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# 10 Future Inventions Everyone's Been Waiting For

by Robert Lamb, Patrick J. Kiger and Kate Kershner



"The Jetsons" epitomized the optimism futurism of the 1960s. Hulton Archive/Getty Images

# 10 Future Inventions Everyone's Been Waiting For

We get it. You feel like all the science fiction of yesteryear promised you a future of flying cars and hoverboards, and none of it has come to pass. Sure, we have Segways and iPads, but it's small consolation when you wake up every day to a world without "Blade Runner" skylines. But these are only 1980s visions of the future. Back in the '50s and '60s, our expectations for the 21st century were even loftier. With science by our side, nothing seemed out of the question.

Just consider "Magic Highway USA." With an hour's worth of stunning animation, this May 1958 episode of "Walt Disney's Wonderful World of Color" awed television audiences with depictions of automated global highways, underwater road systems and antigravity cars [source: Sterling].

A year earlier, Disney's "Mars and Beyond" showed viewers what humanity's future on Mars might entail and even featured segments with famed German-American rocket scientist Dr. Wernher von Braun. It all seemed possible -- and much of it still is.

In this article we'll look at 10 future inventions we've been waiting for all our lives. Which ones are just around the corner, and which ones are mere relics of our post-World War II dreams?



#### 10: Driverless Car

We humans are often the most dangerous part of an automobile. That's why scientists have been working on automated highway technology for decades. In the 1990s, the U.S. Department of Transportation sponsored the National Automated Highway System Consortium (NAHSC), which successfully demonstrated the potential of radar, magnetic and visual sensors that allowed test vehicles to navigate a specially prepared length of highway. The U.S. Defense Advanced Research Projects Agency (DARPA) also underwrote an autonomous vehicle research and development program, culminating in its 2007 Urban Challenge.

But this is one future invention that we're probably going to see sooner rather than later. Since the mid-2000s, Google scientists and engineers have been working to develop autonomous vehicles that use artificial intelligence software and Google Maps to navigate. Testing of driverless cars on public roads actually has been approved in Nevada, Florida and California [source: Gudipaty]. In fact, Google says that about dozen self-driving cars are on the road at any given time, and they've travelled 500,000 miles (804,672 kilometers) in beta tests [source: Fisher].



The Porter Piaggio experimental vehicle that was built to drive 13,000 kilometers (8,078 miles) without anyone at the wheel, part of the VIAC (VisLab Intercontinental Autonomous Challenge).

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claiming it can have a car that does 90 percent of the work by 2016 [source: Carroll].



**Don't look for these models at your local car dealership.** Chad Baker/The Image Bank/Getty Images

Google still awaits federal and state regulatory approval to engage in more extensive tests, and it's still unclear when -- or rather, if -- ordinary folks will be able to buy a car that drives itself [source: Crawford]. But there's talk that Google is set to build its own driverless car [source: Worstal]. Electric car company Tesla also is throwing its driving cap into the race,

## 9: Flying Car

The dream of the flying car simply won't go away. Glenn Curtiss rolled out Autoplane in 1917, the first attempt at such a vehicle, and the design trend continues to this day. Terrafugia's TF-X is a newer hybrid design from its older Transition models, but the basic design still breaks down to a vehicle that functions as both an automobile and an airplane.

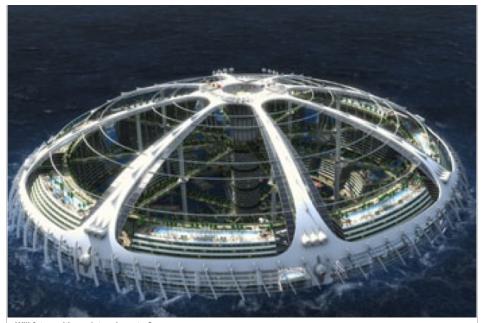
The popular dream of flying cars, however, lands us slap-dab in the middle of hoverboard country, where we're forced to contemplate the bugbear that is antigravity technology. While the ability to manipulate antigravity would transform transportation immensely, the subject is largely taboo in research circles due to numerous hoaxes and unfounded claims. This doesn't mean serious minds aren't interested. Between 1996 and 2002, NASA's Breakthrough Propulsion Physics Project explored the possibilities of antigravity.

