

de investigación necesitan de la participación de ingenieros o socios técnicos, serán bienvenidos. Los integramos, ya sean artistas, personas que trabajan con la luz, con el paisaje, con los materiales... Es extremadamente abierto y permite intercambios con diferentes *partenaires*. En general son sobre todo personas que tienen complicidades con nosotros desde el punto de vista de la investigación y desde el punto de vista arquitectónico.

¿Cómo pudo usted afrontar un desafío de las características de la Biblioteca de Francia con 36 años? ¿Prácticamente usted comenzó con la gran escala, o se trata de una idea falsa?

De hecho, el gran desafío fue para mí, con 30 años, cuando dirigí un proyecto importante; construir una escuela de Ingenieros en París, un edificio de 250 metros de longitud. Era muy grande y aprendí mucho. Esta experiencia me ayudó, aunque no lo suficiente, para lanzarme a la aventura de la Biblioteca.

Una trayectoria más bien al revés, dado que muchos arquitectos han comenzado por lo pequeño...

Sí, he hecho una carrera un poco al revés. ¡Acabaré como profesor! Ahora mismo enseño en la EPF de Lausana, he comenzado abriendo un laboratorio, hablamos cada vez más de investigación. Confieso que es una carrera al revés. Sería muy agradable terminar con 80 años como un arquitecto joven...

P Enseñanza

Precisamente, ¿Qué papel ha jugado en su trayectoria la enseñanza de la arquitectura?

Doy clase en la escuela doctoral y de postgrado. El tema sobre el que trabajo es "lo subterráneo", que llamamos SUB, un curso que se centra en la epidermis de la ciudad, una parte de la ciudad que va a alimentarla y a transformarla.

Pero doy clases también en el segundo curso de carrera. Los estudiantes son verdaderamente bebés en tanto que arquitectos y esto es muy interesante.

Estructuro el curso en dos partes. El primer semestre se desarrolla un trabajo conceptual sobre la noción de subterráneo, sin contexto, sin lugar. En la segunda parte del curso, en el segundo semestre, este concepto que han elaborado debe contextualizarse. Los estudiantes deben dar vida a este concepto en un lugar de su elección, sin que desaparezcan las cualidades de este lugar o más bien creando un nuevo lugar gracias a este concepto. Concepto en seis meses y contexto durante seis meses, en una relación de conformación del lugar.

Pienso que el acto creador es un acto que no es democrático. Es un acto solitario que es un acto de decisión. Y es una decisión que no se puede tomar si no es solo consigo mismo. Por el contrario, todo el período previo al acto creador, antes de expresar el 'statement', el pensamiento, es una creación colectiva. Se producen intercambios, influencias, discusiones. Nos gusta, no nos gusta... Es la vida. En la vida nos encontramos solos con nosotros mismos.

De su paso por la ETSAB ¿cuáles serían en su opinión las virtudes de esta escuela barcelonesa? Planteamos siempre la misma pregunta, ¿qué haría usted si fuera mañana director de esta escuela? Para usted, y volvemos a las dualidades, la doble condición de la arquitectura en tanto que arte y oficio, ¿es una contradicción? Napoleón resolvió bien esta cuestión al integrar sus escuelas nacionales...

Si fuera director de la escuela, partiría de la idea de que la arquitectura es un aprendizaje. Por tanto hay que ser capaz de poner en marcha las condiciones de este aprendizaje. Una de las cualidades de la Escuela des Beaux-Arts, puede que una de las pocas no reaccionarias, era que nos permitía a todos convivir en el mismo taller vertical. Daba igual que estuviésemos en primero, segundo, o quinto curso. Y esto es algo extremadamente formativo. Se trata del despliegue de las condiciones de aprendizaje que permiten adquirir un oficio. Esta noción de verticalidad entre el primer año y el proyecto final de carrera, compartiendo el mismo espacio, es un elemento extremadamente formativo, un tipo de enseñanza particular y específico para los arquitectos.

