

FUTURE CITIES: MIAMI | RESEARCH INTENSIVE PUBLIC SESSION

The Alliance of the Southern Triangle (A.S.T.) began in 2015 as a research project focusing on the idea of the global city, with Miami as a case study. Four regular members (Diann Bauer, Felice Grodin, Patricia Margarita Hernandez, and Elite Kedan), are involved in the fields of art, architecture, and design. The project is committed to the idea that developmental trajectories of a city can be altered through the adaptation of the networks that already control it. A.S.T. evaluates this shifting set of legal, economic, cultural and environmental forces that confront **contemporary coastal cities (01)** and conceives possible futures that are both reactive and propositional. A.S.T.'s most recent installation is Intertidal (2018) at ArtCenter/South Florida. It is curated by Natalia Zuluaga who describes it as, "an exhibition primarily focused on the idea of the inevitable effects of climate change, the question – or message – is not about a reactive resilience or about survival, but about the ability to communicate across time about these inevitabilities."

Future Cities: Miami | Research Intensive took place on October 21, 2017 to bring artists and architects together with experts in the fields of infrastructure, climate modeling, speculative fiction, policy making, and cultural agency in order to imagine the future of coastal cities beyond adaptation and existing complicity of current resiliency models. It was organized and hosted by A.S.T. with the generous support of BFI (Bas Fisher Invitational). The event was held at the FIU College of Communication, Architecture + The Arts | Miami Beach Urban Studios. In addition to A.S.T. participants included Bruce Mowry (Former City Engineer, Miami Beach), Jayantha Obeysekera (Chief Modeler, South Florida Water Management District), Kim Stanley Robinson (Science Fiction Writer), Philip Stoddard (Mayor South Miami, Biologist), Natalia Zuluaga (Curator, Writer). The transcription of this event is being presented in The Miami Rail in order to circulate the findings to the wider public domain. The main body of the text is edited and adapted from the transcript of the event and the superscript running alongside are questions and claims made by A.S.T.

The event began with Kim Stanley Robinson reading an excerpt from his book New York 2140 which is set in a semi-submerged future New York.

(Kim Stanley Robinson)

My IPPI's New York number had indeed dipped briefly at the news of this building collapse in Chelsea, but now it had stabilized and was even inching back up. A sensitive instrument indeed. The index, and the derivatives we had concocted at WaterPrice to play on it, we're all booming in a most gratifying way. Helping our success was the fact that the continuous panicked quantitative easing since the Second Pulse had put more money out there than there was good paper to buy, which in effect meant

that investors were, not to put too fine a point on it, too rich. That meant new opportunities to invest needed to be invented, and so they were. Demand gets supplied.

And it wasn't that hard to invent new derivatives, as we had found out, because the floods had indeed been a case of creative destruction, which of course is capitalism's middle name. Am I saying that the floods, the worst catastrophe in human history, equivalent or greater to the twentieth century's wars in their devastation, were actually good for capitalism? Yes, I am.

That said, the intertidal zone was turning out to be harder to deal with than the completely submerged zone, counterintuitive though that might seem to people from Denver, who might presume that the deeper you are drowned, the deader you are. Not so. The intertidal, being neither fish nor fowl, altering twice a day from wet to dry, created health and safety problems that were very often disastrous, even lethal. Worse yet, there were legal issues. Well-established law, going back to Roman law, to the Justinian Code in fact, turned out to be weirdly clear on the status of the intertidal. It's crazy to read, like Roman futurology:

The things which are naturally everybody's are: air, flowing water, the sea, and the sea-shore. So nobody can be stopped from going on to the seashore. The seashore extends as far as the highest winter tide. The law of all peoples gives the public a right to use the seashore, and the sea itself. Anyone is free to put up a hut there to shelter himself. The right view is that ownership of these shores is vested in no one at all. Their legal position is the same as that of the sea and the land or sand under the sea.

Most of Europe and the Americas still followed Roman law in this regard, and some early decisions in the wake of the First Pulse had ruled that the new intertidal zone was now public land. And by public they meant not government land exactly, but land belonging to "the unorganized public," whatever that meant. As if the public is ever organized, but whatever, redundant or not, the intertidal was ruled to be owned (or un-owned) by the unorganized public. Lawyers immediately set to arguing about that, charging by the hour of course, and this vestige of Roman law in the modern world had ever since been mangling the affairs of everyone interested in working in—by which I mean investing in—the intertidal. Who owns it? No one! Or everyone! It was neither private property nor government property, and therefore, some legal theorists ventured, it was perhaps some kind of return of the commons. About which Roman law also had a lot to say, adding greatly to the hourly burden of legal opinionizing. But ultimately the commons was historically a matter of common law, as seemed appropriate, meaning mainly practice and habit, and that made it very ambiguous legally, so that the analogy of the intertidal to a commons was of little help to anyone interested in clarity, in particular financial clarity.

So how do you build anything in the intertidal, how do you salvage, restore, renew—how do you invest in a mangled ambiguous zone still suffering the slings and arrows of outrageous tide flow? If people claim to own wrecked buildings that they or their legal predecessors used to own, but they don't own the land the buildings are on, what are those buildings worth?

(01) The contemporary coast is a new urbanism whose aim is to conceive possible futures in response to the shifting set of legal, economic, cultural and environmental forces that confront coastal cities. The contemporary coast embraces publically accessible zones through the intertidal thus it is a new form of the commons.

So the IPPI took housing prices, and simple sea level rise itself, and added to these two basics the following: an evaluation of improvements in intertidal construction techniques; another of the speed at which the existing stock was melting; a "change in extreme weather violence" factor derived from NOAA data; currency exchange rates; a rating of the legal status of the intertidal; and an amalgam of consumer confidence indexes, crucial here as everywhere else in the economy...