Researchers in France did create a skateboard that can levitate a couple inches off the ground, thanks to some insanely cool superconductor technology [source: Smalley]. Sure, it can only go in a straight line and at a height of a few inches, but who cares: "Back to the Future" is nigh!

# 8: Underwater City

The ocean presented early humans with a vast mystery. What worlds and fabulous creatures exist in the deep? Today, our understanding has expanded, but the world's waters still offer us an abundance of mystery and awe. We dream less about mermaid cities and sunken Atlantis and instead imagine underwater metropolises and seafloor colonies.

This zeal was especially strong in the late 1950s and

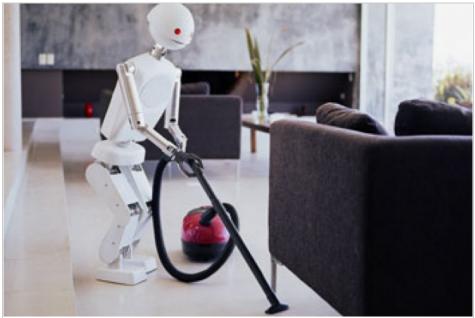


Will future cities exist underwater? © iStockphoto.com/3Djml

early 1960s, when Jacques Cousteau's Conshelf project and the United States Navy's Sealab saw the dream of undersea living realized. Both programs proved that humans can live and work for an extended time underwater. The test subjects tended underwater gardens, tackled underwater construction projects and lived the life of an aquanaut.

Half a century later, the underwater cities still aren't here. Sure, we have unrealized designs such as Giancarlo Zema's semisubmerged Trilobis 65 dwelling and the proposed underwater Dubai skyscraper Hydropolis, but very few underwater habitats. The bottom line is that while humans can live underwater, it's not an easy or cheap life. It's also not necessary.

Circumstances haven't forced humans to consider underwater living seriously, and when it comes to oceanic exploration, unmanned submersibles and automated seafloor stations offer a better value proposition. The National Science Foundation's Ocean Observatories Initiative, for example, calls for a worldwide network of automated observation stations and autonomous underwater vehicles.



We still dream of robot maids. Javier Pierini /Taxi/Getty Images

## 7: Robot Maids

The most obvious answer to a complaint about the lack of robot maids is of course, "Hey, buddy, go buy a Roomba." Because while they don't really resemble George Jetson's robotic maid Rosie, modern bots do carry out a host of floor vacuuming, tile scrubbing and pool cleaning chores.

Of course, the vision of the computerized maid goes beyond mere automated dust busting. What we've been waiting for is a true robotic domestic servant capable of safely navigating a human living environment to carry out everything from cleaning the toilet to cooking pancakes.

But in order to actually move through our kitchens and interact with us, robots will need to be capable of **social learning**. A truly social bot will need to evaluate environmental stimuli with a discriminating eye. In short, a true robotic maid would need to be autonomous. Scientists from Cornell University are on the case, and are slowly creating robots that might be able anticipate human needs. They predict that in the next few years we might see a robot maid who can do some specific tasks. So far, they've already developed a "robo-maid" who can open a fridge and pour you a beer [source: Carroll]. A far greater help than, say, folding laundry.



We haven't quite gotten to the point where we're taking selfies on Mars, as Curiosity did on Feb. 3, 2013. Image courtesy NASA/JPL-Caltech/MSSS

## 6: Ticket to Mars

The date was July 20, 1969, the day Apollo 11 landed the first human beings on the moon. It was the farthest we had ever traveled from the Earth and the first time humans ever stood on another object in our solar system and stared back in wonder at the world they called home. From there, it only seemed natural that humans would venture to Mars as well.

