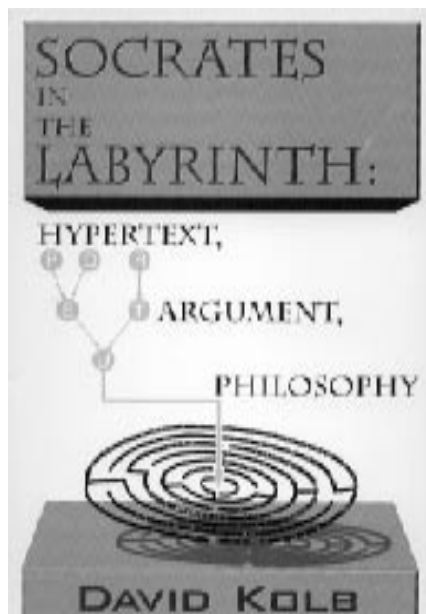David Kolb:
Socrates in the Labyrinth:
Hypertext, Argument, Philosophy
Hypertextessäer, Eastgate Systems.

Recension av Rolf Johansson

DavidKolbärprofessorifilosofiochkändblandarkitektur-forskare genom sin bok Postmodern Sophistications.[1] Förutom att skriva om postmodern arkitektur, skriver Kolb också om hypertext och om filosofi i hypertext. Socrates in the Labyrinth är en samling hypertextes-säer. Utöver titelessän, som är den mest omfattande, ingår fyra kortare essäer: Aristotle Argument, Earth Or-bit, Cleavings och Habermas Pyramid.
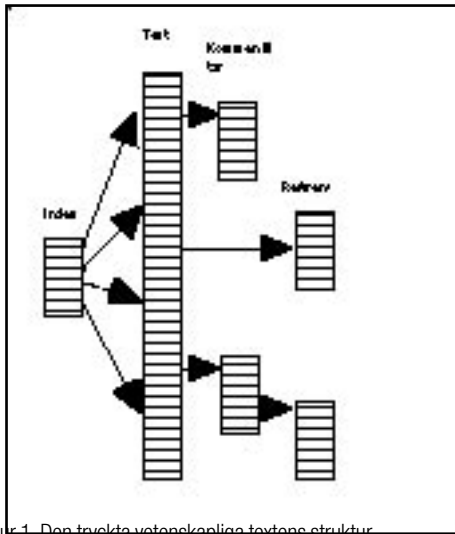
Jag inleder med några allmänna reflektioner om hypertext. Vad innebär det att publicera en text som hypertext istället för tryckt text? Vad är hypertext? Se-dan övergår jag till Kolbs hypertextessäer.

Hypertext

> …in some distant, or not-so-distant, future all indi-vidual texts will electronically link themselves to one another, thus creating metatexts and metametatexts of a kind only partly imaginable at present…
>   (Landow 1997:49)

En linjär text utan hypertextualitet har en bestämd början och löper sedan på till slutet. Den följer den muntliga berättelsens förlopp. Hypertexten, å andra sidan, är i sin ytterlighetsform en mängd textblock som kan läsas i vilken ordning som helst. Hypertexten behöver inte ha en bestämd början eller ett bestämt slut. Michael Joyce hypertext-fiction afternoon (1990) har fem olika slut eller fler. Hypertexten har kraften
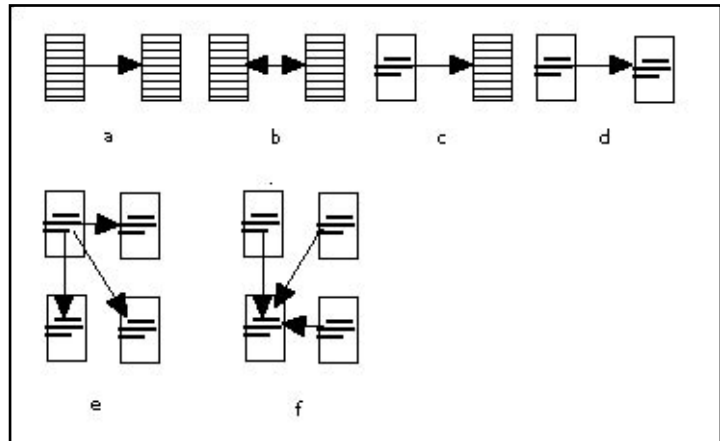
Figur 1. Den tryckta vetenskapliga textens struktur.

Figur 2. Länktyper. (a) Enkelriktad länk från ett textblock till ett annat.
(b) Dubbelriktad länk från ett textblock till ett annat. (c) Enkelriktad länk från en
sträng till ett textblock. (d) Enkelriktad länk från en sträng till en sträng. (
e) Länkar från en sträng till strängar i flera textblock. (f) Länkar från flera

att upplösa gränserna för ett dokument och växa till en oändlig, oöverskådlig väv av text, metatext, meta-metatext…

I och med att vetenskapliga texter publiceras elektroniskt kommer de att kunna anta en mer hypertextuell form. Hypertexten ställer inte bara författaren inför en helt ny situation utan också läsaren och kritikern. Varje läsning av en hypertext är en ny sorts läsning – den följer ett annat spår – som kan ge en helt annan bild och upplevelse. Författare av hypertext kan i vissa program – till exempel Storyspace – skapa länkar som slumpmässigt leder till olika textsträngar när de aktiveras. I vissa hypertexter kan också läsaren tillfoga kommentarer och länkar och därigenom bygga ut texten.

En tryckt text kan ha inslag av ickelinjär natur. Skönlitterära författare har länge utmanat den linjära framställningen genom att bryta upp kronologin i berättelsen. Ett extremt exempel är den experimentella novellen Hopscotch av Julio Cortázar. Den består av en mosaik av berättelsefragment som kan läsas i olika ordning. James Joyce Finnegans Wake bryter kronologin genom att texten slutar mitt i en mening som fortsätter med inledningsorden »riverrun, past Eve and Adam's…« och i Ulysses återkommer samma händelser flera gånger i texten. I Wilkie Collins Moonstone skildras samma händelse genom en rad berättelser ur olika personers perspektiv. Den tryckta vetenskapliga texten har normalt en linjär grundstruktur, men med icke-

linjära inslag i form av kommentarer i noter, referenser till andra texter och eventuellt index. (fig. 1).

En hypertext är ett nät av textblock som inte är relaterade till varandra i en unik sekvens, utan snarare som ett landskap vilket kan genomkorsas på många olika sätt.[2] Författaren kan inte kontrollera vilket spår läsaren väljer mellan textblocken i en hypertext, men däremot vilka val som är möjliga. Åtminstone vid första läsningen; i vissa system kan läsaren själv skapa nya textblock och länkar så att verket förändras och växer. Läsaren blir medförfattare. En hypertext kan också ha dynamiska länkar – länkar som är beroende av läsarens tidigare val. Men landskapet har ändå spår som kan väljas och andra ogenomträngliga partier; textblock kan följa på varandra i olika ordningar, men inte fullständigt fritt. Länken är det element som skapar strukturen och som hypertexten bidrar med till läsande och skrivande.