Of course it was true that certain assumptions I had baked into the IPPI needed to stay true for it to stay accurate. One was that the intertidal zone was going to remain legally ambiguous, jarmdycing through the courts at Zeno-esque speed. Another was that not too many of these once-and-future-and-therefore-present properties fell over too fast. If the rate of melting into the drink did not go exponential, or nova—if it proceeded, even accelerating, at a measureable rate that could be turned into a number that plotted not too hockey-stickistically onto a graph, one could follow that trend line up or down, and see other trends and hope to predict futures, and, yes, bet again on that, without the IPPI itself ever cratering even if the actual physical stock did.

A new bubble, you might say, and you would be right. But people are blind to a bubble they're inside, they can't see it. And that is very cool if you happen to have an angle of vision that allows you to see it. Scary, sure, but cool, because you can hedge by way of that knowledge. You can, in short, short it. You can, as I had found out by doing it, invent a bubblistic investment possibility more or less by accident, then sell it to people and watch it go long, knowing all the while that it is turning into a bubble; and all the while you can short it in preparation for the time that bubble pops. Spoofing? No. Ponzi scheme? Not at all! Just finance. Legal as hell.

(A.S.T.)

We chose that passage for a number of reasons. In part, because it not only speculates what some of the physical realities of sea level rise might be, but also how these realities will be utilized by fields like finance. The IPPI operates for a derivatives market and is constructed for the purpose of private gains, betting on conditions of a catastrophe in process. It explicitly constructs profit from destruction but, in contrast, one of the interesting things that emerges from your text is the idea of the commons. Who owns the intertidal zone? Can the land or buildings in it really be called property when they are "in the drink"?

It also makes stark this liminal zone that operates both in space and time. Spatially, the intertidal is neither wet nor dry and legally ambiguous, but also, what is brought to mind is that this will not be a situation where we go from a dry existing city to submerged future city in a compressed space of time, with functioning buildings surrounded by crystal blue waters. Rather, what is made clear is that this process is going to be messy and it's going to be long. Yet capital will still find a way to make profit from it...but, and this is one of the things that becomes clear as the narrative progresses and indeed what we think is so important about the book, is that it presents the idea that a society driven

by the logic of finance may not be tenable or even adequate given the scale of what we are facing as a species. The logic of neoliberalism is not up to the task and we need something else.

Although we are speaking here about a work of fiction (2140), the questions it poses are really about the now. How do we need to structure our cities given a reality that we can see coming? Now the specifics of what that reality will be and when it will get here is the part that is harder to be precise about but the questions remain. What structures do we need in place both locally and globally to make our coastal cities not only viable but better, more equitable, more just. And perhaps the importance of thinking about the commons in this context is not just because we ought to, out of altruistic motivation, but rather because it will be a logic of equitability that will make our future coastal cities viable, as well as more desirable? How will we deal with mass migration? What do we need from legislation for both those migrating to higher ground and those who stay? In cities that will need to learn to live with water, what do we need with regard to infrastructure, engineering, zoning and policy? And of course what do we need from architecture and from art? This is why we invited this mix of expertise here, to begin a conversation. In this context, we invite any of you to dive in, so to speak.

(Bruce Mowry)

I think all of us here agree that we're in a climate change and we're actually looking at a sea level rise, which will result in an impact on coastal areas. I think the biggest debate is going to be how, and with what kind of magnitude? Is it going to be 50 feet or is it going to be 5 feet? The other is the timing. When is it going to occur? Now, based upon that unknown, I don't know how to give you a better feeling of when that's going to occur. There are a lot of—as Obey commented—scenarios. Some people call them projection curves, and some use them as planning curves. Which one would you believe? And that's a big, big question. So then if we're accepting that this is going to make a change, are we going to essentially keep the city as it is today or, are we going to embrace the water and allow the water to come into the urban areas, and then live with the water? Unless that is decided, it could change whether or not the city would look differently or stay the same.

If we decide to then defend against the water at the present interface of the ocean to the land, then it will change the city itself. But is that the right answer? And if it isn't, then we should maybe be looking to embrace the water as a benefit into the city and change the culture of the city or the urban coastal areas. If it's the latter, then the mayor here... his philosophy is that we're going to be in a transition. When you have a transition, it needs not to be chaotic, but organized. What are the decisions we need to make, and how do we make that transition? So I think we're here tonight to say that the decision is not going to be made by a public employee like me, and it very likely may not be made by a politician, but it could be. But the politician is only going to react to what the residents, the voters, are really saying. So what we're trying to do here is to figure out how to communicate, to let you know the options. There's no desire to dictate to you and say, "This is what you shall do." We're trying to educate you

(02) What is a master plan that takes into account a subtractive urbanism (per Keller Easterling), with an active integration of water?

(03) Thus what is the governing body in this regard? – i.e. a Planning and Zoning Department for Deep Uncertainty For Future Projections?

If deep uncertainty has an existential component, how can it be publically translated and absorbed in ways that aren't alarming or fear-based?

to understand what we want, and so we can hear back and say, “What do you want it (the city) to look like?” And since I’m representing Miami Beach, I’m saying, “What is Miami Beach going look like 20 years from now, 100 years from now, 200 plus years from now? And what should we look like?” That’s the transition.

