

Note: This paper is an edited version of the transcript of the final plenary address of the CELA2004 conference.

From Project to Global: On Landscape Planning and Scale

CARL STEINITZ

INTRODUCTION

THERE ARE FOUR POINTS that need to be made by way of introduction. First, when educators talk about globalisation, typically, the dominant theme of their conversation is how to get students to know about the rest of the world and to incorporate this knowledge into projects. In this paper, I consider globalisation from a totally different viewpoint, which is, how do we design the world? I start from the premise that projects are not the most important aspect of landscape design. I do not believe the sum of the pieces equals the whole. I am interested in the whole, which is more than the sum of the pieces. So the focus here is on questions of scale, and the scales at which landscape is dealt with as design. While design at any particular scale is not necessarily undertaken by landscape architects, I think that we ought to be more involved in larger issues.

Second, I cannot be happy when great places and projects are surrounded by poor landscapes. So the real issue is, where do you focus your professional life? Making great small projects or designing great landscapes into which the small projects can fit? And where do you focus your students' time, when they have two or three years to figure out where they might spend their professional lives. None of us has enough time to do everything we think we should do, and so we make choices constantly. The issue is how we will make these choices as teachers.

Third, I am not polite and I tend to dichotomise. You have this choice or this choice. But in reality it is not that way, because all simple dichotomies are really part of a range, and there are a lot of slippery slopes along the way. Nevertheless, for clarity, my paper is presented in terms of dichotomies and divisions.

Fourth, this is a paper I have not presented previously, but which is made up of parts of four others that I have given. And although the ideas I am dealing with are not new in themselves, my particular focus here is on important juxtapositions existing among those ideas. In the first part of the paper I deal with size and scale, emphasising scale. The second part is a report on a 40-year-old project, followed by consideration of one completed a year ago. Finally, I explore something about the concept of scale within the educational history of my institution, Harvard University – a worthwhile lesson on the ebbs and flows of how we have dealt with scale in landscape education.

*Carl Steinitz, Professor, Graduate School of Design, Harvard University, Cambridge, Massachusetts 02138, United States of America.
Email: steinitz@gsd.harvard.edu*

KEY WORDS

*Global
Scale
Landscape planning
Regional
Site
Design*

SCALE RELATIONSHIPS: THE GLOBAL, THE REGIONAL AND THE LOCAL

Figure 1 and the accompanying quotations summarise the main point of the paper. As Galileo noted: "Many devices which work on a small scale do not work on a large scale." There is no one design method that can work on all scales, and it is not true that just because you can design a region you can design a garden and vice versa. That is an issue of scale.

Scale is not size. Scale is the lens with which we look at the world. It is the lens that lets us decide the scope of detail and consideration that is relevant to the issue at hand. It is too easy to say we should have our students working across scales all the time. That is simply not possible. At some point you have to