Landow (1997) diskuterar en rad olika typer av länkar. (fig. 2). Den enklaste formen är en enkelriktad länk från ett textblock till ett annat. Om textblocken är omfattande kan läsarna bli desorienterade av att inte veta vart länken leder dem i det dokument som de ger sig in i. En dubbelriktad länk från ett textblock till ett annat är identisk med den första typen av länk, men med skillnaden att den ger läsarna möjlighet att gå tillbaks i sina egna fotspår. Det underlättar på ett enkelt sätt möjligheterna att orientera sig i hypertextdokumentet.
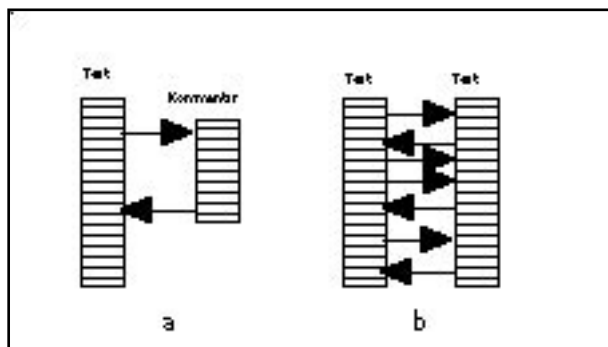
Figur 3. (a) En länk kan göra den kommenterade texten till en kvalificerad hypertext. (b) En kontrapunktiskt strukturerad hypertext.

Figur 4. (a) Kontradiktorisk struktur. (b) Trädstruktur. (c) Pyramidal struktur. (d – g) Cykliska strukturer. (h) Speglande struktur. (i) Trasslig struktur.

En annan kategori av länkar är de som utgår från en sträng – dvs ett ord eller en fras. Den enklaste länken i kategorin går från en sträng till ett textblock. Landow ser tre fördelar med denna länk. Den ger ett enkelt redskap för orientering eftersom länkens bas i ett ord eller en fras ger en föreställning om att länken leder till information som är associerad med strängen. Vidare ger dessa länkar läsaren möjlighet att lämna texten vid olika punkter, vilket tillåter längre textblock. Slutligen kan författaren med ord eller bilder som utgångspunkt för länken, signalera vilken typ av block länken leder till – textblock, illustration, biografisk information, definition etc, vilket underlättar läsarens val. Länktypen är mycket vanlig i www-dokument med den skillnaden att webläsaren också gör länken dubbelriktad.

Länken kan vara enkelriktad från en sträng till en annan sträng. Den leder läsaren direkt till en definierad sträng i ett textblock och det underlättar för läsaren att förstå författarens motiv till länkningen. Länkar av den typen kräver mer planering och klarare motivering av författaren. Görs länken dubbelriktad blir navigeringen i hyperrummet enklare. En fullt utvecklad hypertext, menar Landow, använder en länktyp som går från en sträng till flera strängar i olika textblock. Läsaren kan ledas vidare till olika information från samma plats i ett textblock. Läsarens valmöjlighet ökar då mångfaldigt, liksom navigeringsmöjligheterna. Länktypen är mycket vanlig i hypertext-fiction och dess svaghet är att den kan ge texten ett splittrat intryck. Med hjälp av länkar från många strängar till en kan flera referenser göras till en text, bild, tabell eller annan data. Länken kommer mest till sin fördel i samband med hypertexttillämpningar inom undervisnings- eller informationsområdet.
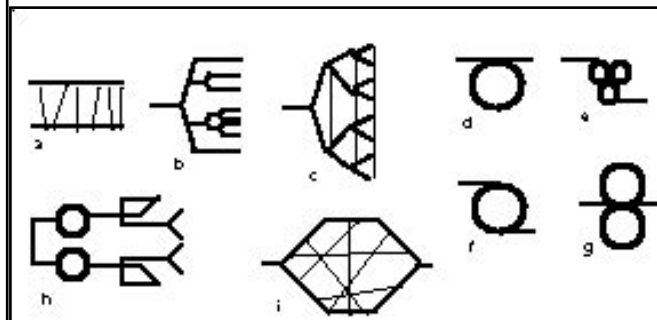
Kolb använder främst länkar från en sträng till ett textblock. Det innebär att läsarens väg genom texten, visserligen rymmer alternativa vägval, men ändå är relativt styrd. För att underlätta för läsaren att navigera har Kolb vinnlagt sig om att namnge länkarna i sina essäer.

Hypertexten har en struktur av textblock och länkar. Kolb argumenterar för att kritiken av hypertext bör fokuseras på textens struktur för att verkligen träffa något essentiellt. Vi behöver i så fall ord för att karakterisera strukturen.

Den vetenskapliga textens traditionella struktur (fig. 1), blir kvalificerat hypertextuell om den kommenterande texten länkas tillbaks till huvudtexten; flera läsningar bli möjliga (fig. 3a). När den kommenterande texten blir likvärdig huvudtexten har den en ny struktur; den är kontrapunktisk och löper som två röster dialogiskt framåt. (fig. 3b).

En annan grundstruktur som ofta förekommer är trädstrukturen; en text som förgrenar sig. Jorge Luis Borges (1970) beskriver en sådan struktur i tryckt text i sin novell The garden of Forking Paths där mästerspionen Yu och sineologen Albert samtidigt kan vara både vänner och dödliga fiender. Borges gestaltar ett alternativt universum där »an infinite series of times, in a growing, dizzying net of divergent, convergent and parallel times…embraces all possibilities«. (s.53). Olika möjliga framtider uppstår genom »…the forking in time, not in space« (s 51).[3] Om förgreningarna i en trädstruktur länkas samman på olika nivåer blir strukturen pyramidal. Kolb använder pyramidstrukturen i essän Habermas Pyramid.

Mark Bernstein (1998) identifierar ytterligare några strukturer som förekommer ofta i hypertexter, bland
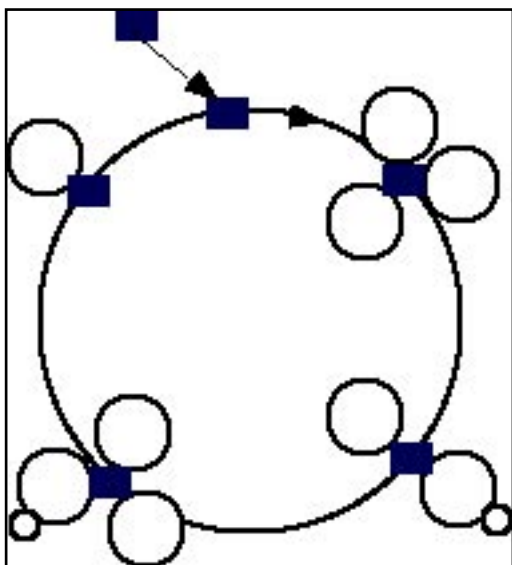
Figur 5. Shematisk bild av strukturen i **Earth Orbit.** Bilden är hämtad ur Kolbs

annat den cykliska texten, den speglade texten och den trassliga texten. I en cyklisk text återkommer läsaren till en tidigare besökt nod och kan fortsätta efter ett nytt spår. (fig. 4d). Den kan också leda läsaren efter en tidigare besökt väg genom textblocken innan cykeln bryts. (fig 4f). Strukturen kan bestå av flera cykler som möter varandra. (fig. 4e). David Kolb använder en struktur med ett cykliskt förlopp och epicykler – alternativa cykler – i sin essä Earth Orbit. (fig 4g). En speglad text består av två parallella berättelser som inte är länkade till varandra. De löper parallellt och anlägger kontrasterande perspektiv. (fig. 4h). En text kan också vara trasslig genom att konfrontera läsaren med en uppsjö av länkar utan att ge vägledning för att välja. (fig. 4i). Det förekommer många andra strukturer och en hypertext består normalt av flera strukturer i kombination med varandra.