As you know, we’ve been looking at simple things like raising streets. You’ve seen the reaction that people have. Many people are still in denial, and they said, “Well, we don’t want streets raised.” Well the comment is the streets are going to be raised at some point. Do we raise them now or do we wait until everybody builds their buildings up? When I came here four years ago, and nothing negative on the architectural industry, but a lot of the architects were still designing buildings low on the ground. My comment was, “Why are you doing this?” and they said, “That’s because the developers are doing that,” and the developers were saying, “Because that’s what the people want.” And I go, “But those people don’t understand that in 20 years from now, those buildings may become less valuable, less usable, if they’re not designed to accommodate change.” **So what we’re looking at potentially are sustainable buildings that we can build and an infrastructure that we’ll maintain (02).**

That’s where we are. So I welcome the A.S.T. organization and network to allow a mechanism to be able to talk and expose, and look at how we can teach. Do we create art in public spaces to actually educate people as to what the changes are and what the options are, so that they are better able to make decisions in the future? Do we do it in monuments, statues, pictures or do we do it in writing? Those are good questions. From the technical aspect, and that’s Obey (Jayantha Obeysekera) and I, we’re sitting here going back and forth, because we think of the world differently from most. Because we work on technical concepts and so when we look at it we may not understand how the public perceives, and that we need to know that this world is not made up of just engineers or just architects and such. It is a blend of multiple areas of different economic values, and you have different things that you want to achieve out of your city. It’s a community, and the community is made up of many different aspects. So, that’s what I’m here for and the question is, “Is it going to drive value down?” Well, if we don’t do anything and let it go back—because I always said 150 years ago Miami Beach was mangrove swamp—and 100 years from now it could be a mangrove swamp.

Now, do we want that? And many people say, “Yes. I’m going,” but I don’t think the people that are living here actually will say that. Because many people said, “I grew up here. I have children. I want to raise my children and I want to pass that on to them.” The question comes again. What are we going to do and who’s going to make that decision? Therefore this has to become common space if we do allow it to flood and there’ll be a whole legal battle on that. So even though this writing (2140) is theoretically fiction, it very likely to become non-fiction in the future as we move forward.

(Jayantha Obeysekera)

Thank you, Bruce. Again, I’m happy to be here. I’ve been focusing on the science side of this, and I think that as an engineer and a scientist, I feel like the artists

and the architects may come up with solutions that the engineers sometimes never think about. So in that sense, I’m very excited that artists and architects are involved. But I also consider that this is not one of those traditional problems that engineers solve.

This is what I call a wicked problem, in the sense that there’s a lot of uncertainty in the future—potential futures that we could have. That’s primarily because if you take sea level rise or even climate change, the computer models are not good enough for projecting or forecasting exactly what could happen and when. I think Bruce talked about that. So we come up with scenarios that we can provide to you so, in that scenario what are the type of solutions you might come up with. **We call this “deep uncertainty (03).**” That’s when you can’t give a certain probability for potential alternate futures. In that sense, it’s a wicked problem. The social consequences are huge and that adds to the wickedness of this problem. It’s obvious we have these wicked problems to deal with when you come up with options.

Now, in terms of impact in South Florida, I call them the three whammies in this problem. One, is the sea level rise itself, its storms, and potential increases in storms like Irma and Andrew in both intensity and frequency, that help create storm surge and flooding. The other whammy is that as the ocean is rising it puts pressure on the water table, and, since we have very porous geology like Swiss cheese, the water table is going to come up at ground water level that will affect your flood protection as well. The other whammy is that because of climate change the rainfall is going to increase so we will have a higher intensity rainfall in the future.

So, this is a very complex problem. The water management system we have was designed and built in the 1950s and 60s by the federal government. They never thought about sea level rise. What they designed for in the past 50 years is already compromising some of the water management structures that we have. During king tides we can’t open up some of the gates in these structures because the water will come inland. Then we have some saltwater intrusion into our fresh water drinking wells. So when you come up with solutions or think about a new angle, you need to think about that -- that in the future we have a higher water table, potentially higher rainfall and the ocean is going to be much higher.

So, that’s the type of scenarios. To conclude my thought on this, I think there are two approaches which I call, **“vertical retreat” and “horizontal retreat (04).**” A vertical retreat is you basically build up. That may be the first thing you’re going to try. Eventually, when you hit a tipping point, people will have lesser tolerance for risk and they’ll be getting tired of nuisance flooding, then they might think of horizontal retreat. So that’s the kind of scenarios that they need to start thinking about.

This is not an easy problem to deal with, because the decision-makers don’t have the knowledge, understanding, or experience to deal with these problems of deep uncertainty. That’s where we need to come up with ways to help them and the public out, and putting it out for the young people to start thinking about it.

(04) Is the term “retreat” the correct one? What does it mean in this context and how would it be implemented? What are the time frames? What are the socio-economic ramifications? And are they fair?

(Philip Stoddard)

I agree with both of these guys, and will add a different perspective. I’m going to take off my mayor’s hat and put on my biology professor’s hat. The last time we had this much carbon in the atmosphere—you remember that? You were all really young at that time. Several million years younger. We got that carbon because of a whole series of volcanic eruptions dumped a lot of CO2 in the atmosphere, a lot of other nasty stuff too. That nasty stuff created winters - long, long winters, and then when it settled out of the atmosphere, what was left was the CO2. Not as much CO2 as we have today. The sea level rose up to about the third floor of this building. Got it?

That sea level meant that there’s no part of Miami-Dade County that was sticking out. That was with the amount of CO2 we have in the atmosphere today. So if we stopped adding CO2, everybody drove electric cars, powered off the solar panels on the roofs of the houses like mine—recommended by the way, it’s also cheap—we would still experience sea level rise, albeit at a slower rate than if we keep adding CO2 to the atmosphere. So what this says is, taking Obey’s scenarios of retreat up and out, how do we do it gracefully? How do we preserve a wonderful life? Because it’s a wonderful life here today. People say to me, “God Stoddard, that’s kind of a doom and gloom scenario.” I said, “Yeah, but think about it this way. You have a brand new baby and you’re so excited. The doctor says, “By the way, you do know your baby’s going to get old and die, right” So you don’t throw the baby out.

You plan for a great life. So here we are in Miami, people say, “Well, aren’t you the master of gloom. Aren’t you going to sell your house?” they say. No. My backyard’s amazing. I’ve got 140 bird species back there, but I’m planning on it not being worth much when I’m ready to go or if I ever need to sell. So I’m going to put money aside to protect myself in other ways. But I said, if that is your nest egg, and if you’re counting on that to retire, you maybe think about selling it sooner.