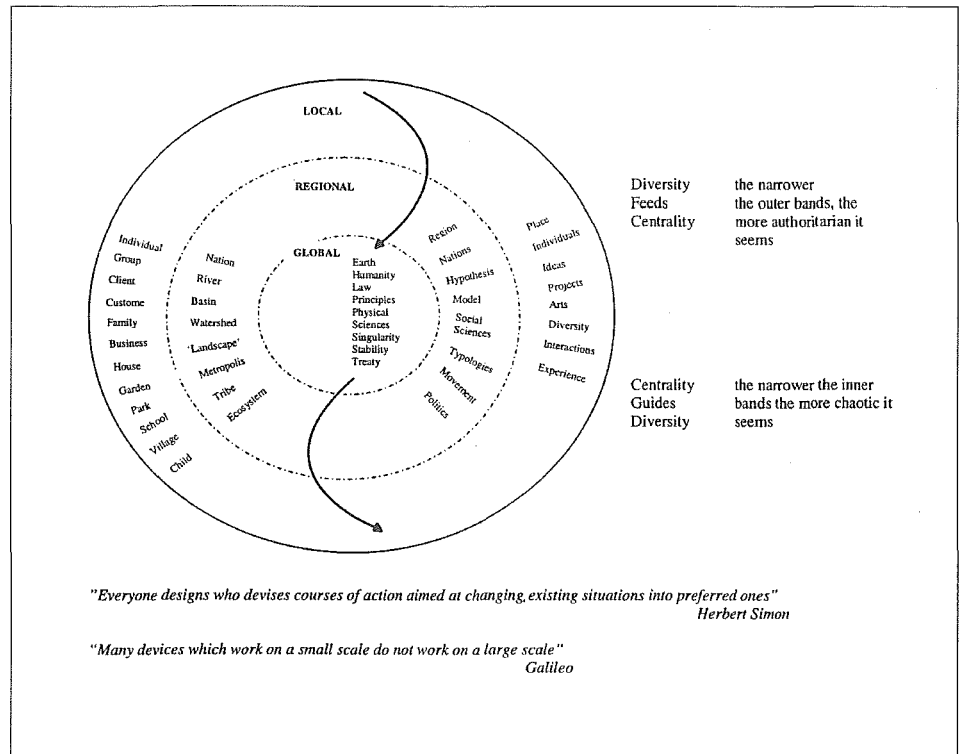


Figure 1

let go. Either you must let go of the bigger size (smaller scale) problems, or let go of the smaller size (bigger scale) problems. Or you must let go of depth, time or experience. Something has to go. You cannot do everything.

Herbert Simon, in his 1968 book, *The Science of the Artificial*, was also right when he wrote: “Everyone designs who devises courses of action aimed at changing existing situations into preferred ones.” So at what scale should we design the landscape? At the local level? At the regional level? At the global level? At all levels? Simultaneously? How? How are we really going to be the world’s environmental stewards?

Let me start by describing some of these scalar relationships. Figure 1 shows a diagram in which the inner core is the global, the middle is the regional, and the outer is the local. In the centre are global characteristics, in the middle ring are regional and national characteristics, and in the outer ring are local and individual characteristics. Each of these is on a continuum, a range, and the lines are totally artificial. Nonetheless, the extremes of the range are very different from each other. There is one planet earth. There are many nations, many regions, many watersheds, and there are many, many individual places, people and projects. The numbers are very different, and this overriding fact is very important. There is one earth, but there are billions of places, people and projects.

At the global level, one tends to think and perhaps to act for all of humanity. We work with general and singular principles, and hope to make generalisable global laws and treaties that nations and their people can agree upon. These landscape plans (they are designs in Herbert Simon’s definition), are essentially defensive. They are based mostly in the sciences, especially physics and chemistry, ecology and biology, because these are what define the earth as one place. They ignore regional and local boundaries, or they should. I think the general aim of global studies, and there are global and international studies in our universities, is to understand change in order to stabilise it. That is what makes such landscape plans defensive. The word “sustainable” has this attribute. I think this general aim characterises the objectives of the Kyoto conference, the Rio conference, the Johannesburg conference, and others. A global perspective is extremely important to issues such as global warming and loss of biodiversity.

I often work with others in the middle band. Instead of globally, we tend to work regionally, often by watershed or city region. Instead of all humanity, we work with specific cultures. Our clients are public. We recognise that there are differences between rich and poor, Mexican and Arizonan, older persons and teenagers. Instead of formulating laws, we try to find out what the laws are. We work with processes and with hypotheses. We generate, compare and present alternatives. We sometimes present a single proposal. In addition to the physical and ecological sciences, we emphasise the social sciences: politics, economics, sociology, planning. Instead of single principles, we look for patterns and typologies. Instead of seeking stability, we try to understand the directions of change. But we do not know exactly where it is going. And instead of forming

treaties we deal with politics, with legitimately conflicting views and possible consensus. And all this is also design.

The outer band of the diagram represents the most local level. There are many of these. Instead of considering all of humanity, or one culture, we deal with individuals, or small groups. The client is most frequently private. If you are a local landscape architect, you get to know real, individual people. Instead of dealing with global principles and regional information, the data that you study are very particular to the place. Instead of seeking global laws or regional political consensus, those who work with individuals and local groups sometimes produce new and innovative ideas. It is very rare to have and use new ideas at the regional and global level. Instead of the global sciences, instead of the regional social sciences, it is the arts that are very important at the local level. The things that make a place different are its literature, its music, how it looks and feels, its people and all their needs of individual expression, which are reflected in the many local landscape places. Instead of seeking global singularity or regional typologies, at the local level we should recognise diversity and its advantages. Instead of studying stability, or broad patterns of change, we should study interactions. We should study exactly where species, including people, go to do things and how they relate to each other. And instead of attending global conferences or reporting to regional legislatures, we should act in direct experience. The best way to do this is to live there, to be part of it. Designing in the landscape at this level is not abstract, it is tangible.