David Kolb menar att, när det gäller filosofiska texter, bör hypertextens struktur användas för att tydliggöra den logiska strukturen i argumentationen. I de hypertextessäer som ingår i Socrates in the Labyrinth experimenterar Kolb med strukturer som är kongeniala med resonemanget.

Socrates in the Labyrinth

Hypertextessäerna är skrivna i programmet Storyspace (Eastgate Systems),[4] som gärna används av litterära hypertextförfattare – till exempel Michael Joyce och Stuart Moulthrop[5] – och vid universitetsundervisning i litteratur. I Storyspace skrivs texten i textrutor som länkas till varandra. Länkar kan också skapas från en textsträng i en textruta till en annan textruta eller textsträng. Programmet visar hypertextens struktur på olika sätt; i form av en karta, diagram eller tabell. Socrates in the Labyrinth levereras med en läsversion av programmet – en Reader – som tillåter navigation i dokumentet och utskrift, men inte ändringar och tillägg.

Huvudessän Socrates in the Labyrinth har två ingångar anvisade av Kolb, men det går att börja läsa var som helst i hypertextdokumentet. Kolbs huvudteman är hypertext, argumentation och filosofi. Hypertexttemat diskuterar vad hypertext är med utgångspunkt från olika definitioner som ges av andra författare i ämnet, främst inom litteraturteori och kommunikationsteori. Temat argumentation diskuterar olika sätt att strukturera en argumentation. Efter att först ha behandlat klassiska sätt att argumentera uppehåller sig Kolb vid en modell, som Stephen Toulmin har presenterat – det är i varje fall så jag har kommit att läsa texten. Med utgångspunkt från Toulmin kommer han sedan fram till en retorisk modell som också kan understödjas i hypertextens struktur. Varje premiss är länkad till argument som stöder den. Kolb använder sedan den strukturen i en av de andra essäerna – Aristotle´s Argument.

Det centrala temat i Socrates in the Labyrinth är filosofi. Den fråga Kolb bearbetar är om hypertext bidrar med radikalt nya sätt att skriva filosofi. Filosofi grundläggs på argumentation och argumentation måste ha en början, ett mellanled och en avslutning. Men ändå finns det filosofiska tryckta texter som utmanar en linjär framställning: Nietzsches aforismer, Kierkegaards multipla röster, Wittgensteins Filosofiska undersökningar och Derrida, konstaterar Kolb. Det som driver Kolbs text är motsättningen mellan argumentationens linjäritet och hypertextens upplösning av det linjära. Och den problematiken avspeglas också i hypertextessäns struktur som består av linjära avsnitt med inbäddade mera informella delar.

Essän Habermas Pyramid är ursprungligen en linjär text. Kolb har transformerat den till hypertext, dels genom att länka fotnoterna, dels genom att införa en pyramidal struktur, så att texten har flera nivåer med ökande detaljeringsgrad.

Earth Orbit diskuterar Heideggers begrepp om »varat«. Essän är gestaltad som två röster i diskussion som förtydligas av att de fått varsitt typsnitt. Huvudstrukturen är linjär och cyklisk, men så finns det här och var i cykeln möjlighet att välja mellan flera epicykler som fördjupar diskussionen för att sedan återvända till huvudspåret. Figur 5.

Hypertextessän Cleavings utforskar ett filosofiskt tema genom att väva samman fyra klassiska men disparata texter. Den kommenterar hypertextens form genom att jämföra hypertextuell och linjär presentation av samma material.

Som recensent av Kolbs hypertext måste jag konstatera att det är mycket mer tidskrävande att genomkorsa en hypertext än en linjär text. Delvis beror det på att jag aldrig är riktigt säker på att jag har följt alla »loopar« i texten. Delvis på det skrivsätt som hypertexten tvingar fram; eftersom läsaren kan komma till ett textblock från flera håll kan författaren inte utgå från att alla läsare läst samma sak före. Texten kan bara syfta bakåt till det som författaren har tvingat läsaren att läsa tidigare, vilket kan ge vissa upprepningar. Det kan också vara så att jag verkligen kommer tillbaks till textblock som jag redan läst.

Kolbs främsta insats är att han utforskar på vilka sätt hypertext kan bidra till att utveckla filosofiska texter. Filosofin har det gemensamt med litteraturen att texten är det medium i vilken den gestaltas. Kolbs filosofiska reflektion över hypertext ger begrepp om hypertextens retoriska möjligheter, men också om hypertextens problematiska sidor.

Det är ingen tvekan om att hypertexten utvecklar litteraturen. Upplösning av linjär tid är en viktig ingrediens vid konstnärlig gestaltning av text, genom att berättelsens tid ställs i kontrast mot berättandets tid (Eco 1995). Hypertexten skapar nya möjligheter i det avseendet och skönlitterära författare har därför intresserat sig för hypertext som motor i konstnärligt utvecklingsarbete. Och det är framförallt litteraturteoretikerna

som driver diskussionen om vad hypertext är och vad som blir möjligt med hypertext. För Kolb står filosofisk retorik i fokus för intresset och hans resonemang om hypertextens kvalitet sker helt och hållet med den utgångspunkten. Hans uppfattning är att hypertexten kan bidra till att utveckla filosofi i nya riktningar.

Hypertext öppnar nya vägar till konstnärligt utvecklingsarbete, men vad betyder hypertext för systematisk kunskapsuppbyggnad? När den etablerade formen för vetenskaplig text (fig. 1) understöds av hypertextlänkar blir förflyttningarna mellan text och fotnot eller referens snabbare. Förutom snabbheten i förflyttningar i texten förenklas arbete med texten genom att det blir enklare att placera bokmärken, göra avancerade sökningar, kopiera och sammanställa textutdrag. Filosofiska verk av bland annat Aristoteles, Platon, Wittgenstein och pragmatikerna – Peirce, James Dewey och Santayana – återutges nu som hypertext, vilket skapar nya förutsättningar för akademiskt arbete.[6] Som hypertexter betraktade är de mycket enkla i sin struktur.

Den avancerade hypertexten skapar problem i samband med systematisk kunskapsuppbyggnad. Vetenskapligt arbete förutsätter kritisk granskning och hypertexten tenderar att upplösa det kritiserbara objektet. Hur är det möjligt att analysera, bedöma och skriva om ett verk som man aldrig läser på samma sätt två gånger? Det kan innehålla dynamiska länkar som aktiveras slumpmässigt eller är beroende av läsarens tidigare val. Vilken läsning är det som kritikern bedömer och kan läsaren vara säker på att hela verket är genomkorsat? Det finns hypertexter som just avser att göra läsaren till medskapare och det ställer verkligen kritikern i en ny situation.

