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Commons Knowledge:
A Library for Rare Books yet to be Written

by

David Patrick Dewane

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APPROVED, THESIS COMMITTEE

Christopher Hight, Thesis Director

Eva Franch Gilabert, Thesis Advisor

John Casbarian, Dean

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ABSTRACT

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This thesis is a typological investigation of the library, specifically examining how the digitization of information informs design. The agency of the book, which has historically been the protagonist of library design, has been radically transformed by the migration to the electronic, which cause specific spatial ramifications. This library is imagined as a place that enhances access to materials available online, while also providing opportunities for access to materials that cannot be digitized. It acknowledges that current patrons are using libraries to rapidly reconstitute information and, although the majority of the materials they produce will ultimately exist in the realm of the electronic, the building itself celebrates in its own physicality those rare objects, whether existing or yet to be created, that stand against the tide of the virtual.
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PREFACE

The presentation of this research in accordance with Thesis Advisor Eva Franch’s “10 Points Toward a Thesis,” which was a manual provided to our thesis studio at the very outset of the process. It is a comprehensive way of organizing the broad range of issues that must be addressed in the contemporary architectural milieu. Slight adjustments to the order of the points were made in effort to clarify the project’s narrative.

For the sake of posterity, an unaltered version of “10 Points Toward a Thesis” will be included in the Appendix.
1. Statement

The State of the Book

What is the space that produces an atmosphere conducive to knowledge production as opposed to concentrated learning?¹

This question does well to summarize in an instant the major challenges that are being brought to bear on the contemporary library. As a type, the library needs to change. The approach of the previous generation, predicated on the book as the dominant means of communicating information, is a model that, if not already outmoded, is rapidly becoming so. What we currently understand as the book - a written or printed work, usually on sheets of paper fastened or bound together within covers - is far from dead. However, its supremacy is crumbling, and with it an antiquated spatial logic. A new array of media, mostly digital, is being offered to the public as alternative means of communicating information. Compared to the book, these new forms of media are radically different in their approach to creating, storing, and accessing knowledge. Likewise, those facile with new forms of media have an alternative relationship to that knowledge. Where the library of the book was a place of contemplative learning, the library at the outset of the digital age is one where users come to aggressively reconstitute the sea of data they’re immersed in. In other words, the contemporary library is an environment deeply concerned with the activity of knowledge production.

¹ Architect David Allin, who served as a juror during the midterm presentation of this thesis November 9, 2009 in Houston, Texas, raised this question.
At a cognitive level, the process of acquiring knowledge is network-based, requiring a complex mix of perception, learning, communication, association, and reasoning. Contemporary advancements in telecommunications are leading to radical overhauls for each of these inputs and we now have fundamentally new ways to create, disseminate, and exploit knowledge. The potential of these new technologies finds peak efficiency when delivered with open access protocols, that is, a system where participants are given free access, free interaction, and can contribute freely. These were the fundamental principles upon which the Internet was founded, and as it continues to develop we are seeing a move away from classic, top-down corporate models for providing content in favor of fresh, bottom-up, open access/open source platforms. This current seems completely in step with the core ambition of the public library: to provide free information to all.

However, transitioning the dominant means of knowledge representation and communication from physical to virtual has many consequences, perhaps the most salient of which is speed. In relation to the millennia of advancement of the library typology, this "great leap forward" has transpired within in the blink of an eye, essentially creating a cold joint between the paper-based past and the pixel-based future. Its archetypal inability to evolve at the speed of technology has given birth to the library's evil twin:

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2 Many of the points raised in this section are paraphrased from various lectures and conversations with Professor Richard Baraniuk, the Victor E. Cameron Professor of Electrical and Computer Engineering at Rice University. He is faculty in the Digital Signal Processing Group and is also the founder of Connexions, a web-based open-source provider of free textbook content.
mediatheque. Whether this rival species survives (or indeed displaces the library) remains to be seen, but regardless its organizational attributes are key indicators about the design of knowledge environments in the information age. Canonical projects, such as the Sendia Mediatheque and current projects, like the Urban Mediaspace in Aarhus, Denmark represent a radical departure from environments of quiet study to realms of spatial diversity, transparency, and synergy.

In their defense, libraries are still prisoners to uncertainty. As one of the fundamental agencies of culture in modern society, libraries are held to a high standard regarding the treatment of not only their patrons, but also their intercourse with the industries that feed them resources. In many respects, a Wild West mentality prevails on the web. Early file sharing giants like Napster saw a meteoric rise, sending shockwaves through industry. An entire generation has been raised under the Rip > Mix > Burn banner raised by Apple in 2001. Google is brazenly scanning a mega database of books while legal battles concerning copyright are still being waged in Federal Court. While a culture of ethically sound sharing (which, after all, is the cornerstone of library culture) is gradually gaining more online traction, there is still an overwhelming amount of scandalous piracy. Despite the intoxicating explosion of the virtual, the library as an institution is still undeniably physical, and beholden to the law and order of Main Street.

Industries that provide content to libraries are also radically changing. Two extremely significant forces exerted on industry by the web are disintermediation and
disaggregation.³ Disintermediation can be thought of as taking out the middleman. For example, Craigslist provides a free service to connect users directly to buyers, dealing a crushing blow to the classified ad section of the newspaper industry. Likewise, other components such as journalism and advertising have been undercut by parallel online services, and piece-by-piece the old system becomes disaggregated. Industries that once tried to contain within themselves an entire range of services necessary to deliver a product are being decentralized into what could be thought of as an industrial ecosystem.⁴

The library, which is basically packages itself as a provider of a defined range of services, and the major industries that feed it resources (books, magazines, newspapers, even education) are all subject to these forces. It is no longer a matter of if they will be affected; it is a matter of when.

Still, libraries ultimately exist to serve their patrons. As a result of the trends discussed here, the typical user of a library built today has categorically different needs and expectations than a user of a library built even 20 years ago. People no longer come to a library simply to learn in a contemplative setting; they come to aggressively reconstitute information with as fast a turn around time as possible. The range of services desired change with the stunning rapidity, and it is difficult to imagine how existing technologies will behave in a few years, much less the impact of new developments.

Current libraries are trying to adapt by continuously simplifying their material searches, reducing the number of service points, adding automated checkouts, retrofitting existing buildings to increase access to digital information, creating more group work

³ For a deeper analysis of these themes see Temporality: David Dewane and Ricardo Umansky in Conversation with Richard Baraniuk, this same volume.
⁴ Ibid.
environments, and, in many cases, increased caffeine acquisition. Libraries are also expanding the range of services they offer remotely and, while technology hasn’t delivered the full resources of the library to your desktop yet, it has already reached the point where most users of medium or large libraries no longer have to interact with other humans unless they choose to.

MATERIAL MATTERS

"To think about libraries is to think about the material forms that culture takes within a social landscape.”

Thomas August

Since the earliest civilizations, man has created physical artifacts that have become the repositories of identity and, while scales and mediums of these objects vary immensely, their anthropologic role is constant. Taken together, the assemblage of objects and places we create formulate something architect Aldo Rossi referred to as the “collective memory” of a people. What a library is depends on what it does: it is a social enterprise, a physical infrastructure, a symbolic site of collective memory. (Augst 2001, 6) These memories could be in the range of Homeric epics, tracing far across time and space, encompassing all of humanity, or they could be utterly specific, accounting for the subtlest nuances of a locality at an exact time. Up until the late twentieth century, the

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vast majority of our artifacts and records were created almost exclusively in physical form. However, computation has changed the rules of the game and currently anything that is not dependant on a bodily form is migrating to the much more immediate, glamorous and flexible domain — that of the electronic. This migration is certainly not limited to newly created materials. Google is in the midst of a well-publicized campaign to scan as many books as possible to create a database of universally accessible knowledge. They are not alone. Parallel efforts are underway by a variety of other groups throughout the world and all are constantly adding to the burgeoning pool of digitized material.

There exists, however, a significant portion of content that is resistant to digitization. These are exceptional and obscure artifacts found in archives and rare material collections whose digital status is among their least important qualities, as they serve other more valuable cultural purposes. These materials are unique to, and definitive of, the place they were created and/or currently reside. In their physicality they are alive with aura, an intangible experience that cannot yet be replicated electronically. Interestingly, as the mass scanning continues, these special materials become more special. Google may get to them eventually, but they are not going to be able to capture their critical physical attributes. Also worth noting is while these vernacular materials may represent a proportionately insignificant segment of the global collective memory, they are extremely important to giving a sense of identity to the local community.

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7 Paraphrased from Rem Koolhaas' acceptance speech of the 2000 Pritzker Prize.
8 The dizzying pace at which Google has moved forward with its book digitalization initiative has caused anxiety among some European intellectuals, especially in France and Germany, that if the vast majority of archived knowledge online is English, it will weaken the agency of works done in other languages. The result has been an rippling of accelerated scanning in throughout Europe.
So, in this context, what is the next step for the physical book? After all, even the most recent libraries, such as OMA's Seattle Public, are in fact designed around the need to house millions of tiny physical objects. While there may be a great deal of chatter in the blogsphere about the death of the book, upon reflection it seems an overly presumptuous and unnecessary forecast. For starters, about 1.6 billion people on Earth still live without electricity,\(^9\) and 75 percent of the global population is still not online.\(^{10,11}\) This sentiment also lacks a historical understanding that throughout time the *book* has gone through a variety of incarnations. Indeed, whether one is talking about a series of stone or clay tablets, papyrus or parchment scrolls, illuminated manuscripts, or the cellulose-based bound leafs of today, we are still talking about a *book*. Therefore, the question should be, “what will be the next incarnation of the book?” Based on the current trends, one might suggest that under the pressure of digitization what we understand as the current book will split into three parts, which I’ll refer to as *absent*, *common*, and *unique*.

The *absent* is an acknowledgement that information is now produced in a wide variety of media whose representation can no longer be accommodated by the physical book alone. This is the electronic, virtual, online book. It is also the sub-worlds of information generated by Facebook, email, the blogsphere, online journals and newspapers, digital music and video that was created without ever having a bodily

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\(^{11}\) For more details, see Notes on the Digital Divide, this same volume.
presence. Typologically speaking, the mediatheque is a useful reference, that is, spatially the absent is by nature ambient, indeterminate, fluid, or gaseous in its organization.

The common is what we understand as the current, physical, leaf-bound book. While at first blush this might seem like a stable technology, it is, in fact, capable of being radically recast using slightly evolved combinations of existing technologies. For example, there are a number of recently launched companies providing compact book printer/binder on the scale of an office copy machine. These devices are interfaced with online book suppliers, like Google, and are capable of printing and binding volumes on-demand. If, instead of printing books on a cellulose-based paper, we switched to a material with a high recycleable coefficient, such as a polymer film, then one could imagine this scenario: a patron goes to the library, requests a book, which is instantly printed, and then when it is returned it is ground up and recycled into a new book. A highly functional, 50 million+ volume library could be achieved with a small machine, a high-speed Internet connection, and a few hundred pounds of print material. Typologically, the common phase reads like a bookstore crossed with a factory crossed with a recycling plant, which endlessly consumes physical reality and redistributes it.

The unique is an understanding of how to treat those objects resistant to digitization. As library collections become more and more similar, the rare materials – that part of the collection that makes an individual library different and is often a potent embodiment of the local culture – increase in value. In a future where printing on-demand is widely accepted, the traditional foundation of the library collection will be obsolete. Instead,
libraries can devote more energy and space to archiving rare and unique material. This
curation should not focus only on materials from the past, but strive to support the
creation of new unique materials in the present and future.

SYNTHESIS: KNOWLEDGE COMMONS

Libraries remain a critical piece of the public domain and a symbol of our persistent
desire for collectivity. They are also engines of mobility that provide equal services to all
genders, classes, and races. In imagining the next evolution of this building type, we
might return to old notions of gauging success in a public library through progress and
abundance in its collection. (Aurst 2001, 10) In this light, the goal for the next library
should be an approach that maximizes the potential of each respective phase of the book
and provides a stage for synergetic interactions between them. The exact nature of that
atmosphere is difficult (if not impossible) to pin down because in all likelihood it will
take on the qualities of the medium it instantiates: it will be a user-generated machine,
constructed literally by countless contributions from the entire community, rather than the
singular vision of an architect. If the typology is allowed to loosen up and go with the
electronic flow, it will be able to begin bridging that other digital divide: the one
artificially separating our physical and virtual realities.
2_Power Structure

carnegie_gates@gmail.com

“Aim for the highest.”
Andrew Carnegie

TRANSFORMING THE LIBRARY

One man, Andrew Carnegie, personally altered the history of the library. Between 1886 and 1917 he underwrote the construction of nearly 1,700 libraries in the U.S., representing roughly half the 3,500 of libraries in the entire country by the time the final endowment was issued. The philanthropic juggernaut would build another 800 libraries abroad, and in the process spearhead the modernization of the library; brining it from a conservative nineteenth century autocracy to a squarely public agency streamlined for maximum efficiency. While it is impossible to precisely quantify the impact that this undertaking had on American culture, clearly the institution of the popular library became cemented into the nation’s psyche as never before. Furthermore, we can identify in tangible ways how the movement was revolutionary in both modernizing the typology and recasting the role of the philanthropist. The magnitude, scope, and relative brevity with which Carnegie achieved library reform is still shocking and yet, a century later, we find ourselves again on the precipice of overdue restructuring. The conditions are ripe for another, potentially larger, wave of library proliferation and we are left to speculate what such a revolution might look like and who would champion the cause.
In his *Autobiography* Carnegie illustrates how his passion for libraries took root when he was messenger boy in Alleghany, Pennsylvania. Even as a child he had a lust for self-improvement, but while dutifully working to support the family, he had neither the time nor money for books. It came to pass that a prominent citizen, Colonel James Anderson, generously opened his personal library to the working boys of the town. Nothing, Carnegie claimed, did more to keep he and his companions from “low fellowship and bad habits” as the time dedicated to the library.¹² When, many decades later, Carnegie started gifting libraries of his own, Allegheny was among the first cities to receive one. The elaborate structure bears a plaque with the following dedication:

> To Colonel James Anderson, father of the Free Libraries of Western Pennsylvania. He opened his library to the working boys and upon Saturday afternoons acted as librarian, thus dedicating not only himself but his books to the noble work. This monument is erected in grateful remembrance by Andrew Carnegie, one of the “working boys” to whom were thus opened the precious treasures of knowledge and imagination through which youth may ascend.¹³

This passage is revealing on a number of levels. At the time of this dedication, philanthropists routinely showed charity to locations that were personally significant, such as their hometown (another of Carnegie’s charter libraries went to his native Dunfermline, Scotland). It also draws attention to the patron, highlighting Carnegie’s personal debt to the dead Colonel, and then honoring the memory with a gift far more lavish than that initially rendered, allowing he to take up mantle of paternalistic

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¹³ Ibid. 57
benefactor. Finally the dedication alludes to Carnegie’s number one rule for an act of charity: help those who help themselves.\textsuperscript{14}

The building too was an instantiation of late nineteenth century paternalistic philanthropy. On the exterior, the building was a towering brownstone, ornately detailed with a clock tower and a reading room that protruded out of the building like a great Gothic apse. The layout, like other high profile libraries of the day, featured a processional entrance, restricted stacks segregated from the reading room, a chamber set aside for private use by the libraries trustees, and a handsome delivery room complete with Carnegie’s portrait fixed over the fireplace. Despite the fact that this was an era of intense animosity on the part of librarians (who were haranguing for progressive developments in library design),\textsuperscript{15} the architects and trustees generally ignored their input, making only minor improvements to the reigning model.

This stale and pompous attitude was short-lived. Carnegie was not one to style his actions off the precedent of others, and once he got into the philanthropy business he took immediate steps to reform it. A defining moment was the establishment of the Carnegie Corporation,\textsuperscript{16} a new company set up specifically as a machine to start giving away the

\textsuperscript{14} Incredibly in-depth analysis of these themes can be found in Abigail A. Van Slyck’s \textit{Free to All: Carnegie Libraries and the American Culture 1890-1920}. Chicago: University of Chicago Press. (1995)

\textsuperscript{15} Ibid. 25

\textsuperscript{16} Van Slyck observes that Carnegie fell back on using the term \textit{corporation} because there had not yet existed a term for a company whose sole purpose was to give away money. Ibid 24.
millionaire’s fortune. The corporate metaphor was backed up with teeth; Carnegie demanded his charitable companies run with the same efficiency as his for-profit businesses had. To ensure this he brought in his personal secretary, James Bertram, to oversee the administration of the library endowment. The kid gloves of the benevolent donor cast off and replaced with shrewd contractual agreements of a steel magnate. The act of giving was transformed into a business transaction and if a community wanted a library it would have to follow a set procedure, which gradually become known as the “Carnegie formula.” In order to handle the massive volume of projects, the process had to be kept simple and straightforward. Therefore, in order to receive a library grant, each applicant must:

1) Demonstrate a need for a library
2) Tax itself 10% of the construction grant indefinitely to ensure operation costs
3) Provide a site
4) Provide free service to all in the community

TOWARDS A MODERN LIBRARY

Bertram began noticing that early grants would be followed up by distressing letters indicating the money covered the cost of the building, but had run out before furniture and, importantly, books were purchased. It was also evident that once communities took on financial responsibility for the library, it became necessary to move away from overly elaborate monuments in favor more economical structures. Gradually, Bertram shifted his attention to the librarians themselves, eventually adopting a progressive vision about the composition of a modern library. A worthy example of this sentiment is expressed by
radical librarian John Cotton Dana, who rejected notions of the library modeled after “the palace, the temple, the cathedral, the memorial hall, or the mortuary hall” in favor of “workshop, factory, or laboratory” references. Over the course of implementing hundreds of libraries, Bertram compiled his observations and eventually produced a short pamphlet entitled “Notes on the Erection on Library Buildings.” It went through multiple additions and by 1911 accompanied all formal grant offers.