When you look at the diagram and the bands in this way, you should realise that designing the landscape at the global, regional, and local scales is very different. They each have different objectives. They require somewhat different education; different working methods; different knowledge; and different experience, albeit with very fuzzy boundaries, overlapping issues, overlapping characteristics. Galileo was right, and he still is right.

There are other relationships among these rings. First of all, the diversity of the local feeds the centrality of the global. People create new ideas. They create new ways of thinking and this influences regions and nations, which in turn (one hopes) influence global policy. And the global, in turn, influences nations, and nations and regions should also then influence individuals. David Brower said that we should “think globally, act locally”. You can also say “think locally, act globally”. Unfortunately, in my view most landscape architects “think locally, act locally”.

But there are also risks in these relationships. The narrower the outer local and regional bands become – in other words, if the global issues and the national issues expand and squeeze out the local – the more this diagram moves towards globalisation in some of its negative aspects. The more it moves only to globalisation, the worse it may be in the long term, because it can become authoritarian. The more we all believe we really know something, the more the world will be as one, and from an ecological perspective that is not good, because it is not necessarily diverse, self-renewing and changing. Hence I have a concern

with the very concept of global policy, whether it is commercial, economic, cultural or environmental.

However, the outer ring can also get wider. When more emphasis is placed on bottom-up planning, on local initiatives, on local autonomy, less influence is placed on the national and regional, and even less, necessarily, on the global. This may be better for some of us in the long run, but it will be more chaotic. And it may also be more unfair, because we have rich countries and poor countries, rich clients and poor clients, big countries and small countries, modern people and traditional people. So if you see the world as the sum of many small places it can be very complicated, very difficult to understand, very difficult to coordinate, very difficult to design, and ultimately inequitable. If you think only globally, we and our landscape plans can become authoritarian. If we see only locally, the situation can become unfair and chaotic. This is a major dilemma and problem.

The balancing concept, the thing that allows people to act locally and nationally and globally, is the idea of risk. Risk provides the useful tension in all aspects of decision making, including what landscape architects do in the landscape and also in the education that we help to provide. What is the balance of risk of being more centrally authoritarian, or being more decentralised and diverse?

If there is something that is a risk to everybody, then the issue belongs globally. Global warming absolutely belongs in the centre. So does the threat to biodiversity, or war, or pestilence, or SARS. If there is a cultural risk, it belongs regionally. Conservation of cultural landscapes and languages belongs in the middle. If there is a risk to an individual's right to creative ideas, it belongs in the outer ring and it should never be more central.

So, at what scale or scales should we act? It is relatively easy to think locally and act locally. What is really hard is to try to understand the globe globally, and then try to act locally. What is also really hard is to have an idea locally and then to try and change the world. From my experience I can recommend that landscape architects consider undertaking much more education, research and action in the middle ring, at the regional level. It may be the most complicated, because you will need to be directly influenced by both global and local issues. It can also be very satisfying, and sometimes very effective. To act at the regional and watershed levels, and to cut across the circular lines and blur them is something that I really do recommend. It is something you can learn and apply, and then, as Linda Jewell has shown, you must let life's surprises take you down into the appropriate level of detail.

A HISTORICAL EXAMPLE

I want to start the two case studies by giving credit to a number of people. One is my mentor Kevin Lynch, who convinced me that you can design at the regional scale. The second is Howard Fisher, who roughly at the same time invented the first publicly accessible computer graphics program. Figure 2 shows me and