¿Cuál sería su "call for papers"?

Lo subterráneo como estrategia de intensificación de la actividad y de la vida urbana a través de la creación de nuevas raíces de las superestructuras que constituyen los edificios de la metrópoli.

Rethinking materiality Building voids with less resources

Excerpts from a lecture by Anupama Kundoo

Transcribed and edited by Cecilia Obiol

ANUPAMA KUNDOO is the professor in charge of the first *ETSAB Visiting Studio*. Assisted by Carles Crosas she runs the Design Studio *Made in Ciutat Meridiana* at the ETSAB which is promoted and supported by *Hàbitat Urbà* from the Barcelona City Council (*Ajuntament de Barcelona*). This lecture -sponsored by the *Càtedra Blanca* and presented by *Jordi Ros*, Director of ETSAB- took place within the frame of her academic collaboration with ETSAB and is an inspiring starting point of our new section *Docència* (Teaching).

My practice is 25 years old and has been associated with many different labels throughout time, at the moment mainly with the material research. I want to explain that I am not interested in the material in fact at all. I am interested in the negative spaces that we have to build because architecture occupies nothing actually. What we need to build is the nothingness. They say that the function of the pot lies in the nothingness; what we use is the pot we don't build. That is the important focus for me, so it is the design of the spaces. People are so distracted by the material that they don't realize that what we are trying to do is to craft the space, and that's the actual work. But the main reason why the material has to be rethought is because of the incredible speed of organization and social transformations taking place in the cities, and the fact that the world is becoming urban from rural -at the time in which I graduated we already knew this. And also the new knowledge of the environmental shortage of resources, not only affordability, not only money but all kind of resources. Thus, we have to build everything without anything.

Fortunately I come from a country which was already poor; for us what you are having now -the "crisis"- was the normal landscape. It was not frightening to have a crisis because we grew up with shortage, and I don't want to make it look like a social work because it's just a normal architecture work in a time when this is happening in the world. I was looking for methods to be able to construct architecture in new ways where it will become affordable and not only in money terms but in environmental terms. This is what I mean with *building voids with less resources*, like this joke about a child who doesn't like the cheese which has holes in it, and his mother tells him "ok, you eat the cheese and you keep the holes aside". This is a way to think about what is a material and what is not a material. So my focus throughout the material research is required because of the way we have created habits to build after industrialization: there is no future in that. There is a dead end and like in the Titanic the people are still having champagne because they don't want to believe that this is really true. It's like an element of fiction.

So when I graduated I was not depressed, I thought we should not be depressed because when there is a problem even so big as in Ciutat Meridiana it's a question of being creative, it's an opportunity to be able to be efficient with the design and to build with less. And that for me was a challenging creative thing. I started thinking that low cost is not only for the poor people but for everybody, because it is good design; if you can achieve with less it's fantastic!

Our project we are working in was called *Made in Ciutat Meridiana* because the poverty that is part of the problem needs to be included in the design response. Otherwise the designs will remain on the paper. So we want to offer these poor people (many of them have a lot of time and no work) something where they can be involved in many levels. I worked in many contexts where people were able to participate -and you don't have to think about India because this doesn't apply- and I like to explain how exciting it is when you have the opportunity to create with new materials that you don't know nothing about. (...)

Years ago I worked in a very luxurious project -which involved designers like Prada among many others- that was about exhibiting handmade products. It was promoted by an organization based in Milan and was founded on the fear that we will forget how to make things with hand. Because we keep on talking about industrialization but in post industrialization we realize that it has led to people not having work and every practice like this is done by the machines, so there are many problems of over-industrialization. And this organization was trying to promote to make with the hand. (...) If we stop making with the hand what is the impact in the society and in the mind? (...) This is the reason behind this project, and I like to show how difficult is to make things and to tell people that you don't have to surrender to the standard project of a catalogue. If it is good for you then you use it. And if it's not good to you don't be limited by the module that somebody designed because of the machines sizes and everything You must always focus on what you want, and technology should follow that, not the other way around. (...)