Det kan vara svårt att sammanfatta en hypertext. Det behöver inte finnas en sista mening som avslöjar en slutsats och det finns inte nödvändigtvis en överblick som ger inriktningen på argumentation eller berättelse. Hur kan vi övertyga en läsare om att det är värt att läsa texten om den inte kan sammanfattas? Att citera ur en hypertext bjuder också på speciella problem. Hypertexten kan vara organiserad så att det är i det närmaste omöjligt att återfinna ett textavsnitt eller att ange var i hypertexten det finns.[7]

En text som inte kan överblickas och sammanfattas, som är en annan vid varje läsning: kan den användas som vetenskaplig text? Kolb diskuterar denna hypertextens problematik i sina essäer Socrates in the Labyrinth. Och han väljer att använda hypertext för att göra det. Annars är det vanligt att de som arbetar med hypertext för att utveckla textens litterära kvaliteter, publicerar traditionella tryckta texter för att diskutera hypertext som fenomen. Det gör till exempel Landow (1997) och Douglas (2000). Kolb skriver inte bara om hypertextuella texter, utan visar vad som är möjligt och vad som är problematiskt.

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Noter

1. David Kolbs hemsida har URL adressen: http://abacus.bates. edu/~dkolb/. Kolbs bok Postmodern Sophistications recenserades av Jerker Lundequist i NA vol.6, nr 3, 1993.
2. Landow (1997:3) definierar hypertext: »Hypertext…denotes text composed of blocks of text…and the electronic links that join them«.
3. Texten som i den engelska översättningen av Borges novell lyder: »…the forking in time, not in space« (Borges 1970) och i den svenska översättningen: »…en förgrening inte i tid utan i rum« (Borges 1998), demonstrerar själv, av en händelse, ett sådant universum. Olika kontradiktoriska versioner av novellen existerar parallellt. Novellen, som publicerades första gången 1956, kan betraktas som en profetisk beskrivning av www.
4. Eastgate Systems hemsida har URL adressen: http://www. eastgate.com/
5. En kommenterad bibliografi över Michael Joyce finns på URL http://www.duke.edu/~mshumate/mjoyce.html. Stuart Mouthrop har en hemsida på URL http://raven.ubalt. edu/staff/moulthrop/sam_home.html
6. Past Masters InteLex Corporation. URL http://www.nlx. com.
7. »Hypertext« inbegriper också grafik som är uppbyggd med länkar i en struktur.

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William J. Mitchell:
e-topia
The MIT Press, Cambridge MA 1999.
ISBN: 0-262-13355-5

Review by Tigran D. Hasic

Changes and advancements are already at our front door: in political philosophy, technology, communications, infrastructure as well as shifts in attitudes and behavior of people. It all will affect regions, cities and communities, and basically alter the requisites for future planning and the role of professionals. Today we are faced with two complex processes: urbanization and globalization. This is closely followed by the development of increasingly sophisticated information technologies and radical transformations of other network-complex infrastructure systems such as telecommunications, transport, energy, etc. What seems to set itself as one of the most interesting challenges today is the complex interaction between infrastructure networks, new information technologies and emerging new architectural and urban patterns and forms.

In e-topia, William J. Mitchell, dean of School of Architecture and Planning at the Massachusetts Institute of Technology and the author of the well-known work City of Bits, gives us an insightful view about tomorrow cities and the way we may live in them. Given his dual background in Architecture and Information Technology field, Mitchell offers a very vivid-balanced and at times thought provoking view on how information (digital) technology will shape our regions, cities, communities, neighborhoods and homes in the (near) future. Mitchell's main emphasis is on how the new technologies will shape and alter the urban form.

E-topia consists of 10 chapters, which can be read as a whole and as separate entities. This gives an additional quality to this work, apart from the pristine language and clarity of discussion, which can appeal to wider non-technical and non-architectural audience. The concise, compact written, well-structured and well-referenced 10 chapters span a whole range of topics, starting from more "hardware" issues to those of more "software" character. The detailed discussion takes us through the digital technology revolution of the moment, its different use, application and possibilities. One can feel a strong MIT research & development presence here. It can be argued that the discussion of significant research in the digital technologies could have taken a broader outlook, but on the other hand MIT is one of the global centers of R&D, teaching and learning in this sector. Aside from Mitchell's City of Bits, books by MIT 's Professors Nicholas Negroponte (Director of MIT Media Laboratory) Being Digital and Michael Dertouzos (Director of Laboratory for Computer Sciences) What will be and Bill Gates's The Road Ahead, give a state of the art on the technological underpinnings of the digital revolution. Elegantly balancing between natural and social sciences, Mitchell continues the discussion through a sort of global/region/city sphere, focusing especially on community, neighborhood and home level. The influence of IT on workplaces, social places, commercial marketing and exchange of information places are also covered. The story is a continuous one shifting slightly from topic to topic, but always having a sort of hierarchical, historical, and contextual thread. The discussion always ends up, between the lines, on how the city for the 21st century will (probably) look like, in respect to the symbiosis with the digital technologies. It has to do with the question of how 'smart-technologically flavored' places, buildings, and artifacts will change and shape our relationships with other people and objects.

Mitchell argues for the extension of definitions of architecture and urban design (form) to incorporate 'virtual reality' as well as physical one and at the same time to be interwoven with telecommunication and transport infrastructure of the future. The analysis of the relation between telecommunications and all aspects of city development and management is provided more in detail by Stephen Graham and Simon Marvin's book on Telecommunication and the City. Their new book Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition sheds even more light on these issues. For Mitchell the global digital network is much more than just e-mail, internet (world wide web) and digital TV. It is a completely new urban infrastructure, – one that will not efface or demolish the urban form as we know it but rather, 'change it or complement it' in a positive way so that it will become an inseparable part of our cities, communities, neighborhoods, homes – our everyday lives. He simply points out that in the coming decades, the digital revolution is an unavoidable factor in shaping of the urban form. And above all, although at times the ideas might seem far-fetched and hard to believe, Mitchell does not just point to this new future but also shows us how to get there. He proposes strategies for the 'creation of cities that not only will be sustainable but will make economic, social and cultural sense in an electronically interconnected and global world'. Unfortunately the discussion doesn't go deep enough here. For a more comprehensive analysis of economic, social, political and cultural dynamics of the global digital revolution, one should turn to works of Manuel Castells (his trilogy), especially The Network Society – Volume I.

William J. Mitchell also argues in his e-topia that the 'new settlement patterns of the 21st century will be characterized by live/work dwellings, 24 hour pedestrian scale neighborhoods rich in social relationships and dynamic community life, by electronic meeting places, decentralized production, marketing and distribution systems'. He advocates, as he calls it, 'the creation of e-topias – cities that work smarter, not harder'. Stephen Doheny-Farina gives a more eloquent exploration of the nature of cyberspace and the increasing virtualization of everyday life in communities and neighborhoods in his work The Wired Neighborhood. He argues that electronic neighborhoods should be less important to us than our geophysical neighborhoods, also looking more into the negative aspects of IT than Mitchell does. Like Mitchell, he also speaks in favor of 'civic networking, a movement that organizes local information and culture, and shows how new technologies can help reinvigorate communities'. Mitchell draws (indirectly) much from the founders and advocates of the 'New Urbanism' and Sustainable Communities movement. In particular one can find links to the works of Peter Katz and Vincent Scully The New Urbanism, Peter Calthorpe's The Next American Metropolis, Anders Duany and Elizabeth Plater-Zyberk's Towns and Town Making Principles, and Michael Bernick Robert Cervero's Transit Villages in the 21st Century.

