

## **CleanMed 2016 Parallell session D3**

# **What is the Value of a Bird Singing at Your Hospital?**

**David Brasfield, Environmental Manager**

**Sunnaas Rehabilitation Hospital**

**October 21st, 2016**

A photograph of a pond with numerous green lily pads floating on the water. In the foreground, there are tall, thin reeds. The background shows a building reflected in the water, suggesting an urban or suburban setting. The text is overlaid on a semi-transparent dark green rectangle in the center of the image.

**David Brasfield**

**Architect, building engineer**

**Environmental Manager  
Sunnaas Rehabilitation Hospital**

**Board Chairperson,  
Scandinavian Green Roof Association**

## Q & A with session participants

- Who in the audience has been hospitalized for for several days due to traumatic injury or serious illness?
- ...or has a family member who has been?
- What do you remember about your/their stay?
- What to you remember of physical surroundings that could be described as supportive and healing environments and architecture?

# Sunnaas hospital

## The view from my office







# Sunnaas hospital





## Birgit and Rolf Sunnaas (our founders)

For å få regnskapet til å gå opp og for å skape trivsel og et godt miljø  
 satset vi den gang på naturalhusholdning. /bilde/ Vi hadde griser, høns  
 kalkuner og gjess og også en del kalver. Fisk hentet vi uti fjorden og  
 det hendte at vi fikk en hummer dannog vann. ~~xxxxxxx~~ /bilde/ Det øvrige arealet  
 / bilde/ Vi dyrket også grønnsaker, frukt og bær, / bilde/ her høstervi  
 vindruer i drivhuset. / bilde/ Det øvrige areal ble opparbeidet til park-  
 anlegg. / bilde/

Sunnaas Hospital – a partially  
self sufficient eco-society for:

- Economic survival
- Well being







## Mid 1950's

- Poultry, eggs
  - Pork
  - Fish farming
  - Fruits, vegetables
- 
- 1 doctor
  - 17 gardeners





Ca. 1960









# Innendørs grønt anlegg



## Property development at Sunnaas Hospital

- Sale of property to finance new building
- Consolidation of locations, renewal and expansion of building stock
- Our outdoor areas are under press and shrinking
- New wing built in 2015, with a view onto our previously hidden, ugly and dead gray roofs.
- Previous positive experience with roof terrace, but intensely used, and not very green


From Joni Mitchell's *Big Yellow Taxi*:

*Don't it always seem to go  
That you don't know what you've got  
Till it's gone?*

*They paved paradise  
And put up a parking lot*

*They took all the trees  
Put 'em in a tree museum  
And they charged the people  
A dollar and a half just to see 'em*



An aerial photograph of a dense urban area, likely New York City, showing a grid of streets and numerous skyscrapers. A semi-transparent green rectangular overlay is centered in the image, containing white text. The text reads: "OMG! What kind of corner are we painting ourselves into??"

OMG! What kind of  
corner are we painting  
ourselves into??

# Possibilities for development of outdoor areas

**Effective area use**

**Green infrastructure**

**Ecosystem rehabilitation**

**Low maintenance hospital grounds**

## **Healing architecture**

**Self-grown fruit, vegetables and herbs**

**"Organic" grounds maintenance**

**Ecosystem preservation**

**Utilitarian plants**

## **Possibilities: new green roof at Sunnaas Hospital?**

- Existing roof terrace. Next, the wild side?
- A place for contemplation
- Giving something back to our local nature amenities
- For patients with injuries and conditions causing cognitive impairments:  
A place to be outside alone, without a hospital employee breathing down your neck, and without feeling like you are in a prison yard



# Concept study and preliminary cost estimate for outdoor area development

Mulighetsstudie og grov kostnadsoverslag for utvikling av uteområder på Sunndals sykehus HF

C.F Møller / Bjørbekk & Lindheim landskapsarkitekter





Uterommet vest for I-bygg i dag.



Rampen. Flettverks rekkverk foreslås fjernet.



Området kan skjermes med klynger av buskfuru.



Kirsebærlund - vårfeiring med frodig blomstring.  
Klatreplanter på fjellskråninger.



Blomstereng / stauder.  
Buskfuru



Spisbare planter: blåbær  
markjordbær og bærbusker.



### SKJERMING

Langs østsiden av gangforbindelsen er det behov for skjerming mot pasientrom i underetasjen i I-bygget. Dette gjøres med buskvegetasjon som er tilstrekkelig høy for å skjermes fra veien, og lav nok til å beholde utsynet mot kirsebærlunden. Klippet hekk er egnet til formålet. Hekken bør plasseres nært inntil gangveien. Den private hagen til Leif Sunnaas skjermes med busker; - syringer i tett planting vil gi god skjerming mot innblikk fra øst.

### RAMPEN

Rampeanlegget er bygget og utformet med rekkverk og håndløpere i to høyder på en slik måte at gangstien føles unødvendig avskjermet. Ifølge regelverk er det ikke krav om rekkverk langs ramper med mindre det er større høydeforskjell enn en halv meter. Håndløpere vil det være behov for. Anlegget kan med fordel åpnes opp ved å fjerne rekkverket langs kantene som kan beplantes med planter som er spiselige og har bær; rabarbra, markjordbær og bærbusker. Det foreslås å etablere en snarvei via en trapp som tilskudd til rampeanlegget.

Trafohuset er lite pent element som er plassert sentralt og synlig i området. Dette foreslås omkranset med trekonstruksjon/pergola med klatreplanter. Området på østsiden av I-bygget beplantes med markjordbær, blåbær og tyttebær. Det etableres en sone med vegetasjon som visuell skjerm mot naboene. Her foreslås det beplantning som passer til skogsområdet. Buskfuru plantes i grupper for å skape en uformell skogskarakter. - en stram hekk vil være et fremmed element i skogen.



Mulig scenario ved dammen på Sunnaas - illustrasjon fra prosjektet Teglverksdammen, ferdigstilt høst 2015, prosjektert av Bjørbekk og Lindheim landskapsarkitekter.



Hovedinngang fra sydøst



Hovedinngang i dag med parkering på beste plassen.



Stemningsskapende belysning - staude / prydgressbedd  
Det er mange flotte store trær i hage- og park området som kan lyssettes og skape stemning i mørketiden.



Det er mange flotte store trær i hage- og park området som kan lyssettes - stemning sensommer.



Lyselementer som kan sittes på.

Effektbelysning - eksempel.



## ADKOMSTPLASSEN

Drosjer og besøkende med bevegelsehemninger som kommer med bil, benytter innkjørselen fra Bjørnemyrveien. Passasjerer bør kunne slippes av rett ved hovedinngangen. Derfor bør det være snumulighet for biler og ambulanser på plassen. Adkomstplassen må allikevel ikke bli parkerings-plass. HC-plasser foreslås plassert i umiddelbar nærhet med kort avstand til hovedinngangen.

Adkomstplassen skal være innbydende og et sted for sosial samvær. Den skal ha en utforming som genererer aktivitet og interaksjon, opphold og trivsel: Sitteplasser møblert med bord og stoler og kanskje også med en stor hammock som symbolsk minner en på å senke tempoet – dette er stedet for rekreasjon.

Skråningen mot syd kan utformes som sitteamfi med trapp, med fint utsyn mot dammen og hagen.

## «KIRSEBÆRDALEN»

Det er ikke planlagt noen tradisjonell sansehage på området. Det er heller tenkt at hele stedet tilbyr besøkende sanselige opplevelser med en variasjon og mangfold av karakterer.

Det nye landskapsrommet mellom bygning G- og det nye I-bygget fører temaet og stemningen for «Frukthagen «videre; - Her vil det være fokus på blomstring og årstidsvariasjoner.

Skråningen mot øst foreslås utformet med mykere former som følger den nye stiens konturer. En lund av kirsebærtrær plantes i skråningen. Dette vil gi en opplevelsesrik feiring av våren med sin frodige blomstring.

På bakken etableres en blomstereng som bunndekke. Den sørger for sanselighet og varierende farger, dufter og stemninger hele vekstsesongen. Blomsterengen tilsåes i skråningstjørd og den slås to-tre ganger gjennom sesongen. Denne type vegetasjon er ikke vedlikeholdskrevende, men en må være oppmerksom i etableringstiden på å hindre ugress å etablere seg. Deler av skråningen kan etter hvert bli beplantet med herdige stauder, avhengig av ønsket grad av driftsinnsats. Stauder er noe mer ressurskrevende.

Under furutrærne opparbeides det et lite skjermet oppholdssted, - et pausested.







Takterrassen på Sunnaas

Takhagestemning med sitte-elementer, pryddress og belysning.



