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| NEWS STORY

It's Alive!

A Reed prof races to create life from scratch.

BY TAYLOR CLARK

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If Mark Bedau gets his way, microbes created in a lab will one day clean up your back yard, fuel your car and eat your living flesh. By simply pouring some chemicals into a beaker and shaking it, Bedau hopes to be able to unleash an armada of "living dust" to do his bidding.

It's not as sinister as it sounds.

Bedau, a philosophy professor at Reed College, is one of the nation's leading authorities on artificial life--the scientific quest to create a living cell out of non-living chemical parts. And this month, Bedau and a team of scientists begin a revolutionary new research project at the European Center for Living Technology in Venice, Italy, which they hope will help make artificial cells a reality within a decade.

"Nobody has ever synthesized life before," says Bedau, who is also the editor of the academic journal *Artificial Life*. "Various pieces of it have been made, but it all has to work simultaneously."

Bedau and his colleagues are attempting a biological coup: replicating what happened four billion years ago, when the building blocks of life (formaldehyde, water, hydrogen cyanide and ammonia) first mingled in the primordial stew and produced a living microbe.

So far, scientists have managed to combine chemicals so that individual cells seem to emerge, but the cells won't eat or reproduce--so they aren't technically alive. Bedau is at work on a new strategy, backed by an 8-million-euro (\$9.7 million) grant. The idea is this: Bedau and his colleagues will recreate the chaotic conditions of the primordial soup, using machines that perform thousands of simultaneous experiments in test tubes the size of a human hair. It's Darwin's natural selection in a beaker.

"Most people try to design life from the top down," says Bedau, who's on leave from Reed for a year to hunt for new life. "We're doing thousands of random experiments at once, measuring which ones seem to work and throwing out the others. It's like a million monkeys on a million typewriters coming up with *Hamlet*."

As a philosopher with some hard-science training, Bedau's role is unique. He helps with experiments and makes sure things run smoothly--"some of my scientist friends are brilliant, but they can't get on a train on time," he says. But he also acts as ethical referee for a group unabashedly playing God.

"There are many ethical implications," Bedau says. "If we make new forms of life, that's going to make people upset. So we need to figure out how to manage it and have a discussion about the big picture. It might not hurt to have a philosopher around for that."

Bedau predicts somebody will create an artificial cell before 10 years are up, at a total cost of \$100 million in research. The benefits could be huge: microbes that feed on carbon dioxide cleaning up the skies, or life forms that would live in the trunk of a car and spontaneously produce hydrogen for fuel.

"Heart disease is caused by a buildup of plaque in arteries, but there's no way to get rid of it," Bedau muses. "What if you had artificial cells that loved to eat plaque?"

"These are the things people are fantasizing about."

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