

# THE SEARCH FOR A UNIQUE, NON-REPEATABLE EXPERIENCE

JOHN P. ALLEN, KATHELIN GRAY, AND HANS ULRICH OBRIST IN CONVERSATION

Oklahoma-born John Polk Allen is a systems ecologist and engineer, metallurgist, and writer. He is well known as the inventor of Biosphere 2: a science research facility located in Arizona, originally conceived to demonstrate the possibility of closed ecological systems to support and maintain human life and to study closed biospheres in the eventuality of space colonization. Here he converses about his findings with Hans Ulrich Obrist and the director, writer, curator and artist Kathelin Gray.

**HANS ULRICH OBRIST**

We're very excited about your participation here in our Miracle Marathon at the Serpentine. I want to ask you to begin at the beginning. I always think it's interesting to talk about how epiphanies come about. For example Benoit Mandelbrot remembered the day he discovered fractals. So I have to ask you about the epiphany of the Biosphere.

**JOHN P. ALLEN**

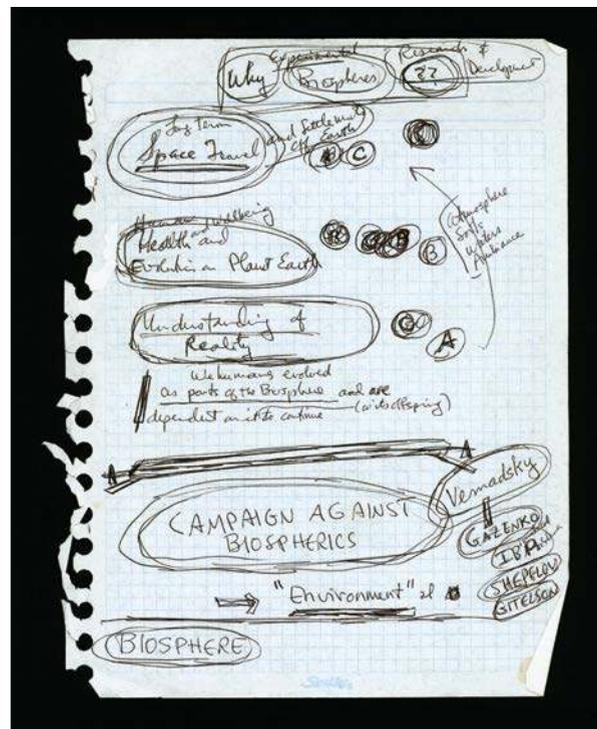
It actually began with the discovery of humanity. When I was rather young I picked up a book by Alexis Carrel called *Man the Unknown* (1935). And if you explore humanity, as I do, you wind up recognizing that humanity is part of the biosphere and the biosphere is the dominant overall unity that comprises everything—not only the human, but all five kingdoms of life. Even the technosphere is an offspring of the biosphere. No other species has a technics. They may have highly developed skills, but they are transmitted organically.

**HUO**

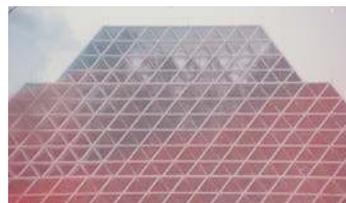
What is the origin of the technosphere?

**JPA**

The technosphere began intellectually with the Renaissance, and developed particularly with the Industrial Revolution, which for the first time found a source of energy that was not organic. Well, actually, it was organic, but it was buried organic, coal and oil, and later on it began to be high-energy. So humanity first came and dominated the biosphere, all of the five kingdoms. We've terminated more species than any ice age.



Notes by John P. Allen from a conversation on Biospheres, 2014. Personal collection of Julia Tcharfas. Courtesy: Julia Tcharfas



**HUO**

In terms of extinction?

