Christopher Edgemon
May 12, 2016
Thomas Leeeser

# An Invisible, Worldwide, Hundred Year Long Crystal Chain

*We are gods and might as well get good at it.* - Stewart Brand

It is impossible to write a comprehensive history of any period. Writing history is about reducing an endlessly complex, chaotic system into something that is comprehensible and digestible. It is a reduction of a messy reality into a didactic story, inevitably a story that the author wants to advocate. Asked to write a history of the last hundred years of architecture (a bit more than that, really), there are many questions that have to be answered - where to start, who to include (and exclude), what is important and what isn't. Ultimately, history is written for the present and the future. The purpose is to frame a set of events in a certain way, to create a narrative that will be useful for our contemporary condition.

This class in particular is founded on the idea of history as an operational device - we should use history as a way to examine ourselves, to inform our own architectural design and practice. For practicing architects, history does not exist in isolation, as its own system, but must be marshaled for its use in our own designs. Just as we explore architectural precedents (physical history) to develop our own designs, we pick and choose the pieces of history that are useful to us, and are free to disregard the rest if they do not serve our purpose.

Of course, this approach is vulnerable to critique. Colin Rowe assailed the modernists for their cynical use of theory and history to justify the forms that they wanted to make. Ultimately, the dream of modernism failed - revolutionary architecture did not produce revolutionary social systems - and we were left with a big mess to clean up and make sense of. We still struggle with this problem today. At the same time, modern architecture also produced a beautiful and powerful set of forms and building,

which could not have been produced without the aggressively confident theories that supported their creation. And Colin Rowe makes peace with this problem - while the theory that supported modernism fell apart, the forms remain valuable, fascinating, beautiful - and we can make up new reasons for their existence if we so choose.

This class addressed architectural history from a perspective of the "Great Man theory" of history - that history is the story of great men ("heroes") and the movements they led, whose actions largely determine the path along which humanity advances. Presentations were assigned around powerful figures - architects or groups of architects who had a powerful impact on the profession. Occasionally, we dealt with an architect who was disregarded in his own time (the Van Goghs of architecture, such as Frederick Kiesler, newly rediscovered by the parametricists) but even these men (and they were almost all men) will be great for some amount of time.

Other elements - political or social or economic factors, even the large class of "mediocre" architects whose names are not worth mentioning - occasionally formed a backdrop, but we viewed history through the lens of these important people who - this being architectural school - we all dream we will join one day in the pantheon. Of course, probably none of us will, but we will address that fact after we graduate, not in the school where we are all trained to become great designers.

Although this model is problematic (what isn't problematic in architecture, anyway) I will do what I can to follow a few threads and learn from the great men who I researched. I will attempt to describe their individual, highly idiosyncratic life stories as a unified thesis about the progression of architecture from the end of the 19th century to the beginning of the 21st. Although the idea of this becoming a real story of architecture is inherently broken, we all know that architecture is a field where good lies are more valuable than awkward truths. So let us spin some good stories about what the future of architecture means for the past, and vice versa.

# Introduction

I will be describing the history of the last hundred years of architecture primarily through the story of four men - Adolf Loos, Bruno Taut, Bucky Fuller, Cedric Price. Adolf Loos was born in Brno, Austria-Hungary, in 1870, and died in Vienna, Austria in 1933. After traveling to America in his youth, he returned to Austria to help define a modern aesthetic for the thoroughly modern city of Vienna. Bruno Taut was born Bruno Taut was born in Konigsberg, Germany 9 years after Unification in 1880, and died in Istanbul, Turkey in 1938, having fled Nazi Germany because he was a radical Jew who certainly would have been murdered. Initially involved in fantasty architecture, Taut's most famous built works are the social housing he built for the Weimar Republic shortly after World War I. Bucky Fuller was born to an aristocratic family in Milton, MA in 1895, and died in Los Angeles, CA in 1983. Although not technically an architect, Fuller's interests and expertise were wide-ranging, and he invented a variety of hugely innovative structures and ideas that continue to influence the field today. Cedric Price was born in Stone, Staffordshire in 1934, and died in London in 2003. Coming of age not long after World War II, Price's architecture integrated the consumer technological revolution of the day with a concern that architecture engage with all social problems, not just those of form and construction.

