

## Essay: Our Synthetic Futures

What might happen if we repurpose biology to our own ends?

WEB-EXCLUSIVE COMMENTARY

by Rudy Rucker

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May 27, 2007 - The SynBio approach is onto something big—a new version of nanotechnology, which is the craft of manufacturing things at the molecular scale. SynBio’s plan is to capitalize on the fact that biology is already doing molecular fabrication all the time. What might happen if we repurpose biology to our own ends?

One big worry is what nanotechnologists call the “gray-goo problem.” What’s to stop a particularly virulent SynBio organism from eating everything on earth? My guess is that this could never happen. Every existing plant, animal, fungus and protozoan already aspires to world domination. There’s nothing more ruthless than viruses and bacteria—and they’ve been practicing for a very long time.

The fact that the SynBio organisms are likely to have simplified Tinkertoy DNA doesn’t necessarily mean they’re going to be faster and better. It’s more likely that they’ll be dumber and less adaptable. I have a mental image of germ-size MIT nerds putting on gangsta clothes and venturing into alleys to try some rough stuff. And then they meet up with the homies who’ve been keeping it real for a billion years or so.

Now let’s look at the upside. Certainly it would be nice to have medi-germs clean out your arteries, to have a diamond spider spinning ultrastrong carbon fibers and to have vats of tweaked yeast producing any kind of chemical you want. Can we go further? Donning the funhouse spectacles of science fiction, I envision a wide range of biotech goodies.

One thing I’d like immediately would be some individually labeled radiosensitive bacteria that I could scatter around my house. Once these “URL germs” have spread, I’ll be able to Google through every item I own—no more misplaced keys and glasses!

Every child is likely to want a pet dinosaur, and this will be easily managed once the online Phido Pet Construction Kit is up and running. Of course, if you prefer something cuddly, you can design a special dog with red polka dots.

Rather than mining for ore, why not let plants use their roots to extract minerals from the ground? Sow a handful of Knife Plant grain over a dumpsite, and before long you’ll have what looks like corn—but with a cob-handled steel knife in each ear.

Why bother building houses when you can get a Giga Gourd seed? The seed is the size of a pizza and grows very fast. Push it into wet, fertile ground and stand back. In a few days you’ll have a big, hollow home with plumbing and wiring grown right into the walls, which come complete with transparent window patches.

Of course, people will want to start tweaking their own bodies. Initially we’ll go for enhanced health, strength and mental stability, perhaps accelerating the pace of evolution in a benign way. This said, we should remember that the history of humankind’s interventions with biology are rife with unexpected consequences and unfortunate side effects.

But, feckless creatures that we are, we may cast caution to the winds. Why would starlets settle for breast implants when they can grow supplementary mammarys? Hipsters will install living tattoo colonies of algae under their skin. Punk rockers can get a shocking dog-collar effect by grafting on a spiky necklace of extra fingers with colored nails. Or what about giving one of your fingers a treelike architecture? Work 10 two-way branchings into each tapering fingerlet of this special finger, and you’ll have a thousand or so fingertips, and the fine touch of a sea anemone.

It's easy to imagine grafting an electric eel's electromagnetic sensitivity into our brains so we can pick up wireless signals. There'd have to be a fail-safe off switch, of course, but the net effect could be amazing. We'd have true telepathy, and the ability to form group minds.

As the technology of brain-to-brain contact improved, you'd no longer need to send someone every detail of a plan, a memory or a design. Instead you could send something like a mental Web link, allowing those you invite to simply view your thoughts right in your own mind.

Obviously some of us will want gills so we can live undersea, and others will go for polar-bear pelts so they can comfortably nap on the polar ice.

And why be hung up on having your body all in one piece? Be like the state of Michigan; abandon contiguity. Who wouldn't like a free-ranging extra hand that scuttles under the bed or out to the garbage shed? And it'd be great to have an extra eyeball that flaps around on hummingbird wings.

The biggest problem with manned spaceflight is the immense mass of the requisite life-support systems and radiation shielding. What if the truly determined astronauts could transform themselves into tough, spindle-shaped pods that could sail endlessly through empty space, nourishing themselves with solar radiation and directing their journey with the exhalations of their ion jets?

One last thought. Suppose it were possible to encode a person's memory and personality into a single, very large, DNA-like molecule. Now suppose that someone turns himself into a viral disease that other people can catch. If I were you—sneeze—oh, wait, I guess I am. Are we completely agreed?

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