Mulighetsstudie og grov kostnadsoverslag for utvikling av uteområder på Sunnaas sykehus HF 20.11.2015



Takflaten på G-bygg er godt synlig og lite estetisk element i dag, utsikt fra H-bygget.

Sitte-element mellom beplantning



Sedum




## TAKHAGENE, TERRASSENE

Det har forholdsvis nylig blitt etablert en takhage på Sunnaas sykehus som har blitt en nydelig oase. Herfra er det fantastisk utsikt over Oslofjorden.

Dette er et vellykket forbilde og bør gi inspirasjon og oppmuntring til å ta i bruk resterende takflater enten til grønne tak å se på eller grønne tak til å oppholde og restituere seg på.

### SKJERMET TERRASSE MOT VEST

Uterommet mellom glassgangen og takterrassen er et lite utnyttet område i dag som preges av mye buskvegetasjon. Her ligger det godt til rette for å lage et skjermet terrassert uterom med ny rampeforbindelse syddover.

Her kan det bygges en skjermet og lun terrasse med planteområder for frukttrær og plantekasser for dyrking av nyttevekster. Her er det mulig for beboerne å bli aktivert med å stelle med hagen og dyrke selv. 

### TAKHAGE BYGG G

På takflatene til bygg G er det gode muligheter for å anlegge et skjermet uterom for pasientene.

Her kan høye pryddress svaie i vinden og danne lune oppholdssteder med variert tilbud om sitte-steder, -hengekøyer, solbenker og alminnelige benker med god ryggstøtte.



Lun solvegg og utsikt - stedet for skjermet plass ved stillerom. Skogsbunnen rundt reetableres.



Flott utsikt mot sydvest.



Stedsegen skogsbunnsvegetasjon





Utsiktsti gjennom tretopper.



Utsiktspunkt - fin eksempel.



Utsiktspunkt - fin eksempel.



Mulighetsstudie og grov kostnadsoverslag for utvikling av uteområder på Sunnaas sykehus HF 20.11.2015

## NATUROMRÅDET

Naturområdet mot vest har fine kvaliteter med steden lyng-, skogsbær- og furuvegetasjon. Den ligger skjermert, med god utsikt over fjorden.

### REETABLERING SKOGSBUNNVEGETASJON

Det er behov for å reetablere vegetasjonen i skogbunnen etter sår skapt etter bygging av det nye tverrbygget. Skogbunnen reetablert ved utlegging av toppsjikt med planter og frøbank fra lignende områder i nærheten.

### SKJERMET UTEPLASS

Det er et ønske om et meditativt sted til ettertanke og ro utenfor stillerommene i bygningen. Her er det en lun solvegg med fantastisk utsikt over fjorden. Utegulvet på terrassen får tredekke med rause trinn i forkant som kan benyttes som sitteplasser. Busk- og hekkvegetasjon plantes og beskjæres for å gi en tett grenstruktur for å gi god levikning. En universelt utformet stiforbindelse i terrenget kan lett etableres fra gangveien fra Helikopterplassen.

### NYE STIFORBINDELSER

En ny gangforbindelse etableres for de som vil gå lengre tur i området på vest siden slik at man kan gå via universelt utformet gangforbindelse til terrassen ved bassenget – hvor det i dag kun er adkomst via trapp.

Stiforbindelse bygges frem til Nesoddtunet med en «rasteplass» utformet som utsiktspunkt med beste utsikt over fjorden mot vest. Her bygges en plattform for bord og stoler, og med lav kant mot omgivende fallende terreng som kan benyttes til å sitte på.

### UTSIKTSTIEN

Ny stiforbindelse kan bygges fra Nesoddtunet langs vestsiden frem til vestsiden av bygg F.

Her er det mulig å legge opp til en gangforbindelse utformet som «gangbro» gjennom tretopper, en sti som bukker seg gjennom og mellom tretopper med anlagte utsiktspunkter underveis vil gi store naturopplevelser!

Bronkonstruksjon: stål, tre og tauverk











## Green infrastructure

(my personal definition)

Natural amenities and areas, planned or existing, delivering a range of ecosystem services in rural or urban settings

...and offsetting the need for

...Gray infrastructure – typical infrastructure built with technical solutions, based on man made and dead materials



# Multifunctional delivery

- Fosters a better quality of life and human well-being, for instance by providing a high quality environment in which to live and work.
- Improves biodiversity, for instance by reconnecting isolated nature areas and increasing the mobility of wildlife across the wider landscape.
- Protects us against climate change and other environmental challenges, for instance by alleviating floods, storing carbon or preventing soil erosion, improving air quality, absorbing noise.
- Encourages a smarter, more integrated approach to development which yields more efficient use of space.

Inspired by:

[http://ec.europa.eu/environment/nature/ecosystems/docs/green\\_infrastructure\\_broc.pdf](http://ec.europa.eu/environment/nature/ecosystems/docs/green_infrastructure_broc.pdf)



food



raw materials  
& biomass



clean  
water



flood  
control



waste water  
treatment



air quality &  
local climate

# Values delivered to urban areas from ecosystem services

sequestration medicine

erosion  
control

genetic  
diversity

pollination



biological  
control



species  
habitats



recreation



Aesthetic  
amenity



tourism



spiritual  
experience

## Nature deficit disorder and stress

**Nature deficit disorder** refers to the phrase coined by Richard Louv in his 2005 book *Last Child in the Woods* that human beings, especially children, are spending less time outdoors resulting in a wide range of behavioral problems.

[Nature deficit disorder - Wikipedia, the free encyclopedia](https://en.wikipedia.org/wiki/Nature_deficit_disorder)  
[https://en.wikipedia.org/wiki/Nature\\_deficit\\_disorder](https://en.wikipedia.org/wiki/Nature_deficit_disorder)



# PLAY AGAIN

What are the consequences of a  
childhood removed from nature?

[HOME](#)

[ABOUT THE FILM](#)

[RESOURCES](#)

[TRAILER](#)

[SCREENINGS](#)

[STORE](#)

[PRESS](#)

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PLAY AGAIN - OFFICIAL TRAILER



GROUND PRODUCTIONS PRESENTS "PLAY AGAIN"

MUSIC BY SIGUR RÓS AND KIMYA DAWSON ORIGINAL MUSIC BY ANDREAS HESSEN SCHEI

EDITED BY DAVID BEE CINEMATOGRAPHY BY JAMES KLATT EXECUTIVE PRODUCER LOWAN STEWART

PRODUCED BY MEG MERRILL DIRECTED BY TONJE HESSEN SCHEI

- We are deeply entrenched in a huge experiment on behaviour and well-being, where we are the test animals.
- Our self confidence is perverted by the paradigm of expertise, which of course has it's place at hospitals, but...
- ...in truth we are all very competent students of nature deficit disorder.

# Stress levels increased since 1983, new analysis shows

By Sharon Jayson, USA TODAY

Updated 6/13/2012 9:17 PM

You may have felt it, but now a scientific analysis of stress over time offers some proof that there's more stress in people's lives today than 25 years ago.