In choosing my presentations for this semester, I have been drawn to radical architects - architects who for various reasons stand outside of the traditional architectural narrative. Of course, any important architect in some ways radical - one must propose new and novel ideas, ideas that challenge the orthodoxy of the field in order to have an impact on the field – but these four characters stood further outside the norm, and I will try to explore how this affected their practice and how their work influenced the field. I will follow three strains that tend to wind their way through the work of these men as well as the class – an interest in the power technology, a concern for nature, and the interaction

of radical ideas with the reality of architectural practice.

## Technology

Technology has always been a significant factor in architecture – each building is a new design, a new invention, and offers the possibility of the development of new techniques; at the same time, much of architectural tradition has been about following tradition, imitating the ways of our classical forebears, so there has always been a tension between technological innovation and conservatism. The last hundred fifty years, however, has seen a dramatic shift in this tension, as the Industrial Revolution created a technological ecosystem far faster, more dynamic, and more inventive than what existed before. The development of steel, the elevator, and other technologies allowed the invention of the curtain wall and the skyscraper, and architecture has been dealing with how to handle the constant wave of technological development ever since

If anything, the very recent past has been even more obsessed with technology as computers have revolutionized the practice of architecture. The control and manipulation of technology – rather than any theoretical underpinning – has been the dominant theme of my time at Pratt, and is probably the dominant idea in current architectural theory. Postmodernism and critical theory have receded, and no large philosophical ideas have emerged to take their place, as a large section of architecture has spent the last two decades struggling to integrate the dramatic changes that the computer has and continues to apply to architecture. Many of the big questions that we face today, both in architecture and in society, are technological. Where is the unbridled advance of technological progress leading us, and how can we direct its advance? Can we use technology to create a utopia, or will our technology destroy us?

Superficially, Adolf Loos's argument in his famous essay "Ornament and Crime" is simply an

aesthetic one - Loos argues that a modern, sophisticated man should perceive beauty in the natural character of objects (hence his immensely lush materials), not in unnecessary ornamentation. Embedded in this argument is a very clear economic argument - we should not waste our time producing ornament, which has no function. Loos was writing at a very interesting time in the history of Germany - analogous perhaps to that of China or other developing nations today. Germany, which had unified around Loos's birth, was emerging as an industrial and economic power, and had aspirations of competing with Great Britain and the United States on the world stage.

Bruno Taut was an advocate for glass, a technology that was undergoing rapid advancement during the early 20th century. Whereas architectural tradition had produced buildings that were dark and gloomy - thick walls and small windows were necessary for structural reliability - modern steel frames dissipated this problem. The new developments in large-scale glass production made a new architecture - and, it is implied a new world - possible, perhaps inevitable. His major work in this regard, the Glass Pavilion, was full of multi-colored glass and inspiring slogans about what this glass made possible - "Colored glass destroys hatred." It's hard not to criticize these ideas as simplistic, but it is also hard to imagine what the profound transformation that people felt as industrialization revolutionized all aspects of life.

Buckminster Fuller clearly believed in the power of technology - his approach was that of a techno-utopian, he believed that we could solve all of the world's problems through engineering. Fuller was concerned with the even distribution of resources throughout humanity - the problems of housing, transportation, cooperation could all be solved through the intelligent and inventive use of technology. His Dymaxion House proposed that if we employ mass production intelligently - design a good, cheap system - this could be distributed throughout the world and solve the problem of housing. His belief in technology was unbounded. Thus, he proposed a solution to the problem of weather - simply built a large enough indoor enclosure (he placed his test bubble in Midtown Manhattan), and you could produce an ideal environment. Fuller perhaps underestimated the limitations of technology - he

proposed giant floating cities, made of geodesic domes - as the size of the dome increases, the relative amount of material needed declines - he proposed, among other ideas, that you could create giant floating cities by reducing the pressure in domes slightly below those of the exterior atmosphere. While in retrospect this kind of thinking seems naive, it is also extraordinarily valuable - the willingness to look well beyond our expectations of what reality is like is the only way to produce profound change. Ultimately, few of Fuller's ideas translated into successful projects, but his influence was profound, and resulted in a vast range of lightweight structures, perhaps best exemplified by the large scale work of Frei Otto. Fuller also imagined a world unified by technology - in contrast to Loos's image of a world of nations in competition, Fuller imagined a single world where global communication and cooperation could result in the creation of a better world can be seen as a direct influence for the utopian ideas about the internet, among others.