**JPA**

Extinction and also influencing which species dominated. For example herbivores were highly valued, so all sorts of things came from that. But then humanity developed this technics, which became a force independent of the will of humans. That's a crucial point. Before that of course there were technics, but that was because somebody wanted to sharpen a piece of stone or wood, in other words it was a direct benefit to somebody or some group of people to make this technical advance. That's not true with the technosphere, which actually a lot of people still don't recognize.

**HUO**

Even today?

**JPA**

Even now. The two people who tried to do that were Karl Marx and Adam Smith. And they stopped with economics. Technics has now taken over from economics. Experiments I've run on that—you're familiar with some of them—involve doing fairly large-scale projects with a minimum of economic interference.

**HUO**

I was reading the book by Yuval Harari, *Sapiens: A Brief History of Humankind* (2014), and thinking it's a book you could

Above - Ben Rivers, *Urth* (production stills), 2016. Courtesy: the artist and Kate MacGarry, London

Opposite - Julia Tcharfas and Tim Ivison, *Render*, 2013. Courtesy: Hilary Crisp Gallery, London



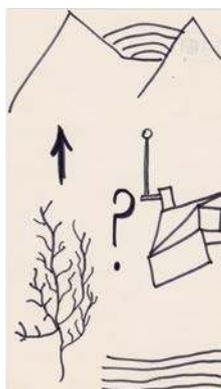
have written because of your incredible historical background. Can you explain what prompted you, based on this immersion in history, to start such a large-scale project as the Biosphere? I'm after the moment of epiphany.

**JPA** Well, I could remember the day. But in fact I relied on work that developed as a separate line of evolution. This was due to Buckminster Fuller. Bucky and I became great friends, and he was the first one I know of who began to say that the biosphere had reached some kind of a jumping-off point. Exactly what that was Bucky didn't really come up with, but he had a mathematical, physics background and I had an engineering background.

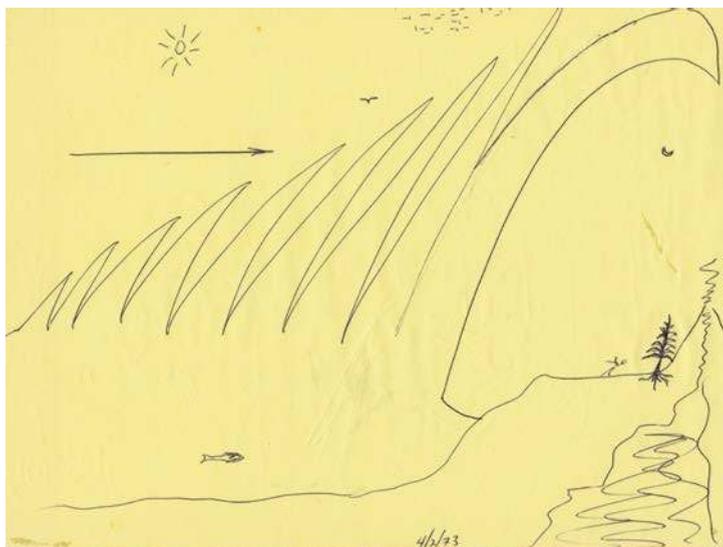
**HUO** How did you meet Buckminster Fuller?



Julia Tcharfas and Tim Ivson, *Systems Thinking from the Inside*, 2013.  
Courtesy: Chisenhale Gallery, London



John P. Allen's drawing,  
1967. © John Allen 2017



John P. Allen's drawing, 1973. © John Allen 2017

**KATHELIN GRAY**

On a Theatre for the Reconstitution of Reality tour. We stopped to see him in Carbondale, Illinois.

**JPA**

At that time, who was the top ecological technical guy on the planet? Bucky.

**KG**

He was teaching at the university there, and so we made a pilgrimage to see him on our way to perform in Chicago.

**HUO**

What did Buckminster Fuller tell you? What did you learn from Buckminster Fuller?