E-topia points out the important aspect of changes and polarization in society vis-à-vis the digital technologies. Here the author makes a stance that architects, urban planners and designers can help to create social groups that intersect and overlap. This discussion is taken to a more profound analysis in the work of Donald A. Schön, Bish Sanyal and William J. Mitchell, High Technology and Low Income Communities, (with participation of Manuel Castells and Peter Hall). Most of Mitchell's argumentation draws heavily on history of technology, architecture and urbanism. In a subtle, but yet convincing discourse from Plato to Mumford, he shows that there is a 'red thread in history of cities' and especially that there is an unavoidable pattern of development and change in technologies. In this way, Mitchell explains not just how things are likely to change, but also examines historical precedents. The references (endnotes) in the book are a Tour-de-Force by themselves. As opposed to his previous book 'City of Bits', there is a general lack of illustrations in e-topia, something which could have complemented the discourse well. A companion CD-Rom (with illustrated examples and additional digrams and tables, as well as multimedia presentations) could have been an interesting addendum to the book that advocates the IT future. Probably the most striking chapter 'The Economy of Presence', summarizes the synchronistic and asynchronistic com-

munication (discussion on face-to-face and tele communication). The last chapter, 'Lean and Green' gives a refreshing discussion and outlook on green building techniques.

Even though Mitchell is a strong advocate of the life in the digital age, he asserts that urban planning should still focus on the cultural, scenic and climatic attractions of place. The spirit of the place (Genius Loci), discussed in length by Christian Norberg-Schulz in Genius Loci – Towards a New Phenomenology of Architecture, is vivid in Mitchell's thinking and conclusions. Maybe the best illustration of these two waves (electronic vs. geophysical) of thought in Mitchell's work can be found in the concluding chapter 'Lean and Green' (under the concluding heading 'Our Town Tomorrow'):

> In the twenty-first century, then, we can ground the condition of civilized urbanity less upon the accumulation of things and more upon the flow of information, less upon geographic centrality and more upon electronic connectivity, less upon expanding consumption of scarce resources and more upon intelligent management. Increasingly, we will discover that we can adapt existing places to new needs by rewiring hardware, replacing software, and reorganizing network connections rather than demolishing physical structures and building new ones. But the power of place will still prevail. As traditional locational imperatives weaken, we will gravitate to settings that offer particular cultural, scenic, and climatic attractions—those unique qualities that cannot be pumped through a wire—together with those face-to-face interactions we care most about. Physical settings and virtual venues will function interdependently, and will mostly complement each other within transformed patterns of urban life rather than substitute within existing ones. Sometimes we will use networks to avoid going places. But some-times, still, we will go places to network.
>
> [W. Mitchell, e-topia, Ch. 10, p.155]

Sir Peter Hall has called this book a 'dazzling survey of the cyberfuture and its impact on urban life'. For him and other experts in the field, William J. Mitchell is the world's foremost authority on the subject. This is not an anticipatory work, book of dreams or a nostrum for the future cities. It is simply a solidly grounded survey and inquiry study with visions, forecasts and scenarios for the city of the future. It is a homogenous series of lessons on how the evolution of digital technologies has altered and will alter the way we live, work, build and communicate in our cities, communities and neighborhoods – a coherent and balanced vision of digital technologies (foremost IT) and urban form and their influence on everyday life patterns.

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David Harvey:
Spaces of Hope[1]

Book review by Nicolai Steinø
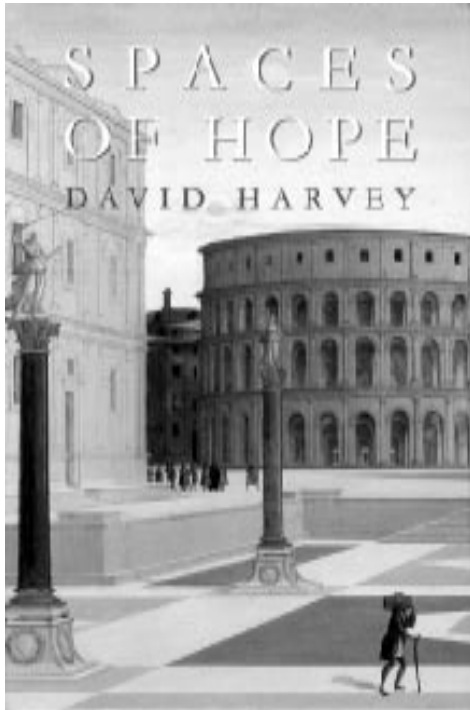
David Harvey, one of the protagonists of the neo-Marxist strand within urban theory of the early 1970s, has written a book in which he takes issue with contemporary mainstream globalization theory. And he does so by reintroducing two rather disparaged intellectual traditions; Marxist theory and the concept of utopia.

Unlike thirty years ago, the study of Marx does not have a high ranking in urban studies today. Like any notion of grand narratives, Marxist theory has been rejected within postmodern academic discourse as something we are supposed to be 'post'. Herein lies a paradox, Harvey notes, because whereas Capital did not have much direct relevance to daily life back then, but needed a number of mediations by Gramsci, the Frankfurt School and others to connect to the political issues of that time, the present day situation, with child labor, sweat shops, and the often devastating effects of economic globalization and technological change, makes it much more easy to connect Marx's text to daily life.

Harvey describes postmodern discourse as dominated by the concepts of 'globalization' on the one hand, and 'the body' on the other. He contends, however, that little systematic effort has been made to connect these two discursive regimes which reside at either end of 'the scalar we might use to understand social and political life.' And it is exactly the attempt to establish a connection between the two which is the aim of the book.

Harvey's motivation for making this attempt is explicitly political. He is critical of the concept of globalization as it does not leave any hope for change. Within mainstream globalization theory, as formulated by theorists like Castells and Giddens, globalization is presented as an actor-less but unyielding process; a fact of life which – however unfortunate – little can be done about. It is a deterministic stance, which tends to be apolitical in its negligence of issues of power and class, and anti-utopian in its rejection of possible alternatives.[2]

Globalization and Space

Through a critical reading of The Communist Manifesto (Working men of all countries, unite!), Harvey asserts that while the atrocities of capitalism are as present today as at the time it was written, unity among the working class faces many more barriers in the contemporary world than before. And whereas unity is necessary to get command over space – otherwise capitalism will continue to counter resistance through temporary spatial fixes – social, cultural and economic heterogeneity (something which the manifesto does not acknowledge) is larger than ever.

Therefore, in Harvey's view, resistance cannot take its point of departure in some unified notion of 'the working man' or 'labor power', but must derive from the particularity of the individual body. Rather than taking place between the unified scales of 'the working class' and 'the powers of globalization', struggle

takes place between the micro-scale of the body and the macro-scale of global economics. Hence, it is necessary to construct a dialectics of politics capable of arbitrating and translating between different spatial scales.

When viewed as a process, Harvey argues that globalization is closely linked to capitalism's need for continuous geographical reorganization as an answer to its crises and impasses. And as such, globalization, in some form, has been around for as long as capitalism. When viewed as a condition, contemporary globalization has been characterized by four major shifts: The financial deregulation which began in the early 1970s, profound technological changes and product innovation which have taken place at an unprecedented pace, the media and communications revolution, and last but not least, a drastic reduction of the cost and time of moving commodities and people.

As a consequence of these shifts, production and organizational forms have changed, the world labor force has more than doubled, and migration and urbanization have increased dramatically. A reterritorialization has taken place with shifts of power from the nation state both up and down to the supranational level as well as the the regional level. A 'geopolitical democratization' has taken place, whereby the traditional geographical core powers of the West have lost some of their control, allowing for peripheral powers (particularly in southeast Asia) to gain economic influence. Finally, contemporary globalization has led to increased – though not necessarily new – environmental problems as well as a dual process of cultural homogenization and resistance.

