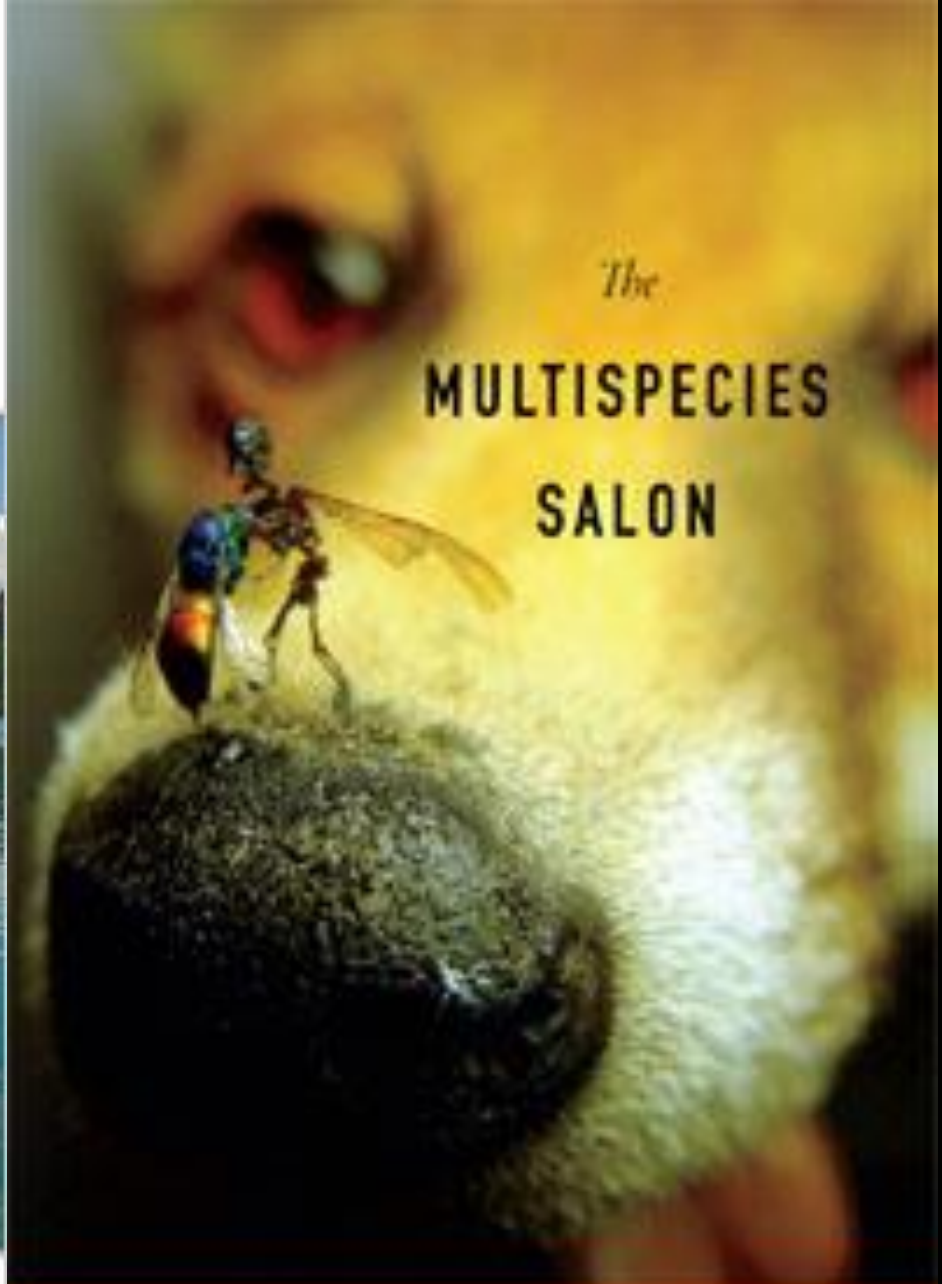


AQUACULTURE and the  
DOMESTICATION of a FISH



MARIANNE ELISABETH LIEN

*The*  
**MULTISPECIES  
SALON**



EBEN KIRKSEY, EDITOR

- 37 documents of environmental/earth system change, 1713-2011, with commentaries
- Cover photograph of glacier ice on Icelandic shore by Þorvarður Árnason
- Yale University Press, 2013.