**JPA**

Total systems. Bucky was a great one for that. He was the person who proved that the whole world of life is a system, a biosphere. Bucky was also highly interested in technics. And so that was the basic of the relationship. The idea that Bucky had, that we developed, was to make a model of the Earth's biosphere, Biosphere 1. Which actually, technically, is biosphere 1 A, B, C, D, depending the amount of speciation. There's a biosphere of the amoeba, a biosphere of the multicellular, a biosphere of five kingdoms, a biosphere of six kingdoms, once you count humanity as a separate kingdom, and we discovered the seventh kingdom, which is the technosphere.

**HUO**

And that moment was the epiphany.

**JPA**

That was the epiphany. So I ran that by Bucky.

**HUO**

And he agreed?

**JPA**

Well, not *agreed*. We had a mutual understanding. At that level you don't agree or disagree on anything. You understand or you don't.

**HUO**

Such a large-scale project. I'm wondering if we might call it a utopia that became real, what Yona Friedman calls a concrete utopia. How did you go from epiphany to built reality? Did you draw a master plan? It's well explained in your book, but it would be great to hear it for the sake of this interview.

**JPA**

Bucky was a science philosopher and I was an engineering philosopher, so I took it as an engineering problem. An act of putting together a *beaucoup d'argent* and a *beaucoup d'intelligentsia*. Or in other words, synergies. Bucky's the one who came up with and really developed the concept of synergy. But I had also developed that, independently, being a metallurgical engineer.

**HUO**

So you arrived at synergy from a metallurgical background. Can you explain?

**JPA**

I was working for a few different companies. They would put together one element with another to produce a super-material using what we came to call synergy. If you put together A, B, C you get A, B, C. But if you put together a synergy you might get, say, the alphabet. There's a huge difference between letters and an alphabet; they're synergistically working together. And this was what Bucky's huge contribution was, and we went over and over a number of different ways the concept of synergy. With Biosphere 2, what made it original was—and we were definitely the first people who did this—synergizing high technics and high biospherics.

**KG**

I should say, in terms of Johnny's narrative, that from the time he was very young in Oklahoma, looking at the stars, he was convinced that humans could travel to the stars. This is one poetic through line.

**JPA**

Already in 1939, reading Carrel's *Man the Unknown*, which basically said, "Throw away everything anyone is telling you about humanity, because they never even considered humanity; they considered some cultural schema." And it was quite true. Nobody had really looked at humanity as what I called a sixth kingdom. Synergy is a huge idea, which is almost totally repressed. It's more severely repressed in Marxism and all that stuff. It's suppressed by simply concentrating people's attention, particularly promising intellectuals, on energy. Synergy is a completely different concept. It urges work. Energy is what you get in the work, which leads to a pessimistic view of the world because energy runs downhill.

**HUO**

That's essential: the idea of synergy being repressed. We discussed a lot with Sofia Al-Maria, at the beginning of this marathon,

about how the idea of the miracle is also repressed. Reading your memoirs, I was struck by all these moments of metaphysics. There are shamans, there are deep thinkers. How would you describe a miracle?

**JPA**  
A unique, non-repeatable experience.

**HUO**  
That is beautiful. And do you still believe in miracles?

**JPA**  
Yes, yes. I think all of modern life is based on miracles. However, they are secular. Not approved by the Catholic Church, the big arbiter of whether something is a miracle or not. Actually the biggest arbiter of what is a miracle or not is technology. And it applies stricter criteria than the Church. Namely, to be a miracle, it has to work once. In engineering, something not only has to work once, it has to work every time you bring the same set of vectors into play.

**HUO**  
You're a great expert on shamanism. Can you tell us about the link between shamanism and miracles?

**JPA**  
It depends on how you define "miracle." However, a shaman must be able to change the level of consciousness. Which for modern humans is definitely a miracle. Occasionally possible, if they use a stage prop like acid and a special commune. [Laughter]

**HUO**  
You use the shaman for your theater group.

**JPA**  
And also in my own work. How do I travel to all these different countries? I find the local shaman, or whatever you want to call it. In some countries they disguise themselves by saying "Sufi," or saying they are enlightened "Buddhas," or whatever.