The “Notes” summarize in a few brief pages the seismic changes rendered unto the library. While generally the document is careful not to assume a position of too much control, the strongest language is aimed at libraries of the past, stating that, “many buildings erected years ago, from plans tacitly permitted at the time, would not be allowed now.” The notes go on to explain in a crisp and matter-of-fact tone that the Carnegie Corporation is interested in, above all, efficiency. The clearest indication of this position is the only phrase in the document singled out with dramatic emphasis:

TO OBTAIN FOR THE MONEY THE UTMOST AMOUNT OF EFFECTIVE ACCOMMODATION, CONSISTENT WITH GOOD TASTE IN BUILDING.

While stating a desire for good taste, the notes do not express favoritism of any one style over another. And while they go so far as to offer prototypical floor plans, they make a point of staying away from suggestions regarding elevations or any exterior choices whatever, insisting, “these are features in which the community and architect

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17 Dana, “The Public and its Library”(1887). 244-5
18 See full document in Appendix I
may express their individuality.” Although the plans are “suggestive rather than mandatory,” they all share a series of moves that are radical when compared with ninetieth century projects. Each one depicts a space where the readers are allowed to access the books directly, a relatively new concept greatly bolstered by the Carnegies. Absent from the plans are any kind of overly formal entry sequence and hearth-like delivery room. Instead, the librarian occupied the central position, finally able to manage the entire space from a single vantage point, a update they had been clamoring about for years. Also stripped away was the segregated room for the trustees who, symbolically, would now have to meet in the basement. Finally, the notes make no provision whatsoever for recognition of the donor.

The Carnegies represent a significant number of important social advances in the organization of the book-based library. Over the course of the twentieth century, new forms of media were gradually introduced, but audio and visual materials never seriously contended for supremacy. With the introduction of the Internet in the early nineties, however, things started changing.19 If the epitome of the book-based library was Louis Kahn’s magnificent Exeter Library, where the patron was prompted to “take the book to the light,” the computer represented something different entirely. It was an abandonment of the book in favor of the internal glow of the monitor. A new and exhilarating mirror universe of pure information burst onto the scene, based on the exact same free sharing ethos of the library. But the library was not ready. It is hardly an exaggeration to state

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19 Lowman, Sara. Interview by author. Houston, TX, September 3, 2009.
that any promise of a brilliant symbiosis between the book and the web has been erased by two decades of betrayal, failure, and disaster.

GO, MORDECAI²⁰

As an institution, the library has two choices: rapidly develop to keep up with compelling and immediate changes in technology or keep on its present, slow-moving trajectory toward modernization and risk the emergence of competing institutions such as the mediatheque. Librarians are no longer ignoring the storm clouds, and some, especially those just entering the field, are beginning to take steps for more extreme retooling. But time has been wasted and a backlog of changes has build up behind the damn of the physical book. This is not unlike the period directly preceding the Carnegie endowment and, in similar fashion, a tidal wave of new projects could sweep the typology into a brave new future.

Who will lead the way? Everyone. The beauty of a densely networked culture is that massive and shocking changes can be implemented by the spontaneous cooperation of millions of individuals. Still, when you examine the actual cast of characters, finer meshes of detail emerge and each node in the system plays a unique and powerful role. Currently, the world can be broken down into information have-s and have-nots. The have-s are those citizens of the OEDC countries already building the online knowledge base. The best single thing they can do at the present time is support open access

²⁰ In his 2001 film The Royal Tenenbaums director Wes Anderson uses the flight of a falcon named Mordecai to bridge a twenty-year gap between a period of youth and innocence and a moment of contemporary reckoning.
protocols. That way, when the digital divide\textsuperscript{21} closes and the information have-nots (India, Africa, and China) become haves, the channels of information absorption, creation, and sharing will be wide open to billions of new knowledge producers.

What about the contemporary Carnegie's? Indeed, there is plenty of room for contribution from the current philanthropic superstars. Bill Gates is, of course, a prime candidate for such contribution and already gives generously to libraries. Perhaps he could leverage greater effectiveness for his capital investment if instead of focusing on providing the Internet to existing libraries he could construct new libraries on the frontiers of broadband connectivity. Propagating physical points of information access in the developing world would dovetail perfectly with the global health initiatives he already champions, not to mention it would be an opportunity to put Windows operating systems in front of a market three times the size of the U.S. and Europe.

Google also has a role to play and are already doing a remarkable job. The most powerful online search engine has already expanded in to providing a broad cache of free online services that seem to get better every day. The Google Book Project is also a key piece in the puzzle, with its mission to "...organize the world's information and make it universally accessible and useful...The tremendous wealth of knowledge that lies within the books of the world will now be at our fingertips."

All the necessary components for an extraordinary library renaissance exist and there is no reason that with intelligence we should not plan it. Visionary minds must

\textsuperscript{21} See Notes on the Digital Divide this same volume.
collaborate with librarians to find resourceful paths forward and the next great philanthropist must find the will power to take up the baton. The tinder is amassed; all it requires is the spark.
3. Location

Kerala: Prototypical vs. Atypical

*or* Indeterminism as Typology

LIBRARY AS GLOBAL/LOCAL PROPOSITION

Imagine that we embark on a new wave of global libraries in the digital age with coordinated effort and intentionality of purpose.

It is an exhilarating notion and could take any number of wild and fascinating trajectories. Here will be outlined one possible line of development. We will play it through from important precedent studies up through a pilot project, stopping along the way to outline the conceptual guidelines of the network and articulate a building system strategy. We will then travel to a specific time and place to test whether the ideas are indeed novel and gauge their potential impact.

Consider the library in the context of the 21st century. As an institution, the library is the fundamental repository of our collective memories, scientific data, literary accomplishments, noteworthy news, etc. In short, libraries house the various silos of information humans collect about the world. It is readily acknowledged that we are entering a new and thrilling digital age, where information jolts instantaneously across
the globe, connecting humanity to a degree never before imagined.\footnote{For the sobering facts on this overly optimistic statement, see \textit{Notes on the Digital Divide} in this same volume.} What does this mean for the library? If one looks at information production and collection trends today, what can be observed?

Generally speaking there are two types of materials produced: generic and unique. \textit{Generic} are the materials that are the same everywhere: commercially published literature, music, films, microfilm, digital copies of existing material, and an ever-increasing base of digital-only content.\footnote{The \textit{Hope for Haiti Now} album released in January 2010 became the first digital-only album to top the Billboard 200 album chart. (Source: billboard.com)} The term generic is not intended to be disparaging, instead it simple marks content that is mechanically reproduced and would be the more or less similar no matter where it is accessed. There is a significant effort underway by Google and others to digitize as much of this information as possible so that it can be universally accessed. At the tipping point, where enough material is digitized and the legal bickering is set aside, it is very likely that we will see a crash in the amount of redundant physical copies new libraries will invest in. If, for some reason, a patron requires a physical book, it will probably be printed on-demand.

Eliminating the burden of a large physical collection of generic content clears the way for a renaissance in our approach to the \textit{unique}, or the rare volumes and artifacts that are resistant to digitization and whose physical presence is exceptional and desired. Instead of tucking these materials away in isolated archives, they could be brought out into the open. The library should facilitate access of these materials to a proportionately appropriate extent that it promotes access to virtual content. Additionally, as the library
serves those who take part in the aggressive growth of knowledge through the creation of digital content, it should also promote the creation of new unique materials for the library's physical collection. The archive, therefore, would not be a body of dead resources, but a dynamic and flourishing engine of ongoing cultural production.

OPEN BUILDING SYSTEM AS PROTOTYPICAL/ATYPICAL PROPOSITION

How would such a space be organized? What would be its diagram?\(^{24}\) If it goes beyond a single project and becomes an entire network of interconnected and cooperative libraries, then what is the prototype? To begin unpacking these questions, I'd like to start by dividing the spaces in the library into two types: knowledge production space and knowledge storage space. (figure 3.1) When the production spaces are activated, that is, they begin generating information, the knowledge produced will go in one of two directions: digitally produced content will go straight online while anything produced with a physical body that cannot be satisfactorily digitized and is deemed by the librarians/archivists to have cultural significance will be added to the library’s permanent collection. (figure 3.2) I propose that this organizational strategy could become the basic prototype for all libraries in the network.

In terms of building system strategies, I believe that there are multiple ways of achieving this diagram and if you committed it to a brief and distributed it to twenty different architects you would receive twenty unique designs (ranging in effectiveness, 

\(^{24}\) Since everyone seems to have a different definition for the term diagram, I’d like to specify that, for me, a diagram is a two-dimensional geometric symbolic representation of information according to some visualization technique, which provide an abstract way for thinking about organization. The variables in an organizational diagram can include both formal and programmatic configurations.
Figure 3.1: Programmatic Distribution - The programmatic components in the library are split into two types: knowledge production spaces and knowledge storage spaces. In open building systems terms, the storage spaces will act as the permanent support with a limited amount of internal territory for expansion. The knowledge production spaces, which are subject to the ambient organizational shifts as production needs continue changing, will have a much greater territory to accommodate expansion, change, and flexibility in use.

Figure 3.2: Activation – When the production space is activated it generates content that flows in one of two directions: either onto the web as digital content or into the library's archive as physical artifacts.
but nevertheless fundamentally meeting the challenge). This point is not a digression.
When attempting to implement a systematic approach to a problem it is important not to
over design the system, which leads to solutions that are inflexible, hard to implement,
and delicate to maintain.

An existing approach that seems to be a logical response to this diagram is an open
building system, which establishes an up-front \textit{support} framework and opportunity for
ongoing infill through the provision well-defined \textit{territory}.\footnote{For deeper analysis of open building strategies see \textit{Facilitating Local Needs at a Global Scale: Scaling the Top Down and the Bottom Up} in this same volume.} Support consists of the
“hard part” of a building, including the structure, mechanical systems, plumbing, and
initial spaces for occupation. Over the course of the life of the building, the territory, or
zones of the building left for future development, can be filled in to accommodate
temporally appropriate needs. The building system compliments the diagram in several
ways. First, it accounts for both stability (critical to current library) and flexibility
(severely lacking in the current library, but abundant in the mediatheque). The stability
would be provided by the support and including the structure for the building, initial
archives, mechanical systems, and all known programmatic elements (circulation desk,
bathrooms, etc). The production spaces, which are subject to unpredictable (i.e. ambient)
organizational shifts as production needs continue changing, will have a much greater
territory in which to expand, change, and flexibly use. In his article \textit{Ambient
Organization}, Brandon Hookway introduces the provocative notion that, “organization is
the gaze, while ambience is the glimpse.”\footnote{Hookway, Brandon. “Ambient Organization,” in \textit{Log 5} ed. R.E. Somel and Sarah Whitting (MIT Press: Cambridge, 2005), 65}
The gaze versus glimpse construction is an incredibly powerful way of describing how this library can begin to take shape. The gaze are those parts of the library typology that endure, that capture and celebrate the physical memories of a people, in short, the hard core of the library's power at leveraging cultural agency. The glimpse is altogether different; it is the hazy, enveloping, dispersed, noisy, and overlapping "order" that is the prevailing logic of online networks. If we can articulate the ambient in tectonic terms, then we can begin approaching a library that works for patrons with both physical and virtual needs.

KERALA AS PILOT: WHY HERE? WHY NOW?

In order to more clearly illustrate this proposal, let us take the strategy described above and play out a scenario on an actual site. The goal of this exercise is to demonstrate the how the typical system suggested by the diagram mingles with the atypical theme of a precise location with a unique culture, climate, natural resources, etc. We will place our pilot project in the area of Kappad, Kerala State, India. (figure 3.3)

Why India? This project is situated within a global network of new libraries. If viewed from the Web 2.0 perspective (human being = knowledge producer), then the highest priority of the network should be to tap into the greatest reservoirs of latent contributors. The three greatest concentrations of the human population still largely unpenetrated by the web are China, India, and Africa. Of these three, India is an outstanding candidate for several reasons. First, it has a democratic government, which should theoretically allow for information to flow freely in and out of the country. It is

27 For deeper analysis see Notes on the Digital Divide in this volume.
Figure 3.3: Kappad, Kerala State, India — Within the economically remarkable Kerala, Kappad was selected for practical and symbolic reasons. Practically, it has a sizable population that still qualifies as rural but is in close proximity to a major metropolitan area (the city of Kozhikode population ~450,000 is 20 km to the south). Symbolically, it was on Kappad beach that Vasco de Gama landed on May 20, 1498, becoming the first European to establish a sea trade route with India in the Age of Discovery.

Figure 3.4: Kappad, Kerala State, India — The site is shown in orange and is located on a river between two villages.
also a place of tremendous internal diversity and largely predisposed to heterogeneity. Finally, like much of the developing world, India struggles with overburdened cities as a result of rapid urbanization. By promoting deep web connectivity in more rural areas, individuals might find substitute options for increased wealth and opportunity they might have otherwise looked for in the metropolis.

So once a library is established, and begins minting new citizens of the world, what is the expected result? Two interesting phenomena will occur. On one hand, you’ll see a reaching out\textsuperscript{28} by the local community into the global pool of information resources. This will not simply involve accessing information, but also generating content for the entire community of web users to benefit from. On the other hand, you’ll see a reaching in from the outside world into the newly connected community. This is precisely why Kerala was selected as a charter library.

Kerala is the southwestern most state in India; with a population roughly equal to California squeezed into a territory the size of Switzerland, making it one of the most densely populated regions on the planet. Despite having a per capita gross domestic product that is only a small fraction of an OECD\textsuperscript{29} member state, Kerala has managed to achieve remarkably high human resource development indices:\textsuperscript{30}

- Kerala’s birth rate is 14 per 1,000 females and falling fast. India’s rate is 25 per 1,000 females and that of the U.S. is 16.

\textsuperscript{28} Both the terms reaching out and reaching in are borrowed from Professor Richard Baraniuk.
\textsuperscript{29} The OEDC is an international economic organization of 30 countries. Most OECD members are high-income economies with a high Human Development Index (HDI) and are regarded as developed countries. The identification of OEDC will be used in place of the often misused term “western.”
- Kerala's infant mortality rate is 15.3 per 1,000 births versus 57.0 for India and 7 for the US.
- Its adult literacy rate is 91 per cent compared to India's 65 and the US's 99.
- Life expectancy at birth in Kerala is 75 years compared to 64 years in India and 77 years in the US.
- Female life expectancy in Kerala exceeds that of the male, just as it does in the developed world.

While the economic practices that led to these figures are not without their critics, and indeed very tangible drawbacks - a significant portion of population remains either unemployed or working abroad - the Kerala model of development is still conspicuous on the world stage. It stands to reason that, given the opportunity, Kerala's highly literate citizenry would *reach out* into the web with great alacrity, while other regions of the developing world, interested in emulating some of Kerala's achievements, would be rapidly *reaching in* to the community.

**INDETERMINISM DEPLOYED**

Returning to the site, the development of the diagram into a building strategy proceeded as follows: (figure 3.5)

1) Locate the general zones of interest on the site itself, which will serve as preliminary loci for the knowledge production centers. For this site there was a zone on the river, one on the highway, and one in a heavily wooded area.
2) Determine an appropriate amount of support program for the population the library expects to serve. This is a similar method to how the Carnegie foundation used to establish the size of library grants.
Figure 3.5: *Site Organization.* 1) undeveloped site, 2) start by mapping out on the ground plane centers of activity around which to organize the knowledge production spaces, 3) distributed a cellular field of archives that connected each of these centers, 4) knowledge production spaces are then organized around the activity centers, can move freely across the ground plane and, if desirable, grow up into the archive spaces.

Figure 3.6: *Organization.* Conceptual model of support program in ambient field of potential knowledge production.
3) Organize that amount of program into a cellular field, allowing for growth within, between, and beyond the structure. Deploy support program in such way as to link all the knowledge production zones together. The support program is elevated in section for two reasons. First, to raise the archives above the flood plane and create areas of shade and breeze and, second, to create an uninterrupted ground plane that allows maximum freedom for the knowledge production spaces. (figure 3.6)

4) Articulate the knowledge production program. Allow these spaces to capitalize on their inherent flexibility by finding ideal conditions below, between, and into unused sections of structure. (figure 3.7 – 3.10)

Toyo Ito quipped that he “designed about half the Sendai Mediatheque,” implying of course that the other half was “designed” by the sum total of the decisions made by the users about how to use the space. Indeed, like the Mediatheque, this design tries to avoid looking at people and things as separate physical objects within the architecture, but instead constructing an architecture based exclusively on the phenomenon of changing scenes. It strives to embrace the multidimensionality, diversity, and uncertainty that comes with living in the computerized world. The catch 22 is that one is limited in their ability to represent “how the building” will look in the future and therefore is left suggesting perhaps the first scene. I sympathize with Cedric Price who, when asked what kind of programs the Fun Palace would include, could only shrug and reply that was impossible to know, because you’d need a Fun Palace to invent them.