Not only India was a very rural country now rapidly becoming urban but in the whole world it is being clearly accepted that urbanization is the biggest worry for everybody in global terms. (...) We have very new conditions today and we are not able to manage them. And of top of it the population is increasing in so many countries and that is another worry on the resources. In places like India -where the population is so much compared to the land it occupies- it was a good opportunity to develop what they are now calling *green buildings*- in those days we didn't have such names. I didn't believe that we should follow the world's standards, the global standards of construction because if you calculate that every Indian, every Chinese and every African should have the same life then we need about six planets which we don't have. (...) We need to invent a way so that you can still be at the party without the same resources.

(...) The fact is that housing for all is a very difficult thing in these times. If you see UN habitat and all these numbers 30% of the people are without houses, and it is growing and growing and growing. It's not a problem only of Ciutat Meridiana, it's the problem to afford the standard we have created for housing today. It's unaffordable. (...) Something has to be reworked drastically on the government side, but also we should think if the standard position for housing is maybe too high. In the old days everybody had a house because they all built their own houses in the vernacular times. But now the technology makes impossible that everyone can build; even to paint a wall is expensive now because you have to pay the people who have a degree. So we need to rethink at all the levels; otherwise we will not make any change. If people who have full-time job cannot have a house, what about the ones who don't have a job? How can we build so that we can actually provide a house to everybody? (...) Construction generates employment, so if we design a technology that is more user-friendly then maybe we can have better chances to solve this problem of housing for all.

When I grew up in Bombay it was more or less a line. Now I go to Bombay in these years and it's becoming like this picture (...). Not only in Bombay but in all the countries where cities are happening, "slums" is becoming synonyms with urbanization. All the countries where urbanization is taking place have got slums in order to build housing for the huge amount of people who are going to come. The immigration problem that Ciutat Meridiana has is the same, because this people already left their houses where they lived and then they had to make a new house... it's impossible to pay that. It's even more complex now that people don't even have a job. On top of it, all the materials and technologies that we have now invented have thrown away all the richness of so many traditions and knowledge to build, and now everybody has to know only one thing: to do reinforced concrete, otherwise they can't participate.

I don't believe that we should follow the world's standards, the global standards of construction because if you calculate that every Indian, every Chinese and every African should have the same life then we need about six planets which we don't have.

So affordability is not only about economic affordability, it is for all resources, the earth resources. Environmental issues become automatically of our concern: what kind of habitat can we afford to build for the future? That was a background and when I started my practice in 1990 (...) I went from Bombay to live in a rural area where I got my first project and I started living in a simpler way. I realized that the concrete houses of my friends when I would visit them were more hot and uncomfortable than the huts of coconut patch in which I lived -because I could only afford that. I think life is temporary, I don't mind about the house at all, I just mind what kind of life I have and what I do with my time. So I tried to have an office at all cost, a simple office but not to stop to be an architect.

I started to work on developing roofing systems because I had a French client who asked me to do a house and he was always treating me like it was my first project and trying to help me and I told him "I compromise on some other points, but you let me make whatever roofing experiment I want". That was my deal. And I didn't realize that I had so many reasons to be afraid because I really didn't know how to do this by myself. (...) I saw what people in the area -the potters- where able to do, and I saw they didn't have jobs. And I was thinking how to use what was there because it was a rural area and to import from the city there was going to be a truck to bring the concrete. And then the first truck who makes the first way that will become a highway little by little -because nobody plans anything in India- then after somebody will put concrete on it and so on... So I was trying to do local and to figure out with the people in full scale to some extent to develop this efficiency. I was always trying to use geometry and some engineering knowledge to achieve efficiency because I think form follows technology. It was very important that the people in my team understood and helped me because I didn't know so many things. I thought if you make it in full scale then the whole team can understand everything, and I was doing in this way instead of working in my computer. So the first house I did -with ferrocement in which I am still researching- was the combination of a climatic response. At this time I had not yet been to Germany but they told me it had a very Bauhaus aspect!