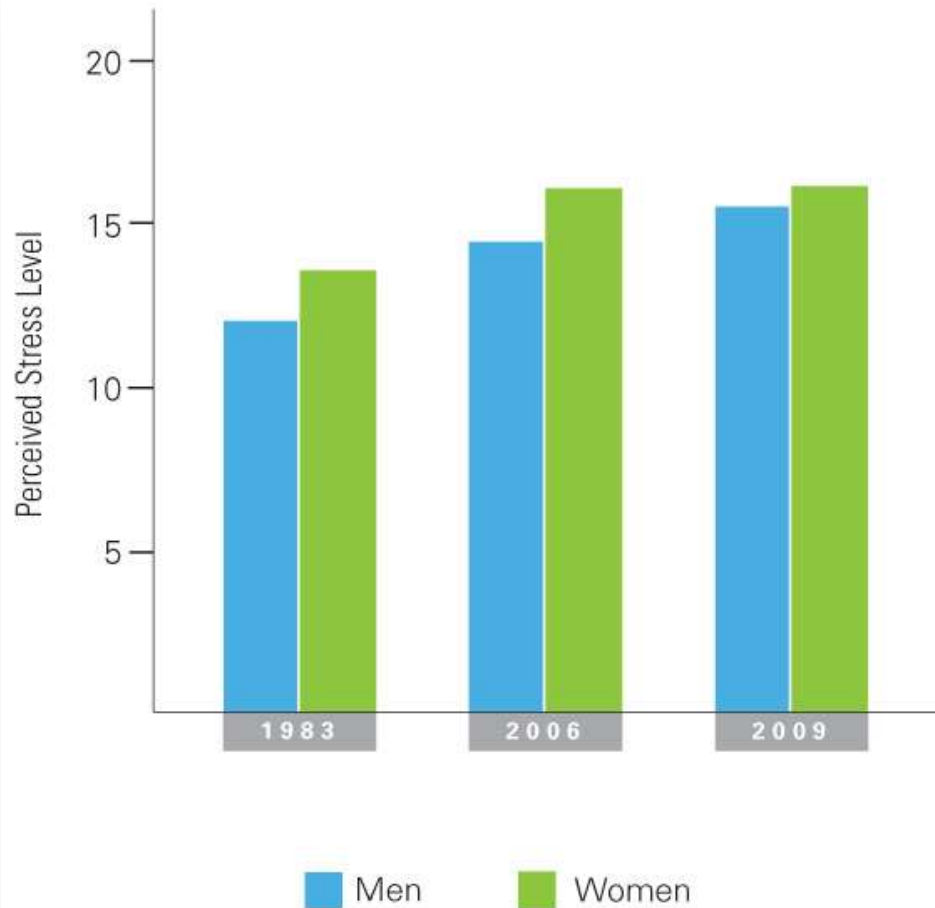


By Alejandro Gonzalez, USA TODAY

Stress increased 18% for women and 24% for men from 1983 to 2009, according to researchers at Carnegie Mellon University in Pittsburgh, who analyzed data from more than 6,300 people. It's considered the first-ever historical comparison of stress levels across the USA.

"The data suggest there's been an increase in stress over that time," says psychologist and lead author [Sheldon Cohen](#), director of Carnegie Mellon's Laboratory for the Study of Stress, Immunity and Disease. The analysis is published online in the *Journal of Applied Social Psychology*.

## Distributions of Psychological Stress in the United States in Probability Samples from 1983, 2006, 2009 By Sex



For more information, visit  
[www.psy.cmu.edu/~scohen/](http://www.psy.cmu.edu/~scohen/)

**Carnegie Mellon University**  
**Dietrich College**  
Humanities and  
Social Sciences

"Stress wreaks havoc on the mind and body. For example, psychological stress is associated with greater risk for depression, heart disease and infectious diseases. But, until now, it has not been clear exactly how stress influences disease and health."





# Psychological Stress and Disease

Sheldon Cohen, PhD

Denise Janicki-Deverts, PhD

Gregory E. Miller, PhD

**D**ESPITE WIDESPREAD PUBLIC BELIEF THAT PSYCHOLOGICAL stress leads to disease, the biomedical community remains skeptical of this conclusion. In this Commentary, we discuss the plausibility of the belief that stress contributes to a variety of disease processes and summarize the role of stress in 4 major diseases: clinical depression, cardiovascular disease (CVD), human immunodeficiency virus (HIV)/AIDS, and cancer.

## What Is Psychological Stress?

Psychological stress occurs when an individual perceives that environmental demands tax or exceed his or her adaptive capacity.<sup>1</sup> Operationally, studies of psychological stress fo-

ercise and sleep, and poorer adherence to medical regimens provide an important pathway through which stressors influence disease risk. Stressor-elicited endocrine response provides another key pathway. Two endocrine response systems are particularly reactive to psychological stress: the hypothalamic-pituitary-adrenocortical axis (HPA) and the sympathetic-adrenal-medullary (SAM) system. Cortisol, the primary effector of HPA activation in humans, regulates a broad range of physiological processes, including anti-inflammatory responses; metabolism of carbohydrates, fats, and proteins; and gluconeogenesis. Similarly, catecholamines, which are released in response to SAM activation, work in concert with the autonomic nervous system to exert regulatory effects on the cardiovascular, pulmonary, hepatic, skeletal muscle, and immune systems. Prolonged or repeated activation of the HPA and SAM systems can interfere with their control of other physiological systems, resulting in increased risk for physical and psychiatric disorders.<sup>1,2</sup>

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**Corresponding Author:** Sheldon Cohen, PhD, Department of Psychology, Carnegie Mellon University, 5000 Forbes Ave, Pittsburgh, PA 15213 (scohen@cmu.edu).

Paper for conference, *Plants for People*  
International Exhibition Floriade 2002

# Health Benefits of Gardens in Hospitals

Roger S. Ulrich, Ph.D.

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## INTRODUCTION

This paper selectively reviews scientific research on the influences of gardens and plants in hospitals and other healthcare settings. The discussion concentrates mainly on health-related benefits that patients realize by simply *looking* at gardens and plants, or in other ways passively experiencing healthcare surroundings where plants are prominent. The review also briefly addresses other advantages of gardens and plants in hospitals, such as lowering the costs of delivering healthcare and improving staff satisfaction.

It might be asked at the outset: why is worthwhile to focus exclusively on gardens located in hospitals and other healthcare facilities? One important reason is linked to the

“One of the most important lessons to be learned from human behavioural science (ethology) is an innate preference for plants. Vegetation does not only mitigate today’s urban climate – but much more: **vegetation has to mitigate today’s urban architecture... green plants not only provide health factors to our body, they may become vitamins for our soul.**”

Source: “[The Conflict about Beauty – Aesthetics Between Nature and Architecture](#)”. Prof. Dr. Bernd Lötsch





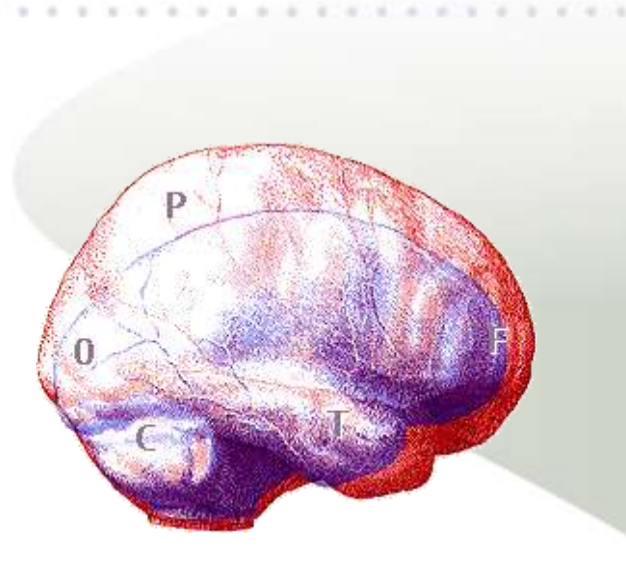
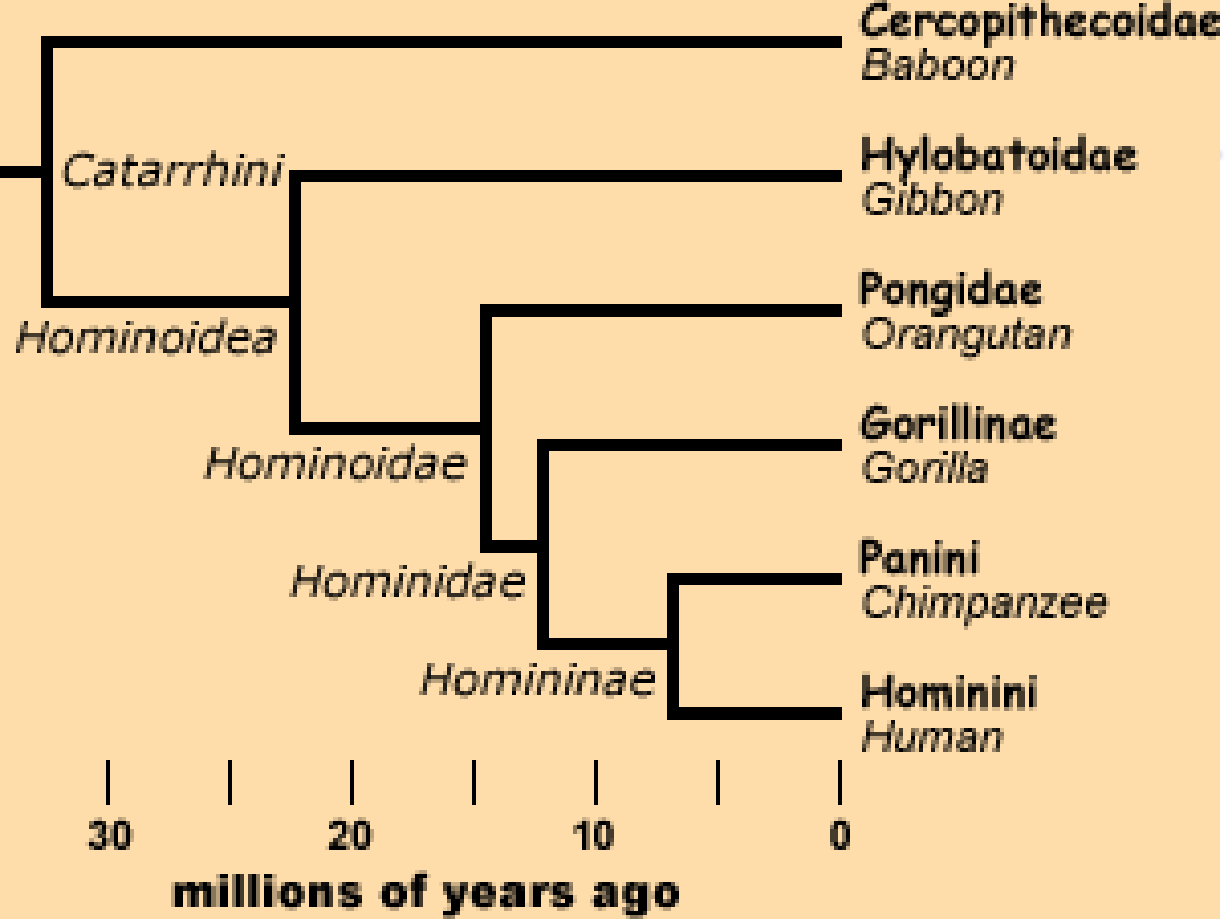
“Our image of the world arose out of a dialogue with Nature, and is adapted to it as are fins to water, as are wings to air, leaves to light or roots to earth, as otherwise eyes and ears, hands and brain could not function, operate or guide us in order to survive. This adaptation dialogue between the Nature around us and the Nature within us has been going on for millions of years, has formed every fibre of our being, from the retina to the nervous system. Thus, deep inside, Man has remained terribly old-fashioned, carrying around with him the traces of his biological evolution, which took place only in the natural environment and in the social associations of small groups. So, **even today every baby is born with the instincts of Cro-Magnon man** (Stone Age hunters in limousines).”