31 Witte, Ron. “Notes from the process.” In Toyo Ito: Sendai Mediatheque, ed. by Ron Witte. (Munich: Prestel, 2002)
Figure 3.7: Plan. From the plan one can discern the two basic space types that compose the library. The first is the regular, modulated series of archive structures that repeat at consistent intervals. The second system that consists of the knowledge production spaces, register in a more irregular, fluid language.

Figure 3.8: Section. The section describes the stark difference between organization at grade and in the upper levels of the building. The archives, which have a rigid, repeating logic, are elevated to create a shaded, open ground plane. Knowledge production spaces trace across the ground but also leap up into the zone of the archive when it is programmatically advantageous.
Figure 3.9: Perspective at Archive. The ambition of the library is to stage a relationship between the organized archives (cellular bars) and the more flexible knowledge production spaces (oblique form).

Figure 3.10: Perspective. This image depicts the act of knowledge production taking place within the building. Foregrounded is a group of children around a traditional Kathakali dancer. In the building, all aspects of the Kathakali can be accommodated: from production of the costumes, to staging of a production, to recording a production, to editing that recording, to publishing online, to the archiving of Kathakali artifacts (archives are in the background and above).
4. Scale(s)

Scaling the Top Down and the Bottom Up:

Facilitating Local Needs at a Global Scale

“To launch a manifesto you have to want: A. B. & C., and fulminate against 1, 2, &3.”

T. Tzara, Dada Manifesto

GLOBAL CHALLENGES

Architects aren’t strangers to staggering statistics. By 2050 the world population will be X billion, X billion of which will live in cities. These will be mostly poor, adding and additional X billion to the already massive X billion living in sub-standard or informal housing, and in order to adequately house them we need to build a city of X thousand every day. Rising sea levels is predicted to create an additional X climate refugees. To meet these demands, it is thought that in the next X years the world will build as many square feet of as has been constructed previously throughout all of history combined. All this will preferably be done with less energy, healthier building materials, and in an environmentally conscious manner. This is all old news.33

The necessary square footage will get built, but it remains unclear what the quality will be and how much of it will be designed by architects. Professionally, architecture no

33 If you actually care about the real numbers, see Figures 1: Human Settlements Fact Sheet and Figure 2: Natural Systems Fact Sheet.
longer has the common project that once defined the Modernist ideal, as Rem Koolhaas articulated in his acceptance of the Pritzker Prize in 2000:

"Fifty years ago, the architectural scene was not about a unique individual, the genius, but about the group, the movement. There was no scene. There was an architectural world. Architecture was not about the largest possible difference, but about the subtleties that could be developed within a narrow range of similarities within the generic. Architecture was a continuum that ended with urbanism. A house was seen as a small city. The city was seen as a huge house. This kind of architecture saw itself as ideological. Its politics stretched all the way from socialism to communism and all the points in between. Great themes were adopted from beyond architecture, not from the imagination of the individual architect's brain. Architects were secure in their alignment with what was then called society, something that was imagined and could be fabricated. It is now 2000, fifty years after the idyllic caricature that I just described for you. We have Pritzkers with unique and singular identities, signatures even. We respect each other, but we do not form a community. We have no project together. Our client is no longer the state or its derivations, but the private individuals often embarked on daring ambitions and expensive trajectories, which we architects support whole heartedly."

Faced with incredible challenges, it would seem a most inconvenient time for architecture's agency to wane. Over the past fifty years the design and building industry has transformed into a more complex and litigious process. When faced with liability the architect habitually stepped back, consequently acquiescing power. In order to not limit the degree to which the profession had become marginalized, architecture created an artificial division between the processes of design on one hand and the process of creation on the other. Architects began to sell the public (and themselves) on the idea that phenomenal works of architecture were the acts of rare and precious genius, while construction of the work itself was an unsophisticated and often unsatisfactory
representation of the grand vision.\textsuperscript{34} As the trend deepens, aided in no small part by the ever-burgeoning effort of professional and amateur theorists, the architect looks less like the indispensable social servant with a bold humanist mission and more like a self-indulgent cynic\textsuperscript{35} or, worse, a mere entertainer.\textsuperscript{36}

In the post-war period, while architecture has steadily grown more disconnected and self-referential, the world has assumed a new and largely unplanned shape. During this time the global population more than doubled and the polarity between urban and rural lifestyles reversed, causing profound and chaotic transformations to both human settlements (figure 5.1) and natural systems (figure 5.2). It is predicted that before cresting the world's population will add an additional 3 billion – almost all urban, half of them poor, and 93\% in either Africa or Asia.\textsuperscript{37} This urban tsunami\textsuperscript{38} is coming powerfully and swiftly and we are just beginning to see the tip.

In its current state, the culture of architecture is ill prepared, if outright impotent, when dealing with such problems. We have already noted recent shifts in the culture away from the common project and alluded to the staritect phenomenon, but undoubtedly there are other factors in play. Perhaps the inability to respond to gaping social issues is built into the lineage of the profession: architects have a history of

\textsuperscript{34}This argument was heavily influenced by Joshua Prince-Ramous' presentation at TEDxSMU filmed October of 2009. <http://www.ted.com/talks/lang/eng/joshua_prince_ramus_building_a_theater_that_remakes_itself.html> Accessed March 28, 2010.
\textsuperscript{35}While crafting this thinly veiled reference to Rem Koolhaas, a quick check of the synonyms for "cynical" returned: pessimistic, mocking, skeptical, distrustful, suspicious, contemptuous, disparaging, detracting, sneering.
\textsuperscript{36}The day this essay was penned Kazuyo Sejima and Ryue Nishizawa were awarded the Pritzker Architecture Prize. The announcement was featured in the "Entertainment" section of the Yahoo! News. <http://news.yahoo.com> Accessed March 28, 2010.
\textsuperscript{37}UN Habitat 2006 Annual Report.
\textsuperscript{38}This was the term used by Harvard Professor Richard T.T. Foreman during the Conference on Ecological Urbanism, Harvard University Graduate School of Design, April 3-5, 2009.
**Human Settlement Statistics**

- The world population has increased from 2.5 billion in 1950 to 6 billion in 2000 and is projected increase to 9.3 billion by 2050 (source: US Census Bureau)

- The number of people living in cities quadrupled from 732 million in 1950 to 3.2 billion in 2005 (source: UN Department of Economic and Social Affairs Population Division)

- In 2005, urban dwellers numbered 3.2 billion people, 49 per cent of humankind. By 2008, half of the world's population is projected to be urban.

- With an annual growth rate twice as high as that projected for the total population (1.8 percent versus almost 1 per cent) over the next 25 years, the world's urban population is projected to increase to 4.9 billion people by 2030, roughly 60 per cent of the world's population.

- 924 million people (31.6 percent of global urban population) lived in slums in 2001. Sub-Saharan Africa had the highest proportion of urban population (71.9 percent living in slums) while Asia had the highest absolute number (554 million or 61 percent of the total slum population). If no effect is taken this number is expected to double by 2030 to about 2 billion. (source: UN Habitat 2003 report *The Challenge of Slums: Global Report on Human Settlement*)

- By 2050, anywhere from 250 million to 1 billion people could be made refugees due to climate change (source: United Nations High Commission on Refugees)

*Figures 5.1: Human Settlements Fact Sheet*

**Natural Systems Statistics**

- Around half of the world's original forests have disappeared, and they are still being removed at a rate 10x higher than any possible level of regrowth. Tropical forests contain at least half the Earth's species and are cleared at a rate of some 17 million hectares each year. (source: World Wildlife Fund)

- Desertification -- the loss of the land's biological productivity in arid, semi-arid and dry sub-humid areas -- is a global problem, affecting one fifth of the world's population in more than 100 countries. (source: UN Department of Public Information)

- Since 1900, more than 50% of the world's wetlands have disappeared. (source: World Wildlife Fund)

- 1 in 4 of the world's mammals, 1 in 8 birds, 1 in 5 sharks, 1 in 4 coniferous trees, and 1 in 3 amphibians are now threatened with extinction in the near future (source: World Wildlife Fund)

- If the low estimate of the number of species out there is true - i.e. that there are around 2 million different species on our planet - then that means between 200 and 2,000 extinctions occur every year (source: World Wildlife Fund)

- On average freshwater species populations fell by about 50% between 1970 and 2000, representing a sharper decline than that measured in either terrestrial or marine biomes. (source: World Wildlife Fund)

*Figure 2: Natural Systems Fact Sheet.*
providing monuments for the rich and powerful - whether the religious or noblemen clients of antiquity or the big corporations and governments of today.\textsuperscript{39} Perhaps it is the types of projects we acclaim as best representing our current culture: \textit{The Phaidon Atlas of Contemporary World Architecture} located 90 significant projects between the Netherlands and Switzerland (combined population 24.7 million), while recording only 80 between China, India, Pakistan, Bangladesh, Indonesia, Brazil, Russia, and the entire continent of Africa (combined population 4.4 billion).\textsuperscript{40} Its sequel, \textit{The Phaidon Atlas of 21\textsuperscript{st} Century World Architecture},\textsuperscript{41} located as many museums (76) as multifamily housing projects, despite the fact that over a billion people (~30\% of the urban population) live in slums.\textsuperscript{42} Perhaps it how we train out students: of the seventeen advanced design studios offered at the Harvard Graduate School of Design in Spring of 2010, seven focused on Europe, three in North America, three in China, and one in South America.\textsuperscript{43} None focused on either India or Africa.

Strategies that address most of these compelling and immediate issues already exist, but lack both widespread understanding and will towards implementation. Buckminster Fuller was quick to point out is no food crisis, energy crisis, or environmental crisis; there is an \textit{ignorance} crisis. Assuming that gradually, over the next few decades, more architects turn their focus to the developing world, how can they have a maximum impact, in the shortest amount of time, with limited resources? What models have been

\footnotesize{\textsuperscript{39}Japanese architect and educator Shigeru Ban often stresses this point and one recorded diatribe can be found in VERB Crisis - VERB editors, "Twelve Years of Emergency Architecture: Interview with Shigeru Ban," in VERB Crisis, ed. Mario Ballestros, Irene Hwang, Tomoko Sakamoto, Michael Kubo, Anna Teta, Albert Ferre, Ramon Prat (Actar: Barcelona, 2008), 116-135.
\textsuperscript{40}Number of Projects from \textit{Phaidon Atlas of Contemporary Architecture}. (Phaidon Press: New York) 2004, populations from Wikipedia.
\textsuperscript{42}UN Habitat 2006 Annual Report.
\textsuperscript{43}GSD Course Book 2010. Three studios did not specify a site at the outset.}
developed that should be interrogated, modified, and redeployed? What are the tactics and strategies (rather than definitive answers) to these contemporary questions?

PREFAB: UNFULFILLED PROMISE

We readily acknowledge an ongoing process by which regional economies, societies, and cultures have become integrated through a globe-spanning network of communication and trade. One curious way globalization and the proliferation of multinational corporations has not effected architecture is at the level of mass produces buildings. Since the mid 1900’s, designers have sought to translate the success of the airline, auto, and marine industries into the construction industry. Prototypes have come and gone, but almost none made it to the level of production. The exception to this trend is the mobile home industry in the United States. According the the U.S. Census Bureau, the number of mobile homes increased strikingly since 1950, going from just over 300,000 to nearly 8.8 million in 2000 — an increase of about 2,700%.

Despite being incredibly numerous, especially in the Deep South where mobile homes make up ~15% of all housing stock, they are often made out of sub-prime materials and subject to rapid depreciation (unlike most dwelling types, which appreciate over time). Subsequently, contemporary American culture has grown accustomed to viewing mobile homes as synonymous with poverty.

Nevertheless, architects convinced by the more for less promise of industrial production keep trying to bridge the divide. One prominent figure on the current scene is

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45 Ibid.
Michelle Kaufmann, whose mixture of streamlined form, sustainable material policies, and semi-affordability seemed to be breaking new ground for the industry. Unfortunately, she shared in the same fate as most other prefab startups, closing in 2009 because of the downturn in the economy. The most recent office to make a significant theoretical contribution is Kieren Timberlake, whose 2004 book *Refabricating Architecture* calls for a more varied approach. They advocate for industrial production at a range of scales, not only entire buildings, but also façade systems or single rooms. By using smaller “chunks” their position gains a margin of flexibility, shifting the analogue from the assembly line of auto makers to the mass customization of the computer industry.

The potential for prefab remains awesome. Kieren Timberlake use the haunting analogy that our current construction model is akin buying a car and having it assembled part by part in your driveway. By moving assembly from the field to the controlled environment of the factory you save time, money, and produce work of a higher quality. The economy of the designer also increases in proportion to the volume of building manufactured. Furthermore, a shift in production method could dovetail with the parallel revolution in the construction industry, which calls for buildings that are vastly more efficient in terms of energy, water, and materials.

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Of all the challenges facing industrial building production, the two most salient are mobility and value. A fundamental flaw in the comparison to cars, airplanes, and computers is that buildings are sedentary. Being fixed, a building becomes an object in a field of natural systems that change dynamically over time and are unique to each place. This should not be viewed as an obstacle to overcome, but an opportunity to be embraced. If the old adage that after shaping our building, they in turn shape us bears any truth, then we should not grope for structures that satisfy universal conditions. Instead, we can treat buildings as instruments that are in tune with the local environment. If we adopted this mentality it would greatly reduce energy needs, bring us into closer association with water management issues, and allow us to capitalize on local material resources. By default, you would also begin to create individual forms and urban textures that bear the unique mark of the place or which they are created.

A second major difficulty for prefab is retaining value. Vehicles such as planes and cars and products such as computers have a much lower life expectancy that a building and all depreciate from the moment they leave the factory. Buildings run on an opposite logic; they are expected to be long-term investments and, in the case of the home, act as primary sources of equity for the middle class. They provide a basis upon which to build credit, leading for instance to home equity loans, which are used for paying college tuition, medical bills, or further improving the value of the home itself. They are used as a means to climb the social ladder, rather then expenses that are discarded when they wear out or become technologically obsolete. Instead of being traded in for a new model, buildings are upgraded, fixed, changed, added on to, and modified – all repulsive
concepts to traditional manufacturing logic. Architectural creation, unlike most industrial designed processes, recognizes that forms often emerge through development over time. (Habraken)

OPEN BUILDING: LOCAL DEMANDS, LOCAL SOLUTIONS

The Modern idea of open building developed in the 1950's as a reaction to the unremarkable reconstruction following World War II. Within this vein of development, Dutch architect and educator John Habraken championed the Architecture of the Lively Variety, which sought to reinstate individual expression in contemporary building. Habraken, with his colleagues at the Foundation for Architecture research in the Netherlands (SAR), also recognized that architecture would have to confront immense issues such as global poverty, but admitted that the profession was not built to address them. They therefore sought to recalibrate the architect’s mindset and cache of techniques to better address the ever-growing issues.

In his essay Control and Complexity, Habraken begins with a pair of provocative questions: How can we design large projects without necessarily imposing uniformity and rigidity where variety and adaptability over time are desirable? How can the big project nevertheless do justice to the small scale? These inquiries hit on the key points of his philosophy: large-scale interventions, small-scale projects, change over time. Instead

48 KierenTimberlake’s use of the computer model is slightly one sided. While they play up the “plug and play” of PC manufacturer like Dell, they spend less time on the counterargument of rigid control, represented perhaps best by Apple, who argues they can provide a fundamentally better product by providing a complete product requiring no hardware modifications.
49 Also known as Structure and Coincidence, Architecture of Diversity, or Pluralistic Architecture.
of conceiving of architecture as a pipeline beginning at a fixed starting point and ending when the contractor finishes construction, this approach looked at design as an initial spark followed by a continuum of ongoing development. It would be the output of an entire community driving the process rather than arriving at formal complexity through a singular individual vision.

There is a brilliant and subtle economic logic inherent in this approach. It comes down to the idea of support and territory. For Habraken, support was the basic physical improvement to a site that would be contributed by a primary funding source of some kind, be it a governmental or private organization. Support is the “hard part” of the building and includes land, major structural elements, mechanical systems, and plumbing, which require most or all of the professional input on a project. By providing only these elements in the most efficient manner possible the primary funding agent limits their capital investment. What is also defined is territory, that is, raw space for expansion under the control of the building’s tenant(s). Territory is often conceived of as void space, so it comes at little or no cost to the developer. What is not paid for upfront are costs like finishes and, in the case of housing, extended living space. There is a significant moment in the process where control is transferred from the group that implements the support to the building’s inhabitant(s). At that point, the occupant determines what the final build out will entail; the level of finish may be based upon their means, while the ultimate use of the territory I determined by their specific need. Thus, the vast majority of the extraneous costs are pulled out of the system.
Several interesting conditions are produced by this strategy. First, it responds to general needs, which are similar everywhere: structurally sound shelter with running water and waste disposal. Within that basic structure it accepts variations that allows the building to respond to the unique qualities of each site. While the support program establishes a common organizational strategy, the individual territories are allowed to develop as formally complex thematic individuals. (Habraken) The built out of the territory also allows for environmental responsiveness in two important respects. First, it provides opportunity to capitalize on whatever materials are immediately available - if one looks at the squatter settlements scattered across the world their common theme is resourcefulness in adapted building materials. Second, the build out can be done in a manner that takes advantage of energy saving passive strategies suited to a buildings location. Local, regional, and global networks can be established to aid in facilitating the access to material supply chains and information regarding successful design strategies.