As early as 1946, the aforementioned German-American rocket scientist Dr. Wernher von Braun sketched out Marsprojekt, which called for no fewer than 70 astronauts aboard a fleet of 10 Mars-bound spacecraft [source: Wade]. As ambitious as this sounds, the project marked the first technically comprehensive design for a manned expedition to the red planet. It was far from the last, however, as both the United States and the Russian space programs continued to cook up manned Mars expedition studies throughout the rest of the 20th century. The Curiosity Rover, which landed on Mars in August 2012, has done some of the legwork for future explorations by collecting scientific samples and studying the planet's environment [source: NASA].

But sending a friendly rover to Mars is a lot easier than actually conquering the technical challenges of sending astronauts there, which include shielding them from radiation exposure and overcoming the health worries that long-term exposure to microgravity in space might cause. In 2010, President Barack Obama set a goal of launching a manned mission to Mars sometime in the 2030s, long after he leaves office. We'll see if that actually ever happens [source: Matson].

# 5: Food in a Pill

Since the 1800s, futurists have been dreaming about creating miniaturized, 100-percent synthetic food from



Will we one day survive on pills alone? iStock/Thinkstock

chemicals, so it could be consumed in tablet or capsule form. Some envisioned it as a way to free homemakers from the drudgery of cooking or spare animals from slaughter, while others saw it as a way to feed the planet's growing population without overtaxing farm soil or other natural resources [source: Belasco]. A 1936 Popular Science Monthly article predicted that "modern alchemists" in food laboratories eventually would create "food pills that would contain everything necessary for life -- a feat that would render man forever independent of natural resources for his nourishment, and banish fear of crop failure and famine" [source: Rosner].

It's an idea that has persisted over the years in science-fiction fantasies. The problem is that unless someone figures out a way to alter the laws of physics, getting your daily nutrition from a capsule or tablet is pretty much impossible. Think of it this way: The typical human needs to ingest about 2,000 calories each day, and a gram of fat -- the most efficient way to provide them -- contains about nine calories. Thus, to meet your daily caloric requirement, you'd have to ingest 450 or so standard-sized capsules of fat, which would weigh roughly half a pound. And you still wouldn't be getting all the other nutrients -- protein, carbohydrates, vitamins, minerals, fiber -- that you need to be healthy [source: Biba]. Besides, eating nothing but a pill for breakfast, lunch and dinner wouldn't exactly be living large. People like to eat because food tastes good. Pills generally don't.



Newlywed Grant Engler, 25, celebrates tying the knot to Amanda Volf, 26, after the pair purportedly has the first

## 4: Jet Packs

If you've ever seen the classic James Bond flick "Thunderball," you probably remember that great action scene in which 007 makes his escape from some bad guys by slipping on a rocket-equipped backpack and blasting off into the sky [source: Parker]. Jet packs were first dreamed up by German scientists during World War II, and after the war, the Pentagon longed to develop its own version [source: Kaku].

In the 1950s, at Bell Aerosystems in New York, a visionary engineer named Wendell F. Moore created his own version of the concept, a 125-pound (57-kilogram) "rocket belt" powered by a canister of liquid nitrogen. For its part, the U.S. military eventually gave up on jet packs as a practical mode of battlefield transportation, in part because flyers could only carry enough fuel to stay aloft for less than half a minute [source: Rocketman.com].

But we are getting really close to the jet packs we were

wedding by water-powered jet pack. Now that's a story you can tell the kids. © Leonard Ortiz/ZUMA Press/Corbis

promised. New Zealand-based Martin Aircraft has approval for manned test flights of its P12 Jetpacks. And although the company has sent unmanned packs 5,000 feet (1,524 meters) in the air, these manned flights will only be 20 feet (6 meters) over land and 25 feet (7.6 meters) over water [source: Oremus]. And guess what — the company is taking orders. Law enforcement and government agencies can order one for an expected mid-2014 release, and private jet pack enthusiasts (and who isn't) can get on a waiting list for a possible 2015 purchase [source: Martin Jet Pack].