**“The self-inflicted estrangement of the environment is running out of man’s control, away from human adaptation patterns that have evolved over millions of years, now causing him to become more and more neurotic.”**

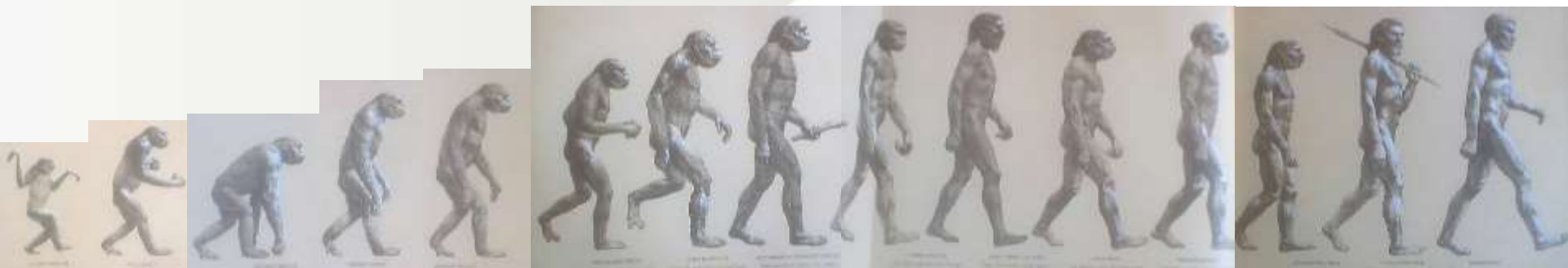
## Konrad Lorenz 1903-89, Austria

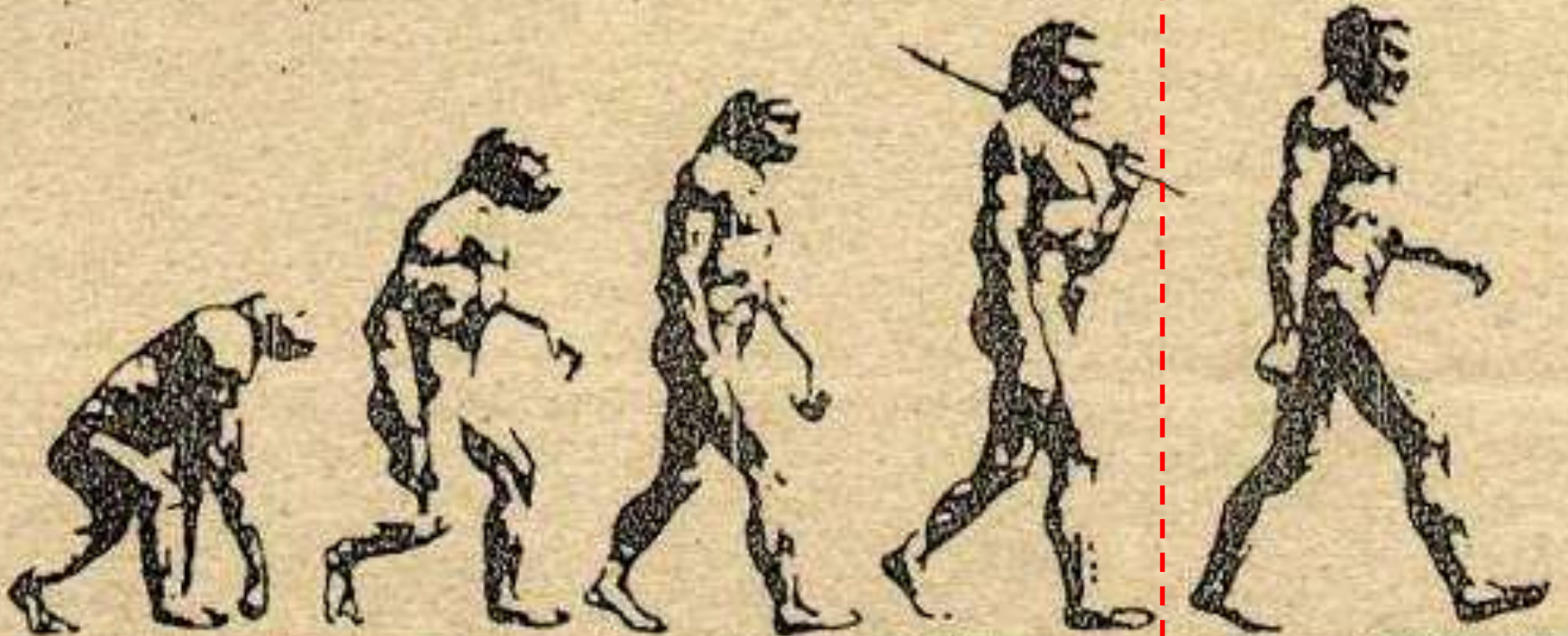
- Nobel Prize in Physiology and Medicine 1973
- Pioneer in Darwinist biology
- “Cognitive epistemology” The evolutionary theory of cognition





If the evolution of man is compressed down to 2 years, the industrial age is about 2 minutes