# The Future *of* Nature



EDITED BY

Libby Robin, Sverker Sörlin, Paul Warde



# The Environment – A History

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# The environmental 'form'

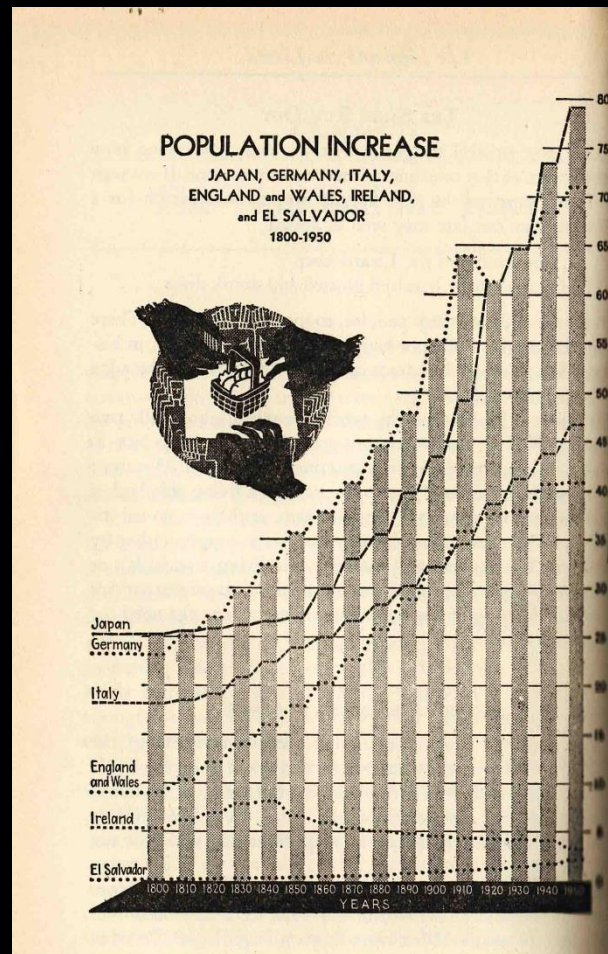
Arguing the environmental required and prompted new:

- metrics
- techniques
- literary genres
- visual styles
- expertise

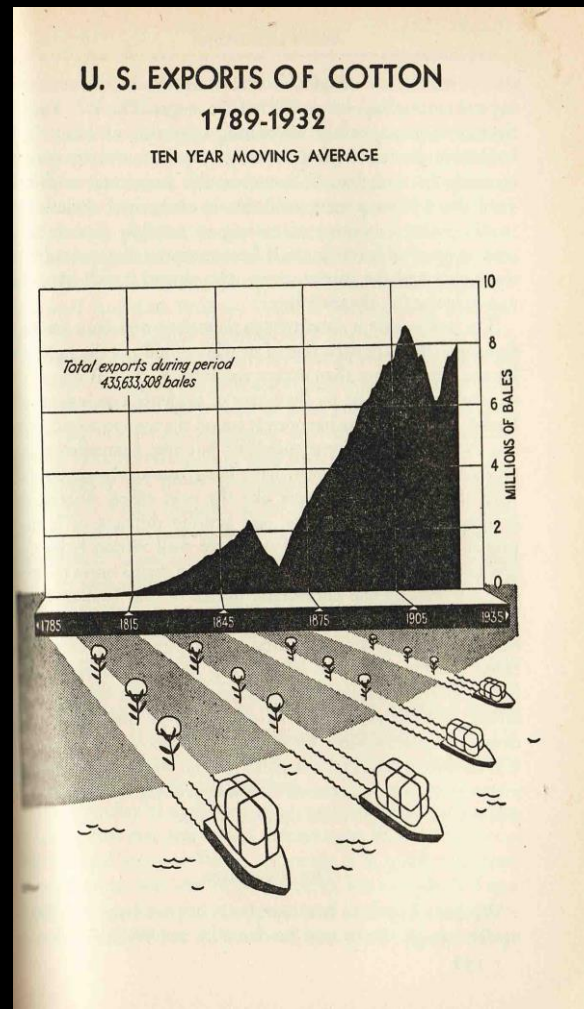
# Scaling the environmental – pre- and post 1948

- Something local influence human psyche (H. Spencer 1851, 1855)
- Something 'holistic' determining 'Man' -- societies, civilizations (Huntington 1915, Stefansson 1922, Griffiths 1947)
- Something ecological impacting on plants, animals, humans (Elton 1927, Tansley 1935, Leopold 1941, 1944)
- Something **with its own properties** – vulnerable and threatened, from the local to the global (Vogt, Osborn 1948)
- – **Environment is thus predecessor of Anthropocene**