People differ in their risk tolerance. People differ in their needs. We’re a pluralistic society. But the thing I do worry about is how do we give the land back? We’re going to protect some of the land. We are going to build up. We’re going to make coastal defenses in some places. But you know, China’s been building sea walls over about half of China, and they’ve lost their intertidal. I mean, you have the intertidal in your book (addressing Kim Stanley Robinson). It’s gone. There is no intertidal. The intertidal is just two marks on a sea wall. There’s no flats. There’s no places for the sandpipers to go, and they’re migrating from the Arctic down to Patagonia and Australia. It’s gone. There’s no sea grass bed. It’s lost.

I don’t want that to happen along our coastlines. We’re in danger of doing that if we don’t recognize that we’ve got to do a combination of protecting special places, maybe high-density places, maybe valuable places, and figuring how to give the rest back. So think about the great suburbs of Miami-Dade that are going to go under. Do you want those to be festering, disintegrating suburbs, filled with dry wall and toxic shit that people left in their garages? Or do you want it to return to what it’s going to be? I guess salt marsh as the Everglades

gets inundated. Is it going to be a big spartina marsh and sea grass beds that’s home for shrimps and the most thriving estuary we’ve ever seen? We have a choice. It’s in our hands.

So, if you don’t think about this from the economic perspective, the Wall Street perspective, which is probably the realistic one, but rather imagine you had a contract with God, where you had a lease on that land. Now, if you have a lease on the land, there’s probably terms of that lease and the terms are you return it in good condition. How do they make sure you return your property to the landlord in good condition? They demand a deposit. If you don’t return it in good condition, you don’t get your deposit back. Maybe we should be putting down a deposit on the land so that somebody has the money to restore that land back to an estuary that becomes productive for us and everybody else, and the planet, and the future. Because if the people are forced out they’re not going to have any money to pay for restoration. If that’s going to happen, it’s going to happen now, or it’s going to start happening in the near future because people say, “Hey, you know, that’s important. We haven’t thought about that. But we actually do have to plan to give it back in some way, even as we’re protecting other areas.

(A.S.T.)

With that, we want to ask Stan if he could elaborate, as one of the scenarios in the book has humans clustered in urban areas and much of the rest of the country is left to go wild, creating corridors for other species to flourish, for migration and this sort of thing. Could you speak a bit about that part of the book?

(Kim Stanley Robinson)

Sure. I want to emphasize that the scenario in my novel is an amalgam of a couple of different things at once. One of them, which you heard me read, was essentially a critique of the financialization of value and the kind of parasitic betting on real situations to make money for a small portion of the population, while the real problems go unaddressed and aren’t paid for in terms of landscape restoration. In fact, my young character Franklin Garr ends up at the end of the novel helping to finance the building of rafts, like gigantic houseboats, the size of Manhattan’s city blocks. The most drowned parts of Manhattan are effectively floating and on flexible cords that are connected to the bottom so that the entire drowned part and the intertidal become a little bit more like a kind of a Dutch solution, but more able to deal with tides. It becomes a kind of houseboat city.

I don’t know much about the situation of Miami. My research, when I wrote this book was really focused on the situation in New York estuary. But I know enough to say that maybe Miami will find a way of going forward by becoming, in essence, a kind of floating city on the land that used to be there. I realize there are problems with that, but then again Venice has been existing for a thousand years and is coping with the problem of having canals for streets.

There are ways of coping in both social and engineering terms. I would say that it’s also possible to postulate that landscape restoration and the adjustment to climate

(05) What is the work that will need to be done? What is the WPA on a planetary scale?

(06) What are the parameters of constructing a political will? There are technological solutions that have been discussed, but where are the solutions that change people’s minds?

change, both at sea level and everywhere else in the world, is going to be a full employment project. **It's going to be a total project for all of civilization (05).** There is no problem with a lack of work. There will not be a future in which all work is automated and people will have nothing to do. Landscape restoration is labor-intensive and the work of taking care of other people is labor-intensive. You can imagine this challenge to civilization as being, if met successfully, a good thing that we can react to in a way that will actually make for a stronger civilization.

And I think, what you (A.S.T.) were referring to with this--E.O. Wilson has suggested that humanity ought to concentrate into the cities and leave about half of the Earth's surface mostly free of humanity, so that the animals and the ecosystems that exist out there--the plants, the animals, the insects, the birds, can have a life of their own and return to health. Since people are gathering in the cities anyway, of their own free will, it seems like this is a suggestion for a way to go forward. This allows us to escape the mass extinction event. The worst part of the challenge of the next couple of centuries of our CO2 release, is in fact that we could have triggered a mass extinction event.

We cannot come back from extinctions. Everything else, we can come back from. So by focusing our efforts on avoiding extinctions and on adapting to all of the changes, whatever they might be, there's no reason to retreat to a kind of fantasy of pessimistic dystopia. I think that's too easy and it's very common in our culture right now to kind of go into a kind of Götterdämmerung. You know, after the deluge, so let's party now, there's nothing we can do. Actually, there's a more positive response, more active, that can dodge the extinction event and create a sustainable civilization.

(A.S.T.)

It can be harder to approach the idea of the future with optimism when you need to get specific, it requires the labor of thinking that is both speculative as well as based in a realism on multiple fronts. **We spoke, for example a bit about how to construct a political will, whether it's with a strategy of presenting a problem and already having the solution, or constructing a concept of a better future that somewhat preempts the foreseeable problems. It's probably going to be a bit of both (06).**

(Philip Stoddard)

We're fundamentally optimistic. We keep having children...

(A.S.T.)

Can we get back to a term that was mentioned by Philip? The articulation of desire, kind of referring to what Stan said, which is anti-dystopian? Our culture actually does articulate desire quite a bit, perhaps Natalia, you could pick up on this?