I was like a modernist actually because in my aesthetic sense I tried to have a rational and poetic combination in my expression. Afterwards through the maintenance I realized what happens to this kind of white walls in tropical climates. I used all the white to cool the house but then because of the monsoon and all that I started to find ways to build with other materials where the degeneration will not be noticed so much. Immediately they called me vernacular from that moment: so from the Bauhaus it went to traditional architect, but I see the same continuity in my research. So at that time I myself had to build an affordable house for me so I built a hut because I saw that the majority of people in the area were living in huts. And for me coming from a big city like Bombay it seemed quite exotic, it was like Mowgli living in the jungle, enjoying charming life, snakes and all that.



Feel the ground. Wall House: One to One. Venice Biennale 2012 (Photo: Andreas Deffner)

There was an Australian architect called John Allen who had developed some improvements on the form of building this kind of houses lifted from the ground -that was his first innovation. My house was very much inspired and based on what he had done. So that was my simple life, I had my motorbike which I was very proud of. I didn't need much: I had a solar panel on the roof, I had two lights which I used to carry in different places with a long wire, and I had a music system from the car so I had that self-sufficient piece of architecture -now they will call it green but at that time it was a common sense thing to do. When I landed I thought I would spend two or three years there and finally I lived there for 10 years. Of course living in that simple way has definitely influenced me more than any theories to realize that if the inside of your life is good you don't really need much from the outside. You can live in many ways, for me it was a personal learning experience.

(...)
I believe a lot in a kind of direct engagement: to teach through full scale, to have contact with reality: real material, real people, real site. Basically I think that architecture is real rather than abstract or poetic or so many other things. It is real. And if you lose the realness of architecture then you can become irrelevant in the future. And that's why in the Venice Biennale in 2012 I did a project and I told David Chipperfield [the curator] that my response will be in full scale because architecture must not be represented in another way. So you can be poetic but you must inhabit that with your body scale and then you can write about it. Only in the real scale the synthesis of architecture can come together in a balance; otherwise any aspect you talk about is not the true picture. So I often try to do full scale experiments with the students; (...) I feel we are architects and I want to confront students with the reality only to remain a designer, not to become a carpenter or to become a mason or whatever. And therefore I support these programs always with the people who know how to do because I want the highest excellence and not to reduce it to what people are now going to be able to do here.

So affordability is not only about economic affordability, it is for all resources. Environmental issues become automatically of our concern: what kind of habitat can we afford to build for the future?

Sometimes the innovation upon traditional ways of doing things is a very subtle innovation that you don't even notice. For example in this project where instead of using a lot of wood to support the coconut leaves there is some wire holding those leaves. It's a kind of hybrid between high-tech and low-tech, because I believe it is not about high-tech or low-tech; I think in each project there must be a negotiation about the appropriate proportion between the two of them. (...)

After these ten years passed in the hut I wanted to build another set of experimental constructions where I wouldn't have to convince the clients to do some radical things. So I had to compose my own house out of many techniques that I wanted to test. This is called *Wall house* (see pages 8-9). These bricks that you see are not modern bricks, these are preindustrial bricks that were made in that area. My knowledge was increasing about sustainability, measures and ratings and all that, and I was not in agreement with all the green rating systems where they dismiss bricks because they say they consume so much energy, so much fuel to burn the brick that it's not sustainable. But brick is the first building material that people have ever manufactured and it has still today performed well so it's not a thing to be dismissed just because new ratings. So what I found out is that I am uncomfortable because they make the brick have a standard energy unit when they measure, they don't talk about the quality of energy -if I am burning the brick with the coconut shells or with coal it's the

same for them, and that's not good, it has to be a qualitative rating. It must be more about quality and social response.