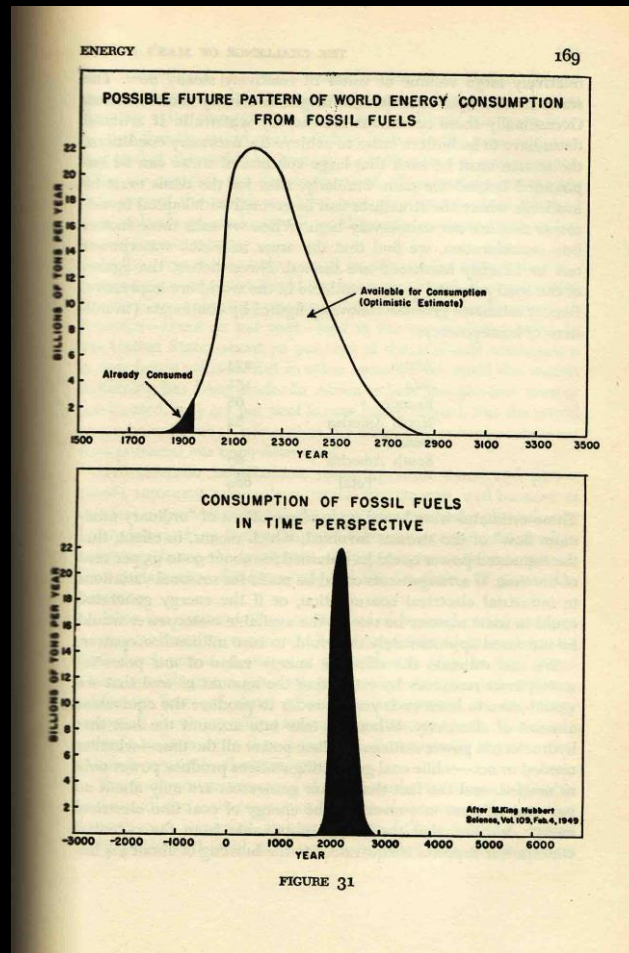
# Vogt, *Road to Survival* (1948)



# Vogt, *Road to Survival* (1948)



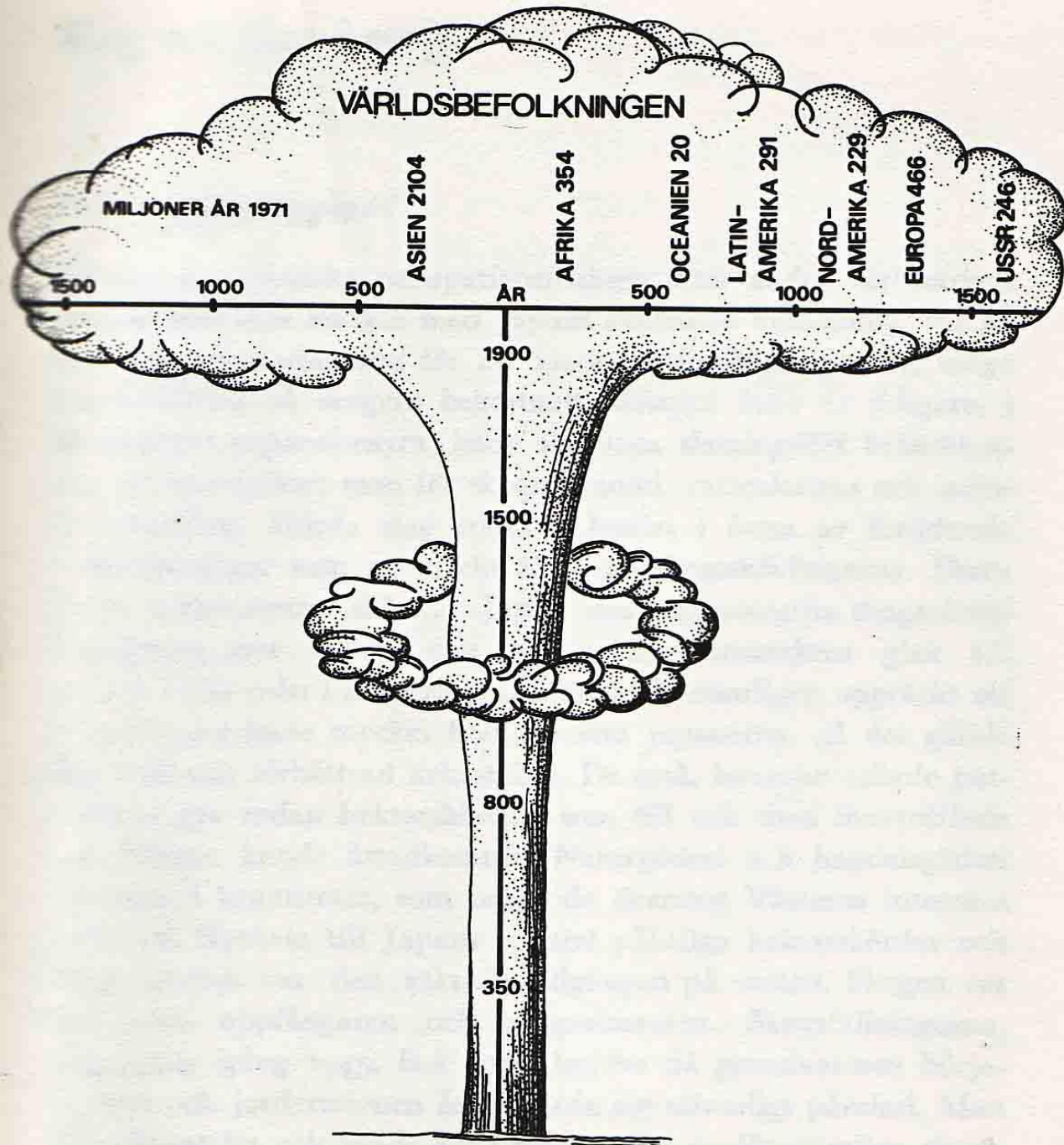
# Brown, *The Challenge of Man's Future* (1954)