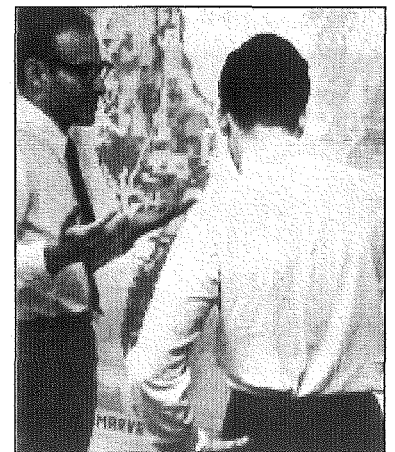


Figure 2

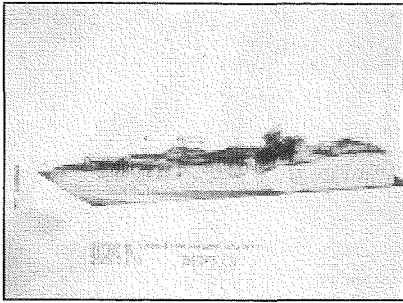


Figure 3

students, and the first regional plan using computers for Delaware, Maryland and parts of Virginia in 1965. The regional data base was based on a grid two miles on the side. It took 30 days to make the base map. You got one attempt a night on the computer. And yet in 1965 we were making weighted indices showing priorities for conservation, development and agriculture; the same kinds of things we still do today. In 1966 we invented a way to show terrain with trees and houses – not wire frame drawings made by hand, but buildings and trees planted by a computer program on a digital terrain model. (Figure 3.) So we knew in 1966 that we could do an analysis of a region and that we could animate it. Some people remarked on the “ugly black and white maps”, and I can understand that. But it is not a representation problem. Landscape architects put too much emphasis on representation. What is important is what you get as information. So, 40 years ago we knew we could do a lot of detailed and subtle analyses of very large areas.

We also knew that Ian McHarg was wrong, and that development was not an inevitable function of ecology. It was much more a war between the forces of development and conservation. General Von Clausewitz was right: “Know your enemy”. It may be more important to know some development economics than to know a lot about ecology. So these computer experiments led to my first studio in 1966–1967, in which we studied the south-western expansion of Boston, with very ugly computer-generated maps showing where development should be, where conservation should be, where industry should be, where roads should be, and so on. The regional landscape was designed using coloured pins and sticky labels. (Figure 4.) It really does not matter what the medium was. That was the fastest and the best way to do it at that time.



Figure 4

A CONTEMPORARY EXAMPLE

There are two ways to design the future. One way, the way most of us teach and most of us practise, is to invent the future and then try and figure out how to get there. This is exemplified by the concept drawing. We invent it and then have to figure out how to build it, how to legalise it, how to finance it. But there is another way. The other way is to design a scenario of plans and policies, and ask where it will take us. Two of the best known scenario-based studies that we have done in the last 10 years are of the region of Camp Pendleton in California, and the project in the Upper San Pedro River Basin.

The San Pedro River starts in Sonora in Mexico and runs north into Arizona. Positioned on the Alaska-to-Central America avian flyway, the river has the highest biodiversity in North America. Today the area is becoming a suburb of Tucson. The project focus is on the effects of future development on the water table and the biodiversity consequences. Figure 5 shows the study area using satellite imagery on a ten-metre grid mapped onto a Global Information System model. The water table at -5 metres is shown by a red line. If that red line reaches the cottonwood willow landscape along the river corridor, then the cottonwood willow landscape

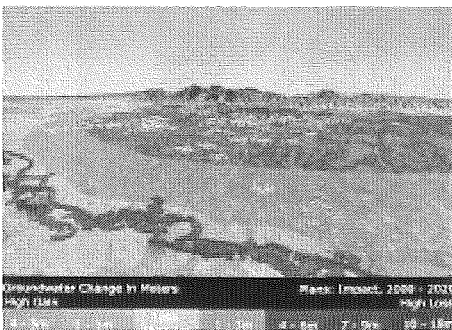


Figure 5

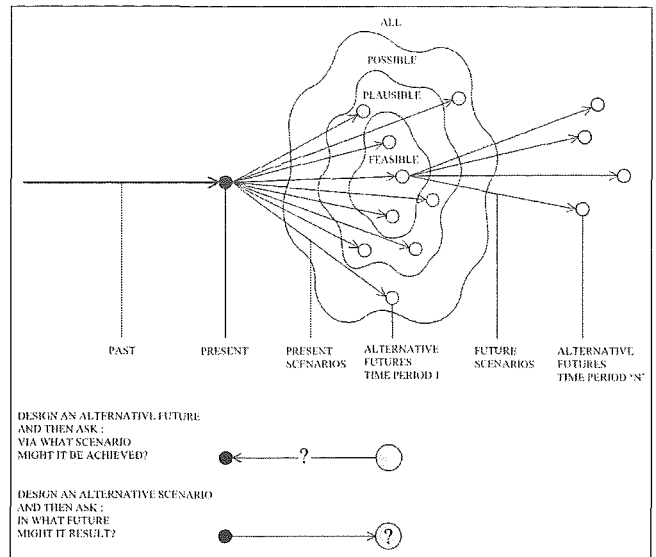


Figure 6

dies and the riparian corridor turns into tamarisk scrub. Half the birds no longer have a habitat, and we have a lawsuit on our hands. Therefore, the problem becomes: what sort of urbanisation pattern is possible without the red line hitting the river? There are lots of ways this could be done, from xeroscape design to banning people.