Cedric Price, along with Archigram, can also clearly be seen through the lens of techno-utopianism. For Price, technology waas a powerful new force that we could harness for the good of all humanity. This can clearly be seen in his most famous design, the Fun Palace. The Fun Palace proposed a technological solution to the historical problem of inequality in society. The Fun Palace would be a place where the common man could come, be entertained while also becoming educated. The newly developed media of television and video would be exploited, along with other technological developments, to provide a multimedia experience that was enjoyable while also being useful.

## Nature

While architecture has always dealt with technology, its explicit role in architectural theory really only emerged with the modern period. Nature, on the other hand, has had a role to play for significantly longer – Vitruvius talks about man's relationship with nature, and Abbe Laugier famously declared that the “primitive hut,” and thus all architectural typology, emerged from an imitation of

nature. There is no clear agreement on exactly what “nature” is or what it means – Vitruvius described nature simply as a hostile or adversial force, a place of danger that man could shelter himself through the construction of civilization. During the Enlightenment, ideas about nature shifted towards idealization – nature was a state of beauty and perfection, that man had disturbed through the construction of civilization. A dialectic emerges between the idea of technology, or civilization, and the idea of nature.

The watchword of today is sustainability. We are faced with very real problems about the continuation of human life on this planet - global warming is producing dangerous changes to the environment. We are consuming the resources of the planet at an astounding rate, and must worry that the materials we have long used for building can no longer be employed in the same ways. These issues challenge long-valued ideas in architecture about site and context – how do we build a building for a site when that site may change dramatically in the near future? What do we do with buildings designed for a certain context, when that context is transforming?

What then does sustainable architecture mean, and is it even architecture? To some people sustainable architecture means solar panels and compost bins - simple fixes that make our current buildings "greener" and thus more ethically acceptable. To others, it means smaller (tiny) houses, or dense urban living or bike transit - restructuring of our living situations to fix things. To others, it means overthrow of the current capitalist paradigm - a situation that is inextricably linked to our destructive use of the environment. To others it is about non-building - about adaptive reuse or changing perceptions so that the environmental damage that is implicit in building can be avoided. Whatever exactly constitutes sustainable architecture, it is clear that architects are crafters of the world on a very large scale, and that we must navigate this relationship. A review of the changing interactions with nature provides a useful perspective from which we can determine how to act today.

Bruno Taut imagined, with his glass architecture, the production of a kind of hyper-nature, more

beautiful and humane than biological nature. His Alpine Architecture proposed massive, beautiful glass buildings that would transform massive sections of the Alps. This idea of the merger of technology and nature speaks directly to our current ideas about sustainability - that we can employ technology to restore and improve on the nature that we have currently.

Fuller's revolutionary move was to see nature not as localized events, but as pieces of the world whole. Fuller's work calls to mind directly Carl Sagan's idea of the world as a Pale Blue Dot - as technology advanced, we became aware that nature, historically a powerful competitor to human progress, as itself a fragile and delicate ecosystem. Nature was something that it was our obligation to preserve - we have to be careful, use the resources of the world optimally.

Price's views are not too far from Fuller's. He recognized that technology was not the solution to all problems - that any implementation of architecture produced problems as well as solutions. His Potteries Thinkbelt is a beautiful expression of this problem. The Thinkbelt proposed a solution to the problem of the Potteries region of northern England - a region that had been heavily degraded by centuries of mining. Traditional building was not practical in much of the region - significant mining activity made much of the ground unstable, meaning the foundations could not be relied on in much of the region. The solution was a variety of light-weight, modular buildings - another integration of ecology and technology - that would simultaneously remediate the degraded land while producing novel economic opportunities through techno-educational structures.