So in this house I was trying to prove that if you use the local bricks -which are very weak, there is hardly any strength, the limb mud is almost stronger than the brick itself- it's much more healthy than to try to chase the factory-made brick which is going to make quarries, which is going to use coal... So I wanted to revive this kind of brick which they were still making in the area -they were using it to fix the old heritage buildings, and for making some ceilings- but I thought if you make the walls thicker because the brick is weaker is even better for the insulation and everything so I did this wall house to revive this technique. Later on this house became most famous because somebody published it internationally and then everybody wanted to publish the same again and again and again and that's why when I was invited by David Chipperfield to the Biennale 2012 I decided to build the same house in full scale. (...)

There are so many ideas that have been tested there, including the plan where there is much more outdoor spaces in the tropical climate than indoor spaces. We were using this kind of locally available

things to build this kind of spaces, and in the windows as well. Just like in winter or summer you can change your sweater, you can also change the skin of the building in a simple way -not in a high-tech. So there is a wooden frame and you use it with a mesh during the mosquito season and you use the glass when it's raining and it's dark so you need more light. So this kind of simple approaches. (...) I also researched with formworks which are normally the main reason for not producing "intelligent" slabs because of the high cost. (...)

(...) One of the more radical experimentations I did is a technique in which mud houses are built with earth -only earth- and filled with earth bricks to treat the house as a kiln and then to fire the whole thing together, so when the house is cooked it becomes earth. It is called *baked in situ mud construction*. It is very radical and almost all the money is spent on labour and nothing on material because it is used in places where the earth is good enough for the brick. This is an idea pioneered by Ray Meeker, a Californian potter. I did my PhD on this kind of topic, measuring the relevance of what happens when the house becomes not a consumer of materials but a producer of building materials and how the socio-economic dimension changes if the brick is not brought to the fire but the fire is brought to the house. (...)

Venice is a brick city and wherever you go you see the bricks behind the plaster because it is an architecture of ruins and you can notice how it was made. So when I was given the space for the Biennale (...) my idea was that we are evolving the technology collectively, everybody is building another layer on top of what was known. And all these kind of things I wanted to place them together and to make this point in *common ground* which was the topic of the Biennale. I wanted to show that we are not so different, we are already common. (...) This project was somehow poetic but for me it was to show the reality and the rigor that goes into architecture also represented in the process. The engineers were not giving me permission to build the vault because they were people from many countries with different building backgrounds and they were afraid. And they had their own reasons to be concerned according to the factors of safety allowed in their cities. But I thought it was very interesting for the *Common Ground* theme because the gravity force is the same in all our countries and my buildings are still standing there for so long. You don't have to look at construction only as a dangerous thing, and it was incredible and ambitious to build such a thing. It was also very expensive.

But the most important thing was this dialogue between our walls and the original existing walls, and the architecture of the ruin was a setting as it was the site, as if the pillars were the trees, it was carefully situated. An unfinished architecture which likes the ruin also reveals the construction. The main idea was to create a common ground also literally between the old existing building and our building. (...)

Diálogos entrecruzados con Anupama Kundoo

Carles Crosas i Armengol

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Con su mirada intensa y cordial, Anupama Kundoo empieza su primer día de clase en la ETSAB proponiendo una conversación abierta con los estudiantes en un aula de la cuarta planta. Desgrana un discurso próximo y perspicaz, impregnado de coherencia y de un optimismo envidiable. Lamentablemente, esta no es una virtud que campe a menudo en nuestras escuelas hoy en día, sumergidas en las incomodidades de la atmósfera universitaria y profesional. Quizás por ello es tan importante buscar nuevos espacios como el *Visiting Studio*, que se inicia este año en la Escuela.