Part of an "air conditioner clothing" creation circa 2004, made by a Japanese company called PC2B. Wonder if Members Only makes one.
© Yuriko Nakao/Reuters/Corbis

## 3: The Air-conditioned Suit

The first air conditioning unit was developed by Willis Carrier in 1902, and within a couple of decades, summertime crowds were escaping the heat by flocking to movie theaters equipped with the new technology [source: Bucknell.edu]. But air conditioning had a drawback: It required people to stay indoors to stay cool. Wouldn't it be better if you could wear air conditioning on your body, so you could stroll down the street on the hottest day in July without breaking a sweat?

Futurists dreamed of just that. In 1953, for example, an lowa newspaper columnist cheerfully predicted that in the future "Zipper suits" with built-in air conditioning units would keep the body cool in the summer and warm in the winter. Such an outfit would eliminate the need for large wardrobes. "When one traveled he would simply tuck a couple of pair of socks in the pockets of his all-weather suit, set the thermostat for 68 degrees and depart," the journalist wrote [source: Sioux Center News].

Decades later, we're getting oh-so-close to a frosty tux. First there was a Japanese company that, in the late 2000s, marketed a shirt with a small built-in fan that could be powered by plugging it into a computer's USB port [source: Chen]. After the 2011 Japanese earthquake and tsunami, when electricity restrictions were strict, Japanese manufacturers made fan-driven air-conditioned clothing using lithium ion batteries as a charge. The jackets, pants and shirts puff with air that circulates in the insulated material, and the company saw robust sales [source: Carbone].



We haven't quite figured out how to squeeze nuclear reactors into the home yet. After disasters such as Fukushima though, that may be fine with some folks. iStock/Thinkstock

#### 2: Atomic Powered Homes

In the 1950s, when the U.S. government first approved the creation of nuclear plants for generating electricity, some Americans fantasized about a future in which small, personal nuclear reactors would be commonplace gadgets. In 1955, Robert E. Ferry, general manager of the Institute of Boiler and Radiator Manufacturers, gave a speech in which he predicted that individual homes would be heated and cooled by small reactors within three to six years.

Although that hasn't happened nearly 60 years later, there was some movement to create "mini-reactors" that might power small communities or even homes. As recently as 2008, company Hyperion Power Generation (now Gen4 Energy) was claiming that it had developed nuclear power plans "smaller than a garden shed" that could power 20,000 homes and would be on sale by 2013 [source: Vidal and Rosen]. However, 2013 hit, and still no progress on this nuclear sunset.

## 1: Computer Smarter Than a Human

Amid all the phantasmagoric special effects and puzzling symbolism of Stanley Kubrick's 1968 film "2001: A Space Odyssey," the one detail that sticks in everyone's memory is the HAL 9000 computer that ran most of the spaceship Discovery One's operations. Not only did HAL speak and possess a humanlike personality, but it actually was superior to humans, because it never made mistakes.

But when the year 2001 actually rolled around, what inventor and futurist Ray Kurzweil calls "strong Al" -- that is, a machine that possesses self-awareness and



American actors Gary Lockwood (left) and Keir Dullea in a scene from "2001: A Space Odyssey" Trascendental Graphics/Getty Images

is equal or superior to humans in intellectual ability -was still closer to science fiction than reality.

That's with a few caveats. In 2011, the supercomputer Watson went head-to-head with "Jeopardy!" contestants and won mightily. However, just because a computer can answer questions -- and Watson is a very sophisticated "question-answering machine" -- it doesn't necessarily mean it's smarter than a human [source: Markoff].

In a 2005 essay, Kurzweil, who estimates that a computer would need to be capable of performing 10 quadrillion calculations per second to match all the regions of the human brain, predicted that threshold would be reached by 2020 [source: Kurzweil]. (Watson uses 80 trillion operations per second, the slowpoke [source: Deedrick].)

Others, such as Microsoft co-founder Paul Allen, have expressed doubts about whether machines ever will be able to even approximate human intelligence. He noted that neuroscientists still don't really know enough about the brain yet to hope to duplicate it. "You can't create an artificial intelligence," Allen insisted in a 2012 Forbes interview, "unless you know how the real thing works."

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