CURRENT CASE STUDY

"Every time we come here, we have surprises. The Energy is incredible."

Gonzalo Arteaga of Elemental during a site visit to the Renca Housing Development

To illustrate these themes and the immense potential they represent it is useful to look at a contemporary example. The Elemental is a group of designers and strategists based in Santiago, Chile that has been implementing open building strategies since 2003.

Since it's founding, Elemental has completed seven major developments equating to 737 total dwellings, with an additional seven projects either in construction or development adding another 708 dwellings. From the beginning, the working hypothesis was centered around a type of building that would allow for high densities, while simultaneously avoid overcrowding by making extensions and auto-construction available within the property.

As a case study, we can look at the first major development from Elemental: the Quinta Monroy settlement in Santiago, Chile. The project, commissioned by the Chilean government, was the reorganization of 100 families living in a small informal urban settlement and stipulated that the families should participate in the design process. Elemental was given a very limited funds which were expected to buy the land, install the proper urban infrastructure, and construct homes for as many of the families as possible. After examining various housing typologies, including detached housing, town housing, and apartment blocks, it was found that none of these models offered adequate conditions to all residents. (figures 5.3a-5.3c) The final solution was an open matrix of individual units and adjacent territory arranged on each site in a two unit stack. For this scheme, the basic home started as 36 m² but could expand up to 72 m² safely within the existing support structure. (figure 5.4)

The only way the team was able to provide a successful solution was to distribute the upfront capital equally among all residents, provide only the basic services to each

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52 <http://www.elementalchile.cl/viviendas/> Accessed April 5, 2009
Figure 5.3a: Typology Study - Single Family Detached Housing (Source: Elemental)

This type is very inefficient in land use, so the market tries to make land cost as close to zero as possible. Those pieces of land are far away in the periphery of cities, in this case in a stigmatized town outside Lyon.

But even if we had enough money to pay for this site, this isolated type is unable to take some responsibility on self-construction in its different typological and social units.

The given units are normally swallowed by expansions producing a very bad urban environment, once again.

We fit just 32 units.

Figure 5.3b: Typology Study - Row Housing (Source: Elemental)

We fit 60 families. We do better, even though still not enough.

The problem with this Row house type is that whenever families expand, they block previous rooms' access to ventilation and light, and compromise privacy. Arrangements get chaos instead of efficiency in land use.

We fit 60 units.

Figure 5.3b: Typology Study - Row Housing (Source: Elemental)
So, instead of doing the best possible $7,500 dollar unit and repeating it 100 times, we went for best possible $750,000 dollar building which could host a 100 families and their growth in time. But we knew buildings block expansions... That's true except in the first and last floor. So, what we did was a $750,000 dollar building that had just the first and last floor. With 2 properties one on top of the other, we doubled the efficiency of landuse, before even going into the design.
unit, and to activate the residents themselves as a significant contributor to the project.  
This involvement began in earnest in the design process, with architects working with residents and to develop a vision for the future project, and continues after official construction commenced, with residents taking the initiative to finish the units themselves. According to Elemental, eighteen months after the first houses were turned over to their owners, more than half had been expanded to beyond 50 m$^2$ from the original 36 m$^2$. Surprisingly, they also witnessed a change in the culture of auto-construction: while some residents had improved their units using sweat equity, many families hired contracting professionals and only a quarter employed reused materials.  
By turning control of the ultimate outcome of the building over to the residents, the project also generates a palpable amount of enthusiasm. In other Elemental projects, residents took the principles of auto-construction beyond their private territory and began making improvements to the shared community spaces.  
Formally, the built-out projects represent an incredibly compelling combination of underlying architectural intention, mingled with the themes developed by the individual inhabitants of the community. (figure 5.5)

Perhaps the most promising attribute that suggests widespread success of open building methods is a look at the bottom line. No city benefits from the blight of slums, which are notoriously dangerous and hold down land values. On a humanitarian level, society is interested in seeing people lifted out of the cycle of poverty, but cannot afford

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5.5 Quinta Monroy Housing Development - Auto-Construction (Source: Elemental)
to build middle class housing for all those living in informal settlements. Open building combined with auto-construction has demonstrated that with a minimal investment from centralized funding authority, individuals can contribute to significantly increasing the value of this housing stock. In the case of Quinta Monroy, the government investment in the land, basic infrastructure, and first 50% of the house cost $7,500 USD per unit. According to post-occupancy evaluations the cost to a resident to build-out the second half of their unit was on average $750, bringing the total invested to $8,250. Within two years of construction these same units had a market value of roughly $20,000. The process of building equity through revaluation of the land and transferring that wealth to the families is what Elemental terms building middle-class DNA.

PIVITOL MOMEN

It is incredibly exciting to identify a working typology that addresses the pressing issues that are germane to, but ultimately transcend, the design world. For architects, the question of typology is inseparable from notions of design methodology. Is there a more synthetic way how to characterize the design method currently advocated? What improvements can be made to current approaches? How can we build a stronger relationship between the agencies implementing the urban development of the world’s nest 3 billion people with designers working in the field? How can we better prepare our students to find inroads to this process? How can we support individuals participating in the act of auto-construction or, in other words, how can we create a billion+ armature architects and builders?

Architecture is beginning to develop a sense of urgency in dealing with these topics, but it is clear that the profession is still far from engaged. Too often there remains the tendency of falling into the Buckminster Fullerarian trap of total design, which leads to extremely complex systems that are hard to execute and delicate to maintain.\(^5\) Open building strategies, synthesized with other existing intelligence from the political realm, the sustainability movement, or prefabrication, might suggest that the opposite approach is perhaps more viable; scaling responsibility from the top \textit{down} and grass-roots involvement from the bottom \textit{up} might be the most effective way to spark significant progress.

\footnote{\(^5\) This point is borrowed from Antone Picon, who raised it during a Q&A session with Bill Dunster of ZEDfactory during the Conference on Ecological Urbanism, Harvard University Graduate School of Design, April 3-5, 2009.}
5. Temporality

David Dewane and Ricardo Umansky

in Conversation with Richard Baraniuk

December 17, 2009. Duncan Hall, Rice University

David Dewane: In both your research and your work with Connexions you explore the effects the IT revolution is having on various industries, particularly the publishing industry. What trends have you focused on?

Richard Baraniuk: The publishing industry used to be all self-contained; big publishers would have a stable of editors, authors, graphic designers, sales people, marketing people, and so on. It was an entire pipeline that they owned. What’s happened is that they dropped that model and instead shifted to using independent contractors. It’s totally broken apart. Editing teams work in one company and authors work at other companies or universities. Marketing people might not even be working directly with these companies. Publishers are almost becoming like a bank – they have a lot of money and make more money by coordinating all of these relationships.

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58 Richard Baraniuk is the Victor E. Cameron Professor of Electrical and Computer Engineering at Rice University, where he is faculty in the Digital Signal Processing Group. He is also the founder of Connexions.

59 Connexions is a website provides user-generated, open-source material for textbooks that is free customizable. It allows teachers to quickly "create, rip, mix and burn" coursework -- without fear of copyright violations. (cnx.org)
This is exactly what happened in the oil industry. Exxon Mobile doesn’t drill any wells.

**Ricardo Umansky:** It’s all subcontracted.

**Baraniuk:** Yes, *everything* is subcontracted. The idea is that it’s more efficient. Similar disaggregation is what’s happening with books. It’s happening with open-source books and it’s happening with for-profit non-open books. Books are important; they are a vital part of our education. But there are all these other things that an education is about. So think again about the pipeline. Book publishing used to be a pipeline and now with openness it’s much more dispersed and functions more like an ecosystem. The question then becomes, “what about everything else to do with an education?”

Take Rice University. It’s a great place, but look at it really closely. What is a university? What is a high school? It’s a *pipeline*. It’s a super old-school pipeline model. Students matriculate through that Sally Port on day in August and four years later we kick them back out the other way and they go into the world. We provide everything for them, not just room and board but everything: their friends, their future wives or husbands, the lecture materials, the lecturing, the accreditation, etc. So why do we think the same market forces that broke apart the marketing industry, the publishing industry, the energy industry, and the software industry aren’t going to somehow effect education?
Umansky: That’s a good point. Groups like the Teaching Company, they already seem to be taking the first steps. If you think about telepresence connecting people on a virtual level we don’t seem very far off from being able to reach out and be a part of whatever institution(s) we want to be a part of.

Baraniuk: Totally! So, really there are a couple levels to this. One is the fact that the actual place is going to matter less and less because virtual reality/telepresence is going to keep getting better and better. You could be in any place and have the lecture material provided to you by someplace else. People always ask if this disaggregation could happen to the university and I tell them it’s not a matter of if but a matter of when.

Take the example of the newspaper industry. That was kind of easy because it was so compartmentalized already into advertising, journalism, classifieds, etc. Ten years ago a few people may have said, “this industry is going to change radically and a lot of papers are going to go out of business.” Most people couldn’t see it then, but it’s totally happening. So I think with education it a “next decade” kind of thing. My thesis (which is a lot of people’s theses combined) is that schools like Harvard or Rice are going to survive because they are extraordinarily special. Of the thousands of universities in America the top one hundred will last in some way, but all the rest are going to totally change.

Umansky: Will it start with the curriculum?

60 The Teaching Company is an online provider of university level courses, taught by professors from leading institutions, covering a broad array of disciplines. Courses are purchased individually from the Teaching Company website, www.teach12.com.
Baraniuk: All kinds of things are going to happen. First of all, the curriculum is going to come from other places. Stanford and Carnegie Mellon are already doing this. Carnegie Mellon, for example, is opening all these campuses: Carnegie Mellon Silicon Valley, Carnegie Mellon Qatar, Carnegie Mellon Shanghai. Likewise, Stanford and the University of Illinois are investing heavily in distance education. They are going to be content providers that act like broadcast networks today. There are already companies for things, such as distributed, peer-based tutoring. You might live in Texas but have someone from Finland helping you with your math homework.

About ten years ago a colleague of mine took this to a totally absurd level. Just imagine that you get accepted to a school but you just go to Cancun, where there is a beautiful facility. You pay some money to be at this facility with some other really smart kids and you’re taking the best of the best courses: programming languages from Stanford, a course on something else from Carnegie Mellon, a course on something else form Rice... It would be like surfing cable T.V. They might have mentors or teaching assistant-type people around to provide a good experience. The accreditation could all be done through professional societies. When you leave you take the AIA test for architects or the IEEE test or engineers. Industry wants this because then they get uniform students who know the stuff these industries want them to know. Schools want this to happen because they could make a lot of money. Centralized campuses will become increasingly uneconomic. My feeling is that places like Rice or Harvard will be under siege from these forces and
either will succumb or turn into the Glass Bead Game.\textsuperscript{61} What does this mean? What does it mean for the university or for institutions like the library? It’s pretty exciting, actually.

**Dewane:** This must have the effect of increasing penetration? The New York Times website, for example, can reach more people now than its print addition ever could have? Will the same thing happen for universities?

**Baraniuk:** Undoubtedly. We’ll have universal access. The other thing is that once you have all this \textit{stuff}, and everything is digitized and aggregated, people are going to try and push the price down. It will become really cheap, really efficient, and really good – because there is a lot of money to be made. For the “faceless masses” it’s going to be a great thing because it will mean universal access to education. For the absolute top-flight programs that are trying find and educate the world’s next leaders, it might not be a good thing because variation in academic culture might become very bland. It is hard to really know.

**Umansky:** But the brightest people will still rise up?

**Baraniuk:** Sure. Harvard will still be there and people will still pay money for those credentials. But so much about going to school is your peer group. Look, I’m a

\textsuperscript{61} Reference to a book by Herman Hesse set in the future when the elite of academia become disconnected from the real world, not unlike the Dark Ages. There is a complete segregation between people who study incredibly esoteric subjects while most people who focus on incredibly practical training.
professor but there is nothing super special about me or Rice curriculum or MIT curriculum. It is your classmates; that’s what matters.

**Dewane:** So what does that mean when things become totally decentralized. Will you have classmates in the same sense as before?

**Baraniuk:** Well that’s an interesting question, right? Is everybody going to be jacked into the matrix in his or her bedroom? Who knows? Virtual reality and telepresence are going to get better and better. At the other extreme, you are exploiting all the things we’ve been talking about but you’re still sitting in a room full of people. Maybe that is eternal? Can you ever truly replicate sitting around a table having a conversation?

**Umansky:** A friend of mine is doing an executive MBA at Babson College. He goes through a period of six weeks where he doesn’t visit the school and all his classes are by conference call or streamed online. He doesn’t even know his peer group. He’s going to meet them in six weeks when they finally come together.

**Baraniuk:** That seems like a really good model to study. Look at the first half of the course when one is on their own, versus the second half when one is in a group and see where you learn better.

**Dewane:** A common criticism is that there is a lack of editing online. Also, early models of distance learning don’t seem to have strong feedback loops yet.
Baraniuk: That’s the old way. You said two things. The first was about quality. Right now quality is sketchy because there is no mechanism for quality control. We’re thinking about that a lot at Connexions. There is a lot of poor material regarding engineering on the web, but if you go to a Stanford engineering course it’s probably pretty good. You definitely can control the quality. I wouldn’t equate using the web for online education to surfing blogs and referencing Wikipedia. Those will not give you the best quality. These big providers are moving into the market and it’s going to be very high quality. The second point was about feedback. That is what we’re focused on right now. What feedback do you get from a *Great Course*\(^2\)? You really don’t, actually. You sit there and watch this entertainer in front of you, but you don’t usually do homework. At least in the engineering courses I mentioned you probably get feedback in a week or so. Discussion-based courses like philosophy might be different than lecture-based courses like the engineering courses I teach. Those might as well be on T.V.

Umansky: The benefits are not just for students but for professors as well.

Baraniuk: Absolutely. With all the technology improvements it’s going to get more seamless. Right now we’ve got a video wall here where you can have a conference with up to thirty-six participants from all over the world. It’s really very remarkable even though the technology is still pretty poor. But it’s still pretty impressive and it’s just the beginning.

\(^2\) Online course purchased from the Teaching Company.
6. User(s)

Native/Immigrant Complex:

Notes on the Digital Divide

“We are called to be architects of the future, not its victims.”

R. Buckminster Fuller

It is difficult to be engaged in contemporary design culture and avoid continuously bumping into any number of clumsy utopian projects. The outpouring of such effort is no doubt the result of a decade’s worth of doom and gloom predictions regarding the future of life on Earth (which are only complete, of course, when capped with the mantra: within crisis thy shall find opportunity). Many voices heard today recall the Bucky Fuller image of striding towards an ideal future and, indeed, uphold the model that the utopian vision is like a great merry-go-round that comes to the foreground only to recede again and again. With each pass, its spirit assumes a new host, usually of the technological persuasion.

Today’s champion is, of course, the Internet, with its feverishly evolving network culture. It is interesting to note that we use the verb open when referring to activating a web browser. What we are doing, in fact, is opening the door to what could be thought of as an atopia, or a society without territorial boundaries. This does not seem altogether

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63 Paul Virilio also made this point in regards to the television in his essay “The Overexposed City” from L’espace critique (Paris: Christian Bourgeois, 1984); translated in Zone 1/2 (New York: Urzone, 1986), trans. Astrid Hustvect
different from Fuller's vision of the society of the future, which was characterized by a fluidity of communication that allowed individuals to live pretty much anywhere on the surface of the globe.\textsuperscript{64} For those in the member states of the Organization for Economic Cooperation and Development (OECD) (see figure 6.1), it is easy to fall into the trap of believing global connectivity is here: the World Wide Web has made it possible for anyone, anywhere to access anything.

In reality, however, that is not the case. While author Thomas Friedman has added much to the OECD's perception of a flat world, he is also quick to point out that without a web connection you are not in the game\textsuperscript{65}. In 2009 just over 25\% of the world's population were classified as Internet users, with conspicuously low percentages of Internet penetration in both Asia (19.4\%) and Africa (6.8\%). (figure 6.2) There are, however, steady signs of improvement. The growth of high-speed connectivity – practically mandatory for the contemporary web - has grown from just over four million subscribers ten years ago to some 400 million in 2009. (figures 6.3a-6.3c) Even though much of the world still remains either disconnected or hobbling along on painfully slow dial-up networks, a significant milestone was achieved in 2009 when the first submarine fiber optic cable reached the Eastern shore of the African continent from its origin in Mumbai.