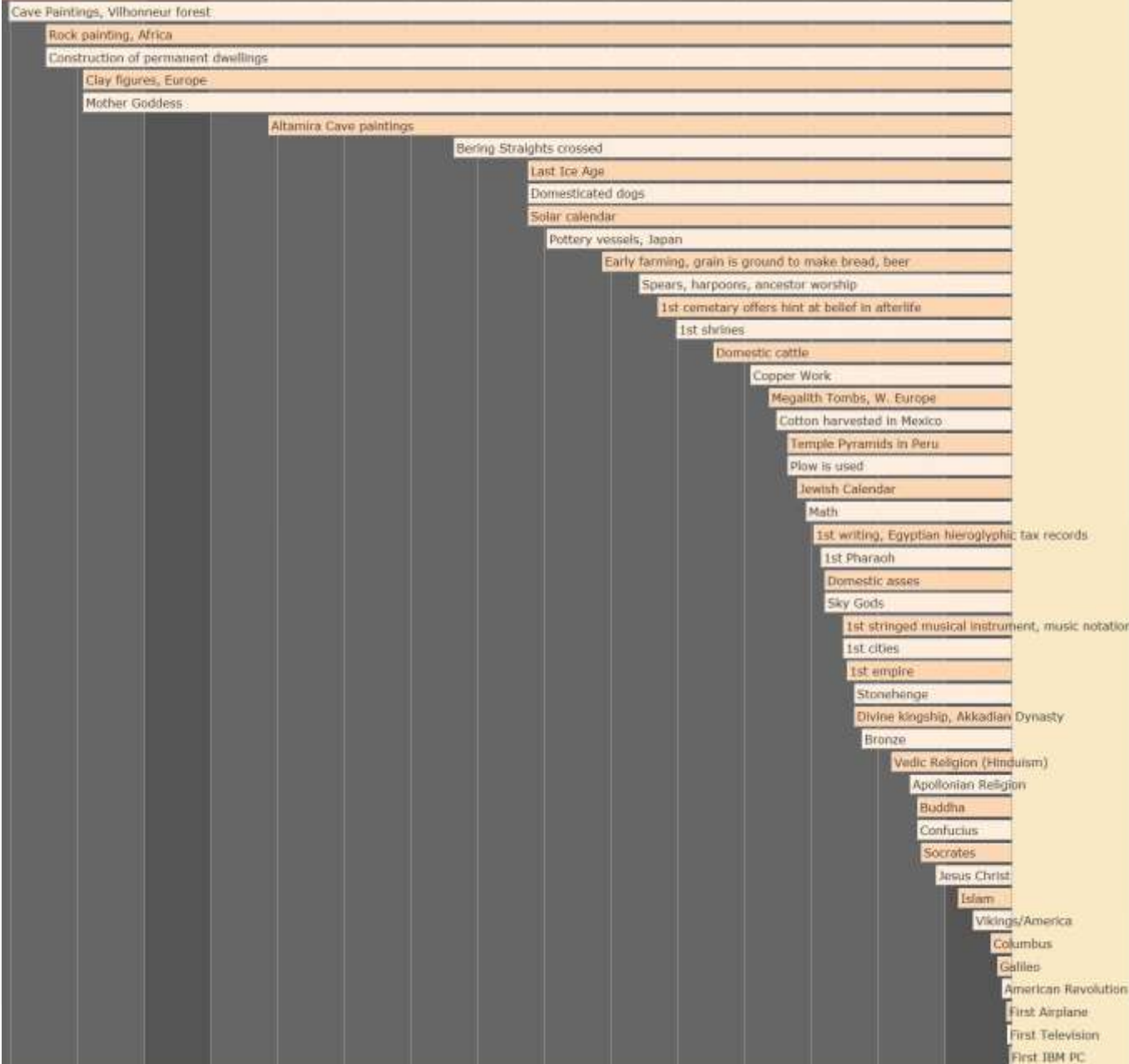


195 000 years

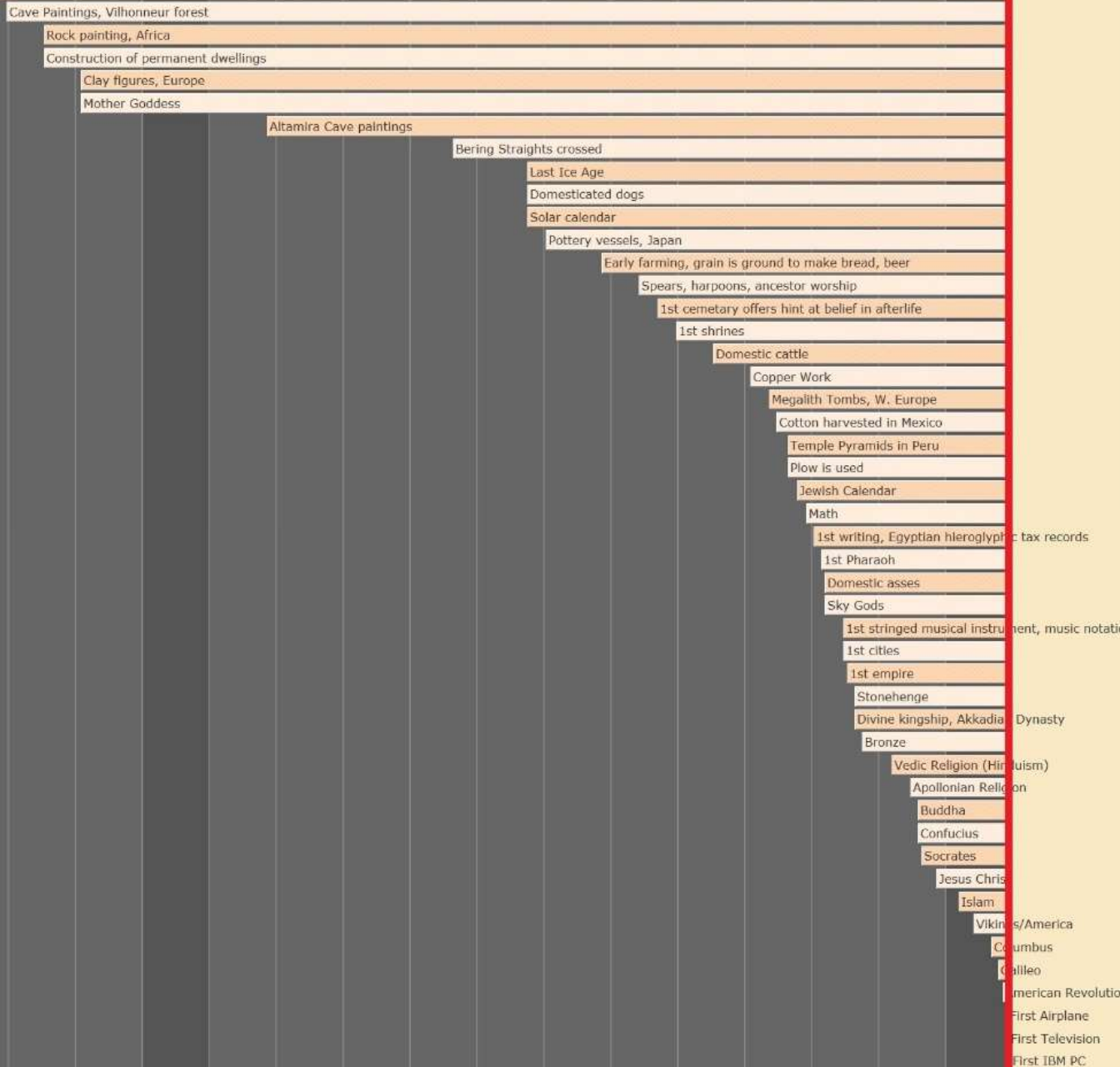


About 195 000 years ago we appeared on the  
Omo River valley in Ethiopia





During the last 27 000 years we started doing things commonly associated with "civilization"



Then came the industrial age over the last 200 years, shown in red, where we started making radical changes in the amount of green in our surroundings

Conclusion: not enough time for our cognitive capacities to evolve and adapt to radically changed man made surroundings

[https://www.regionh.dk/nythospit  
alnordsjaelland/derfor-bygger-  
vi/inspiration/PublishingImages/Si-  
der/Regionens-retningslinjer-for-  
nybyggeri/helendearkitektur/marts  
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(The Danish Capitol Region's  
recommendations for healing  
architecture)

Region Hovedstaden



Region Hovedstadens  
anbefalinger for  
Helende Arkitektur

REGION



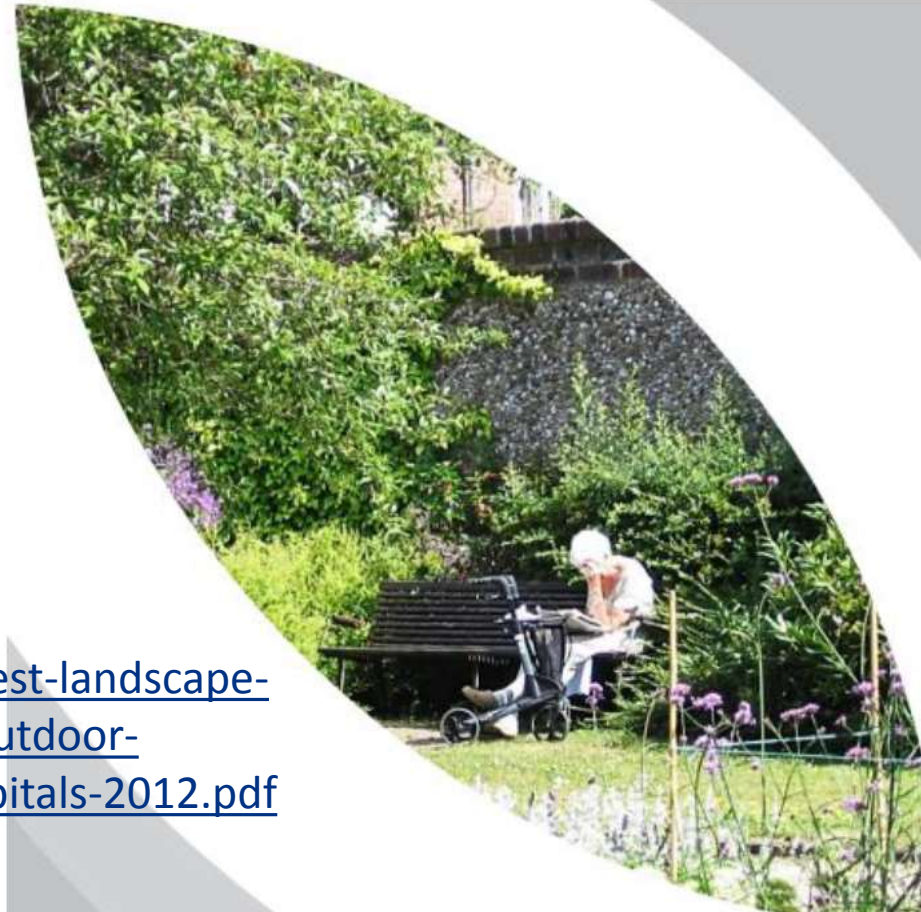


FOREST & LANDSCAPE

# Restorative Green Outdoor Environment at Acute Care Hospitals

Case Studies in Denmark

Shureen Faris Abdul Shukor



<http://sl.ku.dk/rapporter/forest-landscape-research/restorative-green-outdoor-environment-acute-care-hospitals-2012.pdf>