# “Man’s role in changing the face of the Earth”

Princeton Inn, June 1955







A black and white portrait of Georg Borgström, a man with short dark hair, wearing a suit jacket, white shirt, and patterned tie. He is looking slightly to the left of the camera with a neutral expression.

# Georg Borgström – prophet of global change

- *Earth and the Fate of Humanity* (Sw. 1953)
- *Too Many: A Biological Overview of the Earth's Limitations* (1969)

# Scientists as Historians of the Future

## The Method:

- Applications of temporal and spatial scaling to historiography
- Homogenization of humanity to 'species'
- Scaling down to history (short term, limited range) issues from planetary and humanity levels = Anthropocene history
- Locating history within soft constraints framework ('planetary boundaries' etc.)

## Antecedents:

Huntington 1907, 1915

Vernadsky 1926

Lovelock 1976

Science qua history : inbuilt predictive tendencies that easily turn into determinism.

## The Actors:

- **Earth systems science** community
- **IHOPE** initiative 2003: Integrated History and Future of People on Earth, <http://ihopenet.org>



## The genres:

- **Reports** on 'fate of earth'
- Science **syntheses** (Flannery 2004, Kolbert 2014)
- **Big History** (Christian 2004)
- Popular culture **imaginaries** (Day After Tomorrow, Avatar, Al Gore)

# Spatial Scaling (I)

**Connectivities:** Global communications & technologies (Headrick, Adas)

**Environmental Security State:** from ocean floor to stratosphere (Doel 2003)

**IGY 1957/58:** monitoring the planet

**Global oceans, atmosphere:** CFC/ozone hole, CO<sub>2</sub>, methane

**Climate science and models** (Edwards 2010)

**Resource dependencies:** energy, minerals (Limits to Growth 1972)

**Nuclear planet:** global circulation of fallout (Masco 2010).

Below: Fallout from 'Mike' and 'Bravo' explosions 1951-53 as analyzed by Machta, List, and Hubert

1956

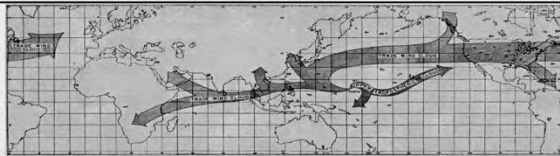


Fig. 2. Early history of the Mike cloud. The figures indicate the number of days between detonation and the first ground observation of fission products.

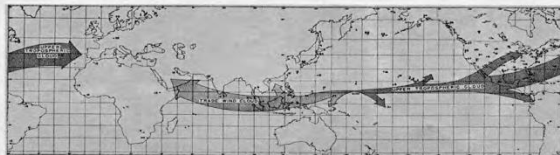


Fig. 3. Early history of the Bravo cloud. The figures indicate the number of days between detonation and the first ground observation of fission products.