It is important to take note that what regions like Africa and Asia lack in percentage of users, they make up easily in sheer number of users. Asia, for example, despite having

\textsuperscript{64} Picon, Antoine. "The Digital and the Utopian." Harvard Design Magazine 29 (Fall/Winter 2008-2009) 134-139

Organisation for Economic Co-operation and Development (OEDC)

Figure 6.1 OECD Member States (Source: Wikipedia) The OEDC is an international economic organization of 30 countries. Most OECD members are high-income economies with a high Human Development Index (HDI) and are regarded as developed countries. The identification of OEDC will be used in place of the often misused term "western."
WORLD INTERNET USAGE AND POPULATION STATISTICS

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<tbody>
<tr>
<td>Africa</td>
<td>901,002,342</td>
<td>4,514,400</td>
<td>67,371,709</td>
<td>6.8 %</td>
<td>1,392.4 %</td>
</tr>
<tr>
<td>Asia</td>
<td>3,806,070,503</td>
<td>114,304,000</td>
<td>738,257,230</td>
<td>19.4 %</td>
<td>545.9 %</td>
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<tr>
<td>Europe</td>
<td>803,850,858</td>
<td>105,096,093</td>
<td>418,029,796</td>
<td>52.0 %</td>
<td>297.8 %</td>
</tr>
<tr>
<td>Middle East</td>
<td>202,687,006</td>
<td>3,284,800</td>
<td>57,425,046</td>
<td>28.3 %</td>
<td>1,648.2 %</td>
</tr>
<tr>
<td>North America</td>
<td>340,831,831</td>
<td>108,996,800</td>
<td>252,908,000</td>
<td>74.2 %</td>
<td>134.0 %</td>
</tr>
<tr>
<td>Latin America/Caribbean</td>
<td>586,682,468</td>
<td>18,008,919</td>
<td>179,631,479</td>
<td>30.5 %</td>
<td>880.6 %</td>
</tr>
<tr>
<td>Oceania/Australia</td>
<td>34,700,201</td>
<td>7,620,480</td>
<td>20,970,480</td>
<td>60.4 %</td>
<td>175.2 %</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8,767,805,209</td>
<td>309,906,492</td>
<td>1,733,983,744</td>
<td>28.8 %</td>
<td>303.3 %</td>
</tr>
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NOTES: (1) Internet usage and World Population Statistics are for September 30, 2009. (2) Click on each region name for more detailed usage information. (3) Demographic (Population) numbers are based on data from the US Census Bureau. (4) Internet usage information comes from data published by Nielsen Online, by the International Telecommunications Union, by GfK, local Regulators, and other reliable sources. (5) For definitions, disclaimer, and navigation help, please refer to the Site Surfing Guide. (6) Information in this site may be cited, giving the due credit to www.internetworldstats.com. Copyright © 2001-2009, Miniwatts Marketing Group. All rights reserved worldwide.

Figure 6.2 World Internet Usage and Population Statistics (Source: www.internetworldstats.com)

The Global Growth of Broadband

1999

Broadband subscribers per 100 inhabitants

Submarine broadband cables

Total worldwide Broadband subscribers


SOURCE: TeleGeography ITU

Figure 6.3a The Global Growth of Broadband – 1999 (Source: BBC)
The Global Growth of Broadband

Broadband subscribers (per 100 inhabitants)

2004

No Data
Less than 1
1 - 5.9
6 - 10.9
11 - 20.9
21 - 30.9
31 - 40

Total worldwide Broadband subscribers

1999
4,190,000
2002
66,027,000
2004
167,350,000

Figure 6.3b The Global Growth of Broadband – 2004 (Source: BBC)

SOURCE: TeleGeography.ITU

2011

Broadband subscribers (per 100 inhabitants)

No Data
Less than 1
1 - 5.9
6 - 10.9
11 - 20.9
21 - 30.9
31 - 40

Total worldwide Broadband subscribers

1999
4,190,000
2002
66,027,000
2004
167,350,000
2007
350,276,000
2008
412,010,000

Figure 6.3c The Global Growth of Broadband – 2011 (Source: BBC)
less than 20% web penetration already represents over 40% of global Internet users. Contrast that with North America, who despite having a commanding 74% of their population online only have a 14% share in the total number of users. While it is only a matter of time until Asia, driven by broader penetration into India and China, significantly outweigh the US and Europe in volume of users, it remains to be seen how these parties will use their girth to steer the development of the web itself.

The decade-long head start that the OEDC has in large-scale Internet mobilization is nonetheless extremely significant. One way of expressing the current disparity is what educator Marc Prensky has termed digital natives and digital immigrants⁶⁶ - the difference being whether digital technologies such as personal computers, Internet, and mobile phones were widely available in a society throughout a child’s development. Prensky asserts that natives are almost automatically accustomed the language, rites, and customs of the IT, whereas immigrants, who come to these tools after living a non-digital existence, operate with a thick accent. The first generation of OEDC natives is already emerging from college while the bulk of their peers from developing countries are by and large still scrambling to adapt.

On the other hand, this logic might become outmoded by the evolution of the Internet itself. Most observers recognize the decline of the preliminary methods of communication of information online, which involved users going to sites strictly to access content provided by the site’s administrator. Web 2.0 is the catchphrase for sites

⁶⁶ Prensky, Marc. "Digital Natives, Digital Immigrants." In On the Horizon (MCB University Press, Vol. 9 No. 5, October 2001)
that shifted to more interactive platform, which not only allows users to access data but also relies on them to generate content themselves. As the interface between the user and the network become more engaging, we may witness a casting off of the immigrant complex that hampered the previous generation. Furthermore, the next Internet evolution, referred to as the semantic web, aims to understand the meaning of online content as pure information, thus providing ultimate accessibility to humans and machines alike, perhaps further easing the transition for fresh users.

Conjecture aside, what is the situation at the threshold of the digital divide in 2010? To answer this question, it is useful to examine in detail a recently launched MMO (massive multiplayer online game) that offers interesting insights from both sides of the chasm. The game, introduced at TED2010 by creator Jane McGonigal, focuses on getting online gamers to put their energy towards solving real world problems. The potential is enormous; in her presentation she cites data suggesting online gamers have spent a combined total of 5.9 million years playing the worlds largest MMO, World of Warcraft. McGonigal’s game is called EVOKE and its manifesto is a rallying cry:

“EVOKE was also conceived as a crash-course in changing the world. It is a chance to showcase the kind of resourceful innovation and creative problem-solving that is happening today in sub-Saharan Africa and other developing regions, and to collectively imagine how the lessons from those scenarios can transfer, scale, and ultimately benefit the entire planet.”

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67 TED (Technology Entertainment Design) is a technology conference that was originally held annually in California, but now held periodically at additional locations around the globe. The format typically consists of ingenious professionals giving short lectures, which are then widely disseminated on the Internet.
68 Jane McGonigal: “Gaming Can Make a Better World.” TED2010
The goal of the game is to achieve an epic win, which McGonigal defines “as an outcome so extraordinarily positive you had no idea it was even possible until you achieved it.” The epic win that EVOKE is searching for is the salvation of planet Earth. The creators believe they can make strides towards achieving this by combining the incredible resourcefulness, dedication, and ingenuity of gamers with social networking tools akin to Facebook.

In its structure the game is a straightforward techno-utopia, who idea of winning is more dependant on the process than on specific outcome. The goal of the system is to create as much information sharing and relationship building as possible between gamers, especially between avant garde sustainability activists and those living in the developing world facing issues of food security, energy shortages, disease, water shortages, etc. Most players drawn into the game tend to have a altruistic disposition and are motivated to continuously contribute at a high level in hopes of gaining one of twenty seed grants dedicated towards real-life funding of the best ideas put forth in the game70. The format of the game regularly emphasizes the importance the individual. For example, according to the ambiguous How To Play link you will find the message, “Take the journey you want to take and chose the rewards you want to earn.71”

Once you get past the utopian rhetoric, the goals of the game are rather modest; get people from all around the world to share information and hopefully start spin off efforts. However, early on it became apparent that there was a severe imbalance between percentages of players from Europe and the United States versus their African counterparts. A random survey sampling of 50 EVOKE gamers (from the 14,217 players at the time of the survey) chosen at random from the Agent database consisted of: 28 North Americas, 16 Europeans, 2 Asians, 2 South Americans, 1 Australian, 1 Latin American/Caribbean, 0 Middle Eastern, 0 African.72 The data is not entirely surprising given the data regarding Internet penetration rates on Figure 6.2. This disparity does not go unacknowledged by African gamers themselves. In a blog within EVOKE a gamer

70 Personal observations based on the author’s participation in EVOKE.
71 <http://www.urgentevoke.com/page/how-to-play> March 25, 2010
72 Survey conducted by author March 25, 2010 with data from the EVOKE website.
from North America conducted the following interview with a fellow gamer from Uganda:

AGENT JAKE BAIRD: What is the worst crisis to you in the world currently that requires Evoke's attention?

AGENT SSOZIJAVIE: The Digital Divide! The GAP between the INFORMATION HAVES and HAVENOTS. The world is currently registering major political, social and economic developments and setbacks. The information age is demanding for creation of more information recourses. And sharing of more information. It's a big shame that in many communities this need has not been realized. And in some communities access remains a very big challenge. In my opinion, information access and networking is the climbing step to solving a wide range of crises in the world.  

The digital divide poses serious threats to the effectiveness of the game. It is interesting to observe the cybernetic cycle of how this threat was acknowledged and dealt with in the game. The characteristic targeted is the presence of African gamers. The game organizers realized there were disproportionately fewer African gamers. The decision of the comparators was that more visibility of African gamers was necessary in order to ensure the success of the system. It is unclear from the perspective of the gamer the entire range of corrective measures the organizers implemented. One easily observable angle was to increase the number of friendships by African gamers by putting them in a “Featured Agent” heading of the Agent directory (figure 6.4). Gamers themselves were acutely observant of the activities of the organizers, as is reflected by this blog post by Agent Koshy:

74 In the cybernetic cycle, the comparator is the agent who takes data from the sensors, makes judgments about how effectively the system is functioning, and issues directives to the activator who carries out adjustments to the system.
75 Creating invitational friendships is a feature of the game used by players to create a interior network of peers whom you theoretically support and are supported by.
76 Agent Koshy identifies himself as being from Trivandrum, Kerala State, India – a county with low penetration of Internet users but high volume of users.
Figure 6.4: Screenshot of Featured Agents (source)
It's none of my business if Evoke wants to create an elite set of leaders for the world who will be from all the races but American and Eurocentric inside. Take the leader board. Look carefully at it. Look at the approved projects - the patterns are emerging clearly but it's not my business, I'm here to game, to help people and the world with its problems, to make friends and ultimately to learn, find out what's happening and also see if my vision for autistic peoples can fit into theirs and vice versa, since it is an international vision, in which case I'm ready to move with them. As for you, I know as little about you as I do about them. There are networks and networks and the future is about swarm theory, crowdsourcing, collaboration etc. Evokers are new, and trying to push the boundaries, so to that extent I'm with them. This is an experiment regarding the future and I want to be in it to see where it leads. The cracks in the system like the Bongomusa episode, the political implications of race and class involved which I won't go into now, the rapid rise of a radical like Panamericana, with Rahul as sidekick, and the presence of Reid Falconer at the top of the board are all only indications that the Evoke network has to look into things and change if they need to change what they are doing, if they really understand ground realities.

The reality instantiated by EVOKE is an provocative and sobering counter to views regarding the degree to which the web has managed to connect all peoples on the globe. It is apparent that those on the front lines, who seek out and, in the case of the organizers, depend on this connectivity to exist, that the digital divide is indeed a significant barrier. The prospects for change are already in motion and, while all indications are that the gap is steadily closing, we are clearly still a ways off.

If the present utopia appears to be another apparition, what about the world after the divide closes? What might we expect to see from a game like EVOKE in five or ten years? On one hand there is clearly a desire to facilitate the proliferation of knowledge. EVOKE gamers on each side of the gap have met the challenges of the system with great alacrity and are clearly probing the limits of the system. But EVOKE is only one
instance. Even if the existing Web 2.0 platform maintains only its current level of sophistication, knowledge sharing sites such as Wikipedia, Youtube, and Flickr will experience an explosion of new content. If, as some predict, institutions of higher education become disaggregated and given universal access\textsuperscript{77}, it is reasonable to imagine a spike in learning that would dwarf the Renaissance. Significantly, the majority of the above activity is going to be generated and consumed by the population epicenters of China, India, and Africa, which promise to shake up the American and Eurocentric dominance of current web content. Indeed, in the future in examples like EVOKE, it is not entirely unreasonable to think you may have trouble finding the western players amongst the incredibly numerous eastern counterparts.

But, as Bucky Fuller reminds us, we are the architects of the future, not it’s victims. This was the very same frame of mind with which Sir Thomas Moore framed the original Utopia (at least the first such named). Moore sketched out his vision for an ideal society at the critical juncture when Europe was colonizing the New World. Like Fuller and his other ideological descendants, Moore understood the promise that with a proper course of action something better could take place in the future.\textsuperscript{78} Where are the current leaders of the utopian project leading the society? It would seem that \textit{rip > mix > burn}\textsuperscript{79} is still the operative catchphrase. Projects such as EVOKE or TED are hungry for a balance between finding the right creative minds, connecting them to other creative minds, sparking a synthesis of ideas, and providing channels to the necessary resources to realize

\textsuperscript{77} See 3_Temporality David Dewane and Ricardo Umansky: in Conversation with Richard Baraniuk. in this volume.

\textsuperscript{78} Picon, Antoine. “The Digital and the Utopian.” Harvard Design Magazine 29 (Fall/Winter 2008-2009) 134-139

\textsuperscript{79} A modified version of the slogan \textit{Rip. Mix. Burn.} popularized by Apple Computers, Inc. at the outset of the 21\textsuperscript{st} century.
those ideas. A concrete example of this is an EVOKE post from Agent Heyming (the underlined portions represent hyperlinks):

This idea has been inspired by several other Agents, from Agent McLellan's Hyperlocavore movement to Agent Buentrostro's Community Urban Farms, Garden Earth Project, and even Agent Falconer's connection with the local ecovillage and his heritage as a South African.

I think all of these agents are on the right track, so I created the Gratitude Garden Movement as a way of making this work something anyone can contribute to and create a global resource for sustainable gardening practices.

Agent Heyming goes on to explain his concept for the Gratitude Gardens Movement, which, as he alluded to, is a synthesis between his own ideas and new ideas he discovered in the game. The post generates a significant amount of chatter and support from other gamers and inspired some to take the first steps to creating Gratitude Gardens in their own communities. The idea stands an excellent chance of receiving future funding from the game organizers, especially if it continues to attract more supporters both within and outside the game.

The digital divide exists, but it is closing and by the time it vanishes completely the demographics of the parties currently separated will be very different. The utopian vision that is observable from the examples cited here represent a desire to forge a future society that uses Internet technology, specifically social networking, to harness the enormous amount of resources available online and focus that energy towards solving tangible problems in the real-world. Perhaps an unspoken promise is that by focusing intensely
on the individual and their unique position to fuse knowledge shared by others with local insight, they can illicit change in their own environment that will be both empowering and incredibly unique. Globalization, in this view, may not represent a soul-crushing blandness but an incredibly fascinating kaleidoscope of hybridized ideas.
7. Vocabulary I

Key Terms, Existing

Agency -- action or intervention, esp. such as to produce a particular effect; a thing or person that acts to produce a particular result.

Agonism - a political theory that emphasizes the potentially positive aspects of certain (but not all) forms of political conflict. It accepts a permanent place for such conflict, but seeks to show how we might accept and channel this positively.

Ambient Organization - is the hazy, enveloping, dispersed, noisy, and overlapping “order” that is the prevailing logic of online networks.

Anamorphous - having or producing unequal magnifications along two axes perpendicular to each other, creating an intentionally distorted image that can only be read from an oblique angle. When one returns to a standard view, the image no longer registers as a meaningless form.

Archive - a collection of historical documents or records providing information about a place, institution, or group of people and/or the place where such documents or records are kept.
**Atopia** - a society which does not have territorial borders.

**Authentic** - made or done in the traditional or original way, or in a way that faithfully resembles an original.

**Book** - a written or printed work, usually on sheets of paper fastened or bound together within covers.

**Cosmic** - immeasurably extended in time and space; vast; forming a part of the material universe, *esp. outside of the earth*.

**Culture** – (1) particular form or stage of civilization, as that of a certain nation or period (2) a whole way of life (3) the production and circulation of meaning.

**Deterritorialization** – to take the control and order away from a land or place (territory) that is already established. It is to undo what has been done.

**Digital Immigrants** – Segment of the population who learn to use the gain exposure to IT, such as mobile phones, computers, and the Internet *after* childhood.

**Digital Natives** - a person for whom digital technologies already existed when they were born, and hence has grown up with digital technology such as computers, the Internet, mobile phones.
Diagram - a two-dimensional geometric symbolic representation of information according to some visualization technique, which provide an abstract way for thinking about organization. The variables in an organizational diagram can include both formal and programmatic configurations.

Digital Divide - is the gap between people with effective access to digital and information technology and those with very limited or no access at all. It includes the imbalances in physical access to technology as well as the imbalances in resources and skills needed to effectively participate as a digital citizen.

Disaggregation - to separate (an aggregate or mass) into its component parts.

Disintermediation - removing the middleman or intermediary, usually done in order to invest in instruments yielding a higher return.

Displacement - the transfer of an emotion from its original focus to another object, person, or situation.

Epistemology - a branch of philosophy that investigates the origin, nature, methods, and limits of human knowledge.

Filter - a circuit or device that passes certain frequencies and blocks others.
**Frame** - a border or case for enclosing a picture, mirror, etc; *Computers.* the information or image on a screen or monitor at any one time.