# Helende Arkitektur

Bevidstheden om de fysiske rammers påvirkning af helingsprocessen er øget markant gennem de seneste år. Forskningsresultater peger på, at arkitekturen kan understøtte lindring og helbredelse.



# View through a Window May Influence Recovery from Surgery

Roger S. Ulrich

*Science*

New Series, Vol. 224, No. 4647 (Apr. 27, 1984), pp. 420-421

Published by: [American Association for the Advancement of Science](#)



**Professor, Department of  
Architecture and Centre for  
Healthcare Architecture, Chalmers  
University of Technology**

<https://mdc.mo.gov/sites/default/files/sources/2012/10/ulrich.pdf>

# The Bible



Institut for Arkitektur og Design Skriftserie nr. 29





ELSEVIER

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

 ScienceDirect

Urban Forestry & Urban Greening 6 (2007) 199–212

URBAN  
& FORESTRY  
URBAN  
GREENING

[www.elsevier.de/ufug](http://www.elsevier.de/ufug)

## Health effects of viewing landscapes – Landscape types in environmental psychology

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### Abstract

The visible landscape is believed to affect human beings in many ways, including aesthetic appreciation and health and well-being. The aim of this paper is to analyse the range of landscapes used in environmental psychology studies, and the evidence of health effects related to viewing these landscapes. A literature review of publications linking landscapes and health effects was conducted. This reported evidence of health and well-being effects related to exposure to visual landscapes. The results of the review include an overview of the types of landscape used in the studies, the evidence on health effects, the methods and measures applied and the different groups of respondents. The analysis reveals a predominance of studies using only coarse categories of landscapes. Most landscape representations have been classed as “natural” or “urban”. Few studies were found to use subcategories within these groups.



## EVIDENCE OF THE LINKS BETWEEN NATURE AND HEALTH THE TOP TEN

### REVIEWS

The following three recent reviews address the subject of the links between nature and health and include many of the individual studies (detailed below) that point to a beneficial effect of nature on various indicators of health:

**Pretty J, Griffin M, Peacock J, Hine R, Sellens M and South N, A countryside for Health and Well-Being: The Physical and Mental Health Benefits of Green Exercise Report for the CRN, February 2005**

Review detailing studies showing links between nature and health. Also contains two studies: one of 10 outdoor activity projects from the UK and a lab-based intervention looking at synergistic effect of treadmill exercise whilst viewing natural scenes. (SEE EVIDENCE NUMBER TWO) Review also contains model of the links between food and exercise and nature.

**Bird W, Natural Fit – Can Green Space and Biodiversity Increase Levels of Physical Activity? Report for the Royal Society for the Protection of Birds, October 2004**

Review of studies showing links between nature and health commissioned for the RSPB. Report also contains data on potential health cost savings to be gained with promotion of greenspace.

**Henwood K, Exploring the linkages between the environment and health: Is there a role for environmental and countryside agencies in promoting benefits to health? A report for the Forestry Commission, February 2001**

Review of studies showing links between health – both mental and physical health – and nature. Report makes recommendations for policy-makers working in forestry, parks and countryside.

## TOP 10 STUDIES THAT SHOW A SIGNIFICANT RELATIONSHIP BETWEEN HEALTH PARAMETERS AND CONTACT WITH NATURE.

### PHYSICAL ACTIVITY AND HEALTH : STUDIES LOOKING AT 'GREEN EXERCISE'

# Healthy Parks Healthy People: the state of the evidence 2015

Prepared for Parks Victoria by Mardie Townsend, Claire Henderson-Wilson,  
Elyse Warner and Lauren Weiss, School of Health and Social Development,  
Deakin University



Healthy Parks  
Healthy People





*Report to Parks Victoria & the  
International Park Strategic Partners Group*

# **Healthy Parks** *Healthy People*

## **The Health Benefits of Contact with Nature in a Park Context**

### **A Review of Current Literature**

June 2002



*School of Health Sciences, Faculty of Health & Behavioural Science*

**Burwood, Melbourne**

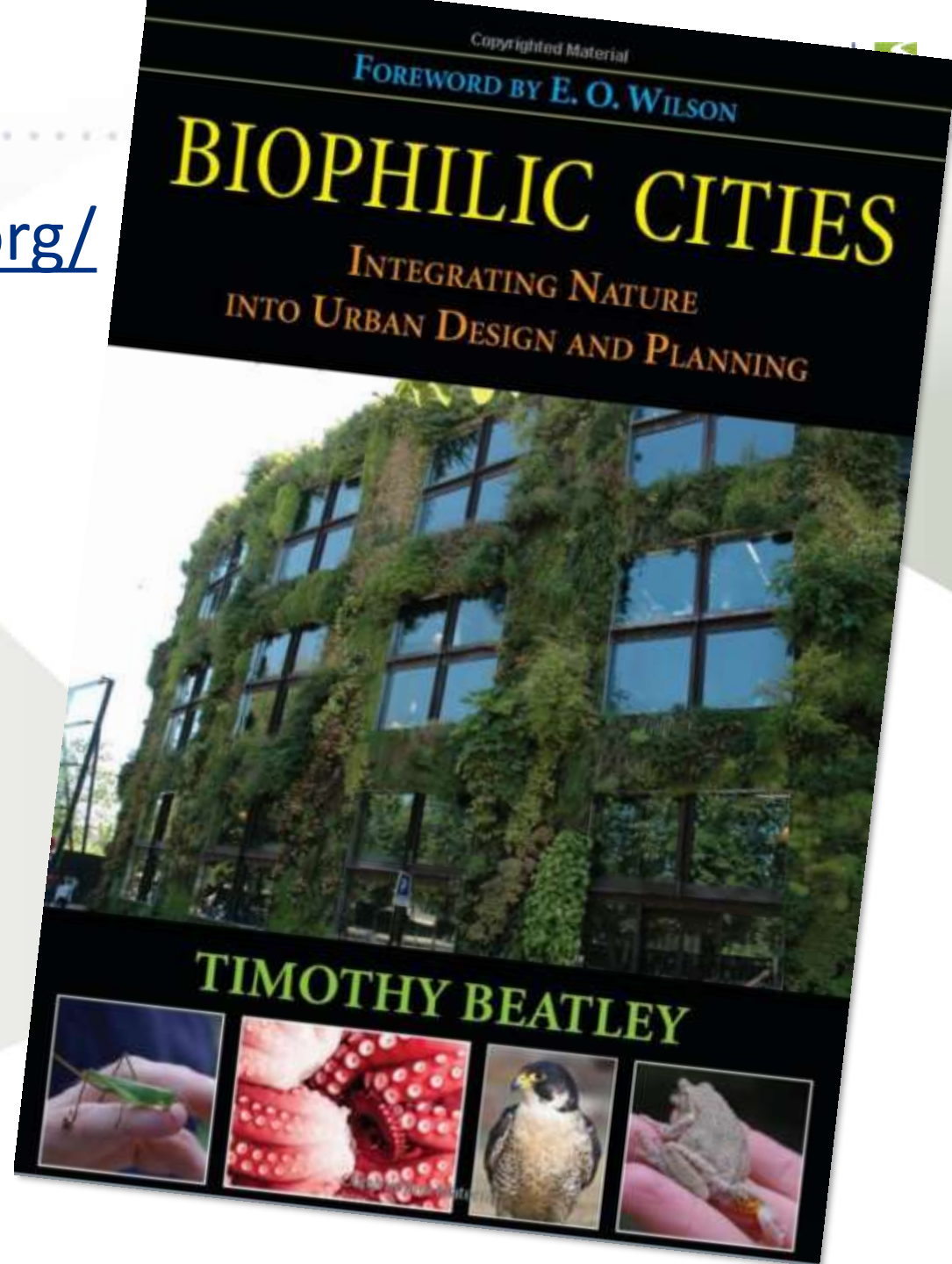
## **A Prison Environment's Effect on Health Care Service Demands. Journal of Environmental Systems**

Volume 11, Number 1 / 1981-1982

Forfatter: Ernest O. Moore

**Abstract:** This study looks at the impact of a corrections environment upon prisoners through a process of monitoring inmate attendance at sick call clinic. Contrasting cell block designs and characteristics are compared on the basis of significant differential demands for health care services emanating from specific areas. Known psychological and physiological responses to situations perceived to be threatening provide the theory that health behavior may be used as one indirect measure of environmentally induced stress. Findings suggest there are architectural design features of the prison environment that provide basis of perceived threats to inmate safety and survival. Loss of privacy on several dimensions appears to be a critical environmental characteristic.