However, the fundamental question for Harvey is whether these quantitative changes also signify a qualitatively new era of capitalist development, which calls for a revision of theoretical concepts. Although there has not been a fundamental change in the mode of production, his answer is 'yes'. But what is qualitatively new, he argues, is not globalization per se, but rather the way in which contemporary globalization is organized in space. He therefore suggests a shift in terminology from 'globalization' to the classical Marxist concept of 'uneven geographical development' as a more promising term for understanding the current world order.

Uneven Geographical Development

Underlying this shift of language is also a critique of the political discourse on globalization, epitomized in Margaret Thatcher's maxim 'there is no alternative', as well as the theoretical discourse on globalization with its 'inability to find an 'optimism of the intellect' with which to work through alternatives'.[3] In fact, Harvey argues, globalization – despite the seeming depoliticization within the theoretical discourse – must also be viewed as a political project, put on the agenda by 'capitalist class interests operating through the agency of the US foreign, military, and commercial policy'.[4]

In his attempt to formulate a theory of uneven geographical development, Harvey states the need to fuse what he calls the 'production of scale' with the 'production of geographical difference'. In order to organize activities as well as to understand the world, human beings have produced a nested hierarchy of spatial scales, from the global to the personal. These scales are not natural or immutable, however, but partially historical in their origin and are continuously produced and – especially under contemporary globalization – reproduced. And likewise, geographical differences do not simply express historical-geographical legacies, but are as much the outcome of present day political-economic and socio-ecological processes.

All too often, both theoretical analysis and political action tend to focus on differences on only one scale, as expressed by the current hegemony of the global scale in the discourse. But such an approach, Harvey argues, forms a base equally inadequate for understanding the world as for policy formulation. Postmodern notions of incommunicability and irreconcilability of cultural differences and the unifying notions of the globalization discourse are therefore equally incapable of providing a useful understanding as are nationalist as well as traditional left wing politics of providing an adequate response to contemporary problems.

A theory of uneven geographical development, on the other hand, by focusing at geographical differences at many different scales, and by relating these

different scales to each other, possesses the potential, not only for a better understanding of the processes at each scale, but also for liberating political action.

The Body

Charged with his theory of uneven geographical development, Harvey moves on to investigate contemporary theorizations of the body, which, after the loss of faith in grand narratives has tried to (re-)activate the body as 'the measure of all things'. This attempt, he argues, is not unproblematic, as the body, despite its natural qualities, is an 'unfinished project' which is historically and geographically malleable. The body is subject to physical and social processes which 'produce' different kinds of bodies, and the body itself is therefore not irreducible. This raises the question of whose body is to be the measure of all things. And this, in turn, requires an understanding of how bodies are socially produced.

With renewed recourse to Marx, he argues that 'since we all live within the world of capital circulation and accumulation this has to be a part of any argument about the nature of the contemporary body'.[5] But by speaking of 'positionality' in relation to capital circulation and accumulation rather than of the Marxist definition of 'class', Harvey discusses the laborer as a person rather than as an economic role. This enables him to discern how the overall forces of capitalist production which operates on the global scale intersect with bodies which function on a local scale, and how 'different bodily qualities … achieved in different places are brought into a spatially competitive environment through the circulation of capital'.[6]

In contrast to classical political action, Harvey describes the campaign for the universal right to a 'living wage' in Baltimore in the 1990s an example of how the body, under the conditions of globalization, may be the starting point for political action across the abstract space of the city by means of interorganizational cooperation.

Utopia

By example of Baltimore city, Harvey gives an explicit account of the physical and social decline of the american city and the appalling living conditions of poor urban dwellers. While those who can afford it leave the city for the 'bland and undistinguished world' of suburbs, edge cities and ex-urbs, more than ten percent of the inner city housing stock is vacant and largely abandoned. And although the downtown area and parts of the inner city has experienced physical improvements, the process has generally led to increased gentrification and the production of controlled spaces of consumption. The overall picture is therefore one of division and fragmentation of urban space, and loss of social diversity.

While the hegemony of market rationality opposes 'the silly irrationality of everything else', and the only choice which is offered is a superficial consumer choice, Harvey contends that the mess which he describes seems impossible to change, as no alternative political, social or economic models are available for discussion. As long as 'possibility has a bad press', there is no hope, and without hope, alternative politics become impossible. He therefore calls for a revitalization of the utopian tradition as a way to regain the possibility to think of real alternatives.

Traditional utopian thought, however, tends to be authoritarian and totalitarian, as it expresses unified views of the ideal society and its ultimate expression in physical space. Furthermore, attempts to materialize such 'Utopias of spatial form' have gone wrong, because they exclude the temporality of the social process and the dialectics of social change, in their focus on asserting social stability through a fixed spatial form. The ideas of thinkers such as Hegel and Marx, who have dealt with the social processes, on the other hand, are expressed in purely temporal terms, and such 'utopias of social process', tend to lose themselves as endlessly open projects that never reach spatial closure.

What Harvey is after, is therefore a spatio-temporal and dialectic utopianism, which acknowledges the existence and relative persistence of social processes and their institutions, but dares to formulate socio-spatial alternatives; one which is 'rooted in our present possibilities at the same time as it points towards different trajectories for human uneven geographical developments'.[7]

Plurality of Alternatives

In order to illustrate how a spatio-temporal utopianism might mediate between the extreme positions of the 'unreal fantasy of infinite choice' on the one hand and the 'cold reality of no alternative' on the other, Harvey uses the figure of the architect. While capable of imagining new configurations in space, he does so under the contingency of a number of mundane issues, as well as the cultural and educational limitations of his own thought. The architect, therefore, is not a totally free agent, as his work is an embedded, spatio-temporal practice.

However, to operate as an architect in the definition of possible futures without being elitist or authoritarian, requires empathy as well as the ability to translate across different world perspectives. The self-centered postmodern perspective of where we see things from therefore has to be replaced by an empathetic perspective of where and who we learn things from, as the basis for constructing knowledge. Contrary to predominant modes of thought, Harvey therefore suggests an interdisciplinary approach to knowledge which can allow for an understanding of 'both the unity and diversity of knowledges'.

In order to avoid the mistake to think 'that the only theater that matters is the one that I or you happen to be in', thinking as well as political action has to take place across several scales in time and space. Most importantly, however, as thinking about an alternative future is to plunge into the unknown, we must 'know the courage of our minds' and be 'active subjects, consciously pushing human possibilities to their limits' rather than merely 'the objects of historical geography'.[8]

Evaluation

As one of the main arguments of Spaces of Hope is that utopian thinking must be dialectical and pluralistic and rooted in contemporary social reality, it may surprise that Harvey has chosen to append a personal and quite radical utopian vision at the end of the book. After all he contends that it is the very collapse of specific utopian forms which has led to the rejection of utopianism. However, even a dialectical utopianism must at some point confront the problematic of closure. Harvey's

utopia, therefore, rather than being judged by its actual content, must be seen as the symbolic (re-)introduction of utopian thinking in urban theory.

Although some readers of Spaces of Hope may occasionally blush by Harvey's indulgence in taboos like Marxist theory and utopianism, it is a well argued and relevant attempt to reposition urban theory and the discourse on globalization as inherently political, while at the same time offering a theoretical framework for political action.

