Bob (Robert) Ulanowicz Interview

Of currencies, coral reefs and cooperation . . . ecological network theorist Bob Ulanowicz talks to Harald Katzmair about why understanding networks is crucial to understanding the world. In contrast to the generally held opinion, he believes cooperation precedes competition in nature – and more generally.

You're one of the main founders of modern ecological network theory. You ask very fundamental questions about life and how the planet works. What would you tell someone who is more practically motivated about why understanding networks is key to making change in any aspect of life?

We live in a highly connected world, and whatever we do has ramifications. The only way that I think we can truly come to terms with the social and economic environment of our interventions is to look at them in network fashion. The network tells us what the consequences of our actions will be. It also shows us where the best opportunities for growth and action lie.

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What can a philanthropist who wants to foster collaborative networks learn from a coral reef, for instance?

The coral reef is an oasis of nutrients and resources in a virtual desert. The ocean that surrounds most coral reefs is nutrient poor and yet one observes this very tight circulation of nutrients within the coral reef. Such cycling is emblematic of positive feedbacks, which of course is what we strive for in much of our economy. It helps things grow, but it also helps to stabilize things.

I'd like to ask you about the theory you've developed around the relationship between cooperation and competition. You showed that cooperation always comes first and competition is actually a result of mutual beneficiary cooperation. This seems counterintuitive. Can you explain it?

The first thing to realize is that without cooperation at one level, you cannot have competition at the next level – it's virtually impossible. If you look at two organisms that are competing – say, a hyena and a lion, for prey – what you discover is that each organism in itself is what Bob May calls an orgy of mutual benefaction. In other words, the organism itself is a collection of cooperating elements that need to work together for it to function before it can compete with other organisms.

Even competition at the next higher level occurs between spheres of interest (packs and prides), which are cooperating with each other internally. So I would argue if you really want to understand the world, you should first look at mutual benefaction and then look at competition. As you mention, that's just the opposite of how most people approach it.

How can you help establish those cooperative relationships in a hostile environment? In an environment or a network, for instance, where people are poor or under stress? How can you come up with something that stabilizes the whole thing, and helps to create those mutually beneficial relationships?

Very good question. One thing about the coral reef is that there are many avenues of mutual benefaction; there is not just one overwhelming circuit of mutual benefaction – and many of them are parallel. Now the importance of parallel actions goes against conventional economic theory where the efficiency of the market is assumed to drive absolutely everything. The obsession with efficiency actually leads to over-development, to cyclical crashes. The coral reef is reasonably stable because there are *multiple* ways of feeding back.

One of my colleagues, Bernard Lietaer from Belgium, has suggested that part of the reason that we have these global crashes is that we're on virtually a single world monetary system. He advocates the creation of local currencies, because these give you local parallel networks that are, to some degree, decoupled from the major global network and in times of stress they

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can grow to maintain the local economy in the face of global crash. I think we can draw a lesson from the coral reef that there isn't one monolithic, homogenous (or hegemonous) economy there; there are cycles of carbon, there are cycles of nitrogen, phosphorus and trace elements too. And these are all to some extent coordinated and to some extent independent of each other. Whenever one is affected, the others can take up the slack to some degree.

One of your really important findings is that these cooperative systems create a kind of force to draw resources from the environment. But on the margins of the social world, when people are put under stress and don't manage to establish this kind of mutually beneficial architecture, they feel the force of the pull but don't get the benefit. The periphery gives, the core takes, so in our social world and in market economics, the rich get richer, the big get bigger and you have over-centralization. What does nature do when a system gets too centralized?

The prevalent attitude, at least in the US, is that it's all 'trickle down' but this pales in comparison to the 'bottom-up' movement of resources, or what I call the 'suck up'. How can we invigorate the periphery? One of the things we can do is promote cooperation at the lower level. This is an old notion and goes back to what Vincenzo Pecci in the late 19th century called subsidiarity. We have to essentially try to re-establish subsidiarity by creating cycles of mutual benefit at the periphery. And hopefully there will be some sort of a tension or balance between the large middle and the periphery. How to go about this? One of the ways, I just mentioned, is through small local currencies. You start to create these cycles at local levels that are to some degree independent of the large global nexus.

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Currency is a concept from economics, and I know you are also interested in metaphysical questions. How important do you think the question of meaning or values is in those regional or local networks that start with their own self-reinforcing flows?

Side by side, they do overlap to some extent in the sense that currency is generally based on trust. Money is based on trust, often in the form of debt. If you can create the small mutual beneficent structures at the lower level, you are encouraging local trust as well.

And sometimes currencies establish themselves. Bernard Lietaer gives a very graphic example. In the *favelas* of São Paolo, in Brazil, they have very narrow streets, and garbage was piling up. The mayor wanted to clean this up so he offered free bus tickets to anyone who would bring so many kilos of trash to a central collection point. People started picking up the trash and taking it to the collection point and getting a bus ticket. But rather than ride the bus with the tickets, many started trading them, and it actually created a small currency of bus tickets within that *favela* that revitalized the local economy. This is self-organization.

You can also establish a currency. I think some cities in the US have done that: Ithaca, New York, Washington DC. There are also problems with this: it is possible to get in trouble in the US for trying to establish a currency, as it can be considered domestic terrorism according to some laws, which I think is terribly counter-productive. If you have a local currency, you might consider creating local banks, where the major point is not the interest accrued but the stimulation of circulation. It would be a very low, perhaps no-interest banking that could help to establish local subsidiarity.

So saying we need more than one currency also means we need more than one scale to assess the value of an entity. In the coral reef, there are different nutrient cycles – they're all kind of different currencies. Is this right?

I think it's a good analogy.

If somebody were to give you $1 million to invest in a philanthropic project, what would you do with it?

I'll have to admit: I admire Bill Gates for the way he went about his philanthropy. He's very systematic. He looked at the problems of the world and identified the one with the biggest benefit-to-cost ratio, which is exactly what I would have done. Lots of people are dying in third world countries because of dehydration, and for literally pennies you can save lives. Though I've talked about networks and so forth, if you gave me $1 million to spend on philanthropy, I'd do something similar to that. I would find a problem that has a very high return in terms of its benefit in saving lives. @