## Practice

As a student about to graduate from a middle-of-the-road M. Arch program, I have been particularly concerned about the realities of practice. Unlike students at the GSD or GSAPP, I have not imagined that I will explode in some triumphal trajectory when I graduate from school. It seems far more likely that I will be an architectural serf, working long hours at a large corporation drawing

bathroom details, or something like that. Having spent many hours over the last year pondering this possibility, I have come to the conclusion that the system of architectural practice is in some ways broken.

Architecture has strangely isolated itself from many of the rewards of the field. Perhaps because of its attachment to historical models of practice based in the Beaux Arts, and the general conception of the architect as artist first, everything else second, architecture has defined itself as the production of drawings or representation of buildings.

Buckminster Fuller offers a truly amazing and inspirational example of architectural practice. Although, like much of his liberal, patrician New England family Fuller matriculated to Harvard, he never graduated, twice being kicked out for various infractions. After kicking about various careers for several years, Fuller was in the throes of a depression, considering suicide, when he received a vision from, as he would refer to it, Universe, telling him that he was a global man whose role was to work always and only for the good of all humanity.

From this point on, Fuller committed himself "to work always and only for all of humanity" - although he would rely on (and run through) the money of his wife and various friends he became in essence a freelance inventor, proposing and developing schemes for different universal products that would solve large-scale world problems. Is this kind of approach possible today? (Of course, one might also ask the question of whether Fuller was an architect at all. Fuller never formally studied architecture - indeed, Fuller never graduated from college at all - and his work was a synthesis of architecture, engineering, invention, and whimsy.)

If anything, it is now far easier to be self-employed. The entire United States economy seems to be in the process of shifting from a system of large-scale corporations, pensions, etc. to one where each individual is his own product - marketing himself and taking what jobs appear.

If Fuller was an architect whose whose works stand as separate and outside of his era - an

autonomous architect – Bruno Taut was the opposite, an architect whose work was deeply embedded in his time. Taut offers a somewhat frightening counterexample to Fuller - although an immensely talented architect, his career was heavily determined by the economic-historical aspects of his time - almost an inevitability considering that his mature practice happened to occur in Germany approximately between World War I and World War II.

Taut's first major works appear shortly before the beginning of the first World War - a time of immense productivity and optimism, Taut believed that Glass Architecture had the potential to transform society. Although this conviction was not broken by the outbreak of World War I and the subsequent depression, it meant that there were not many architectural commissions available for the decade after his early major works. Taut turned inwards in response, leading the creation of the "Crystal Chain" correspondence group - a kind of secret society dedicated to dreaming big ideas in private. As the Weimar Republic emerged from the depression, they initiated a great public building campaign. Most of Taut's built work emerges from this period - large-scale, well-built, still-revered public housing projects such as the Horseshoe Estate and Uncle Tom's Cabin.

The final phase of Taut's career was dictated by the rise of the Nazi party in Germany. Taut, a Jew, recognized the danger of the political climate, and left the country, first for the USSR and, finding no work there, moving on to Japan and later Turkey. In Japan, Taut made major contributions to the Western understanding of Japanese architecture, describing the Katsura Imperial Villa...

Adolf Loos provides another instructive example of how to practice architecture. Built a myth for himself by heading to America. Wrote as a critic before emerging as an architect in his own right. Worked as an interior designer before becoming an established, government-sponsored architect.

The first, is that his essay "Ornament and Crime" has remained new and relevant to this very day, despite the fact that Loos predates modernism by quite a bit. The essay has such power that it is known and read by every architecture student at some point; it is seen as perhaps a precursor, or a starting point, for one of the main ideas of modernism - that decoration is sinful, or at least that

decoration has no place for the modern architect. Loos represents one of a long line of author-architects, who defined a role and fame for themselves through their writings, and leveraged this fame to build their ideas.