"Be creative". Las condiciones coyunturales en las que los arquitectos trabajamos actualmente, en distintas latitudes y hemisferios, no deberían sino despertar nuestro espíritu más creativo. Lo dice alguien con un *background* que hace especialmente creíble el consejo, por su singular biografía que la lleva a acumular experiencias personales, profesionales y docentes en los cinco continentes: en la India, Australia, Alemania, US o, desde el pasado septiembre, en España. Frente a actitudes de realismo pragmático, que considerarían simple "amaneramiento" cualquier discusión de naturaleza arquitectónica en ciertos entornos con pocos recursos, AK anima siempre a buscar un espacio propio para la dialéctica disciplinar y no se cansa de repetir lo útil de nuestra mirada y conocimiento para mejorar las condiciones de nuestro entorno: *"Architects and designers can make evolve our society"*.

Por ello reivindica que la arquitectura de nuestros días debería conciliar el realismo con la creatividad más generosa, advirtiendo sin embargo que la arquitectura se arriesga a perder su esencia si se reduce a mera abstracción. Quizás hoy más que nunca. Por ello, AK se siente como pez en el agua en el *Studio* Ciutat Meridiana: una de las realidades urbanas más ásperas en nuestra reluciente Barcelona. Este ámbito de proyecto, planteado por Hábitat Urbà del Ayuntamiento de Barcelona, está seduciendo a un grupo privilegiado de una veintena de estudiantes, con los que imaginamos cuáles podrían ser algunas nuevas condiciones para este espacio. Son los desahucios, la alta tasa de desempleo, los denominada pobreza energética... temas de hoy y de aquí, sobre los que es estimulante pensar, no solo con el sombrero de sociólogo,

de geógrafo, de ciudadano o de activista, sino también con el nuestro. *"Poverty must be included in the design"*.

"The process is often more important than the product itself". Probablemente lo sea, pero conviene subrayar que esto lo dice quien es capaz de materializar con enorme esfuerzo una arquitectura high-low tech en ambientes nada favorables. El mérito de inventar soluciones alternativas, de menor coste pero de altísima calidad en términos arquitectónicos, técnicos y plásticos. Esto es algo solo posible desde el máximo convencimiento y autoexigencia en cada una de nuestros propósitos: desde idear con gran ambición un proyecto, hasta conseguir materializarlo pieza por pieza, con tierra, barro, madera o hasta libros!

"Cooperation instead of competition". Con esta intención plantemos el taller temático como una exploración abierta sobre este barrio en los límites de la ciudad. No se trata tanto de competir sobre cuál es la mejor solución arquitectónica a un enunciado determinado, sino de plantear distintos proyectos sobre temáticas y situaciones diversas, proponiendo un trabajo cooperativo entre más de una quincena de proyectos que deben "negociar" un espacio propio, cooperando con el resto. Este es, sin lugar a dudas, un ensayo útil y real para nuestros estudiantes, en una cultura cada vez más convencida de reflejarse en la actitud de las abejas que en la de los leones. Autoexaminarse frente a una realidad tan compleja como esta, no solo respondiendo, sino inventando la pregunta: incomodarse en tener que explicar de cabo a rabo el por qué, el para qué, el cómo, el cuánto y el cuándo del proyecto que han decidido tener entre manos.

"Rethinking Materiality" es una presentación de registros muy diversos de una arquitecta inusual, Anupama Kundoo. Su aproximación arqui-biográfica nos sitúa su pensamiento en relación a unas obras construidas a lo largo de dos décadas, vistas como vernáculos en ocasiones, como modernas en otras. Pero más allá de paradójicos debates estilísticos, ella ahonda en los fundamentos, entusiasmada en observar que representa el "Afordable Habitat" hoy en las distintas latitudes desde las que ella mira el mundo. Y desde esta extrema conciencia, de lo que posible y lo que es asequible, entendemos que, al final, se trata efectivamente de *"Building voids with less resources"*.