**Imminent** – happening soon.

**Immanent** – coming from within.

**Interface** – 1) a surface regarded as the common boundary of two bodies, spaces, or phases. 2) the facts, problems, considerations, theories, practices, etc., shared by two or more disciplines, procedures, or fields of study: the interface between chemistry and physics. 3) a common boundary or interconnection between systems, equipment, concepts, or human beings. 4) communication or interaction: Interface between the parent company and its subsidiaries has never been better. 5) a thing or circumstance that enables separate and sometimes incompatible elements to coordinate effectively: The organization serves as an interface between the state government and the public. 6) Computers: a. equipment or programs designed to communicate information from one system of computing devices or programs to another; b. any arrangement for such communication.

**Knowledge** - the sum of what is known, *Archaic.* sexual intercourse.
Library - is a collection of sources, resources, and services, and the structure in which it is housed: it is organized for use and maintained by a public body, an institution, or a private individual. In the more traditional sense, a library is a collection of books. The term can mean the collection, the building that houses such a collection, or both.

Mirror - something that gives a minutely faithful representation, image, or idea of something else.

Network – (1) in general is an interconnected group or system, or a fabric or structure of fibrous elements attached to each other at regular intervals, or formally: a graph. (2) an association of individuals having a common interest, formed to provide mutual assistance, helpful information, or the like: a network of recent college graduates. (3) Telecommunications, Computers - a system containing any combination of computers, computer terminals, printers, audio or visual display devices, or telephones interconnected by telecommunication equipment or cables: used to transmit or receive information.

Open Access - comes in two forms, Gratis versus Libre: Gratis OA is free online access and Libre OA is free online access plus some additional usage rights. OA’s primary target content is articles published in scholarly journals

Open Source - describes practices in production and development that promote access to the end product's source materials. Some consider open source a philosophy, others
consider it a pragmatic methodology. Before the term open source became widely
adopted, developers and producers used a variety of phrases to describe the concept; open
source gained hold with the rise of the Internet, and the attendant need for massive
retooling of the computing source code. Opening the source code enabled a self-
enhancing diversity of production models, communication paths, and interactive
communities.

**Physical** - of or pertaining to that which has a material body.

**Projection** - the act of visualizing and regarding an idea or the like as an objective
reality. Mental projection is a supposed or experienced form of consciousness / spirit /
intelligence projection from the emotional / astral plane to the mental plane.

**Propriety** - appropriateness to the purpose or circumstances; suitability.

**Protean** – (1) tending or able to change frequently or easily (2) able to do many different
things; versatile.

**Real** - being an actual thing; having objective existence; not imaginary.

**Reflection** – indication, display, demonstration, manifestation; expression, evidence.
Reterritorialization - is the restructuring of a place or territory that has experienced deterritorialization.

Support – open building systems - is the “hard part” of the building, containing the structure, mechanical systems, plumbing and basic inhabitable space.

Suspend – to hold or keep undifferentiated; refrain from forming a conclusion definitely.

Territory - open building systems – the compliment to support, territory is protean void space that can be expanded into over time as needs change.

Trope - a figurative or metaphorical use of a word or expression.

Typology - is the taxonomic classification of (usually physical) characteristics commonly found in buildings and urban places, according to their association with different categories, such as intensity of development (from natural or rural to highly urban), degrees of formality, and school of thought (for example, modernist or traditional). Individual characteristics form patterns. Patterns relate elements hierarchically across physical scales (from small details to large systems).

Unique - existing as the only one or as the sole example; single; solitary in type or characteristics: a unique copy of an ancient manuscript.
**Utopia** - an imagined place or state of things in which everything is perfect.

**Virtual** - noting an image formed by the apparent convergence of rays geometrically, but not actually, prolonged, as the image formed by a mirror.

**Void** – something experienced as an empty space or a privation; absences.

**Web 2.0** - refers to web development and web design that facilitates interactive information sharing, interoperability, user-centered design[1] and collaboration on the World Wide Web. Examples of Web 2.0 include web-based communities, hosted services, web applications, social-networking sites, video-sharing sites, wikis, blogs, mashups and folksonomies. A Web 2.0 site allows its users to interact with other users or to change website content, in contrast to non-interactive websites where users are limited to the passive viewing of information that is provided to them.

**Web 3.0 (a.k.a. Semantic Web)** - is an evolving development of the World Wide Web in which the semantics of information and services on the web is defined, making it possible for the web to understand and satisfy the requests of people and machines to use the web content.
8. Vocabulary II

Key Terms, New

Absent – *phase of book* - is an acknowledgement that information is now produced in a wide variety of media whose representation can no longer be accommodated by the physical book alone. This is the electronic, virtual, online book. It is also the sub-worlds of information generated by Facebook, email, the blogosphere, online journals and newspapers, digital music and video that was created without ever having a bodily presence.

**Charged Void** – a place of suspension or levitation that allows the participant to realize new perspectives of both digital and physical reality.

**Common** – *phase of book* - what we understand as the current, physical, leaf-bound book. While at first blush this might seem like a stable technology, it is, in fact, capable of being radically recast using slightly evolved combinations of existing technologies. For example, there are a number of recently launched companies providing compact book printer/binder on the scale of an office copy machine. These devices are interfaced with online book suppliers, like Google, and are capable of printing and binding volumes on-demand. If, instead of printing books on a cellulose-based paper, we switched to a material with a high recycleable coefficient, such as a polymer film, then one could imagine this scenario: a patron goes to the library, requests a book, which is instantly printed, and then when it is returned it is ground up and recycled into a new book. A
highly functional, 50 million+ volume library could be achieved with a small machine, a high-speed Internet connection, and a few hundred pounds of print material.

**Electronic Filter** – is the process of digitizing library content, splitting what we currently understand as the physical book into three phases: *absent, common, and, unique*

**Indeterminism** – the willful resignation by the architect to submit to a formally uncertain future for a building. This is achieved by creating an open, flexible building system and educating the users on the range of potential futures open to them and helping them to make informed choices.

**Knowledge Production** – the activity that defines the current state of the Internet. No longer are people going online to simple receive information, they are instead there to create it. For the library in the digital age, this means moving away from spaces of concentrated learning to knowledge production.

**Material Mirror** – a physical plane within a building into which there is a projection into the digital world, that is a dream world that represents the promise of the infinite...

**Unique** – *phase of book* - objects resistant to digitization. As library collections become more and more similar, the rare materials – that part of the collection that makes an individual library different and is often a potent embodiment of the local culture – increase in value.
9. Presentation

Final Thesis Defense

January 15, 2009. Anderson Hall, Rice University

Jurors: Mary Ellen Carol, Fares el-Dahdah, Penelope Dean, Eva Franch Gilabert, Christopher Hight, Clover Lee, John McMorrough, Anthony Vidler, Sarah Whiting

INTRODUCTION

Hello and thanks again for coming. I’d also like to thank the students who jumped in this last week to help with the final production of this project, especially Marti, Andrew, Dianna and Sue...and Peter...for everything this morning. (laughter)

My name is David Dewane, and the title of my thesis is: Commons Knowledge, (A Library for Rare Books yet to be Written).

This thesis is a typological investigation of the library - specifically examining how digitizing information informs design. The agency of the book, which has historically been the protagonist of library design, is being radically transformed by the migration to the digital. An analysis of this shift reveals opportunities where new and provocative juxtapositions can be sought within this ancient and well-known building type.

Since “library” is a word I’ll be using repeatedly today, I’d like to start off by clearly stating what I mean when I use the term. First, the standard architectural definition is a collection of sources, resources, and services AND the building in which it is housed. Also, I feel it is important to highlight the urban role of the library as a critical piece of the public domain, a symbolic space that accommodates the persistent desire for collectivity.
This last notion, what Koolhaas, in the midst of his library projects of the 90s, calls the “persistent desire for collectivity,” is very compelling to me. He doesn’t specify if it is the desire for humans to collect together socially or our persistent desire to collect physical objects. Regardless of which he is referring to, the fact of the matter is that despite the pervasiveness of the web, libraries are serving more patrons and buying more books than ever.

EVOLUTION OF LIBRARY

This graph (figure 9.1) represents a simplified evolution of the library. The horizontal axis represents time and compresses as it goes back. The vertical axis (or the width of the white band) represents the amount of people who have access to that information – starting small, but getting progressively bigger. Also you will note the interruptions. These mark advancements in technology that increased the ease of recording information, and led to subsequent revolutions in the culture of the library, such as Gutenberg’s invention of movable type in the mid 15th century.

A significant event for the contemporary library came in 2004, when the Google Books project was launched with the mission to "...organize the world's information and make it universally accessible and useful...The tremendous wealth of knowledge that lies within the books of the world will now be at our fingertips."

This mass scanning process has led to a strange phenomenon: while the vast majority of books can be translated, there exists a minority of content that resists digitization. These materials, often found in rare materials collections, serve other cultural roles and therefore their digital status is among their least important qualities.

It is also important to note that scanning existing books is only one part of the growth of digital knowledge. WEB 2.0 is the catch phase that describes the shift from a one-way interface where the user simply access information, as opposed to a two-way interface...
Figure 9.1: *Simplified Evolution of the Library*. The horizontal axis represents time and compresses as it goes back. The vertical axis (or the width of the white band) represents the degree which recorded information penetrates society.

Figure 9.2: *Diagrammatic Analysis of Five Canonical Libraries*. You can observe an internal mutating away from a central organization. The result is a move from a homogeneous, closed system on the left to a more heterogeneous, open system on the right.
where users both access and create content. The classic example is Britannica’s online encyclopedia (composed by Britannica’s experts), versus Wikipedia (composed by users). *Library 2.0* is actually a term used by the library science community to describe a focus on user-centered participation in the creation of content.

So here is a series of diagrammatic plans (figure 9.2) that represent my reading on the evolution of the library through a series of canonical projects, starting with the monastic library of St.Gall on the left and finishing with the Sendai Mediatheque on the right. What you see happening, is that between intervals the white figures, which represents what we think of as the traditional, rigidly specified program of the library, gives way gradually to the black ground, which represents the influx of open, public space. You can also observe an internal mutating away from a central organization. The result is a move from a homogeneous, closed system on the left to a more heterogeneous, open system on the right.

**PROPOSITION**

I’d like to turn now from the typological research to the thesis proposition itself. My project operates at two scales: first, I’m proposing a new network of global libraries – represented by the cubic figure in this projection (figure 9.3) - and second, I’m investigating, in detail, the design of just one of those libraries – represented here by one individual dot. (figure 9.4) I’ll begin by presenting the project’s global scope as a way of framing the local condition.

The Carnegie Library Endowment had a very significant influence on my thinking here. Over a thirty year period from 1890-1920, Carnegie personally underwrote the construction of 1,700 libraries in the US, which in 1920 represented about half the public libraries in the country. This was achieved using a very simple formula consisting of these four points: 1) demonstrate need for a library, 2) the city must agree to tax itself 10% of the library construction cost for annual maintenance costs, 3) provide the building site, 4) provide free service to all.
Figure 9.3: Global Scale. This figure shows the entire wave of prototypical libraries seen at once.

Figure 9.4: Local Scale. This figure shows one atypical library to be explored in depth by this thesis.
My proposal is for a new wave of global libraries, financed through the United Nations, and, unlike the Carnegie model, operating as both independent individuals AND a single entity. One of the limitations of the Carnegie project was that those libraries could not effectively function as a network (in fact it was part of the deal that the Carnegie Foundation completely detached itself once the grant was executed). Our historic moment is different; we could realistically conceive of all these individual libraries functioning as one singular, interconnected body.

If you were to envision what this new wave of libraries would look like, it would probably be fairly similar to a graphic showing the worlds daily flight patterns. (figure 9.5) One of the interesting things about the image is that the three hot spots, over the US, Europe, and Japan/Korea, are the same zone that, in internet terms, are referred to as digital natives (figure 9.6) or countries where you already have generations that grew up online. On the other hand, you have the digital immigrants (figure 9.7), who are still largely offline, but represent more than half of the world’s population. If you view this population in WEB 2.0 humans=knowledge-producer terms, this is an enormous untapped resource.

So in looking for a site, I chose to focus on India primarily for these four reasons: 1) large population of digital immigrants, 2) culture predisposed to heterogeneity, 3) democratic government allows for less obstructed flow of information, 4) ‘stay in your village’ campaign, which tries to slow urbanization which has already surpassed their infrastructural capacities.

PROTOTYPICAL

It is important to pause here and ask an important question, which is, “Are these libraries prototypical and, if so, what is the prototype?” At the time the Carnegie Endowment was funding all these building, you never actually had to define what a library was because everyone knew what it was and, additionally, what it basically looked like – in other words there was a commonly assumed prototype. (figure 9.8) Why is this?
Figure 9.5: Proposed Network. This figure displays daily world flight patterns, which is reappropriated to display entire network of new libraries.

Figure 9.6: Digital Natives. The highlighted countries indicate where you already have generations growing up online.

Figure 9.7: Digital Immigrants. The highlighted countries still with low percentages of internet penetration. India was identified as the site for further development for this thesis.
Figure 9.8: Carnegie Prototype. At the time the Carnegie Endowment was funding some 1,600 libraries in the US, you never actually had to define what a library was because its program was assumed. Additionally, without control from the Carnegie Endowment the various library builders still worked within a limited architectural vocabulary - in other words there was a commonly assumed prototype.
Those libraries came into existence at the moment when print as the sole means of communicating information climaxed. However, since 1920 new forms of communication have been gradually introduced, each of which has worked to unravel the pure, closed, heterogeneous diagram of the library, as represented by the Carnegies. It is still reasonable to think that book will be the basis of library design. Historically speaking, whether you were talking about a stack of clay tablets, or a roll of papyrus, an illuminated manuscript on parchment, or a printed volume – each is just a different reincarnation of the book.

The question, therefore, is what is the current status of the book? As previously noted, we are in the early stages of the digital age, and currently the book in undergoing yet another transformation. The process of digitization is passing the current book through what could be thought of as an electronic filter. When that occurs, what we currently understand as the book is divided into three parts, which I am terming: the absent, the common, and the unique.

The absent is an acknowledgement that information is now produced in a wide variety of media whose representation can no longer be accommodated by the book alone. Typologically speaking, the mediatheque is a useful reference, that is, spatially the absent is by nature indeterminate, fluid, or gaseous in its organization.

The common is what we understand as the current, physical, leaf-bound book, which, despite the pervasiveness of computation is far from dead. It is, however, capable of being radically recast using slightly evolved combinations of existing technologies. For example, Google has acquired a machine known as the ESB (espresso book machine), which is basically a printer with a binder Frankenstiened on the side of it. If, instead of printing books on a cellulose-based paper, we printed them on a material with a high recycling coefficient, such as a polymer film, then you could imagine a scenario where someone goes to the library, requests a book, which is instantly printed, and then when it is returned it is ground up and recycled into a new book. A highly functional, 50
A million+ volume library could be achieved with a few hundred pounds of print material. Typologically, the common phase reads like a bookstore crossed with a factory crossed with a recycling plant, which endlessly consumes physical reality and redistributes it.

The *unique* is an understanding of how to treat those objects resistant to digitization. It is interesting to realize that as library collections become more and more similar, the rare materials – that part of your collection that makes you different, and is often a potent embodiment of the local culture – increase in value. While objects suitable for such a collection would certainly include things like ancient manuscripts, early on the question came up “what if there were no rare artifacts in a community? Could they be created?” The immediate answer was yes! Certainly! In fact, the creation of such artifacts is unavoidable – the question just becomes: what is your attitude towards their curation?

The desire of this project is to understand these terms, and bring them back together to reform the library.

Taking another look at a typical library, such as our Fondren Library here at Rice, you’ll find each of these programs represented. What is different about what I’m proposing here, is that you reorganize the library to reflect the reality of how digital culture and material culture are manifest in the 21st century. (figure 9.9)

Thinking diagrammatically, you group the mediatheque and micro book factory into knowledge production spaces and set that into relation with the archive. When activated, the production spaces begin generating information that is either digitized (if it can be) or archived (if it can’t). The building itself, therefore, takes on the role of both producer AND consumer of knowledge. (figure 9.10)

I feel it is necessary now to redefine what I mean when I use the term library in regards to this design proposal as: A space that collapses the hierarchy between virtual and physical content, provides equal access to all forms of information, and stimulates the production of new knowledge.
Figure 9.9: Programmatic Distribution. This figure displays an approximation of the shift in program between traditional and proposed libraries.

9.10: Organizational Diagram. By grouping the mediatheque and micro book factory into knowledge production spaces and set that into relation with the archive (storage). When activated, the production spaces begin generating information that is either digitized (if it can be) or archived (if it can't). The building itself, therefore, takes on the role of both producer AND consumer of knowledge.
ATYPICAL

With that prototypical framework in mind, we’ll now down-shift in scale and look at an a-typical individual building within the network.

Returning to India, I chose to locate this project in the Southern State of Kerala, both for practical and symbolic reasons. Practically, Kerala is something of an economic wonder, gaining first-world levels of life expectancy, infant mortality, and low mother-to-child ratios all with a third world GDP, which, to me, suggests it already has a tremendous amount of knowledge to share that the network as a whole would greatly benefit from.