## Radicalism

Architecture is a field that is simultaneously conservative and revolutionary. We all believe that architecture is ahead of most of the rest of society - it asks the important questions, and isn't afraid to answer them. While other fields act in service of capital, or technology, or politicians, architecture holds itself apart, endlessly demanding verification, always challenging assumptions, attempting to do - represent - something that it doesn't know exactly what it is. Although there are endless ideas about the point of architecture, there's not really an answer to the question - in some ways perhaps architecture's role is the continual challenging of assumptions - about physical space, but also about personal experience, political and economic relationships, all of the factors of civilization the coalesce into the construction of a building.

At the same time, architecture must admit a range of fundamental conservatisms. The most obvious, and the most readily discussed, is that any building is very expensive, and architects tend to work on the most expensive buildings. This immediately distinguishes the field from art and design - while it is possible to produce art at relatively little cost, it is only an enormously wealthy individual who can personally fund the construction of her building designs - and it the very rare architect who can even afford to practice "paper architecture" for very long. This puts architecture in the double bind described by Tafuri - when architecture operates in society, it naturally reinforces the structural logics of the system that it inhabits (in our present experience, global capitalism.) If architecture attempts to resist these structures - "when it attempts to reassert its own disruptive voice, capitalism simply withdraws it from service." The more expensive the building, the more impossible the idea of

resistance becomes - but truly revolutionary architecture, usually unbuilt, ends up having no impact on the world, only joining the long list of revolutionary projects that architects - and nobody else - love to discuss.

A quick look at the architects under discussion reveals the truth of this proposition. Bruno Taut dreamed of a revolutionary architecture, a crystal architecture that would transform society. What resulted from many years of this kind of dreaming, from the secret group that he constructed to discuss these ideas? No buildings, save for the Glass Pavilion that was destroyed shortly after being constructed, for which we do not even have drawings. What Taut actually built were instead a series of excellent, progressive, but fundamentally normative socialist housing projects. These are in no way revolutionary, and the more successful they are, the more they reinforce the government's argument that it can take care of its citizens, and there is no need for fundamental revolution.

Buckminster Fuller's experience is quite different, but rhymes with that of Taut. Fuller came from a well-to-do family, and used his excellent social connections to fund his early projects. This starts out as rather questionable - is it really possible for the upper class to subsidize a world-transformational architecture? The interests are fundamentally mis-aligned, as any radical destabilization of global power structures will make the wealthy significantly worse off. (Later in his career, Fuller's worldwide fame allowed him many other avenues with which to pursue his revolutionary projects; these may perhaps be criticized from other angles, but let's move on.) Fuller however ultimately failed to produce any of the dramatic transformations that he promised. His Dymaxion car, which promised to radically transform personal transport, resulted in only three prototypes, were almost impossible to steer, and never came close to accomplishing the goal. The Dymaxion house, likewise promising to revolutionize housing with a cheap, light, mass-produced dwelling that would eliminate world housing shortages, again resulted in a few prototypes and nothing more. The fact that both of these products failed to ever reach mass production, on any sort of scale, indicate that the fault was perhaps Fuller's - perhaps he was not able to manage the large-scale

operations required to produce these products, or perhaps his revolutionary desires meant that his dreams continually outpaced his reach - his projects had a tendency towards feature creep, where more, better ideas would continually be implemented before the earlier problems had been completely solved. Even Fuller's most famous project, his Geodesic Dome, on which he spent the last four decades of his life, when he was an international celebrity - was more successful as a precedent for other light-weight, space frame designs than a success in itself. The Geodesic Dome is a highly problematic structure, with its spherical design resulting in wasted space and uncomfortable living conditions; in this case, it seems like the purity of the design dominated the possiblity of creating a generic living space, although perhaps the idea was broken from the beginning.

