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# Sail Transport Network's presentation at Bioneers By The Bay

Contributed by Dmitry Orlov  
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Editor's note: The Marion Institute held its well-attended Bioneers By The Bay conference at the University of Massachusetts - Dartmouth from October 20-22, 2006. As part of Jan Lundberg's workshop "Petrocollapse and Mitigations for the U.S. Northeast," Dmitry Orlov presented the fast-advancing concept of sail power as a practical system for offering coastal and global travel when fuel prices and supplies are prohibitive for land and air transportation.

Under sail, the volume of travel would be vastly decreased compared to today, as would trade-transport volume. But sail power can provide some minimum basis for travel, cultural exchange and trade, using renewable energy and, eventually, using all renewable materials. Here is Orlov's talk, which was accompanied by a slide show of tables, talking points and photographs, incorporated herein:

STN

Hello everyone! My name is Dmitry Orlov. You may have run across some of my articles if you have visited Web sites such as [CultureChange.org](http://CultureChange.org), [FromTheWilderness.com](http://FromTheWilderness.com), [SurvivingPeakOil.com](http://SurvivingPeakOil.com), or [LifeAfterTheOilCrash.net](http://LifeAfterTheOilCrash.net).

A couple of years ago, I published an article on [FromTheWilderness](http://FromTheWilderness.com) titled "Post-Soviet Lessons for a Post-American Century." It made some predictions about the United States based on my experience of the Soviet Collapse. I hadn't set out any particular timeline for these predictions, but some of them have already started coming true. Contrary to what you might expect, this doesn't make me particularly happy. I'd much prefer to be proven wrong, but I suppose that's too much to ask. But, in essence, if you've seen one blundering superpower, you've seen them all, and I prefer to move on to more positive things.

And so, I am here to talk about our plans for the Sail Transport Network, which Jan Lundberg tried to launch some years ago, and which we would like to re-launch now. Right now, it's still very much in the drawing board stage, but we do have a concept that seems promising. I will present an outline of this concept later on in this talk, but, to start with, I'd like to say a few words about sailing and sailboats in general. As you will see, sailboats have been very much marginalized, but this will have to change.

About a year ago, I decided to try to make some positive changes in my life, and, if possible, around me as well. And so I became interested in sailboats. Sailboats, of the serious, ocean-going variety, are either a very extravagant hobby or a really cheap way to live and travel. Few people can afford to own real estate free and clear, but most people can afford to own a boat, provided they live on it. Even an extravagantly expensive marina, like mine (Constitution Marina in Boston) is cheaper than the cheapest studio apartment I can find within bicycle commuting distance of my job.

It's a house that moves with you wherever you go, that you can own free and clear, that you can maintain and even build yourself. If you live and travel on a boat, owning a car becomes impractical because you can't put a car on a boat, so you ride a bicycle instead. So there is a large category of expense gone. No rent or mortgage (a marina slip is rent of a sort - cheap rent), so there's another large

category of expense gone. Boats require more or less constant maintenance, which is physical labor, and sailing is quite a lot of exercise, and so with that and all the bicycling, you become physically fit, and your medical expenses go down - another large category of expense gone. Lastly, the amount of storage space on a boat is limited, and so it is just not possible to accumulate useless junk, which is what most people do. And so you are not going to spend money on useless junk either, because you have no place to put it. And so you don't have to earn a lot, because all that money that you would normally spend is saved, and you end up independently wealthy very quickly.

Beyond such practical considerations, it's important to understand that sailing vessels are a key piece of human technology. They predate industrialization by many centuries, and they will be around long after industrialization has run its course. If it were not for sailing vessels, most of us wouldn't be here today, and the rest of us would probably be conversing in some dialect of Algonquian. Sailing ships run on food and water and wind - all renewable. They can be made from renewable materials as well: wood, hemp, flax, and pitch. They have infinite range, in space, and, because they can be made renewably, in time as well. If we want to make it to the future, we'll need sailing vessels. The culture of sailing is rich, ancient, and largely intact, and can be used as the foundation of a post-industrial lifestyle with a minimal environmental footprint. It is also a culture that fosters competence, fitness, self-reliance, and courage, which are all things sadly missing from the world we see around us.

Most of the sailboats we see around us today are little plastic toys, sailed by people wearing little plastic outfits. The vast majority of sailing vessels of today are not made of renewable materials. They are made of epoxy, fiberglass cloth, stainless steel, aluminum, and polyester, with a bit of Nylon, Kevlar, Neoprene, Teflon, and Lexan thrown into the mix. There may be some exotic tropical woods thrown in as well, for interior cabinetwork and joinery and fancy brightwork. So you have oil, gas, metal ore, and tropical rainforests going into one end of the pipeline, and sailboats coming out the other – for the time being.

These are all excellent materials, and we should use them while we have them. And it is not even entirely clear what we will do once we no longer have them, because going back to the old ways may not be an option. Boatbuilding requires very good quality timber, which comes primarily from old growth forests. These have been logged extensively already, and most of the timber we can buy now is simply not good enough. The new trees are planted too far apart, and the wood is too weak.