- A '**natural history**' of the 'the planetary' and the Anthropocene
- Scaling from individual or state action into **aggregate human impacts**:
- Global change science 1980s—
- Earth system science 1980s—
- Required **broad-range quantification**
- **Mature global scaling = Anthropocene** (Crutzen & Stoermer 2000)

# Spatial scaling (II)

- Alfred Crosby (1986): ecological imperialism
- Richard White (1999): local, national, global
- Ursula Heise (2008): cultural imagination of the global
- Catherine Malabou (2008): alternative alter-globalism
- Dipesh Chakrabarty (2009): species history
- Joe Masco (2010): planetary crisis
- Ian Baucom (2012): postcolonial re-assembly
- An **'intellectual history'** of the Anthropocene
  - Conceptual tools
  - Horizontal links and networks
  - Migrating species, El Nino
  - Climate change
  - Environmental movements & global consciousness
  - Space flight, 'lonely planet'

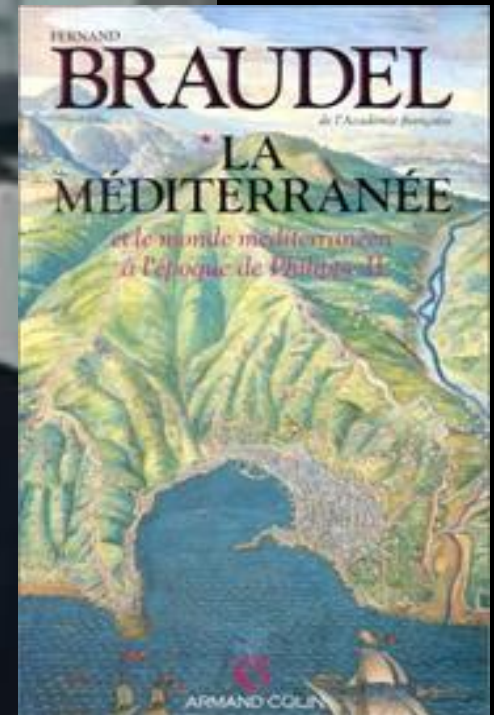
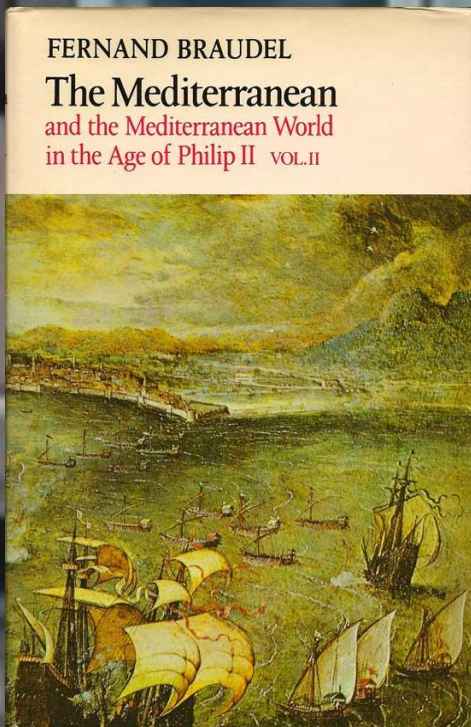
# The Environment – A History:

## Ett slags slutsats

- Etablering – “the environment”
- Environmentalism – gränser
- Institutionalisering
- Post-environmentalism: integration människa-natur ('entanglement'/'interspecies')
- **Uppluckring av gränsen** mellan natur och människa/kultur/samhälle
- **Neo-modernism:** Nordhaus/Schellenberger, “From the Death of Environmentalism to the Politics of Possibilities” 2008)
- **Political ecologies:** “bio-social becomings”, environmental justice

# History in 1948

- The Braudelian Moment – The Moment of “Milieu”



# Braudel's 'environment/milieu'

- Braudel 1958 (building on 1949):  
“hindrances”, “limits”, “envelopes,” in the mathematical sense”, “biological realities”, “constraints”, “stable elements”.

# Gränser?

- Nu är det inte längre naturen utan jordsystemforskarna som anger "planetära gränser"
- Gränserna har "naturaliserats" av vetenskap
- Finns det andra sätt att formulera gränser?
- Troligen...
- Genom att intressera sig mer för samhälle, etik, värden



# New narratives of hope

- Grand successful transformations not uncommon
- And not the result of "solutions"
- E.g. democracy; industrial production; the consumer society revolution; public health; human and social rights; welfare societies; etc....
- They were **not** 'science-based', but multi-actor, multi-purpose, multi-actored, creative, sustained, normative, life-transforming and life-enhancing...  
= sweeping change

# The Humanities Turn – prompted by paradigmatic crises

- The crisis of 'Ecological Modernization'
- The crisis of 'Expertise'
- The crisis of 'numbers'
- The crisis of 'boundless globalization'
- Deeper understanding of 'trust in numbers' (e.g. Porter 1995, Asdal 2011)
- Broader knowledge about 'expertise for the future'