In a time where urban development and the role of architecture and planning as a means to promote and market this development is much in focus in American and European cities alike, the book is relevant to both architects and planners who are dealing with urban issues. In the whirl of development and the widespread enthusiasm that inner cities are now being regenerated, the question of what and whom development is for is often left unreflected and thus unanswered. This has cultural and social implications which lie at the heart of both architecture and planning. Spaces of Hope not only puts these issues back on the agenda, but also suggests that an alternative scenario for the future of cities and urban life than the one laid out by mainstream globalization theory might be possible.

Unfortunately the book is not an easy read. Although some chapters are very well written, others suffer from a rather tortuous writing (something which may raise the suspicion that the book is a rough compilation of individual papers, despite the fulness of the argument). As there is no doubt that Harvey is otherwise an excellent writer, this seems to be an unnecessary drawback which – in part – makes the acquisition of the insightful and convincing argument a toilsome enterprise.

Nicolai Steinø, Arcitect, PhD-student
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Notes

1. I am thankful to Peter Marcuse for his useful comments on an earlier draft of this review, as well as to the PhD-students from his and Tom Vietoriesz' Spring 2001 Advanced Planning Theory class at Columbia University, Graduate

School of Architecture, Planning and Preservation, for the inspiring discussions which fostered the idea of writing it.

2. Peter Marcuse: "From Neo-Marxism to the Third Way: Manuel Castells and the 'Information Age'". In: John Eade and Christopher Mele, Urban Studies: Contemporary and Future Perspectives. London: Blackwell, Forthcoming. In this critique of Castells' trilogy The Information Age, The Rise of the Network Society, and End of Millennium, Marcuse sides with Harvey in his critique of mainstream globalization theory, as he argues that Castells 'has depoliticized material that is itself heavily political'.
3. Spaces of Hope, p. 17.
4. Ibid., p. 69.
5. Ibid., p. 102.
6. Ibid., p. 109.
7. Ibid., p. 196.
8. Ibid., p. 255.

Bjørn Normann Sandaker:
Reflections on Span and Space: Towards a Theory of Criticism of Architectural Structures.
Arkitekthøgskolen i Oslo, Oslo 2000
ISSN 1502 217X
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Book review by Alan Holgate

Bjørn Sandaker's doctoral thesis, defended and approved at his dissertation in December 2000, is now published in book form. It represents a bold and thought-provoking attempt to improve communication between architects and engineers by moving towards a new conceptual framework (with associated terminology) which Sandaker hopes will make it easier to reach consensus on objectives in design. He sees the main deficiency of present discourse as

> ... the idea that structural form is a question of either/or, rather than both/and. Ambiguity as well as cognitive complexity must be admitted if the full potential of structures shall be understood and hence exploited in contemporary practice.

For philosophical underpinning of his postmodernist approach, Sandaker inclines to Wittgenstein, especially his concept of "language games" and to Roger Scruton's work on the aesthetics of architecture, developing the notion that the apperception of "appropriateness" is the key to the aesthetic experience. Ideally, discourse on alternative ways of seeing will enable participants to move towards some consensus on what is appropriate in a given circumstance. Sandaker prefers this concentration on "the appropriate" to conventional approaches to the appreciation of architecture which rely on the identification and expression of emotion or "feelings" aroused by buildings. He challenges the notion, championed by many prominent engineers and architects, that each building material has an inherent "nature" which must or should be respected in design.

The thesis is constructed in three parts. The first aims to clarify the concept of "architectural structure". The

second looks at the

mechanical premises for structural form ... identifying and explaining the basic preconditions for structural action; establishing a dialogue between mechanical theories and the built practice.

The third part proposes an aesthetics of structures: a theoretical construct that may facilitate a "richness of aesthetic experiences" and provide "an understanding of what we see and why we react", thus addressing "the Bjørn Sandaker's doctoral thesis, defended and approved at his dissertation in December 2000, is now published in book form. It represents a bold and thought-provoking attempt to improve communication between architects and engineers by moving towards a new conceptual framework (with associated terminology) which Sandaker hopes will make it easier to reach consensus on objectives in design. He sees the main deficiency of present discourse as

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The third part proposes an aesthetics of structures: a theoretical construct that may facilitate a "richness of aesthetic experiences" and provide "an understanding of what we see and why we react", thus addressing "the premises for structural quality".

Ontology of Architectural Structure

Engineers think they know what "structure" is: the parts of a building that support and stiffen it. Sandaker shows that "architectural structure" is not that simple. Walls, for example, serve to define space and control environment as well as supporting load. Even skeletal members may delimit space. Structure may be totally concealed, or revealed to varying degrees in order to lend a particular character to architectural space and form. In addition it may have iconographic meaning. Thus Sandaker effectively denies the possibility of a purely load-bearing function. "Structures are like the tools excavated by archaeologists, bearers of purpose and meaning." On the other hand buildings are useful, so architectural structure cannot be pure art — buildings can never be sculptures. If we speak of an "Art of Structural Engineering" (Billington and others) we must limit ourselves to the craft rather than fine art meaning of the word. Thus Sandaker agrees with Scruton that one cannot truly appreciate a building unless one understands its function.

Appreciation of structural form ... [is] the pleasurable experience of appropriateness; that mechanical and spatial aspects of the form are perceived to be accentuating a certain unity and intellectual coherence.

The experience of structures is constituted through the basic concepts of the structure's mechanical and spatial function.

Sandaker distinguishes between artistic functions, which may be seen as separate from practical aims, and aesthetic functions, which he feels must include

consideration of the appropriateness of pragmatic aims. An important concern is the dichotomy between intention and inevitability. Referring to Wittgenstein's language games, Sandaker sees intention as "embedded in its situation, in human customs and institutions".

> An aesthetic practice may be said to open up a social space for the expressive activities of the artist and hermeneutic activities of the public. Familiarity with the relevant practice is a necessary condition for the possibility of experiencing objects.

Thus he discusses not so much the Intentions of the individual artist but the "intentionality" of architecture as a useful art. In doing this, Sandaker raises the following problem. Modern technology, particularly computerised analysis, has given architects an unprecedented degree of freedom in choice of form. Yet the laws of nature and the conventions of professional practice still offer some resistance. How does this work, and where exactly do the limits lie?

Pragmatics

In Part 2, Sandaker tackles the idea that a building material should be used only in accordance with its special "nature". He takes four major champions of this viewpoint: Viollet-le-Duc, Frank Lloyd Wright, Louis I. Kahn and L. P. Nervi and points out that although they used a similar rhetoric, each produced a body of work quite different from that of the others. This could mean either that they did not follow their own precepts, or that any connection between the nature of materials and form of buildings is a very loose one. Dismissing the first of these possibilities Sandaker sets out to investigate the second by asking: if materials do have a "nature", what could it be? First, he notes that in practice designers can be found who work from both starting points. Some assume that form "resides in the material and is made explicit by respecting its qualities and properties", while some believe form should be conceived without any prior thought for pragmatics, and then modified as little as possible to take account of practicalities.