Figure 6 shows a diagram of options over time. At this scale there are billions of unknown possibilities for the future. The concept of making a master plan that does everything is nonsense. So we project out scenarios over a certain amount of time. Twenty years is a useful time frame, a period that people can understand. There are many possible futures that are ideas in people's imaginations, and sometimes, but not usually, they are possible. Then there is a smaller group of plausible futures. "Plausible" means that there is more than one person who believes it is possible. And then there is an even smaller group of feasible possibilities, which means in today's technical and political economy that they can be achieved. The aim of the process is to narrow in upon what is feasible. But we also have to realise that people change their minds. Furthermore, whatever plan we do today, our grandchildren's grandchildren are going to be in a different world, and they are going to change things in ways we cannot imagine. So do not think you can plan and design everything. You cannot.

With the existing conditions, in this example there are 26 factors of public policy where there are different kinds of choices, and there are 26 constraints or attractiveness maps. In the first scenario, which is the least regulatory, the zones where development wants to go (because the sites are attractive or convenient),

and where it cannot go (because the sites are publicly owned or impractical), are identified. A computer program models the real-estate profit process and puts houses into the landscape. The scenario specifies demand – perhaps 4,000 houses of this type and 8,000 of another type and 3,000 of a third – and places them in locations that make the most money. This is one of a dozen possible scenarios based upon different sets of assumptions.

So how do we get the land owner who owns this piece of property to be upset about what is going to happen when he or she does something in a context where everybody else has the same rights and ideas? The answer is to scare the landowner. The scenario displays the existing conditions for a particular site, and then shows what happens in 20 years. Everybody in this part of Arizona has a well. We know where they are, we know where they have to be to access water, because we know where the water table is, and we know the geology. The model can show the change in the water table as development proceeds. When the red line representing the lowering water table hits the river, the river turns red, which is the representational code for death to its ecosystems. The scenario shows how a lot of individual incremental decisions, all easy to justify in terms of individual landowners, have the cumulative result of a major change that is to everyone's disadvantage, as the features that made development attractive in the first place are degraded.

FROM SITE TO REGION IN EDUCATION

Therefore scale matters. I think that there are really only six fundamental problems relevant to landscape architects. (Figure 7.) Everything we do is a variation on these six, and the issue for educators is to decide which of the six to present to students, and how many of each. In fact, these consist of reciprocal pairs of problems, and different design disciplines typically focus on one group or the other.

One problem set is the building on a site. Our version of this type of problem, as landscape architects, is the difficult site for a building. The architect's version

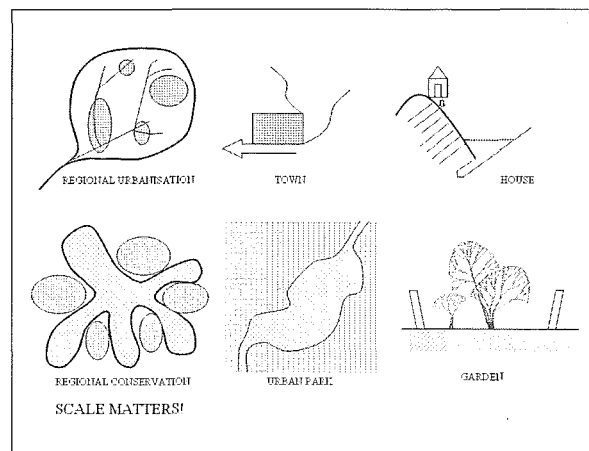


Figure 7

is basically the building on the site. Some emphasise the building, some emphasise the site, but it is obviously the relationship that is important. A closely related problem is the garden, and these two – the building on the site and the garden – have something in common, and that is size and scale. The second problem set, getting a little bigger, is the urbanisation issue at the town scale – the subdivision or neighbourhood and street. The reciprocal of this is the design of urban landscapes – the park system, the playfields, the streetscapes, the urban reserve of some kind. The third set is regional urbanisation and its reciprocal, regional conservation.

Most schools of landscape architecture are involved in all six types of problem in some guise or another, some collaboratively, some not; but one of the big issues in education is whether to start at the site scale and move upward, or to begin at the regional scale and move downward, or to teach without any particular pattern. In the sixties, the University of Pennsylvania school under McHarg was famous because it started at a regional scale and then funnelled down. Harvard, typically, has always started at the site and moved up to the regional scale and then back. But many landscape schools start at the site and go no further. Many geography departments, planning departments and natural resource departments, start regionally and never get to the site. In my teaching roles at Harvard I have always gone from big to smaller.