<http://biophiliccities.org/>





<http://www.healinglandscapes.org/>

## Top Read Content

1. [Gardens in Healthcare Facilities](#)
2. [Blog](#)

## Recent TLN Blog Entries

### [Access to Nature DVDs – Spring Sale!](#)

If you have not seen the terrific award-winning DVD series “Access to Nature for Older Adults.” this is your...

*[See Gardens in Healthcare and Related Facilities](#)*



*Forest bathing i Japan – Shinrin yoku*







NATUR OG FRILUFTSLIV I REHABILITERING  
- EN KARTLEGGINGSSTUDIE

NATURE AND OUTDOOR LIFE IN REHABILITATION  
- A DESCRIPTIVE STUDY

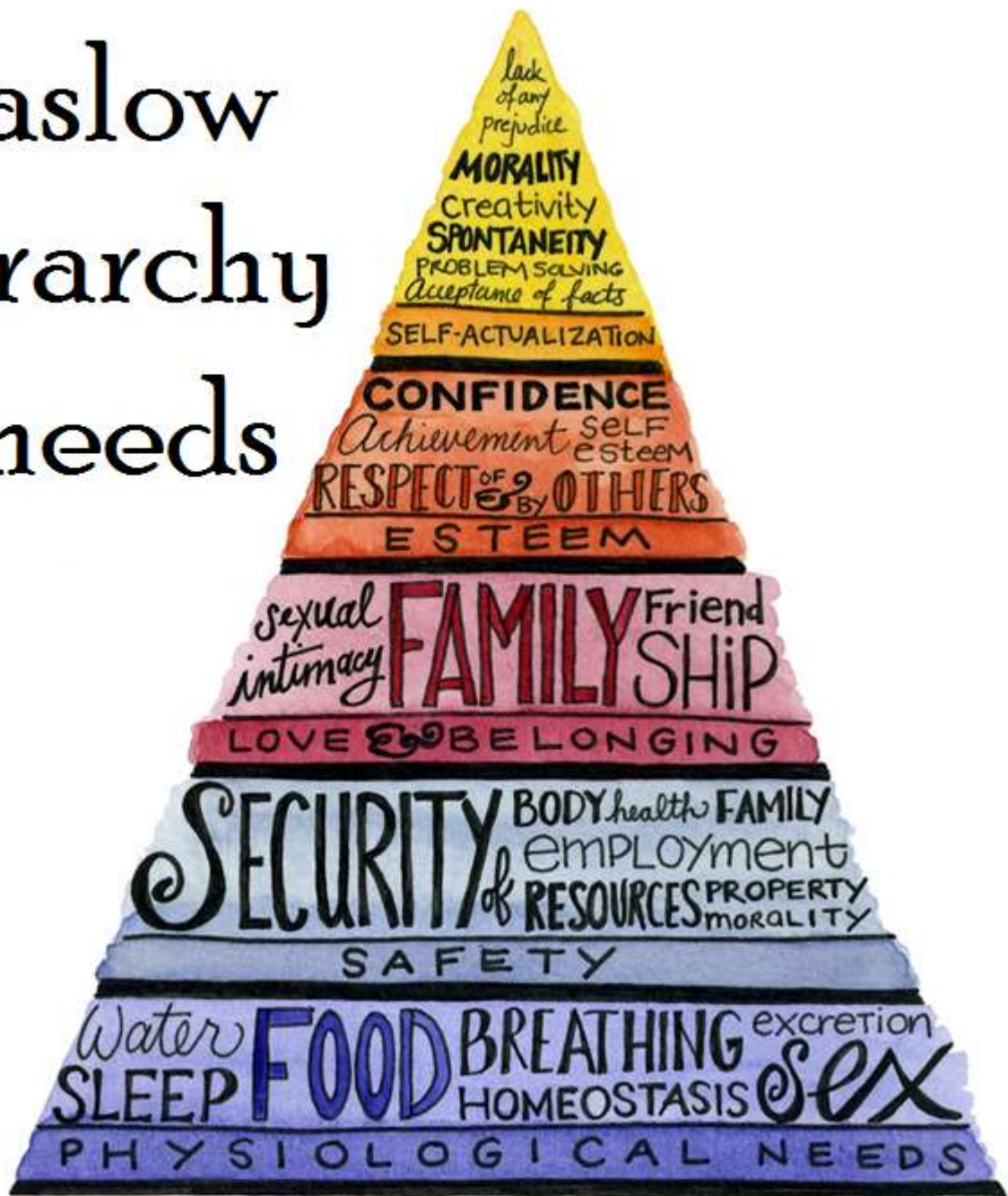
ERLE BREIMO MORSTAD

UNIVERSITETET FOR HILSE OG SJØFERTSSEKAP  
INSTITUTT FOR HUSDYR- OG AKVAKULTURVITENSKAP  
MASTEROPPGAVE 30. SEP. 2011

<http://brage.bibsys.no/xmlui/bitstream/handle/11250/186059/Masteroppgave%20Erle.pdf?sequence=1&isAllowed=y>