**HUO**  
Do you have a shaman in London?

**JPA**  
There are actually two, Richard Evans Schultes and Albert Hofmann.



**HUO**  
Albert Hofmann, the Swiss inventor of LSD. I interviewed him, it was extraordinary. He was a hundred and one years old, and he drew on a paper napkin the formula of LSD.

**JPA**  
The reason I got into it was because they'd heard that there was another group of shamans that equaled them, up at the end of the Amazon. So they called me in and said, "So, can we use your ship to sail up the Amazon? We have somebody there we would like for you to meet." And so we sailed up the Amazon and met a real shaman. He introduced me to something called ayahuasca. He didn't take it to get high. He did it to communicate objective truth.

**HUO**  
So it was a ritual for objective truth?

**JPA**  
No, you've got to get past ritual for objective truth.

**KG**  
You should also ask John about the epiphany that came after trying to prove his friend Bart Durham was ruining his mind with psychedelics.

**JPA**  
Bart was my partner. We had a company called Connecticut Valley Chemical. We did very advanced chemical work, like the chemistry you need to get a rocket ship to Mars. He came up to me one day and said, "Johnny, I found something better than anything we've found"—we were working with the moon program, and had access to really an awesome level of chemicals. It was peyote. I said, "Bart, you're the smartest scientist outside of myself I've ever met, and you have a tremendous mind, and we have new patents, we're headed for the stars, and I don't want to see you ruin your brain. How about we both take a full dose of whatever you've got at the same time, and if we go up I will explain exactly to you what's happening."

**HUO**  
And what happened?

**JPA**  
I had full faith in science. I mean, you know, I was an engineer, all the paraphernalia of Western fucking civilization. And then after about an hour on peyote I was thinking, wow, man, all this new data pouring in like crazy on all different levels! I figured I better pay attention—this is something really, really new. I'd been in cultural anthropology at Oklahoma University, finance at Harvard Business School, engineering at Colorado School of Mines, and the space program, and I knew this wasn't anything connected with Western civilization whatsoever.

17. MASK 8 $\frac{1}{4}$ "

**KG** John was there at the time because, as a metallurgist and geologist, he'd been sent to discover coal in the Four Corners area.

**JPA** I had discovered two hundred tons of high-grade coal.

**KG** Because of his discovery he was given mineral rights for a vast tract of Four Corners that's now being exploited. And when he took the peyote he realized—

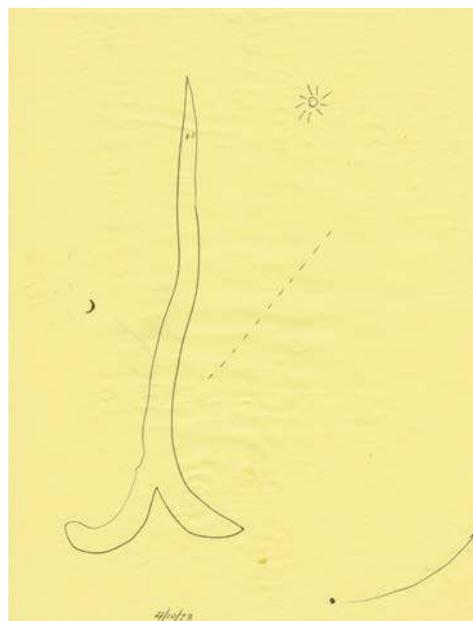
**JPA** —it was a crime.

**KG** It was a crime to mine the coal, and that he had to devote his life to reversing that karma.

**HUO** So here we go, that was an epiphany. You realized you had to change your life. And that was the beginning of the Biosphere. Before we move on, can we come back to Richard Evans Schultes and talk about the trip up the Amazon?