The site itself (figure 9.11a & 9.11b) is a relatively rural area with about 40,000 residents within a 3 km radius, located 17 km north of the city of Calicut (with some 400,000 residents) and between the Indian Ocean and a large river.

In drawing up a brief to develop the design off of, I found it relatively easy to size the common and unique spaces, but more difficult to quantify the absent (or mediatheque-type) spaces. The solution I employed, which borrowed from a planning method employed in Price's Fun Palace, was to draw up a list of typical, potential activities (figure 9.12), and create a series of flexible spaces that could reasonably accommodate the entire list.

Next, in looking at the site I divided it sectionally into two zones: a lower and an upper. The upper zone would house the archive, which, being elevated a) raises it above the flood plane and b) creates an area that is shaded and allows for the breeze, both passive design moves featured regularly in this hot, tropical climate. The lower zone is left free to be inhabited by the ambient, fluid programs of the mediatheque spaces.

In terms of site organization, I started by mapping out on the ground plane centers of activity around which to organize the mediatheque spaces. I located three: one on the river, a second on the road, and a third set off the street into the forest.
Figure 9.11a: Site at Various Scales.

Figure 9.11b: Project Site. The site is indicated in orange and is sited on a river between two villages.
Figure 9.12: **Thirty-Three Potential Projects for the Next Library**

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<thead>
<tr>
<th>Project</th>
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<tr>
<td>Dance Demonstrations</td>
<td>Web Design as a Pastime</td>
<td>Cheese Swap</td>
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<tr>
<td>Tourism Research</td>
<td>Friday Night Frenzy</td>
<td>Writing Furniture</td>
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<td>Inter-Faith Round Table</td>
<td>Intermediate Chess</td>
<td>Inventing Holidays</td>
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<td>Scent Creation</td>
<td>Snow White and JAS</td>
<td>Pie Dialogues</td>
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<td>Know Your Local Species</td>
<td>Small Engine Repair</td>
<td>Let the Best Rock</td>
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<td>Armature Podcasting</td>
<td>Understanding Scripture</td>
<td>Tadpole Testicles</td>
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<td>Learn a New Language</td>
<td>Costume Design Studio</td>
<td>Inter-State Politics</td>
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<tr>
<td>Talk to an Archeologist</td>
<td>Solar Electricity Today</td>
<td>Local Recipes Explained</td>
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<tr>
<td>Writing Workshop</td>
<td>Youth Film Festival</td>
<td>Pet a Dinosaur</td>
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<tr>
<td>Water Pollution Testing</td>
<td>New Ideas for Fire</td>
<td>World of Toads</td>
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<tr>
<td>Malaria Prevention</td>
<td>Breeding Small Mammals</td>
<td>You on Youtube</td>
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Figure 9.13: **Site Organization.** 1) undeveloped site, 2) start by mapping out on the ground plane centers of activity around which to organize the mediatheque-type spaces, 3) distributed a field of archives that connected each of these centers, 4) knowledge production spaces are then organized around the activity centers, can move freely across the ground plane and, if desirable, grow up into the archive spaces.
Then, I distributed a field of archives that connected each of these centers. The knowledge production spaces are then organized around the activity centers. They can move freely across the ground plane and, if desirable, grow up into the archive spaces. (figure 9.13)

The intention of the design is to get a duel reading. On one hand you have the regular rhythm of the archives and on the other you have the meandering program of the knowledge production/mediatheque spaces. Rather than create moving parts, what I tried to do was to create a series of diverse spaces and through their combination could serve as many different types of activities as possible. In terms of the buildings geometry, three centers emerge: river, forest, and street. On the ground plane the spaces react to the context, but as they move up they shift and become respondent to the geometry of the archive.

**Anthony Vidler**: Does this community of 40,000 possess any of those old-fashion books?

**David Dewane**: Yes.

**Vidler**: What do you do with them? They now become rare. Every single book that has ever been produced either hard or soft cover and has not been produced by your little machine there is actually now a rare book.

**Dewane**: I didn’t envision it in as starch of terms as that.

**Vidler**: Absolutely. Historically, they’re rare. If you trash them or pulp them than the historical record has disappeared. Google may get to scanning some of them and every other page of others, but for the most part they’re gone, right? What happened in the 1970’s was microfilm? Every library got microfilm and they microfilmed very badly and very quickly. They got most of the articles (not all of the articles) in most of the journals but they didn’t have enough space on their shelves so they put the microfilm in boxes and
they trashed all the journals and loose papers and put that out onto the street. Now what we have is this rotting microfilm that doesn’t show us anything of the colors, of the advertisement, etc. So we’ve lost a huge historical record of newspapers which were in fact not deteriorating in their pages and so on. So now we have digital. That is going to go too. Every disc that I formatted ten years ago is gone. It’s dead; I don’t even have the mechanics to get it back, whether or not there are traces of that stuff. So WHAT DO YOU DO WITH THE BOOKS, that up to this point (including mine) have been published in hard and soft covers, and ARE NOW RARE?

**Dewane:** Right. The logical thing to do is to put them in the archive.

**Vidler:** How big is the archive.

**Dewane:** Right now it is 10,000 square feet, but it’s cellular, so it could fill in and expand however you wanted it to. I definitely connect to and appreciate what you’re saying about the historical book and I should have been more on top of the question. YES, we do archive that stuff.

Also there was a desire to be able to archive new things as they are being made. For example, even a lot of activities that are part of the production of works that are ultimately digital leave a residue. Basically, the thought was that you could operate based on proximity. The archives by the computer lab would be the storage space for that kind of material.

**John McMorrough:** I really appreciate the model. I’m just going to say this: I don’t think this project is about the library. I think you’ve got a building system. I don’t buy any of the stuff about the library. I think it’s a premise and you have an idea that put into motion an imagination about a building, but it seems when you actually start to discuss the disposition of books and the media you seem to loose me in a way because it’s just not clear that that is where your attention has gone. You showed this research about how you have these different plateaus of various media coming into play and you talk about
what the horizontal axis was, but you didn’t really talk about what the vertical axis was. I
didn’t really buy the numbers because the difference between papyrus and printing was
unmappable in that range you said. So I don’t think you have a sense of the quantities in
play for this sort of thing.

If I think about it in what you’re trying to accomplish with an archive, the areas are just
not sufficient. If the common becomes the rare and all these things we’re just talking
about huge volumes. Even amidst digitization we’re having an explosion of printed
media as well. I’m less interested in the global response to the move to mediatic culture
and I’m more interested in a tropical response to a library/community center kind of
space. I think you’re more intelligent there and I quite appreciate it. I say this as a
gambit to move the conversation into your court as apposed to somewhere where I think
it’s a little more shaky.

Mary Ellen Carroll: I heard something completely different. I thought you were talking
about using the Carnegie model and the community and that the community would
establish the archive.

Dewane: Exactly.

Carroll: And that they would be involved in making the selections and it isn’t
necessarily about saving everything, but it was about representing who is in Kerala and
they would be involved in the selecting process. So it’s not every book that’s going to be
there.

McMorrough: Fair enough, but it’s a premise. Once you take a premise you go on and
discuss the implementation of the premise. It’s an architectural problem that you’ve
addressed and the reasons that set the architecture problem into play I think we take.
That is where I am trying to push this.
**Sarah Whiting:** To that end, and given the fact you spent more time talking about the premise than about the building – and clearly it is a system. It is clearly a system in terms of its unit size, modularity, extendibility, given that you’re doing it in a tropical site issues of climate control, and I know that in Houston books become moldy really fast if you don’t have them in air conditioning. Some of that stuff would be good to speak to really briefly in terms of: “what are the parameters of that design strategy?”

**Vidler:** I’d like to hear about the roof structure in the heavy rain season.

**Dewane:** Overall, the strategy was to use as little energy as possible. One of the benefits from converting away from a wood-based paper to a film-based paper is that the books are waterproof. So you don’t need to necessarily keep them climate controlled. In terms of the archives, there are two types I’m representing in this model (which is, admittedly, developed to a very shallow degree of detail). There is the totally filled in archive that I’m imagining as sealed, conditioned and capable of handling very sensitive materials, but is reduced down to the lowest possible volume of space. If there are other things that have enough cultural value to be stored but are not that sensitive than you could store them behind a skin that keeps out the rain and direct sun but provided breeze and shade.

**Clover Lee:** What about the materials, is it all concrete? It looks like concrete.

**Dewane:** Yes. It’s all concrete - all the structure.

**Lee:** What about the skin on the archives.

**Dewane:** That is wood.

**Whiting:** And the louvers are wood?

**Dewane:** Yes. And the roof is probably very dangerously concrete right now. (*laughter*) Pitched with lots of weep holes on the side. And it probably needs more legs.
McMorrough: What is the use of the space in between the storage and production – the kind of clear-span structure? What is your imagination for what happens there?

Dewane: One of the things about these Mediatheque kinds of spaces – and I really wish Ron Witte was here because one of the things I love about what he wrote regarding the Mediatheque was that “one is filled with the nervous anxiety that you have absolutely no idea what is going to happen in these spaces.” – I think that’s true. You could imagine anything happening there.

McMorrough: Some of this is personal because I also wrote in the same book that Ron did and I have my own opinion about it. You still have the blank floor. The Mediatheque is six stories or seven stories and each is programmed completely differently and they’re filled with stuff. There is one that is an exhibition space, but its slightly disingenuous from a rhetorical point of view that you don’t show the library floor which is full of books or the computer room which is full of work stations.

There is stuff in these things. Architecturally, I’m a little troubled by these things. You say anything can happen there but I think they operate more like the colonnades around the university. That is, typologically they operate like circulatory moments that get you between very small moments in the overall structure. On the other hand, circulation from bar to bar seems to happen in what you’re calling production. I’m not sure I buy the script of the distribution model you’re trying to spread through these bars. The argument for the Seattle Public Library is that it was a social condenser. I think it is interesting to make the argument about the stuff, but I don’t understand what’s happening between your stuff.

Whiting: To tag onto that, one implication in looking at the model is that these bays will fill in. They’re sort of like grain silos that will get filled up over time. There is a certain degree of optimization – they are trying to find the center. There is a reason why there are six bars and they have X bays. Nevertheless it seems like there is an excess of open
space right now, so is that saying that the optimal IS this amount and when this community is really has its act together and it produces this knowledge that it will hit this number and become identifiable. Maybe even some day you could have another bay happen here. Or could this just start off as two of these bars? There would be a sense of expansion or filling up that are not part of your argument yet. It would be really interesting to put on the table.

**Vidler:** I took it to be bays that would be filled up. I also took it to be 50,000 people need this much, a hundred thousand need twice as much, a million need more, etc. That doesn’t address John’s point about the circulation. The circulation is really tricky because you’ve got these separate bars and they’re above ground and when the river floods you’re not going to be able to walk on the ground so you’re going to have to use the upper level for circulation.

**Penelope Dean:** You’ve done something clever but it’s problematic. I think what you have here is a diagram masquerading as a building. The masquerade part is the articulation of the louvers, the odd column, the frame, but let’s say it looks like its more resolved at the level of articulation than I think it really is. What we haven’t heard from you yet is “what is your architectural vocabulary or language for this project?” I just want to know whose work do you like? What architects do you look at in magazines? Whose work would you put your projects next to as operating in a similar way?

**Dewane:** I have to admit that I was probably permanently damaged by a Cedric Price studio I participated in, and there is a deep, hopeless romanticism here. I was also very impressed with the Seattle Library project, which I visited as part of the research for this project. It may have been lost along the way, but one of the things I was trying to do with this project was to take the wrapper off that building and allow the different floating elements to escape. Take the wrapper off and let them crawl away.

**Dean:** I think that’s a really interesting description and a really interesting starting point for a study, but then the way you talk about the building is that they are not so much like
sections, but plateaus or mezzanines or volumetric slabs. One way to do this would be to say, “Ok, I’m going to take the skin off, I’m going to turn the mezzanine into a tube.” Then there are millions of ways you can think about a tube. You’ve done one option which is basically a kind of post and beam structural system and then you’ve infilled with louvers or various floors or other pieces, but there are many ways to do it. Why is the post/beam/infill the best way to deal with a tube and make the transition from Koolhaas’ plateaus.

**Dewane:** I think I was shooting more for the flexibility and the ability for the individuals to go in there and manipulate the building themselves – kind of like the Price approach.

**Dean:** Show me where. Is it because the floors are missing here?

**Dewane:** It’s a very regular system and you’re creating only small... Actually, a much, much better response to who I’m very interested in is...

**Dean:** No! You’re on a good feed!

**Dewane:** Wait! Wait! Wait! No, it’s this architect who did the Elemental Project Alejandro...

**Whiting:** Aravena.

**Dewane:** Right. He basically built half the building and then the residents, for ten percent of the cost to build the first half, built the second half themselves.

**Whiting:** That’s a good answer and you interests actually seem to intersect both of those. That’s not to say that everyone should think about this only in terms of Alejandro Aravena. The dialogue about Seattle and Koolhaas are still part of what you’re trying to get at and what happens when you try and marry those two ambitions?
McMorrough: I think this is a very interesting conversation and one of the things about the architecture that reflects that is when you talk about user programmability there is something about the renderings that I find patronizing.

Vidler: Thank you.

McMorrough: There is a neocolonial sense of having this rough concrete for India, whereas India is going to be the major economic power of the next century (they are already a technological power). Maybe if this was about light and air and a tropical climate that would be one thing. I just feel like the rough hewn quality of it – there is an aesthetic in the model that comes out of the high tech and Cedric Price and programmability – and then there are the renderings, which are about straw bales and roughness. There is more of a disjuncture. I’m more interested in the model and the enthusiasms you bring to that. The Aravena example is a fine one, but the examples of third world poverty development coupled with these images is problematic.

Vidler: I agree. The Carnigie for India would be Tata – and Tata would be floating space frames down the river and building proper covered spaces with proper insulation and water conservation – just like he’s providing cars for most of India. I’m taken back to the days in the AA when they had a tropical studio and let them use corrugated metal for roofs and let them build it for themselves and let the whole thing fall down in an earthquake or whatever. I was deeply concerned talking to Fares about the colonialism atmosphere that pervades this and I don’t understand, given all your talking about the library, you chose to site this where this is. Why India? I understand the argument about the media I understand the argument about development, but I don’t understand why you as a western architect, so concerned about getting rid off all the books in the Rice library here, are so interested in placing this building in an emerging economy - in the way that you are.

Dewane: Given the ambitions of the project – the build out – I don’t imagine that happening with just louvers and slats. I imagine the build out being much more
controlled by the people that are developing it. And I think that of all the cultures that have been slammed with globalization India is one of the countries that has resisted it the most and retained a lot of their own culture. They are capable of pulling something like this off. It’s very believable for me that a community in India could come in and attack this building and finish it off.

**McMorrough:** You missed the point. It’s not about whether a community in India is capable of fending for itself, they will be our overloads in the next century. They won globalization and are continuing to win it and I just think the poverty thing is patronizing. They have the tools to fix it themselves, the problem is more of a technical one, which is what the model implies. The call centers in India are now being brought back to the US because it’s cheaper to do it here.

**Lee:** There has got to be a way you can get back to talking about this as one dot among thousands. Focus on what is prototypical. Can we say that OK this is prototypical, and that based on temperature we lift it up or put it on the ground or make it less enclosed. But this part is local, which interferes with this module so it will reflect the local building culture, or the scale of the project, or the site. It will have to invade the prototype a little more. This goes back to John’s earlier comment about two building systems coming together and if you could bring it back to the conversation about which part is activated locally. When I go back to the plan I cannot identify where the two are coming together. There is no impact. I can’t really see the difference between the two. I think it’s more obvious in the model and I would argue, “no, you don’t want more legs. You want the mediatheque to hold up these guys if that is the relationship always between the two.” If you are setting up a prototype and the ambition is for it to be international I think you have to articulate how these two come together.

**Vidler:** I think that if you had been damaged by Cedric Price you should have looked at him a little more carefully. One of the things that Cedric knew was when to use architecture and when not to use architecture. He knew when to be virtual and when to be literal. He thought about when to invest in renovation of transportation and when to
invest in the renovation of networks and when to put a building down, when to make it extensible and when to make it prototypical. I don’t think he would have done six repetitive archives, but rather done the archive in it’s entirety and related it to a series of media stations in the region – not just centralized.

On the one hand you wanted to make a building, because you’ve been effected by Koolhaas, but on the other hand you want seriality because you’ve been effected by Cedric. They’re very difficult things to bring together – because one is a centralized building and the other is a network. Potteries Thinkbelt is a network – an area. That would have been an interesting model actually. Start looking at a larger rural area, which could be in India or Appalachia. There are a lot of places in the world that could have knowledge stored in all kinds of ways that is being lost.

So I think you’ve been a little bit confused in selecting a site and you’ve actually not allowed your research to effect your building strategy. In some way we come to this, which has nothing to do with the different bits of knowledge and networks and flights and...

Carroll: That is what I was wondering. In terms of the prototype is it for the entire system, is it for the architecture, what is it for?

Dewane: The prototype, as I saw it, was the coupling of knowledge production and consumption under the same roof. Where the building is generating material internally and filling itself in.

Vidler: Carnegie of course was interested in knowledge sharing systems. Production and consumption cannot be where the diagram stops. You need to extend to receiving and sharing.