(Natalia Zuluaga)

I was thinking, actually, when we were just taken inside of Stan's book, that everything described about the tasks, the problems, the reality--all of it sounded

insurmountably difficult. But then I remember that there's something about Art. Initially I thought I was here because I believe that **art is in itself a speculative field. And this makes us well equipped to think about the future in ways that could be optimistic, or full of problem solving (07).** But more importantly, I'm also starting to think that we have individual and collective institutional forms like artists and institutions that are agents of change. With that, I realize the importance of the word "alliance" in this conversation. Maybe I want to go back to something you said [in the earlier session] about sister cities, and I want to bastardize that a little bit and think about "sister fields" so that when we're talking about migration, such as mass migration, we can use that to think about what happens if we all have to get out of here? How can thinking through alliances ease that process?

(Jayantha Obeysekera)

Sorry, not If, but When...

(Natalia Zuluaga)

Okay, so when it happens...Art fields, and the cultural fields, in general, already utilize communication and tools for raising awareness -- these are the things that you guys [engineers] actually recognize as being a primary problem [of yours], of speaking to communities, that we [artists/art institutions] have direct access to.

(Bruce Mowry)

But I think art can actually show you alternatives and visualize what could be in the future. As I said before, which direction do we want to move ahead? Do we look at protecting what we have today and the way we have it or do we basically project an image where a city has embraced water into it? Through art and through writing, and through music, and other aspects, through those types of mechanisms, we can actually start having people know what the options are so that you can then start saying, "That's the direction we would like to go" or "No, that's where we don't want to go."

Because right now, it's hard for many people to even to imagine change. It's like we basically lived our whole lifetime with almost no change, as far as culture, as far as climate, and water and sea level. Now we've had a lot of other changes. I mean, technology has changed everything else. I wonder how we stood back and looked at how we changed based upon advancements of new things, of new technology--

(Philip Stoddard)

The estuaries are going be to up in Orlando.

(Bruce Mowry)

Well, that's the trouble. Then it means we have almost no state left.

(Philip Stoddard)

That's probable, yeah.

(07) How can creative institutions that engage in the imagination be productive? Can art go beyond simply augmenting the vision of engineers, politicians or climate change policy? What is speculative awareness, or the active engagement with visually strategized solutions?

(Bruce Mowry)

And that's what we're saying. Again, the question, "Are we willing to accept over time that most of Florida is gone?" Or do we simply say, "No, we can actually either change Florida to a floating city or not." And then, as Philip had mentioned as he whispered in my ear while you were talking, "What happens to those isles, those floating cities during a hurricane, because you just can't pull them over here out of the way, and bring them back?"

(A.S.T.)

Can you not?

(Bruce Mowry)

You know that's a good question. Don't ever ask an engineer that because there's no problem we cannot solve.

(A.S.T.)

Think about the scale of the cruise ships...could a city not function based on a series of movable city blocks resembling what now already exist as cruise ships? Interlinking during fair weather and detaching and moving out when a storm is on its way? There would be a need to organize the space within them differently of course, but should we not have options like that up for discussion at least?

(Philip Stoddard)

But cruise ships get the hell out of the way when there's a hurricane coming.

And then we saw that ship that sank in the hurricane. I mean there are floating villages like Iquitos, Peru is a great place to see one. They have houses on logs, chained to the ground, and when the Amazon rises up, they go. The other place you'll see them is on the Tonle Sap, the great lake in Cambodia--floating villages there. It's pretty cool.

Now I learned something really important from Bruce today that is if you're going to live in water, it better be moving water. Because if the water's still, if there's people around it, it's going to get nasty. I didn't realize this until this afternoon, but we kind of have a choice. That's either stay dry or really invite the water in in a big way so that it comes in and then it flows. There's sort of no in-between that's going to be pleasant to live in. I hadn't quite gotten that before.

(Natalia Zuluaga)

I wanted to return with the "not wanting to live here" thing, versus the articulation of desire. I don't know if this summarizes it, but in a way, art and culture are quite good at articulating desire or making something even more desirable. Whether we like it or not, with issues such as gentrification we're (artists) the primary agents of it. Things follow us around. We can call it the cool factor, we can call it something else but there is something about art, you're right, that does this. So I don't think that we can ever make somebody like living next to contaminated still water. You're right.

But maybe there's a combination of desire that yields something other than systemic inequality (as in the gentrification example)...

(Philip Stoddard)

Here's the thing. It's not a combination. Either you figure out a way to keep people dry or you invite the water and let the water flow through. Just don't go halfway. It's sort of like leaping halfway across the stream. It doesn't work. Either you stay on the one side or you jump across. But you can't somewhat let the water in because it becomes stagnant and foul. So either you really have water coming through and with flushing, quite literally. Or keep it out.

(A.S.T.)

When we first started, A.S.T. was exploring this idea of control joints. It was this idea that you could think about the control joint which engineers the cracks...that they could flex a bit...

If you could speak to the history of the state, or the history of state canals, and stopping that flow, which is what you're getting at, versus something that might be actually more in line with that flow? Because maybe this is hyper-engineering. We're not engineers but it is something we (A.S.T.) spoke about, as a speculative idea very early. This idea that one could possibly engineer with flows per se, rather than trying to hold back the tide.

(Bruce Mowry)

We can engineer anything. And Obey's whole group does nothing but put in canals and manage the water.

(Jayantha Obeysekera)

Yeah. One challenge. I'm not sure about Philip's idea of whether it's all dry, or nothing. I'm not sure if this idea of flowing water is going to work in Florida. But, you know, unless you put, like in Disney World, lots of pumps and a bunch of engines pumping water--

(Philip Stoddard)

I was thinking of coastal currents, Obey.