# New insights on knowledge

- Andy Stirling: responsible directionality
- Roger Pielke: honest broker
- Susan Owens: situational absorption (of knowledge)
- Sheila Jasanoff: eroding the divide between science and politics

# New insights on political theory

- The rise of “the new political” to replace “the post-political” (Swyngedouw)
- Alain Badiou, Jacques Rancière: capitalism, the social and the aesthetic
- William Connolly: ‘becoming’ and ‘fragility’
- Melissa Lane: *politeia* and the Eco-ethics of the ancients

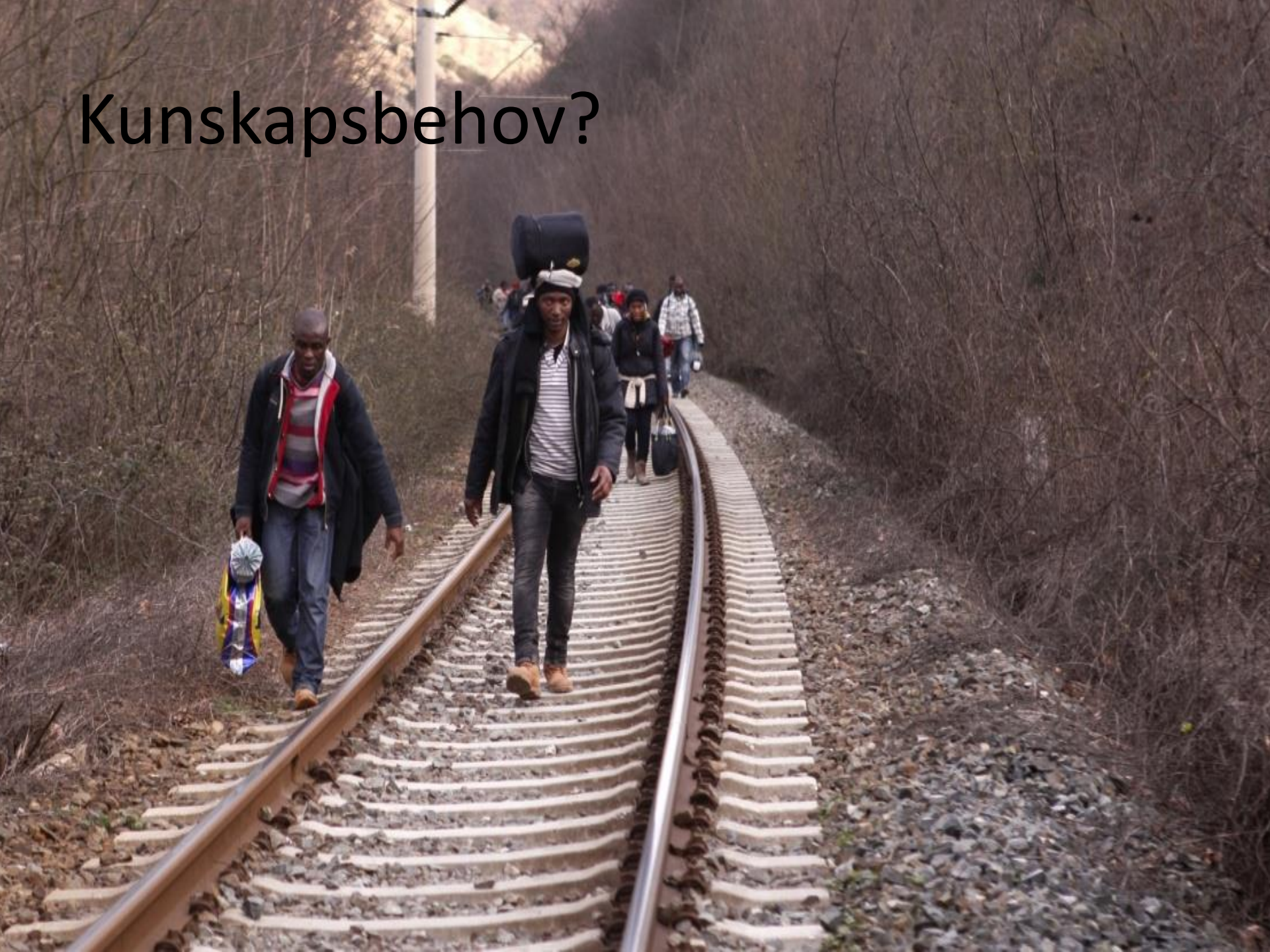
# New insights on history

- Stuart Elden vs the Locke/Hobbes conspiracy: *polis* and our finest hour
- Material histories of regional and global exchange: Crosby 1986, Podhoretz 2000, Robin & Steffen 2007, van der Leeuw-Sörlin-Costanza et al 2012, 2013
- New narratives of the planetary scale: Costanza-Graumlich-Steffen IHOPE 2006, Christian 2004, Masco 2010, 2014

**Kunskapsbehov?**



Kunskapsbehov?