Figure 7 shows many other similar dualities at the extrema:

- Large–Small;
- Long time–Short time;
- large cost–small cost;
- many actors—few actors and possibly only one;
- public client with public risk–private client with private risk;
- nature dominant–culture dominant;
- theoretical–practical;
- analytic–synthetic;
- scientific–artistic;
- slow change–fast change;
- performance–fashion;
- stochastic–deterministic;
- guidelines–specifications;
- needs conductors–needs soloists;
- change a lot a little–change a little a lot.

Figure 8 shows the history of how some of these dualities have played out in the Graduate School of Design at Harvard. These are the ebbs and flows that affect us all of the time. In the 1920s there was a complete focus on the site scale, and a total absence of focus on the public realm. This was the period of prosperity between the wars. Wonderful designs were being made for a very few people. In the 1930s there was a big split when the profession of city and regional planning broke from the landscape architecture department at Harvard to create the first

department of city and regional planning. Why? Because landscape architects had withdrawn from the territory in which the planners were interested. In the late 1950s and 1960s Charles Eliot, Hideo Sasaki and Chuck Harris tried to heal the breach, and with a couple of colleagues in the planning department started to teach a collaborative studio. This was city and regional planning moving one way, landscape architecture moving the other way, and the two meeting in the middle.

In the mid-1990s a group (including Peter Rowe, Alex Krieger and me) caused the school to make every studio for the final-year students in all programmes to be accessible by lottery, without departmental distinctions. Therefore, all students in their last year can enter, by lottery, any studio out of a suite of 16 offered by faculty each semester, half of which typically are held abroad. This led to what in effect is a free market across scales of design. It also allowed some visiting faculty architects from Spain to offer park and garden design studios. Why not? They do gardens in Barcelona, and landscape design in Barcelona in the 1990s was very important. So the idea of mobility and flexibility is a two-way issue. Your students go forward into the world, but the world also comes into your territory. It all depends on what your territory is. And this can create either problems or opportunities.

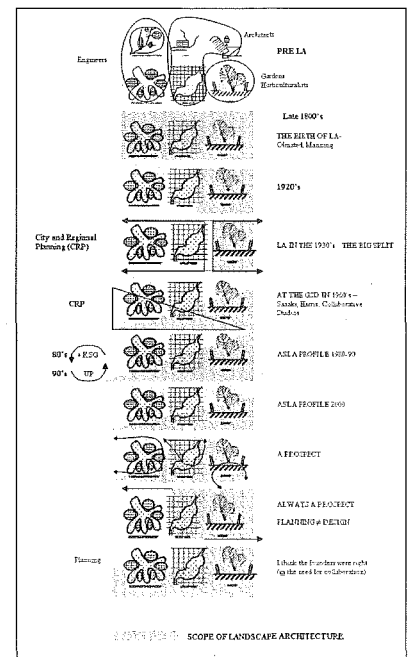


Figure 8

One problem is how the movement of disciplines across scales relates to the profile of the profession. Most of ASLA's focus is at the site scale. It is probably 90 percent local, smaller projects, perhaps 10 percent at the neighbourhood scale and probably less than one percent at the regional scale. I understand why this is the case, but that does not make it either good or useful.

One prospect, a very serious one, is that the territory of landscape architecture will be carved up by nibbling. There are architects and people of leisure who will willingly move into the site- and garden-design scale. The geographers and natural resources people are very aggressively moving into the regional scale. Architects and urban designers will do the rest. That is a very serious prospect, about which we should be very, very concerned.

Another prospect is a sharpening of the distinctions between planning and design, a reactivation of the split of the 1930s when the planning faculty divorced from landscape architecture at Harvard. I know a very good department that has recently destroyed itself by making that move. It seems an easy way out when academic budgets are being tightened. The typical response is to circle the wagons, and this tends to be done by scale.

A third prospect, which I think is the right way to do it, is to learn to collaborate – to give up the idea of the landscape architect as master of everything – and to figure out ways of acting collaboratively with architects, with urban designers, with planners. But we need to maintain the idea that the landscape core is some combination of art and science across scale – not art versus science – and to make sure that our students understand the art and the science.

These are the choices. But the fact of the matter is that we are part of larger societal and academic processes, which we do not control. The real issue is how broadly generous we are in the definition of landscape architecture and of design, and how this will influence the education of future generations. Galileo was right, and Herbert Simon was right.