(Jayantha Obeysekera)

If you can find a way to get the coastal currents to do the work, though sometimes you're not going to get any flowing water, then they're fine. But it's not like San Antonio or in Texas, or somewhere they have some slope in the land so you can have a flowing river. I think it's difficult. Even in our canals the water is stagnant most of the time, except when there's a big rain.

They were designed for the flows under storm conditions. They were not designed to have flowing canals.

(Bruce Mowry)

But these canals really don't have people living on them. He (Obeysekera) has almost no people who are living on those canals so he doesn't have a pollution load onto

(08) As our coastal infrastructure and urban spaces are inundated by rising seas, there will be the need for a major restructuring of how we live. Could this be an opportunity to rethink social structures, reorienting them toward a broader distribution of justice and economic power?

it. If you don't have the dynamic condition, then you'll basically get septic or stagnant water. Now, the question comes back sort of like you [Stoddard] said, the mistake they made in China with the sea wall, is that they didn't allow a certain amount of seepage through the wall, in and out, limiting the height of the tide, but it's still continuing the wet and dry.

We designed a number of ponds in California where we could actually maintain how the shore works and so forth because we regulated how it allowed the tide to do it rather than a bunch of pumps. We can work with what Mother Nature has given us, but we may have to dampen it or reduce it slightly in order to not allow the tide to keep going up. I don't like the idea of man re-creating our environmental condition, and we've never seen it work perfectly, but we may have to consider it if we're going to co-exist.

[A.S.T.]

Can we ask a question about an engineering problem regarding these flows, and the limestone in South Florida? You [Obeysekera] were saying that the water moves through the stone to such an extent that fish can swim through, and it creates a force as it passes through. Is that something from an engineering standpoint that can be an advantage to keeping the water moving in a partially submerged Miami Beach, for example?

[Jayantha Obeysekera]

That flow is where water is very small within the geology of porous limestone. There's the bigger problem of saltwater invading our fresh water wells. Think of it more as contamination. I don't think that can be used as an asset. But I just want to make another point. As the sea is rising, the ground water levels are going to come up. One problem we haven't talked about is that a lot of areas have septic tanks. So basically this water table will be in contact with the septic tanks, that's when the contamination--

[Philip Stoddard]

The toilet flushes into the bathtub.

[Jayantha Obeysekera]

We always say "We live and die in the same aquifer."

[Bruce Mowry]

And then the bathtub drains back when the tide goes out and the sink snaps. It sits in that stagnant water and becomes a cesspool.

[Philip Stoddard]

This is when the mayor gets the phone call. My plumber says that the water table is causing my septic system to fail. When can you put in a new municipal sewer? And I say, "Can you hold it for forty years?"

[Bruce Mowry]

It seems that we have had fun all afternoon. We're all sitting here and what's clear to me in what we're saying

to you is that the technical aspect is not all agreed upon. So it's extremely hard to communicate to the non-technical part of our society when we are still in debate on our side. And why? Because sometimes we know too much, and therefore it's hard for us to come to a conclusion. That actually every time somebody comes with a position, five of the people sitting there figure out why it's wrong, and five of them have valid reasons. It's like when Philip said today "so and so has developed that, and has decided such and such..." I said, "No, they haven't. They just wrote their theory and they're waiting for the other people to comment and tell them where they're wrong because every time somebody else will come up and say, "This is what's causing it."

Nobody is 100% telling you how sea level rise is really occurring. They will tell you all the factors that are important. They don't know how fast, or what the magnitude is. Is the CO2 value really going to raise the water to prehistoric levels? That's not known. It's speculated that yes, at one time water levels were significantly higher, but there were a lot of other things in the world at that time that could have contributed to this and not just CO2. So to say, when the CO2 goes to that level, we're going to have water up on the third floor of our buildings is not a clear statement. There are other parameters out there that are impacting it other than just CO2.

[A.S.T.]

Which is actually why seduction rather than threat is going to be the important way to go.

[Bruce Mowry]

Seduction? Desire? What kind of talk is this?

[A.S.T.]

...Two things. First, could we raise the importance of design that has contingencies and probabilities built-in? Design with a certain kind of responsiveness -- so that you're not designing top-down, covering a landscape or region with a certain kind of fixed infrastructure that will only function in the current conditions. Is a more adaptable and responsive infrastructure possible? Not necessarily future-proof but future-friendly at least? And secondly, in reference to something that you [Mowry] said, that it's difficult for people to change, nobody likes changing. On the other hand, we are incredibly malleable in terms of how we respond to technology. Aren't there ways that we can look at the tech industry to better understand how widespread cultural norms are established? Like everyone needing a cell phone, for example. What happens every time a new Apple comes out?

It's that desire.

[Philip Stoddard]

It's a seductive little device.

[A.S.T.]

Because if you focus on the thing that people are threatened by, ie your house/city is gonna be under water, our allegiance to our short term memory kicks

(09) In order to counter short term thinking (merely returns on 3D assets) what would landscapes with intelligence look like?

in. Unless we're threatened by it now, or next week, or we can see the hurricane heading towards us, we revert to understanding the situation as some abstract unspecified future that we can convince ourselves we might not have to deal with. **But if you paint it as something that will be better, indeed more desirable and accessible regardless of whether the hurricane is going to hit or not, then these more adaptable and hopefully viable futures start to ease themselves into becoming cultural norms rather than imposed conditions (08).**

[Jayantha Obeysekera]

I think you made an important point. First point, Bruce said nobody can predict how much and when, but we don't want to give you the idea we don't know anything about the sea level.

[Bruce Mowry]

Okay, speak for yourself.