Whiting: I have to say that this is undercooked and you have acknowledged that, which I appreciate. But I also agree that trying to bring together Aravena, Koolhaas, the
Mediatheque, and the issue of the aging of the book and the siting of India is a lot. It is deeply ambitious. I think if some of that got edited out and you even tried to tackle just the Cedric Price and Koolhaas - or the Aravena and Koolhaas – I think that is an incredibly ambitious and interesting project. So I think you’ve taken on a little too much and if you had a little more time you would have realized that you would have to edit down and figure out if you are offering the prototype that Penelope’s questions about whether this is always going to be a post and beam construction with materials that are site dependant. Your argument would have more hierarchy to it. I appreciate the recognition of a problem and I appreciate the recognition of an interesting precedent. The Carnegie model was an extraordinary transformation of an institution in America and I think that saying “can we find that kind of seed for a prototype and do a project like that again that isn’t just Google doing it?” You’re asking a lot of questions and you need to realize that you don’t need to ask all of those questions for a single thesis.

**Vidler:** If you look at the Potteries Thinkbelt, it actually does Koolhaas and Price at the same time. It has mobile learning stations or transmission of information stations – what we used to have as mobile libraries – and it has transfer stations. Those transfer stations have specific and disaggregated functions from the mobile stations. There are hubs and nodes and other things that go on. It even has a certain kind of structure and concentration of density because if it is disaggregated but concentrated conscious. One of the problems here is that you’re trying to get it all into one thing, then you’re trying to disaggregate and make it not one thing. I think there you should take a regional approach to learning and the transmission of knowledge. The dumb tagline was taking a small village and turning it into a major center for learning – but it was a hub.

**Carroll:** One more thing was that, in terms of imperialism, even Carnegie and the model he used in relation to India...certainly there are many, many other examples of Indian libraries that would have been interesting to look at.
Whiting: The reason for the Carnegie model is to say that you have a overall system with a localism. That was the only place you dealt with that as a precedent and that was appropriate. It’s not saying I embrace the Carnegie empire and steel magnate.

Fares el-Dahdah: You use the Aravena model, which we like because it links the cosmopolitan with the local, it is published in all these international magazines but at the same time solves local problems. Great. We love it. Here, the same thing happens; a cosmopolitan system links to a local community and it should work by the same formula but it doesn’t because somehow the project cannot escape the missionary school bracket in which it is. As long as you don’t figure out a way to get out of the missionary school projection... when you look at the project it is there.

Dewane: Look, I was very jealous of Meredith Epley’s presentation yesterday when you were talking about how she managed to discuss global warming without sounding like a patronizing green greenie. That’s kind of the same way I feel about this. I don’t feel patronizing.

Dean: There is a way out of that. I appreciate that comment because part of the obligation all these projects have to the discipline of architecture. The way you initially talked about the work, as wanting to take the wrapper off Seattle, you then bring in an architectural vocabulary and start to address the disciplinary issues. Of course the social, political, and economic are important, but in the end I think you have an obligation to put your plan after the Sendai Mediatheque in that series of plans and show us how your building fits into that lineage. Then I think then you are able to take the teeth out of the problem Fares identified.

Eva Franch Gilabert: I think this is a great comment to finish this. We asked about that last diagram, right? How does this project position itself to that lineage? The whole discussion of metropolitanism in relationship to ruralism, there was an aim to this project that would have allowed it to be in Palestine, Texas or in India or anywhere else. The idea was not that the library was a system of colonization or emperializing certain
knowledge, but a place of learning, right? The library itself could be writing those books through different spaces that could record information through new technologies. Somehow that was the central aim of this project. I think that you have been making a great exercise in architecturalizing some of those ideas, and I think it is extremely useful for us to see that model and to see those drawings. But we still know that in order to position yourself some documents need to be created and some things need to be distilled.

But for everything you’ve produced and those fabulous palm trees (I know I must have one) thank you.

Figure 9.14: Final Thesis Defense, January 15, 2010
10. Representation

Process Drawings and Renderings

Figure 10.1: Material Mirror – the new context within which the library must operate: a tangible reality full of compelling and immediate issues plus an equally complex and ever-expanding virtual world.
Figure 10.2: Mingling Production and Storage – an early conceptual section of the library, showing the two primary space types of knowledge production (grey) and knowledge storage (yellow) and zones of interdigitation.

Figure 10.3: Library as Cloud – an early version of the building with a levitating support structure with chambers of territory for archival infill. Knowledge production programs indicated in orange.
Figure 10.4: Formal Development Study – another preliminary design, arriving at a final structural form through 1) establishing a field of potential archive, 2) indicating major zones of knowledge production, 3) allowing for a formal mutation of the archive field by the production spaces, 4) articulate structure.

Figure 10.5: Archives – a binary perspective, with the dark masses indicating where the archives are beginning to infill the support.
Figure 10.6: *Bollywood Horror Sequence* – Early experiments in knowledge production activities. Here a group of citizens transform the library into a set for a Zombie thriller. The entire cycle of production, from research, to script writing, costume fabrication, filming, editing, and screening are all facilitated with the library. The final cut is published online and the physical residue from the process stored in the archives.

Figure 10.7: *Super Flat* – experiencing all phases of the book (*absent, common, unique*) simultaneously.
Figure 10.8: Ambient Organization – a conceptual graphic showing the final organizational logic of the library: the cellular bars of the archives suspended in a sea of hazy, enveloping, dispersed, noisy, and overlapping “order” that is the prevailing logic of online networks.
Figure 10.9: Site Strategy – the archives are located to connect three key sections of the site: river, road, and forest.

Figure 10.10: Context - The project is located on a broad river in the backwaters of Kerala State, India. The project’s goal is to have significant formal presence, without being overwhelming in form or materiality.
Figure 10.11: *Typology Study - Single Family Detached Housing* From the plan one can discern the two basic space types that compose the library. The first is the regular, modulated series of archive structures that repeat at consistent intervals. The second system that consists of the knowledge production spaces, register in a more irregular, fluid language.

Figure 10.12: *Typology Study - Single Family Detached Housing* The section describes the stark difference between organization at grade and in the upper levels of the building. The archives, which have a rigid, repeating logic, are elevated to create a shaded, open ground plane. Knowledge production spaces trace across the ground but also leap up into the zone of the archive when it is programmatically advantageous.
Figure 10.13: Final Model – the archives with various degrees of infill and the knowledge production spaces snaking through the structure.

Figure 10.14: Final Model – knowledge production space (here, a computer lab) and stair ascending into archive from the vantage point of a vacant archive.
Figure 10.15: *Absent Phase of Book* - This image depicts the act of knowledge production taking place within the building. Foregrounded is a group of children around a traditional Kathakali dancer. In the building, all aspects of the Kathakali can be accommodated: from production of the costumes, to staging of a production, to recording a production, to editing that recording, to publishing online, to the archiving of Kathakali artifacts (archives are in the background). Patrons in the library are free to observe and/or participate in the production and dissemination of this knowledge.
Figure 10.16: *Common Phase of Book* - The physical book is still alive and well in this library. Instead of having an ever-growing supply of the same books, individual volumes are printed on demand and unread books are recycled. In this library the building system used to construct the walls literally become the bookshelves, whose deep section allows for protection from sun and rain while allowing for breeze.
Figure 10.17: *Unique -* The ambition of the library is to provide increased access to materials available online, while also providing opportunities to access that which cannot be easily reproduced. It stages a relationship between the two, and in the process tries to strengthen its position as an agency of culture. In this image, the viewer is positioned in the archive, but looks into the production space that is in immediate juxtaposition. This super-flat relationship between production and consumption of knowledge is meant to be an appropriate reflection of our society in the digital age.
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Appendix I

Notes on the Erection of Library Buildings

Carnegie Corporation: Version 3, c. 1915

This memorandum is sent to anticipate frequent requests for such information, and should be taken as a guide, especially when the proposed architect has not had much library building experience. It should be noted that many of the buildings erected years ago, from plans tacitly permitted at the time, would not be allowed now.

Library committees, especially in small towns, are frequently composed of busy men who, having lacked time or opportunity to obtain a knowledge of library planning, are led to select a design which, if built, would yield an inadequate return of useful accommodation for money invested, and would unwarrantably increase the expense of carrying on the library.

Some architects are liable, unconsciously, no doubt, to aim at architectural features and to subordinate useful accommodation. Some are also apt, on account of a lack of practical knowledge of the administration of a library, to plan interiors which are entirely unsuited for the purposes of a free public library. Small libraries should be planned so that one librarian can oversee the entire library from a central position.
The amount allowed by the Carnegie Corporation of New York to cover the cost of a library building is according to a standard based on (a) the population which is to pay tax for carrying on the library, and (b) a specified minimum revenue from such tax. The donation is sufficient only to provide needed accommodation and there will be either a shortage of accommodation or of money if this primary purpose is not kept in view, viz.: TO OBTAIN FOR THE MONEY THE UTMOST AMOUNT OF EFFECTIVE ACCOMMODATION, CONSISTENT WITH GOOD TASTE IN BUILDING.

The amount allowed is intended to cover the cost of the building, complete and ready for use with indispensable furniture and fixtures, and including architect’s fees.

In looking over hundreds of plans for small and medium-sized buildings, costing about $10,000, more or less, we have noted some features leading to a waste of space, especially in connection with the entrance feature, which, when not wisely planned, leads also to waste in halls, delivery room, etc.

The economical layout of the building is sacrificed of subordinated at times to minor accessories, such as too much or too valuable space allotted to cloak rooms, toilets and stairs.

The building should be devoted exclusively to: (main floor) housing the books and their issue for home use; comfortable accommodation for reading them by adults and
children; (basement) lecture room; necessary accommodation for heating plant; also all conveniences or the library patrons and staff.

Experience seems to show that the best results for a small general library are obtained by adapting the one-story and basement rectangular type of building with a small vestibule entering into one large room sub-divided as required by means of bookcases. In cases where it is necessary, to secure quiet, glass partitions may be put above the bookcases. By a one-story and basement building is meant a building with the basement about four feet below the natural grade, the basement being from say 9 to 10 feet and the main floor from say 12 to 15 feet high in the cleat. Plans have at times been submitted for “one-story and basement” buildings, which differed from two-story buildings only by having the stair to the upper floor outside instead of inside!

The rear and side windows may be kept about six feet from the floor, to give continuous wall space for shelving. A rear wing can be added for stack-rooms (when future need demands it) at a minimum expense, and without seriously interfering with library services during its construction. The site chosen should be such as to admit light on all sides, and be large enough to allow extension, if ever such should become necessary.

The accompanying diagrams are offered as suggestions in planning the smaller library buildings most commonly required, and will be found to include a maximum of effective accommodation relative to total area.
While these diagrams are suggestive rather than mandatory, nevertheless, since they are the result of experience, those responsible for building projects should pause before aiming at radical departures, and see whether their alternative is to provide as much effective accommodation and have as little waste space.

An important cause of alleged inadequacy of accommodation in buildings erected years ago, when less supervision was exercised, has frequently been found to be uneconomical plan with a bad layout. When applications (based on growth of population) have been received for aid in extending such buildings, it has often been impossible to entertain the idea of making a grant, owing to the prohibitive cost of demolition and re-ereciting relative to net gain of superficial area.

It may not be desirable to have library buildings planned from ready-made patterns, and yet a certain standardization of the main requirements of accommodations is as necessary for library buildings as for school buildings, which have been advantageously subjected to strict regulations both in plan and construction. Where architecture is best appreciated there are recognizable types established for the various buildings of a public of semi-public character.

It will be noted that no elevations are given of suggestions made about the exteriors. These are features in which the community and architect may express their individuality,
keeping to a plain, dignified structure and not aiming at such exterior effects as may
make impossible an effective and economical layout of the interior.

These notes are, of course written with the smaller buildings in mind; larger
buildings require larger and more varied treatment, but no modification of the primary
purpose.
Appendix II

Ten Points Toward a Thesis

Eva Franch Gilabert
10 points towards a thesis

1. Statement
[from commandments, to manifestoes to instructions]

2. Location
[or where your thoughts grow]

3. Temporality
[or is the future constructed for yesterday?]

4. Unveiling power structures
[or what happened to the marriage of politics and culture?]

5. Scale[s]
[or how many ..powers of ten ?/]

6. User[s]/Subject[s]
[or : please, not the generic cad block or the smiling dude]

7. Vocabulary I
[or the power of words]

8. Yralubacov
[or Vocabulary II ]

9. Presentation/Performance
[or the art of narratives and events]
10. Representation

1. Statement [from commandments, to manifestoes to instructions]

"To launch a manifesto you have to want: A.B. & C., and fulminate against 1, 2, & 3,"

T. Tzara, Dada Manifesto, 1918

It is not easy to know ABC and even more difficult is to recognize clearly 123. Perhaps for this, there are very few manifestoes with such a format. Perhaps, in the twenty first century there are other ways to express ideas, but which? Well, your thesis might re-start asking a very simple question: how do I write about my thesis? What format? Well, if this is too big of a question, you can just decide for any of the above mentioned formats and start writing. However, you need to find your “voice”, your particular way to express and communicate your ideas clearly and directly [and even if you write in a ten verse poem or a 5 steps recipe, you still will have “to want ABC” and “fulminate against 123”].

2. Location. [or where your thoughts grow]

Where are you? is a question with multiple answers, and one of the most common answers is “I’m here!”. Hopefully, this is not the case in your thesis. The generation of maps or diagrams that position yourself not only geographically, but also ideologically, politically, socially or philosophically, becomes a very powerful tool not only to guide, but also to direct efficiently the audience towards your own mental site: “here”. To create a historical map requires choosing from all “History” a “history”, or sometimes even a “story”, that contextualizes your work. The same applies with inventions, demonstrations, wars, buildings, texts and so on.

3. Temporality [or is the future constructed for yesterday?]

The task to envision events in time belongs to a much more esoteric discipline than ours. However, we plan, wish, hope certain things to happen. As archeologist of the future or the past future, architects do need to deal with time and duration in various levels. From the accurate documentation of a historic process to the purposeful planning of a future action, to the dilated and contracted moments of the non rationalized duration and memory, a reflection on the temporality and even in the birthlife and death of your project might help you become more aware of the time span on which your thesis operates.

4. Unveiling power structures [or what happened to the marriage of politics and culture?]

Our discipline, as any cultural realm, has been historically shaped in political and social terms. Language, institutions,
organizations, rules and rights are inscribed in documents, books and maps. The systems of representation, from the road map to the diagram, carry without awareness, intrinsic understandings of what they represent. Institutions, buildings and with them the terminology we use to refer to them reflect a particular political moment that needs to be addressed. For instance “Democracy” a word under which wars have been initiated, perhaps means too many things. For this, any thesis project has to find a clear position in relation to the established codes and structures of power [words, buildings, codes,...]. Only with this awareness, the project will be able to propose a new paradigm.

5. Scale[s] [or how many \_powers of ten ?/]
It is useful to determine on which key scale[s] your project operates. From global strategies, to masterplans, to buildings, to details or to nanosections, there is a variety of scales you need to confront. One, or many, all depends on how many documents do you need to prove your thesis, and your abilities to develop the project at different levels.

6. User[s]/Subject[s] [or : please, not the generic cad block or the smiling dude]
Even if sometimes architects declare that they are working at the service of society: “architecture for the people”, the concept of “people” is still an abstract and objectified term. In an attempt to define this subject, architects and thinkers have created “modulors”, “universal man”, “uberman” and others more. In your case, it is important to find out who is the target group [user, reader] of your thesis. Either an existing or a new subject, a visualization and a depiction of it, might contribute to a better understanding of your thesis.

7. Vocabulary I [or the power of words]
What terms are key to explain your thesis? What new terms or neologisms you need to create to explain your ideas, thoughts or materials? An exploration of texts, drawings and images that relate to your work and ideas might help you find textual, visual and technical terms and methods that you need to understand and confront.

8. Vocabulary II [or Yralubacov]
If you are able to identify what characterizes your thesis in formal, organizational, chromatic or atmospheric terms and you are able to develop a coherent language that resonates throughout your project, your ideas will come stronger. It is not simply about figuring out the size of your panels, your lay-out, your color chart and your font. It is about making these aspects have a depth that goes beyond formal conventions. A deep reflection on these aspects implies a turn from a rhetoric of representation to a logic of generation.
9. Presentation/Performance [or the art of narratives and events]
How to explain a project requires more effort than a linear explanation of a chronologic diary of research and production documents. A presentation needs to create a mood, an atmosphere that situates the project and the audience in the correct place. For this, light conditions, surrounding sounds, temperature can be factors you might want to think about. However, the most important factor in a presentation is time and how well you exercise control over it. The time of exposure of different images, the frequency, rhythm and transitions are key elements to construct an attentive audience.

A presentation is a different way to make your “voice” visible to the audience through your words and the structure of your presentation constructing a narrative or event that resonates once more with the content of your thesis.

10. Representation
While during the last years you have learned, perfected and experimented with the conventions of architectural representation, now it is the moment for you to find out how do you want to draw your architecture and what systems of representation better convey your ideas. From two dimensional representations of lines, conical perspectives, axonometrics, exploded sections to gradient maps, temperature fields and dynamic drawings you should choose and create your own tools and systems of representation.