Romuald Hazoumè, *Exit Ball*, 2009. © Romuald Hazoumè by SIAE, Rome, 2017. Courtesy: October Gallery, London



John P. Allen's drawing, 1973. © John Allen 2017

**JPA** As I mentioned before, my two great teachers were Richard Evans Schultes and Albert Hofmann. Schultes brought in the shamans, with their substances, and Hoffman brought in the elite, avant-garde chemistry from Western Europe, where they didn't have this American moralism holding them back. And so they knew all these people, yet in their trail of medicine men, they hadn't gotten to the top guy. I said, "How come? You guys know everybody." And they said, "He's way up the Amazon. We can't get in there and we're talking to you because your ship, we understand, can go to Antarctica. So let's design an expedition for your ship up the Amazon. And there you will meet the man who we have determined is the top shaman who knows everything. He will show you what the final magic mix is." How could I turn that down? A poor Oklahoma boy wandering the world?

**HUO** Do you know the story of Bas Jan Ader, an artist from Holland? A post-conceptualist in the late 1960s. He went on a journey with a little boat and called it *In Search of the Miraculous* (1975). In a way it's similar to your journey, as that is what you were doing.

**JPA** When you look at history, people who are confined to the land are all brainwashed. Seventy percent of the planet is water. I found clues from the past that several thousand years ago, before the various declines, there was once a sea people who moved around. Up to that point we had these projects we called Synergias. The idea was to work with the Russians, with the British, with everybody who was a land lover and a space lover.

**HUO** A world union of land lovers and space lovers. That's beautiful.

**JPA** But there was another class of people who lived up at the headwaters of great rivers and tropical forests—the Nile, the Amazon, the Ganges. And there were rumors of a place in the Himalayas and a place on the edge of the Andes in the Amazon, two areas you go to if you want to hide. So I made a series of personal expeditions to those places, and a major project in Katmandu. That was done with the help of all four Tibetan orders, who were being booted out by the Chinese government.

**HUO** When was all this?

**JPA** It was 1963. The Tibetans were very interested in an American of a certain kind coming along because they could foresee the Chinese Communist rule, and that they were going to have to escape. Now, they could escape to the British empire, but it was obvious to almost anybody that the British empire was crumbling. So America was a big hope. Only, few Americans were interested in anything as esoteric as physiological transformation. They wanted mental transformation, spiritual transformation—as if they had a spirit.

**HUO** Do you think of the Biosphere as a utopian project? Actually I know you don't, but for the sake of the interview it would be interesting to have you explain why not.

**JPA** I have a very simple answer: because utopia means nowhere.

**HUO** It's a no-place. Like Thomas Moore, no place.

**JPA** We were interested in "syntopia." A place that's everywhere if you're in the right state of consciousness. Utopia allows the bloody



creative energy. To them, everything falls under the second law of thermodynamics and runs downhill.

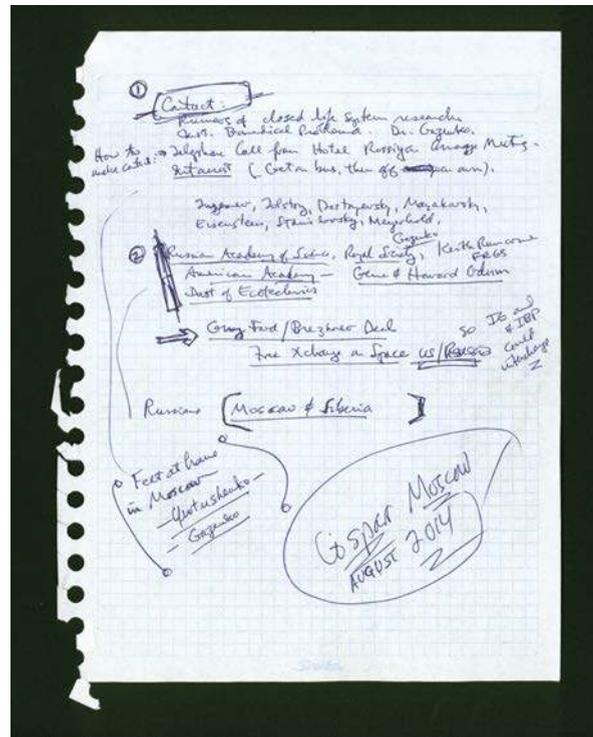
**KG** But life itself deals with energy. The Biosphere deals with energy.