Cedric Price offers a third perspective on the idea of revolution, one that is simultaneously inspirational and depressing. Price (like much of Archigram) believed in the idea of an expansive architecture - architecture was not just about buildings, but about transforming social conditions through whatever means are available, in particular through the consumer technological revolution that was exploding in the 1960's West. As a result of this perspective, Price became famous for his reluctance to build - while most architects are eager to build things, to establish their legacy, Price recognized the enormous expense and permanence of architectural solutions, and often advocated against building anything if he believed that the best option. Many of the buildings that Price ended up building were thus temporary structures, quite a few of which have since been destroyed. (What Price did not acknowledge about temporary building is that buildings develop inertia, and so much that is designed as temporary simply becomes mediocre permanent building.) Price's most famous, and most revolutionary structures were, however, not built at all. The Fun Palace, designed as a transformational, educational, entertainment complex for the citizens of London, spent years trying to negotiate funding through the English government; ultimately, it was not taken seriously, or perceived as too subversive, or simply not understood or trusted. A similarly ambitious educational / residential project, the Potteries Thinkbelt in northern England, also never received funding for much the same reasons. While

Taut was willing to compromise his ideals to build something "good enough", Price was not willing to build unless it was the right structure, and thus hardly built anything at all.

This has all been discussing the way that architecture can function as a revolutionary actor within a conservative society. A question much less frequently asked is that of architecture's fundamental conservatism. Architecture, so quick to challenge the assumptions of society and ask what it is supposed to represent, is far more reluctant to question itself. It may be willing to have arguments about what exactly is the right way to practice architecture, but there are other questions that it does not permit to be asked.

Colin Rowe, in his preface to *Five Architects*, described Modernism as "an elaborately indirect mechanism for suppression of feelings of guilt" - the early modernist movement consisted of a set of somewhat incoherent, mutually incompatible calls for revolution, presenting architecture as a means of radical social change. This project of course did not succeed - while it resulted in the production of a fascinating and novel set of habitable forms, it did not result in the fundamental transformation of society. Late modernism continued to parrot these claims, but by this point it had become obvious that architecture was not performing as it promised - instead, the theory existed to justify and bolster the production of these interesting forms.

Dell Upton advanced an even more powerful critique of architectural history - he proposed that architectural history existed not as a mechanism to explore the role that architecture has to play in the world, but as a system to legitimize the theories of architecture, and thereby the architectural profession itself. Rather than fundamentally criticizing the role of architecture, it instead glorified it, allowing for architects to separate themselves as above and separate from the world at large.

While Upton was simply advocating for a new kind of architectural history, with a more inclusive, less separationist perspective, a similar criticism can be applied to architectural practice itself. Architecture emerged from a set of social and political circumstances, and has entrenched itself quite firmly as a specific, separate way of viewing the world. We perceive the world through an

architectural lens. But how do we know that we are in fact observing through the correct lens - how do we know that our apparatus is the right one? There are many reasons to doubt architecture. Pedagogy is curiously disengaged from practice - what we learn in school is not necessarily what we will use in practice. Of course, this practice is potentially beneficial - it allows us to ask questions about whether what we are doing is right, and to think about the big picture when doing designs that fundamentally require compromises. However, if we compare architects to doctors or lawyers or engineers, we must ask why it is that architects seem poor, impotent, and unhappy compared to these other groups. As architecture students, we idolize and fantasize about joining the pantheon of architectural greats - but are afraid to discuss, much less engage with, the fact that very few of us will join this group. The vast majority of us will join the disempowered masses in the service of these greats, or compromise our ideals and work in service of the entrenched power structures of society.

The world demands dramatically more design - much of what we produce is designed badly or not at all - but we do not take as our obligation to produce these. We spend our time instead learning from the great masters, and accepting that this is the way that architecture has to be. But of course that is not the case - had architecture emerged at another time, in another context, it would be different - the field unconsciously, secretly preserves its own authority and the authority of the powerful few at the top of the mountain - while giving little thought to everyone else who practices, or to outside of the club. When true radicals emerge - Kiesler, for example - they are disregarded as not relevant to the contemporary discourse. Or, when Christopher Alexander proposes a radically different approach to architectural practice, he is ostracized as a threat to the fundamental ideas that every architect has committed their lives, and their professional careers to.

To truly destablize architecture from within seems almost impossible - discussions of the radical technologization of the field are frequently met with proposals for government intervention to protect architects. The AIA forbids anybody who is not licensed to call themselves an architect, under the threat of prosecution. The justification for this is that it preserves the standards of the field, a

particularly important point when building failure can result in the loss of life. But it certainly seems like this is more about protecting the club of architects than it is about protecting the rest of society.