And so, traditional boatbuilding materials can no longer be obtained in any great quantity, at any price. The builder who built my boat, about 20 years ago, used Douglas fir marine-grade plywood and solid fir timbers for ribs. He told me that he couldn't have done that today - the materials are no longer available. What was possible in 1990 is not possible in 2006.

But since we have excellent industrial materials, like epoxy, stainless steel, and fiberglass cloth, we should be able to make up for this lack of good lumber, and build excellent boats in any case – for the time being.

We can, but, as it turns out, we rarely do. Modern, mainstream sailboat design is just another victim of the consumer economy, and, as such, it has become a slave to just three needs: sport, luxury, and recreation. Let's take a quick look at each of these.

Sport results in sailboats that go really, really fast. Faster than an arthritic bicyclist with a flat tire. You know that sailboats don't go fast, right? That's actually a good thing: boats shouldn't go faster than the maximum speed at which they can survive a collision. A boat's maximum speed is determined by its length. There is a simple formula: square root of length in feet times a fudge factor (1.34) gives you maximum speed in knots. The longer it is, the faster it goes. To double the speed, you have to quadruple the length. But the cost of a boat is roughly the cube of the length (you pay for the volume, not length). And so if you are paying for speed, you encounter diminishing returns pretty quickly. Unless there is prize money to be won.

This means that for a given size, you can only make a boat go just a little bit faster, and that is what the sporting types try to do. What they sacrifice in the process is a lot of comfort, a lot of ease of use, quite a bit of safety margin, and a lot of money. But sport is what dominates the sailboat industry, producing expensive, fragile, uncomfortable boats that go just a tiny bit faster.

The influence of sport gives us hull shapes and rig shapes that are not particularly practical. The hulls tend to be rounded on the bottom, because that reduces wetted surface area for a given displacement, reducing drag, and allowing the boat to go little bit faster. Another effect of rounded hulls is that the smallest ripple sets them swaying and rocking back and forth. Imagine putting a sphere in the water and giving it a spin - it will spin really well. Now try it with a cube - it won't spin, will it, because the water can't get around the edges of the cube. And so square-bottom hulls, such as you find on dories, or sharpies, tend to be much more comfortable for the crew and the passengers than round-bottom hulls.

So sport influences the shape of all production sailboats, but when it comes to luxury, there is an additional set of requirements. Firstly, Mr. and Mrs. Toomuchmoney need something to spend it on, to show off to their friends. So that means lots of solid brass and bronze fittings and varnished hardwoods everywhere. Secondly, Mr. Toomuchmoney is not much of a sailor, but likes to push the buttons, so there have to be lots of buttons for him to push and screens to look at. Thirdly, Mrs. Toomuchmoney has a voice in the decision-making process, and what she will do, invariably, when making up her mind, is go into the heads, and flush the toilet, and it better flush at the push of a button, because God forbid Mrs. Toomuchmoney should have to pump water herself, or, horror of horrors, that she should have to resort to the traditional cedar bucket. And she'll also run the shower, and warm water better come out of the showerhead, because God forbid Mrs. Toomuchmoney should have to squat in a washbasin. And then she'll look for a washer and a dryer. And a place to plug in her hair dryer.

And what all these power-hungry gadgets mean is that there has to be a big power plant on board, and huge tanks for diesel and fresh water, and all the associated hoses and electric pumps and valves and filters and through-hull fittings, so that by the time you're done, it's more a floating winnebago than a sailboat. Not only that, but since Mr. Toomuchmoney is not much of a sailor, the sails will be on the small side. And so this boat will only sail under perfect conditions, and have to motor the rest of the time, with the sails flapping around. But that is fine, because they have to run the motor all the time just

to power all of their gadgets.

So much for luxury. Now, as far as recreation, Mr. and Mrs. Toolittlemoney want to have the same thing as Mr. and Mrs. Toomuchmoney, but for less money. Of course, Mrs. Toolittlemoney is more likely to be an outdoorsy sort of gal and not require quite the full complement of pumps, hoses, valves, macerators and holding tanks. And so they settle for something similar, but, obviously, it can't be top of the line. It has to be something simpler, smaller, and more cheesy. These boats have systems that break down a lot even when they are new. Also, they are designed for planned obsolescence, and after 20 years they become unfinanceable, uninsurable, and their price drops almost to 0.

So this is the state of the sailboat industry. There is no need to despair, however, because there are perfectly good designs, and excellent materials, for building boats. Many people have bought excellent boats second-hand and refurbished them to suit their needs, or even built their own hulls. The most versatile, cheapest, and most trouble-free boats are made of plywood, screwed together with bronze or stainless steel screws, laminated with epoxy, covered with fiberglass on the outside, and coated with Polyurethane paint inside and out. Here is the boat I bought. It's not expensive, it's easy to maintain, it's safe and comfortable, and it can go anywhere: oceans, rivers, lakes, canals. Its designer and builder, who has built some 60 boats, lived aboard this boat and cruised around with his family for 10 years.