Sandaker makes an important distinction between "global" and "local" form in structures: the former including categories such as frames and trusses; the latter involving cross-sections and connections. At the global level forms may be "form-active" (purely axial forces); non-form-active (entirely bending); or semi-form-active. Materials are divided into "bi-materials" (those which are strong in both compression and tension) and "mono-materials" which are strong only in one direction. This allows him to put forward the following hypotheses:

1. In structures made of mono-materials, the structural properties of materials govern global form
2. In structures made of bi-materials, there is no relation of necessity between the structural properties of materials and global form — there are a range of forms which may suit
3. The local form of structures made of bi-materials is characteristic of the structural properties of the material from which it is made.

These hypotheses are convincingly supported by reference to a range of actual buildings at both global and local level.

Sandaker then looks at concepts of mechanical efficiency in design. Efficiency can be seen in terms of (a) lowest cost (b) least weight of material (c) ease of fabrication and construction. He discusses in some detail (including mathematical proofs) the measures that can be taken to achieve these aims at local and global level, largely setting aside, for the time being, the wider aims of architecture. He notes that least-weight solutions often imply complexity in fabrication or construction, and thus may involve high cost, observing the irony that extravagances such as tapered columns have become a symbol of "high-tech" design. He contrasts such "structural efficiency", which minimises usage of material, with "technological efficiency" which minimises the cost and effort required for fabrication and construction

An important contribution is Sandaker's plea for engineers to utilise the building form as a whole, as in the "stressed skin" design of Gehry's Guggenheim Museum at Bilbao. (This contrasts with the conventional piecemeal approach of piling up structural elements — footings, columns, beams, slabs, etc — which is the result of the normal undergraduate training in

structural analysis). Also important is his analysis of the influence of scale (magnitude) on appropriateness of structural form. This shows how, as the size and particularly the span of a building increases, the freedom of the architect is diminished though by no means extinguished.

Aesthetics

Sandaker introduces this section by stating that

> structural form results from the careful interaction between the constraints of mechanical object that plays by a set of scientific and technological rules, and the functional requirements for the space that have an intentional character. Both interpretations of the structure can be considered from a pragmatic as well as an aesthetic point of view.

He adds that

> an aesthetic experience of a structure presupposes an exposed structure, or in more general terms, structures that are thought to be more 'architectural than artefactual'...

Then follow brief reviews of the ideas of Fritz Leonhardt, Jörg Schlaich and Bill Addis on aesthetics of structures. Sandaker turns away from the idea of a science of aesthetics (though he accepts that some analysis must take place) and rejects the aesthetic terms conventionally used in the literature of the appreciation of architecture (citing Sibley). He considers the concept of beauty as passé, and prefers Wittgenstein's idea that "being beautiful" is an expression of the relationship between the observer and the object.

Sandaker agrees strongly with Scruton that "our sense of the beauty of an object is always dependent on a conception of that object" — and for him this is tied in closely with its purpose. He suggests that observing a structural frame without any idea what it is made of, or how it is supposed to relate to surrounding space, "will render us aesthetically helpless and offer us ... no significant clues to a relevant understanding". The aesthetic experience is a seeking for intellectual rather than sensuous pleasure. In this process we have an opportunity to perceive the object as we please (the duck-rabbit phenomenon), though the architect may take steps to encourage us to see it in a particular way.

This introduces the question of whether there can be "right" and "wrong" ways of perceiving, but Sandaker prefers to distinguish between "proper" and "misleading" perceptions. However, he goes beyond Scruton by including contrast, surprise and deliberate opposites within the concept of appropriateness.

> The experience of unity, which is the mark of aesthetic understanding and appreciation ... is experience that some sort of intellectual consistency has been attended to.

Because the aesthetic experience is intellectual, it is open to ratiocination and persuasion. Thus reasoning may change the observer's perception of the object and so change the experience derived from it. Scruton says: "the point of view is the experience". Appearing to move dangerously close to concepts of "good" and "bad", Sandaker considers the possible objectivity of our reasoning to lie in a sort of ethics, asserting that if no "proper" way of seeing an object can be found, then the object in question is of no great aesthetic merit.

For this reviewer, the key to the book lies in the following chapters in which Sandaker applies the results of his reflections to a number of buildings, discussing first the aesthetics of mechanical function, then the aesthetics of spatial function. He begins with cogent criticism of a number of examples of global and local structure, then under the heading "from structural system to structural composition" analyses in detail Coop Himmelblau's remodelling of the lawyer's office in Vienna, illustrating how the computer has freed designers from the constraints of traditional structural systems. These may now be fashioned as an architectural entity — the computer can show us how the forces inevitably find their way through the system and ensure that individual parts are not overburdened. Sandaker does not find the complexity of the Vienna roof structure disturbing.

> The great intensity of the lines as well as the ambiguous character of the structure add to the experience of a 'high-energy' work of architecture.

Although he recognises the iconographic significance of the deconstructed roof, Sandaker sees its most important function to be its contribution to the "making" of the resulting space.

The chapter on Aesthetics of Spatial Function aims to show how the "spatial aspects of structure may form the primary premises for imaginative perceptions that lead to aesthetic understanding". Sandaker's "spatial function" includes the ability of structure to "organise" space, to define its shape, and to impart "character". His first example of this is Toyo Ito's project for the Sendai Mediateque in which networks of straight members create hyperbolic paraboloid shapes supporting floors and roof while defining permeable space for circulation of people and air. Further examples illustrate an interesting discussion on the interaction of structure and light. Concerning the Nordic Pavilion for the Venice Biennale, Sandaker writes of areas

> packed with perceptual tension related to different possible ways of seeing the load path of the structure ... we are actually able to enjoy the fascination of choosing ways of seeing.

The final sub-section refers to the iconography of supporting structure.

In his final section, Sandaker discusses the concept of "good engineering". If this is seen to consist solely in a rational and efficient structure, then good architectural space may be provided by engineering of no great standard, and it can apply to concealed as well as exposed structure. However, for Sandaker good engineering is that which contributes to high quality spaces, and this should always be a criterion. "This ideal enlarges the scope of engineering and as envisaged by le Corbusier, stretches out a hand to architecture." New materials and computers have made it possible to create space without "restricting the design by undue and largely ideological ideals of mechanical efficiency."

Conclusion

The reflective nature of this book might not please all readers, especially those looking for concise answers or directions; but aesthetics and design are not subjects one can be dogmatic about. Sandaker's arguments are deeply thought and well supported by examples. He makes a real contribution in offering new terms, concepts and insights which have the potential to improve communication and cooperation between architects and engineers. Of equal importance are the many issues he raises explicitly and implicitly which could not be discussed without rendering the thesis unmanageable. It has been impossible to mention more than a few in this review, but they could provide fertile ground for future research projects.

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NYE BØGER – bogomtaler av Bolette Hansen

Let Us Learn To Dream, Gentlemen

En undersøgelse om forholdet mellem visuelt ska-
bende arbejde og potentialet for læring.

Genuine Christian Modern Art

Present Roman Catholic Directives on Visual Art Seen
from an Artist's Perspective.

Byens bolig | Rum i tiden

Projektet, der ligger til grund for denne publikation, er
gennemført på Statens Byggeforskningsinstitut og
Kunstakademiets Arkitektskole i 1998–1999, og slutte-
de med udstillingen "Boligen indefra og ud", der fandt
i maj 1999. I første del – Byens bolig – er oplæg fra en te-
madag på Statens Byggeforskningsinstitut bearbejdet
til artikler. Bogens anden del – Rum i tiden – er en be-
skrivelse af studieforløbet, der endte op i udstillingen:
Projekt 1:1, "Boligen indefra og ud".