## Conclusion

Architecture has existed, in various incarnations, for thousands of years. The western strain of architecture that dominates current practice has a very long history – one could stay it started with Vitruvius, and is thus two thousand years old; even if you date its beginning to the Renaissance, human civilization has undergone overwhelming changes in that time period. Those changes have intensified in the last hundred fifty years, resulting in an architecture that is in some ways unrecognizable from what came before, although in some ways practice remains very similar.

In particular, humanity's relationship to the natural world has been dramatically transformed. In the early days of architecture, humans were the weak party in that relationship, struggling to develop a mastery over unrelenting, powerful nature. To build an architectural building required the quarrying of stone by axe and saw, the transportation of that stone over large distances using only human or draft labor, the painstaking mixing of concrete and other elements necessary for the integration of the building. This situation bears little similarity to ours today. Today, we dig up and transport whole mountains using machines that run on fuel extracted from invisible underground liquid reservoirs; we are quite unaware of this action, however, because global capitalist market networks supply these services individually, simply offering us the opportunity to buy the final products at a market or, now, electronically. Where once nature seemed dangerous and powerful, it is now weak and fragile. Humans have brought the whole planet under their mastery, leaving only small pockets of “nature”, perpetually dwindling and quarantined from each other and civilization at large. More than that, all of nature is under constant threat and transformation by human actions – no longer are we simply limited to cutting down a forest or redirecting a river. We transform our very atmosphere, transforming the entire planet

and making the small nature preserves uninhabitable for the animals we have quarantined there. We have fished and polluted our oceans to the point where enormous numbers of species are now at threat of extinction, threatening the biological systems that we have so long relied on for both sustenance and cultural production. We have scattered our garbage throughout the world, both in large and small pockets, again threatening natural systems with radioactivity, pollution, and overall degradation.

Whereas previously the architect acted primarily on a local level, building in the city or region that he lived, architects now act globally, placing their buildings wherever in the world that capital will accommodate them. More than that, our perspective is different: rather than simply being the builders of buildings, we are now the designers of large systems, responsible for the large-scale physical expression of world culture, and thus responsible to the world at large for our actions. A major response of the profession to this transformation of power has been to turn inward, to increasingly delimit the boundaries of architecture as an expression of form and space in the physical world, to protect the blurring boundaries of our profession by demarcating a smaller and smaller space for ourselves. And this has led to a kind of impotence in the field, as architects first separated themselves from builders, and further isolated themselves from developers, urban planners, engineers.

I cannot begin to offer a solution to this problem. There is immense value to architecture's decision to turn inward, to focus itself on the meaning of space and form, on its ability to speak truths that are exclusive to itself and at the same time offer a critique to the rest of culture. At the same time, we must be aware of the global perspective. In the words of Stewart Brand, author of the *Whole Earth Catalog*, "We are gods and might as well get good at it." Architecture has immense power, and immense creative and critical abilities, but has largely withheld those skills from self-analysis. Architecture is an old profession, and the models for practice are about as old – pedagogy follows the two-hundred year old Beaux Arts tradition, practice is largely unchanged since the industrial revolution. There are of course other models of practice – in particular, Silicon Valley is constantly experimenting with different ways of constituting business, sharing knowledge, and generally

attempting to destabilize old ways of working. Architecture has held strong to its traditions, but this has resulted in a slow diminishment of the power of the field and its practicioners. One solution to this problem is for architecture to turn its critical faculties on itself, to begin a project of redesigning the profession. We live in an era of economic destabilization, as technology has steadily transformed and devoured industries, assimilating them into a global technological superindustry. Architecture is well-insulated from this threat, as what we do is very hard for a machine to do. But machines do much more today than the early industrialists ever thought they would, and we will not necessarily be immune forever. If architecture can accept a self-critical stance, and ask itself what other kinds of architecture are possible, what other ways we can play a role in the building of the world, we may be able to move towards some of the utopias promised by the last century of architects. If we cannot find a way to transform the field from within, we will likely face a further diminishment, and a world continually degraded by the blind advancement of technology without the proper capacity to introspect about itself.