I see no reason to shun high-tech materials while they are still available. Aluminum masts, stainless steel rigging, and synthetic fiber for sails and ropes will be available for quite a while, first new, then through salvage. Eventually, we'll have to start going back to wood timbers and planking, tar and pitch, wooden masts, hemp for rope, and flax for sailcloth. The timbers are the one point of real worry: without the old growth forests we may all end up marooned.

So far, I've talked about sailboats in general, and about sailboat ownership, living aboard boats, and the state of sailboats in particular. What I haven't talked about yet is the practical usefulness of sailboats as a form of transportation. And this is precisely the question that Sail Transport Network is designed to address. It is designed to make use of the existing inventory of small-to-middling cruising sailboats, as opposed to large schooners or square-rigged ships, because these are unlikely to get built in crisis conditions. And crisis conditions will arrive as soon as enough people wake up and realize what's happening to their treasured middle-class lifestyle.

The trends that will once again make sail a viable form of transportation are already in place, but, for the sake of the argument, let us think a few years forward. Suppose it's 2010, and you want to travel up or down either coast. You might consider driving, but gas is now very expensive and often hard to find. Also, the price of asphalt has gone through the roof, and so the roads are full of potholes, making for a slow and rocky ride. You might consider taking a train, but Amtrak has been largely shut down, because, you see, it was too expensive for the country to afford. And you might consider flying, but ticket prices have been driven up by the cost of kerosene, plus there is a new terror scare due to intelligence reports of a plan involving elderly Al Qaeda members with exploding dentures, so they make you check everything including your false teeth, and then make

you put on a hospital Johnny before they handcuff you to your seat.

And so you decide to try sailing. There are quite a few sailboat skippers looking for crew, but you know nothing about sailing, so you do not qualify as crew. And then you find out about STN. You go to the STN Web site, do a search, and find several boats planning the passage you intend to make. You go and look at the boats, interview the skippers, and decide on one. You then go back to the web site and submit the payment for the finder's fee. On the day of departure, you simply show up at the dock. STN has already provisioned the boat for the passage. You come aboard and sail off. Your room and board are covered by the finder's fee you paid. If you are so inclined, you can take part in various quintessential sailing activities, such as baking bread, cooking stew, mixing drinks, and keeping a lookout. If you are not so inclined, you can just hibernate in your berth or read a book.

The function of STN is to match up travelers with boats, both going in a particular direction. The traveler pays STN a finder's fee. In turn, STN helps provision the boat for the passage, supplying food, water, and other consumables through local subcontractors. Since sailing often involves unforeseen delays due to weather, it is STN's policy is to provision the boat well in excess of what's needed for the passage, topping off all tanks and stocking the pantry. This makes it popular with skippers. Since no money changes hands between the traveler and the skipper, or between the skipper and STN, this is not a passenger service, and none of the many regulations regarding passenger service apply. This also makes it popular with skippers.

This service makes sense to the traveler, because it provides a relatively inexpensive way to secure room, board, and transportation to one's chosen destination. It makes sense to the skipper, because it is a way to provision for a trip in exchange for a berth that would otherwise remain empty. STN makes sense as a small-scale non-profit, because it is basically a public database with several different web interfaces, plus a service that manages subcontractors that do the provisioning. Overall, it makes sense as an efficient sailboat provisioning service, because local subcontractors are able to deal with local farmers and wholesalers, and can obtain the best local foodstuffs at the lowest cost.

So this is the entire STN concept, at the moment, as it stands. So far, I remain reasonably assured that there are no legal or technical obstacles to making it work. So we should probably just try it, and for that we will need some volunteers, and, later on, some seed funds for putting the technology piece together. Step 1 is signing up some skippers. Step 2 is matching up some travelers, and collecting finders' fees. Step 3 is provisioning the boats. Then we repeat, in different places, and at increasing scales and levels of sophistication and automation.

As far as the software piece, I've programmed a fair number of systems like this. One, [machinefinder.com](http://machinefinder.com), remains popular to this day. It matches up farmers with used farm equipment that's for sale nearby - tractors, combines and so on. Since it reduces the need to haul equipment over large distances, it saves a lot of diesel. One thing I learned over the years is that you never write software until you've met your users and found out what exactly they want. "Build it and they will come" just doesn't work. So we should start small and simple, and go through a lot of iterations.

So the next step is to try it. Once we place a few travelers aboard a

few boats, we will know a lot more than we know now, and will be in a position to scale up the operation. I am sure that the network will be quite informal at first, which is half the fun of it. So, if you are interested in giving this concept a try, please contact me or Jan. The next sailing season is a few months away, so we have some time to make plans and to organize.

Thank you.

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Further Reading and links:

"The New Age of Sail" by Dmitry Orlov:

[culturechange.org/cms/index.php?option=com\\_content&task=view&id=67&Itemid=33](http://culturechange.org/cms/index.php?option=com_content&task=view&id=67&Itemid=33)

Sail Transport Network's webpage from 2000:

[culturechange.org/sail\\_transport\\_network.html](http://culturechange.org/sail_transport_network.html)

Bioneers By The Bay/Marion Institute, Marion, Massachusetts, conference webpage:

[connectingforchange.org/](http://connectingforchange.org/)

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