- **ESS/ES – one of many ways to articulate values of nature**

What characterizes precisely the ESS way?

How did it come up, from where?

Thesis: “Understanding ‘ecosystem services’ as an **empirical social phenomenon with actors, interests, ambitions, tools and technologies** that has a historical trajectory and a possible future.”



## Cases of value articulation - The National Urban Park, Stockholm

Mobilization among civic groups in the early 1990's

Constructed a 'protective story' to demonstrate that different park areas 'belonged' to each other

Articulating holistic values by

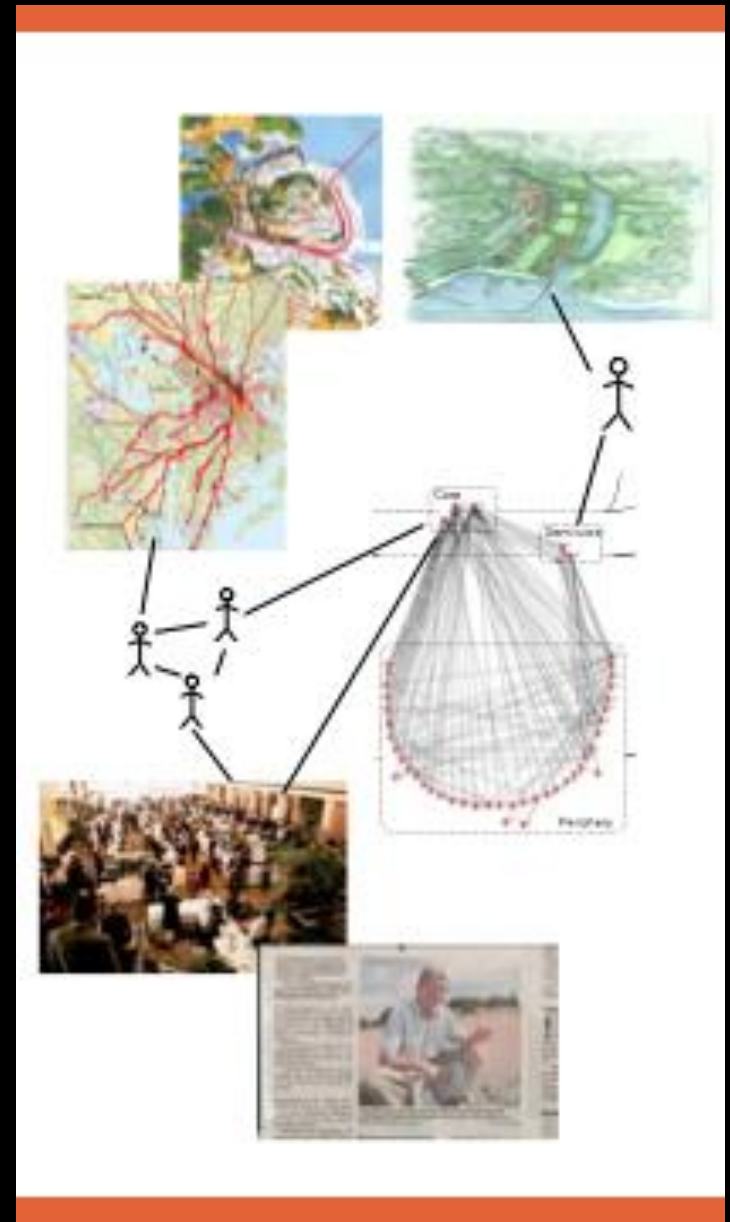
Using ARTIFACTS left by other actors - conservation biology, cultural history

Creating SOCIAL ARENAS on which to articulate the protective story: exhibition, debates, op-ed articles, radio and TV programmes

Expanding SOCIAL NETWORKS to mobilize more experts, and the public for support

Pushed into the National Parliament and protected 1994 as a "National Urban Park".

Sources: Ernstson, Elmqvist & Sörlin, *Ecol. & Soc.* 2008; Ernstson & Sörlin, *Env. & Planning D* 2009.