**JPA** But the Biosphere is dependent on the Earth, and the Earth, according to Western science, is going downhill. Official science in the West says the Biosphere has such-and-such a lifetime. One billion years, two billion, whatever. It comes to an end. And it comes to an end in complete disorder, randomized. That's the second law of thermodynamics, which is actually the god of Western science. That's their Revelation.

**HUO** Which leads us to the connection of the Biosphere to non-Western thinking, which is very relevant now. Tino Sehgal, a great artist, told me recently that he's only reading non-Western books. I'm also reminded of Gustav Metzger's argument with Joseph Beuys, because Beuys had asserted that the third world had a lot to learn from the West, and it resulted in a falling out between the two of them. Can you tell us a little about what you've learned from non-Western ecologists, for the Biosphere and for your work in general?

**JPA** When we did the Biosphere 2 project, we were backed by the Russian intelligentsia. The American scientific intelligentsia opposed it. And unfortunately, the economic political system that the Russian intelligentsia was behind imploded drastically.

**HUO** Russia had an amazing science scene in the 1950s and 1960s, although it was soon to crumble. Freeman Dyson told me he was thinking of going to Russia rather than America after the war because it was a more dynamic scientific environment. My friend Stanislaw Lem, who wrote the amazing *The Futurological Congress* (1971) and *Solaris* (1961), got all his inspiration from Russian science books.



Notes by John P. Allen from a conversation on Biospheres, 2014. Personal collection of Julia Tcharfas. Courtesy: Julia Tcharfas



Tomás Saraceno, *Aerocene*, launches at White Sands Missile Range (NM, United States), 2015, Courtesy: the artist; Pinksummer contemporary art, Genoa; Tanya Bonakdar, New York; Andersen's Contemporary, Copenhagen; Esther Schipper, Berlin. Photo: © Studio Tomás Saraceno

**JPA**

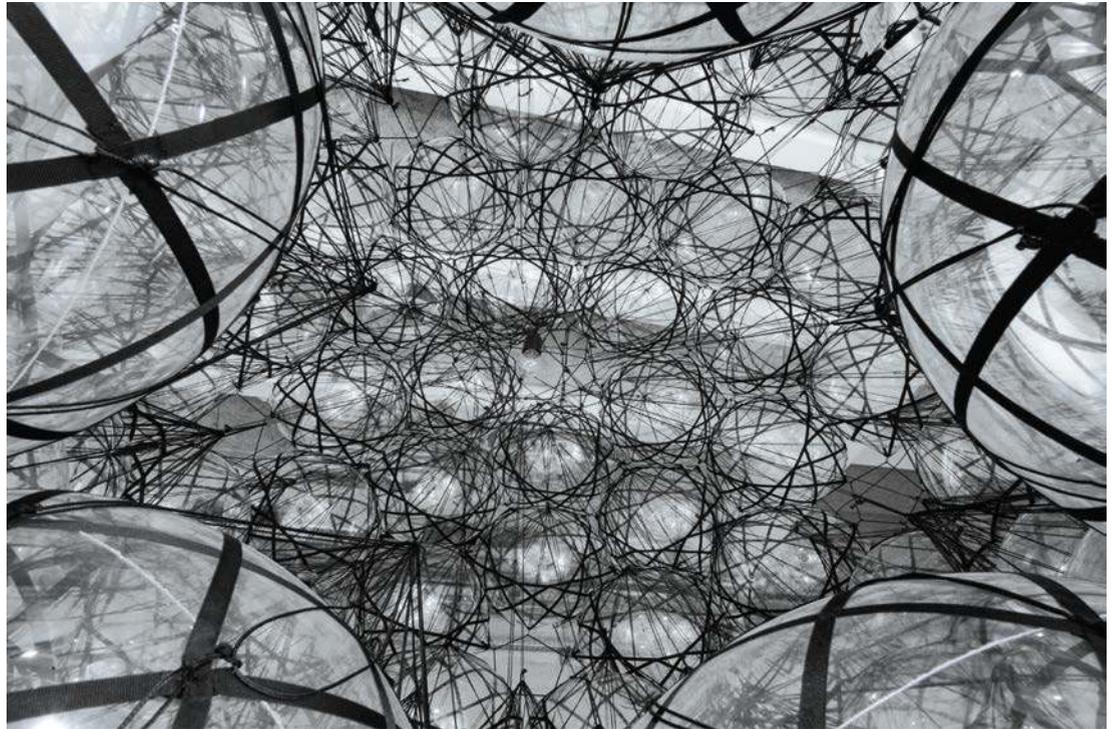
I was in the top American scientific society and in the top Russian one, and there was no comparison. Russian science started off with the cosmos. Western science started off with atoms. A-t-o-m and Eve.