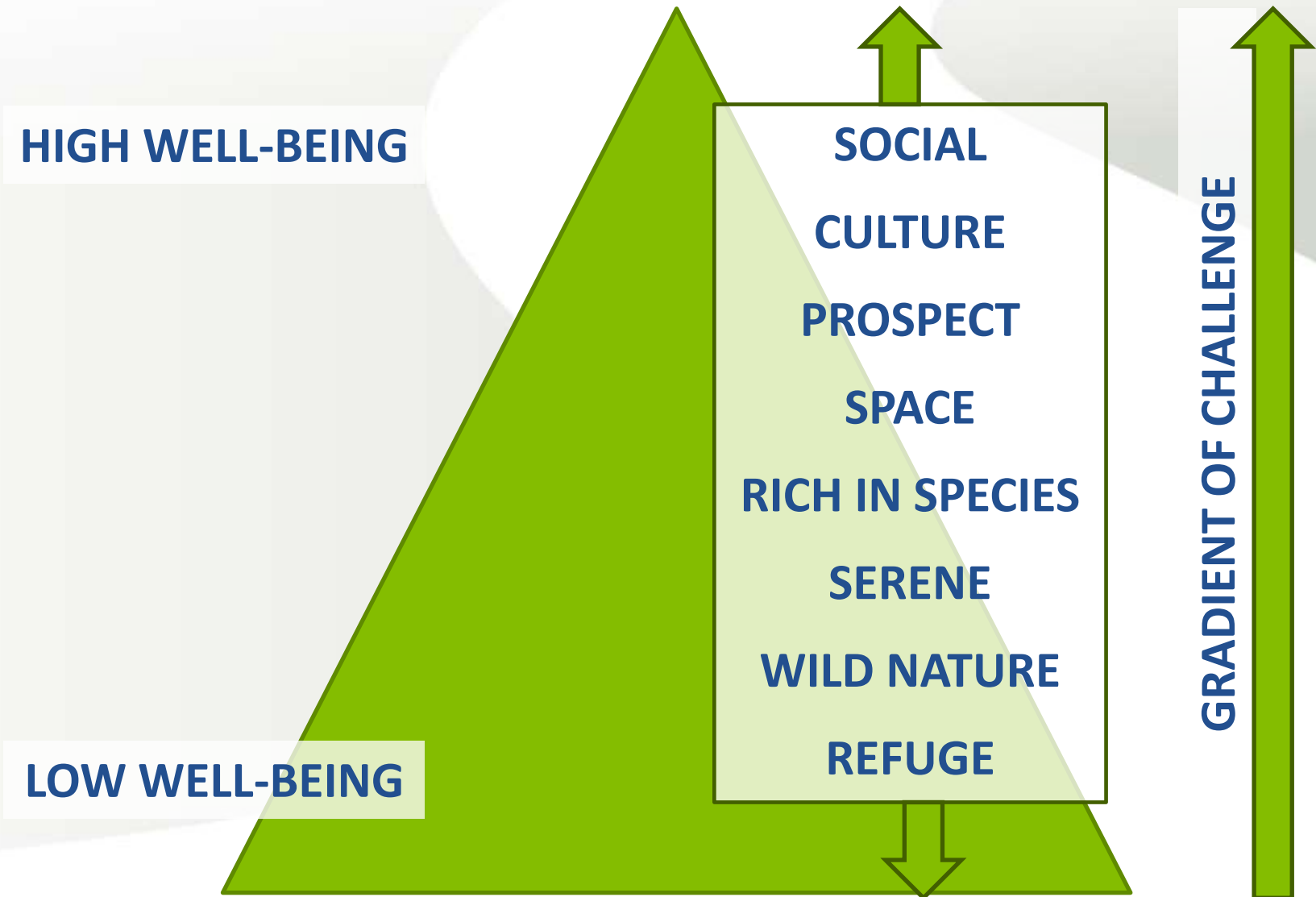


# Maslow hierarchy of needs



<i>Air</i>	unpolluted air
<i>Water</i>	clean water for drinking and cooking
<i>Food</i>	adequate supplies of nutritious and non poisonous food
<i>Shelter</i>	protection from wind, cold, rain
<i>Security</i>	protection from threats to the person or property
<i>Hygiene</i>	protection from infectious or contagious disease and from toxins and pollutants
<i>Education</i>	socialisation in the skills and information needed in a given society
<i>Healing</i>	care and treatment for the sick and infirm
<i>Housekeeping</i>	resources for food storage and preparation, cleaning (of people, clothes and homes), waste disposal
<i>Work</i>	gainful labour
<i>Means of exchange</i>	money, credit, or other forms of trading power
<i>Information</i>	access to prevailing media of information and communication (books, newspapers, postal and telecommunications services, etc.)
<i>Transport</i>	private and public transport, roads, railways etc
<i>Personal relationships</i>	family life, intimate relationships, acquaintance and friendship networks
<i>Religious</i>	spiritual or ritual practices
<i>Involvement in group activities</i>	participation in political, social, or economic, activities
<i>Play</i>	social, cultural, and physical recreation


# Healthcare garden design considerations



**Two sources of inspiration in Norway:**

**St. Olavs Hospital, Trondheim**

**Kronstad Psychiatric Hospital and Clinic, Bergen**

An aerial photograph of the St. Olavs Hospital complex in Trondheim, Norway. The image shows a dense cluster of buildings, including several modern, multi-story structures with light-colored facades and dark roofs, interspersed with older, red-brick buildings featuring gabled roofs. A central courtyard with green lawns and trees is visible. The surrounding area includes parking lots with cars and a road with a yellow taxi. The text "St. Olavs Hospital Trondheim, Norway" is overlaid in white on a semi-transparent dark green background in the upper center of the image.

# St. Olavs Hospital Trondheim, Norway















"This is like hiking in the mountains!"

Nurse Oddveig Hegge, recalling a patient's remarks about the roof garden



















































# GRØNT SYKEHUS

UTEMILJØ I SÆRKLASSE VED ST. OLAVS HOSPITAL



<http://sjukehusbygg.no/wp-content/uploads/2015/09/Grønt-sykehus-utemiljø-i-særklasse-ved-St.-Olavs-Hospital.pdf>



<http://sjukehusbygg.no/wp-content/uploads/2015/09/Grønt-sykehus-utemiljø-i-særklasse-ved-St.-Olavs-Hospital.pdf>



QUIET: On the roof of the Women's and Children's center, architecture students from NTNU have built a contemplation shelter.

<http://sjukehusbygg.no/wp-content/uploads/2015/09/Grønt-sykehus-utemiljø-i-særklasse-ved-St.-Olavs-Hospital.pdf>



## Roof gardens on The Knowledge Center

<http://sjukehusbygg.no/wp-content/uploads/2015/09/Grønt-sykehus-utemiljø-i-særklasse-ved-St.-Olavs-Hospital.pdf>

**Kronstad Psychiatric Clinic  
and Hospital  
Bergen, Norway**

**Construction completed 2013**









*Come away,  
O human child!  
To the waters and  
the wild  
With a faery, hand  
in hand,  
For the world's  
more full of  
weeping than you  
can understand.*

From "The Stolen Child", William Butler Yeats. 1886



Kronstad Psychiatric Clinic, Bergen







Kronstad distriktspsykiatriske senter

DRIBEN



➔ HÖVUDINNANG















# Kronstad Psychiatric Clinic, June 2016



































COME AWAY,  
O' HUMAN  
CHILD -  
TO THE  
WILDS AND  
THE WILD  
WITH A  
FABLE BARD  
IS BARD:  
FOR THE  
WORLD'S  
GONE BY,  
OF WEEPING  
THAN THE  
C & N  
COURTESAN  
W.S. 1898

IKKJE  
STENG  
GRE

AKK



# Roof herb garden - Haukeland Hospital





**Aesthetics and joy**



**Utility**



# Utility

**National Conference on  
rehabilitation in nature**

**Sept. 15 – 16th, 2016**

**Kristiansand, Norway**

presentations  
downloadable at:

[www.uterehabilitering.no/foredrag](http://www.uterehabilitering.no/foredrag)

(Norwegian language – run them through Google translator!)



# The SGRA annual green roof prize 2016

## Egedal City Hall and Health Care Facility

- Showcasing and inspiring excellence in our field
- Awarded every year since our beginning in 2001
- Publication in actual journals and on our internet site
- We need your nominations! Subscribe to our newsletter, or check our web site

<http://scandinavian-green-roof.org/>



Photo: MALMOS Landscape Contractors









Photo: MALMOS Landscape Contractors

- Tiltag med lokal nedsivning af regnvand (LAR-løsninger) ses gerne indarbejdet som for-skønnende landskabeligt element i udearealerne.
- Med henvisning til "Sundhed og bevægelse" skal der i forbindelse med Sundhedscenteret "planlægges udearealer til genoptræning, og disse skal udvikles som et multifunktionelt byrum, der kombinerer forskellige funktioner og anvendelsesmuligheder."

## ...from the project design program

- *Tema for indretning af udendørsareal*
- Sundhed/motion, plads til refleksion, harmoni/årstider
- *Walk and talk*
- Udearealet må gerne inspirere til en mødeform der hedder "walk and talk". Der må gerne være noget at gå efter, fx kunst, planter, bede, vand.
- *Motionsredskaber*
- Der må gerne være udendørsmotionsredskaber både til alment brug, men også til genoptræning til brug for sundhedscenteret.
- *Belægningstyper*
- I genoptræningsøjemed må belægninger gerne være forskellige – og gerne med niveauforskel og evt. trappe.
- *Motorikbane*
- Motorikbane, evt. børnemotorikbane.
- *Sansehave*
- Duft, berøring – gerne højbede af hensyn til kørestolsbrugere.
- *Drivhus*
- Drivhus til brug for de midlertidige boliger, gerne stort til kørestolsbrugere.
- *Udendørs terrasse*
- Der ønskes udendørs terrasse i forbindelse med opholds- og spisestue ved de midlertidige boliger til grill og udespisemøbler.

# Kristoffer Holm Pedersen

## SLA Landscape architects and urban planners

- “The green roof on the new Egedal City Hall + Health Care Center is a good example of how using nature innovatively can add both functional as well as recreational qualities to a building. Using a wide variety of local plants and species we have dramatically improved the biodiversity of the area as well as the storm water management capabilities of the building; while also creating a nice, social and sensuous roof space – for the public, for the municipality workers and for the residents and users of the health care center. It is really amazing to have collaborated on this project with Egedal Municipality who has continuously prioritized and empathized the many great benefits of green roofs throughout the design and construction process.”

## Uffe Rasmussen, Egedal municipal property development corporation

- "Egedal Municipality is very happy with the result of the roof garden project. The garden meets the requirements that we had concerning both an outdoor space for activities for the Health Care Center and a lush green spot in our new urban city area in which it sets a great standard for the coming construction projects."

# Novo Nordisk, Copenhagen, winner of Scandinavian Green Roof Prize 2014



Photo: Henning Larsen Architects





Photo: Henning Larsen Architects



Photo: SLA Landscape Architects





Photo Dorthe Rømo

A man with a grey beard and sunglasses is lying on a blue mat on a gravel surface. He is surrounded by a dense layer of green, low-growing plants with small white flowers. The text "Thanks for listening!" is written in white on his black t-shirt.

Thanks for listening!