## The Princess Vlei Area Civic Movement, Cape Town

Plans to build a shopping centre surfaced in 2009

Civic groups in Grassy Park joined, and environmental groups from further away

Journalists took an interest - recounting the story about a Khoi Princess

Letter Objection days - recounting the recreational value of the Vlei

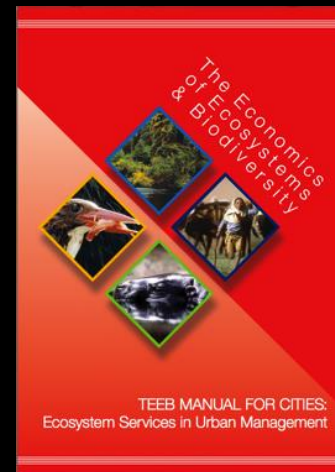
November 2011 a city committee decided to not support the shopping centre

(March 2012 the Province gives the go ahead of the shopping centre)



# ESS as value articulation

- *TEEB Manual for Cities: Ecosystem Services in Urban Management* (TEEB, 2011)
- *The Manual* created by ICLEI partnering with over 1000 city governments in the world
- *The Manual* deploys Cape Town as case study to describe general principles—or step-by-step methods—on how to quantify and evaluate biological diversity and ecosystems for any city region in the world.
- From Cape Town to the World - how a 'business case' can be made to travel.



# From Cape Town to the World - a 'business case' that travels...

- Civil servants responsible for natural resource management need more money out of budget in 2007.
- They aim to build a 'business case' for Cape Town's 'natural assets'.
- After internal work, consultants are employed to run a series of workshops among City departments (2005-2008).
- In 2009 a *Report* is published that makes the 'business case' for Cape Town's "natural assets" (de Wit et al. 2009)
- This *Report* is used by organizations ICLEI and TEEB to manufacture their *Manual* on how to evaluate urban nature in all cities.

CT Civil Servants



Consultants



ICLEI & TEEB



Ernstson, H., & Sörlin, S. (in review). Articulating values in urban nature: ecosystem services as technology of globalization. *Ecological Economics*.

# Some features of ESS in Cape Town

- Function of wetlands for water treatment
- Ability to attract film industry for scenery etc. (in total 19-56 MZAR attributed to 'natural assets')

## Shortcomings?

- African cities and justice: how to distribute public funding between e.g. housing programs and conservation schemes in wealthy suburbs?
- How to account for 'informal economy' and popular voice?

CT Civil Servants



Consultants



ICLEI & TEEB



Ernstson, H., & Sörlin, S. (in review). Articulating values in urban nature: ecosystem services as technology of globalization. *Ecological Economics*.

# ESS as 'technology of globalization'

- **A *technology*** : The articulation of values is conducted in a way that is seemingly not reducible to the views or actions of local people nor to the personal views of ecologists or economists, but possible to identify rationally (scientifically or through market).
- **A-political**: Ambition to disconnect the value of urban ecosystems from the realm of social affairs, human shortcomings, and social conflict, i.e. the polity.
- **NPM look alike**: As such the ESS approach shares many features with other phenomena that since the 1980s have marked the era called globalization of what has been known as "New Public Management".

# Universalizing elements:

- **De-historicization** – the decoupling of objects of analysis (ecosystems, parks, cities, neighborhoods, etc.) from real world actors, events, and processes.
- **De-contextualization** – disregarding social realities, conflicts, interest driven contestations and actual use of ecosystems on the ground.
- **De-ecologization** – focusing on the measurable services of individual species or single systemic effects, paradoxically disregarding traditional holistic and interactive dimensions of ecology (Norgaard 2010).
- **Silencing** – privileging particular strands of expertise (Bocking 2004, Sörlin 2013), marginalizing voices that are local.



From TEEB's website:

“You cannot manage what you do not measure.”

The Economics of Ecosystems and Biodiversity (TEEB), <http://www.teebweb.org/>,  
January 15, 2012

The Economics of Ecosystems and Biodiversity (TEEB)

The Economics of Ecosystems and Biodiversity (TEEB) study is a major international initiative to draw attention to the global economic benefits of biodiversity, to highlight the growing costs of biodiversity loss and ecosystem degradation, and to draw together expertise from the fields of science, economics and policy to enable practical actions moving forward.

TEEB Story of the w

22 May 20  
INTERNATION

To join the TEEB community, follow us on Twitter, Facebook or

“Ecosystem services” no longer can be treated as a ‘mere metaphor’, but has transitioned to an increasingly stable approach with techniques, experts, organizations and networks to quantify and price aspects of ecological complexity.



# 2Q4CU

- What would be the main theme of a future history of nature valuation 2000 to 2050?