**HUO**

So you were inspired by Russian science?

**JPA**

I was inspired by what I call objective science. At that particular time the Vladimir *Vernadsky* school of thought—it's hard to call it Russian, but he was a Russian—which also included Dmitri Mendeleev, was the vital one, and their scientific focus was on how life actually lives. So they went and bought the Biosphere.



Tomás Saraceno, *32SW/Stay green/Flying Garden/Air-Port-City*, 2007-2009, installation view at La Biennale de Lyon, Lyon, 2007. Courtesy: the artist; Tanya Bonakdar Gallery, New York; Andersen's Contemporary, Copenhagen; Pinksummer Contemporary Art, Genoa. Photo: © Studio Tomás Saraceno

**HUO**

You said, Kathelin, that there was one more epiphany?

**KG**

After I first met Johnny.

**HUO**

When?

**KG**

In May of 1967 at a bus stop in the North Beach neighborhood of San Francisco. He was drawing star city, a spaceship Earth city, on napkins. That was a kind of continuous line, I would say, through his life that evolved and developed with the discovery of Russian cosmism and *Vernadsky*, who influenced Georges Bataille. The epiphanies came when we developed the Institute of Ecotechnics and had conferences about biomes, the planet Earth, the solar system, the galaxy.

**JPA**

Those conferences were the only ones that included Russians, Chinese, Americans, British, and so forth.

**KG**

And many disciplines. By the time we got to the cosmos we were well familiar with people in the space program, and having studied ecology, we thought, wow, we would love to meet whoever is working on long-term life systems because that's what we were into with our projects. Like space colonization. We inquired with NASA, Europe, and beyond to find out who was doing this, and it turned out, no one was developing a total life system for colonization, even though both the Soviet Union and United States had space programs. That was an epiphany: we said, we'll do it.

**JPA**

And that immediately got the Institute of Ecotechnics entrée into Moscow, Washington, London, Paris.

**HUO**

These drawings on napkins, do they still exist?

**KG**

Oh yes, they still do.

**JPA**

Speaking as an engineer, we operate off napkins.



John P. Allen in the Test Module, a 480 cubic meter hermetically sealed chamber for one human and plants. Precursor to Biosphere 2, Arizona. In 1988, Allen, "Vertebrate X," was closed inside the structure with plants for seventy-two hours. Courtesy: John P. Allen

**John Polk Allen** (1929, Carnegie, Oklahoma) is a systems ecologist and engineer, metallurgist, adventurer and writer. He is best known as the inventor and Director of Research of Biosphere 2, the world's largest laboratory of global ecology.

**Kathelin Gray** is an American producer, director, writer, curator and artist working across many forms. She has co-founded numerous projects which integrate ecology, science and culture.

**Hans Ulrich Obrist** (1968, Zurich, Switzerland) is Co-Director of the Serpentine Galleries, London. Prior to this, he was the Curator of the Musée d'Art Moderne de la Ville de Paris. Since his first show *World Soup* (The Kitchen Show) in 1991, he has curated more than 300 shows.