[Jayantha Obeysekera]

And now you will say, this guy doesn't know anything. Why do you even want to even touch this part, right? But that's not the case. We do have, what we call scenarios--potential alternate futures that we can think about. What you said is very true that you need to have adaptive designs. In other words, what we call dynamically adaptive pathways to solve this problem. You want to solve the problem, let's say for a couple of decades. **But you always want to look ahead, you don't want to pre-empt yourself from having a bigger solution later. You don't want to have the land worn out by developers (09).** There must be 'something' if you think that you need that land later. So it's a Type 1, Type 2 situation that you always want to keep an eye on the long term, but design for the near term using an adaptive logic. I think that's the way you can think about it when you come up with solutions.

[Bruce Mowry]

I think what you're saying is we have a range that we're looking at, and if we've designed our buildings, our infrastructure, so it's flexible, and so that it can be changed within that range. So as an architect, you can design things to say, "This is the range." It may only be here, or it could be there, but the building would be able to survive both. It doesn't hurt to design it for a higher level. The question right now is we tend to have people wanting to hit the minimum rather than trying to do the desirable, and if we're looking at saying, "If we put it into our design philosophy, it's not going to cost that much difference. It's better to build it in to the beginning of a building so that we don't have to worry about "can we jack that building up in the future? Can we raise that road in future? Can we change?"

Then of course we know that our resources are going to change, our availability of freshwater is going to change if the Everglades go underwater, with salt water (10). The question is, do we then need to be building buildings that involve conservation or that use a lot of recycling within that facility. So that building needs to be designed today because within a hundred-year life of that building or so, it's going to

have to change. It's going to be more expensive. Should it have the ability to modify for solar and wind and other aspects of sources and should we look at it? Those are some of the things that are going to be more expensive. Should it have the ability to modify for solar and wind and other aspects of sources and should we look at it? Those are some of the issues.

[Natalia Zuluaga]

But is it a policy? Are policies like zoning and regulation moving at that adaptive rate for those things? They're not, I know. But do you see a future where they will be?

[Philip Stoddard]

Oh, yeah. Yeah, I think so. But I have a question. So follow me a second. So for the people in this room--it's a two-part mini-exercise. If you spend a chunk of your day and a chunk of your night at different places, raise your hand. Does anybody else not sleep where they work--hands higher so I can see them. Okay.

Now, I want to know how far you go every day. I go about 8 miles each way or 7 and a half miles each way. So if you go less than one mile each way between your day place and your night place, put up your hand.

Lucky you.

Two miles?

[Bruce Mowry]

Looks like he lives right there.

[Philip Stoddard]

Two miles. Anybody go roughly two miles?

Four miles?

Eight miles?

Sixteen?

[Jayantha Obeysekera]

Wow!

[Philip Stoddard]

32?

64?

Now who lives in the Keys? Okay. I have colleagues in FIU who live in the Keys. Okay. Now, of those of you who go more than one mile, how many of you wished you went one mile?

We've just found desire...

So can we build a city, and think about this now. If you do a map--the MPO did this map. They mapped where people lived in Miami-Dade County and they mapped where they work. The job centers were not the same as the residential centers. There is this big disconnect. Which tells you that people have to get from here to

(10) Drinking water will be an issue. There's also the issue mentioned earlier of saltwater entering our fresh water wells. Thus who owns the aquifers in the state? How will they be monitored?

(11) Housing will be an issue. How can we subsidize housing in order to provide both supply and demand? Do we need a workforce housing tax?

If you didn't spend your time driving hither and thither, you could spend more time doing nice things, enjoying yourself and being sociable. So I think everybody's quality of life goes up if we could get people to live and work in the same place. Which also relieves us of a lot of the transportation problems that are now vexing Miami-Dade County. We're trying to figure out, "Oh my god, how do we get everybody from here to there quickly and efficiently at no cost?" Which is kind of tough. What if they just lived in the same place and they could walk down the street or take a bike?

(AST)

The thing with policy/regulation/legislation, it is only part of the issue. It's important, essential, but also there need to be a shift in cultural norms.

(Bruce Mowry)

Well that's what I like about vertical migration, that you can build a smart building that has basically everything and all the needs of the people, within a vertical structure...

(Philip Stoddard)

That's what I like about it.

(Bruce Mowry)

...and we don't need horizontal migration.

(Philip Stoddard)

This is why Bruce and I don't actually get into fights because we fundamentally agree about stuff even if we're cantankerous SOB's that like to wrangle about the details...

(A.S.T.)

One of the essential things if we're going to go vertical, is that it needs to be viable for not just the super rich. You're going to need nurses, teachers, EMTs, you need people that will make a city function beyond just finance.

(Bruce Mowry)

But that's what we're saying in terms of this issue. It has to have all the levels of society, including workforce housing, so you have to do that. But you can do it within a vertical concept or within a clustering or smart growth type of concept.

(audience member)

Hi, how are you? What design frameworks are you guys looking at, or using in terms of resilience and planning?

(Philip Stoddard)

I would say the 34 municipalities aren't looking at any framework. They're all being a bunch of NIMBYs and saying, "Don't do it in my city. We like everything to stay exactly the same as it always was," even though the world is changing around them. I see in general, that the municipalities are doing a miserable job of it. Miami

Beach and the City of Miami being possible exceptions because they're big enough that they recognize the transportation within their boundaries is a serious issue. For the smaller municipalities, they just absolutely are not getting it and I would include South Miami as one of those, much to my chagrin.

(audience member)

What about in your practices? What design frameworks are available? Are you three looking at LEED (Leadership in Energy and Environmental Design)? What specific things are you guys looking at?

(Jayantha Obeysekera)

From a water management point of view, we typically design for a 50-year planning horizon. Then we look at sea level rise scenarios, for example. We have sea level rise curves. We use tools for planning purposes and then we basically look at what we call "design standards." The standards are in the rulebooks or manuals that we have to follow - rules, for example, for up to a 100 year rainfall event. We use those for flood protection planning and those things. So those types of design frameworks are already there. What are not there are the new things like climate change and sea level rise. They're slowly coming in.

Even at the state level, we've only recently heard about "adaptation action areas" where you can have land use planning policies within those areas. So I think it's coming up. We talked about that earlier--the way to make changes is to have those design standards in the books so that developers, consultants, and everybody will eventually follow that. That is what we're missing right now.

(A.S.T.)

And how do you expedite those standards?

(Philip Stoddard)

The REMI standards are probably the ones I'm most interested in digging into. And we're doing those right now. It's sort of to climate change, what LEED is to basic efficiency of design. It's a more comprehensive set of design and planning standards.

(Jayantha Obeysekera)

I think about how do you make that change, and I think that's a difficult one. You're going to need to have some champions at the local government level, even the state government level, to implement those wholesale changes that are necessary in changing the standards that the consultants and people will have to follow.

(Philip Stoddard)

Yeah. But you see these things. I'll whip out the silly phone again because this thing-- when you all know of the different things this thing can do then we used to have to have a hundred different objects to do what this thing can do now. It's even a level. It's half my toolbox and it's a scanner. It's a fax machine, it's a telephone, it's a camera. There are ways of changing the tangibility of things, if not the ownership. The most important thing

We acknowledge the complexities with regards to climate change: of defining approaches and solutions relating to problems at scales and time horizons that are illegible or unfathomable to most of us.

Furthermore, there are both simultaneous dominant and parallel narratives circulating and cross circulating, creating multiple and conflicting messages, impeding meaningful and substantive action.

to my daughter, it's not owning a car, it's being able to use a car. And she's perfectly happy to have somebody else drive her around. So she has my credit card number on her Uber account, and I don't pay for insurance or an automobile, or anything else and neither does she. Works out pretty well for the both of us. I never worry about her triangulations, I just sort of see that she goes to interesting places around Washington D.C. And she's got this phone. That and a few clothes and the kid is set. And she can work anywhere in the country.

(A.S.T.)

But people on Star Island are happy with their mansion time-share.

(Philip Stoddard)

I don't worry about people on Star Island. I'm more interested in the people in Hialeah.

(A.S.T.)

Yeah, but the concept of desire also kind of really depends a lot on the concept of access too. This also assumes or imagines a future scenario or narratives that are still part of a dominant organizing principle. And this is not an answer or a question. It's more of a common frustration with it, is that sometimes you want to imagine other models that don't just depend on the limited resources or access, or little floating islands only available for a few. These are the things that you're pointing to.

(Philip Stoddard)

This is what keeps a mayor up at night. Because realistically, what I know is that if a young family wants to buy a house, at some point they're going to have to make a choice. Life in Miami is going to be expensive because everything has to be built special for it to deal with the water. Building to live with water is either really cheap because you live in a shack and it washes away sometimes. For instance, I got a call from a former student of mine yesterday. His boat got smashed to bits in Key West. So it's a tenuous existence. Or you really build, do the engineering and you do it right, you make it viable, and that's expensive. And maybe we subsidize the workforce with a more affluent population, but the alternative is just to move to Atlanta or Orlando, where you don't have that incremental cost, where you don't have the flood insurance, and you don't have the wind insurance. And the cost of living is a third as high. And so folks are simply going to do that because it's cheaper, which is going to cause the horizontal migration.

They're not going to get forced out necessarily by the water, they're going to get forced out by the economics. So, you're a young couple and your combined income is \$80,000 a year, you can have a pretty high standard of living in some places and a pretty low standard of living in others. Median area income in Washington DC is \$100,000. Miami Dade County is \$50,000.

There are some places you can live like a king for that. In other places where you're dirt poor.

(Natalia Zuluaga)

No. I'm not going to be buying into the asymmetry as a reason to move. For example, if I have to move to Atlanta, because I make less, and some guy or family that makes \$3 million gets to stay overlooking the ocean and the beautiful sunsets: I'm always going to be aware of that asymmetry. These scenarios imagine that people will want to leave because it's really shitty here, or unlivable.

(Philip Stoddard)

It's already happening.

(Natalia Zuluaga)

Obviously.

Again, those will be felt differences. Your scenario doesn't account for the riots, the despair, or the people holding on to their roofs. Those scenarios only imagine one dominant economic model, which--as said before--is based on desire and access and the lack of access producing the same old results. It is the same economic model we have now which doesn't allow for imagining any other system that could aim for more equitable access or results. Let's go back to your earlier exercise of "finding desire" based on proximity between living and working. It feels a little nefarious that we should lean on the ease of finding "desire" as the litmus test for planning the future. Why don't we develop questions that lead us to different political and economic wills that don't have inequality as a necessary component of the equation?

(Philip Stoddard)

But you know, here's the thing. We've been trying this in Miami Dade County and we're fighting resistance on it. Commissioner Barbara Jordan, this past year, tried to get an ordinance county-wide to require any new development to have some percentage of the building pay up workforce for affordable housing. She couldn't get any support for it. I tried the same thing in South Miami, it's even in our Comprehensive Plan as a policy. I tried to put it in the codes--no! The NIMBYs came out--not going to happen. So there's people trying to do this to create alternate realities. Bruce was talking earlier. He says, if you want to be realistic about it, forget 12% workforce housing, you got to go 50%, and that's a minimum really, figuring out what the actual pyramid of incomes is. Most of the people need workforce housing because that's, by definition, sort of how things work. And yet we're not even approaching that. So we've got Chinese investors and all kinds of flight capital, buying up real estate in Miami and the people who are doing the work are telling me, **"Look, I can afford to live in Homestead or way the hell up north, but that gives me a three hour commute into the center of the work areas. I can't do that" (11).**

(Philip Stoddard)

Did we hear a whistle?

(everyone laughing)

Subsequently, we are facing realities for which individually and collectively we are not prepared. Perhaps the very capability of navigating uncertainty is the initial challenge upon us. In that cone we may find variegated approaches rather than dominant solutions.

In this spirit we encourage feedback in the comments section within the online version of this article.