Dear Doctor Neil deGrasse Tyson:

I have always had a great curiosity and interest in the sciences, especially astrophysics and fringe sciences. I, like you, went to a planetarium when I was very young, as well as the Natural History Museum in Los Angeles, California, and various other scientific or natural public buildings. I also grew up watching Star Trek, and other sci-fi shows and “space operas”. Further helping me was my grandfather, though he didn’t help or interact with me directly, as he was busy working for Rainbird (the sprinkler company), inventing well over 100 different sprinkler types that the world has since adopted, revolutionizing irrigation as a whole, which of course our species has always survived on and required. I’m proud of what he did, as I think you can tell. Let’s get back on track, I apologize. But I got his engineering skills and he made me learn how to use a drafting board and think in blueprint terms. You've said that you don't know if you'd be who you are if you weren't struck by the wonder of the stars at the age you were, but I think you would. I say this because even when I was a very little kid, I'd be outside at night laying down with a family member telling a story, and I saw a star I liked. I noticed that it was a certain distance near a tree branch I liked, and after a couple hours, I noticed that the star was not the same exact distance from the branch. The Earth was turning, and I was watching it. I had a toy as a kid, called Popoids. They were like Legos or an Erector Set (I had both of those as well) but were hollow plastic, that could be stretched out and attached to each other, or collapsed and attached. My grandfather saw it, got a look on his face, and took one and ran off to his drafting table. You know the sprinklers developed by Rainbird that had a green plastic lid that pops up and sprays when its timer goes off? He invented that, with my toy as inspiration. Later in life, I recognized that moment as the time I learned to see things not as they are, but what they could be. When I got older, I took apart all sorts of machines and ruined them. My grandfather defended me though, saying that one day, I'll use that information to build and repair machines. I enjoy software development, internet system securities, electronics repair, and invention.

I have a few questions and theories I would like to present to you. I know you’ve since become famous, and it is extremely unlikely that anything will happen with this paper besides arriving at the correct address and being ignored due to being just one of a million letters a week to you, but I want to try, especially since you or one of the other scientists said something in an interview about the benefit of crowdsourcing, and since I’m part of a crowd, why not? So here we go. Please try to not get turned off from the ‘chapter’ headings or sub-headings. They’re stated as offensive facts, but they’re really just unsubstantiated hypothesis, summarizing everything below it into as few words as possible to catch the eye, make jokes, or to just remind me what I’m writing about in that segment.

Full caps are chapters, capitalized letter headings are subchapters. The images I found via Google searches (unless it's bad art, that's mine), and tried to provide good links to each technology or hypothesis I spotted that some of my own theories are based on or incorporate at the end, as per honor requires.

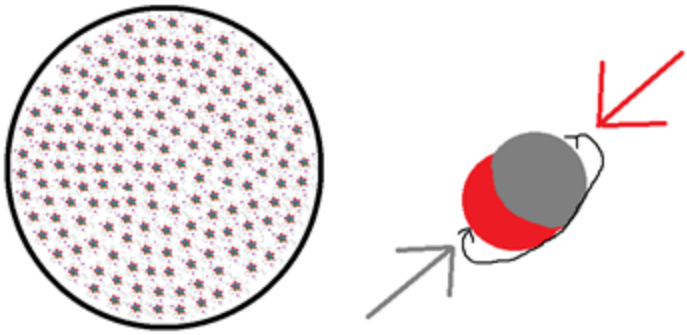
THERE WAS NO BIG BANG

My idea is that the words 'big bang' are possibly wrong, not because there wasn't a bang or explosion, there might well have been. What I think though, is written in 'subchapters' below. I tried to find an image of Gaia gently breathing and creating the world, but couldn't find one, so I chose this. Doesn't it look somewhat Galifreyan?

One Piece Dials

Pictured above: Usopp carrying a bag full of 'dials'. In the anime by Toei Animation and Shonen Jump "One Piece" (my favorite show by the way), I look specifically at the Sky Island arc. The Sky Island arc has to do with the adventure above sea level, on top of clouds that became permanent and no less stable than dirt due to the cloud's isotope, and the 'magic' there is just sea shells, or 'dials', that the "sky-sea" dwelling invertebrates produce. Moving along- as soon as I saw the 'dials' or 'sea shells', it changed my idea on the creation of the universe. Let me grab the two dials that brought me to that idea- the 'flame' and 'heat' dials, which both store and release heat. The

‘flame dial’ releases all of its heat in a quick burst, emitting flame. The ‘heat dial’, on the other hand, releases its stored heat slowly over time. What if the universe did this? Possibly a big bang in its initial release, but since then, it sloughed off new raw material over time, which is possibly why, in that giant image NASA did of the universe (big pink sponge), there isn’t a big empty space in the center. If it was an explosion, or an expanding bubble, as is shown often, by you as well if my fuzzy memory serves, then there should be a big spot in the middle full of nothingness, but there is no such void.

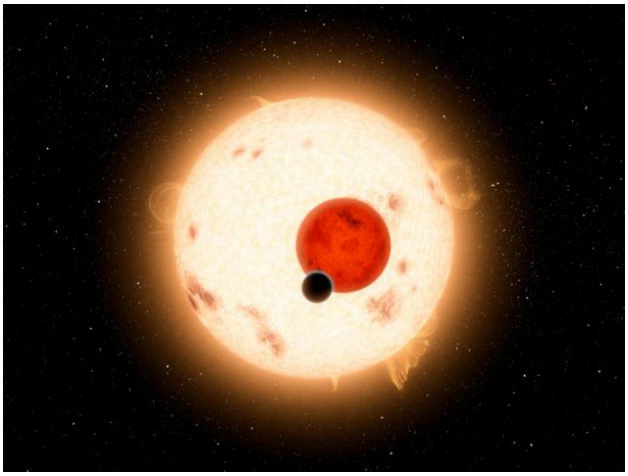


Universe Bead

Let’s say my idea that the universe’s beginning wasn’t a shockwave, but a gentle breeze is correct, for the sake of argument and to move my hypothesis along if nothing else. It would explain the lack of void, as stated earlier. How is a Universe Bead formed? In the show “Lexx”, ‘fractal cores’ are bridges between universes, and their existence has something to do with surrounding astral bodies. Let’s use that idea instead of wormholes for this paragraph. The first image above is a ‘universe bead’ itself, the second image shows two different atoms or molecules of matter, whichever you like, coming from separate wormholes. There are so many theoretically inside a universe bead that it’s likely that particles would be aimed nearly straight at each other. The image shows two particles slamming into each other, but instead of destroying one another, since their velocity is matched, they fuse and spin in place. It took Mythbusters quite a few tries, but they got two guns to fire at each other and each bullet fused to the other and stopped dead in the middle. My idea is like that, but spinning because they’re spherical particles and not aligned perfectly enough to cancel momentum or poorly enough to miss, but just enough to fuse and spin. Universe beads form from the inside out, growing a center, and as the center grows and thickens, it pushes older material out, creating a shell. Eventually the shell explodes, creating a big bang; however, the bead remains, and continues to create new shells. It might even be that each ‘big bang’s explosion is sufficient to cause new eruptions in space-time or vibrational frequency, making the beginnings of new universes, or just feeding its brethren some of its own expelled material.

ASTROPHYSICS ARGUMENTS, THOUGHTS, AND QUESTIONS

Various thoughts on… all sorts of things I think you might know about, that I don't. I thought a question mark image would be boring, so I chose something humorous and asinine.



Star Planets and Planet Stars

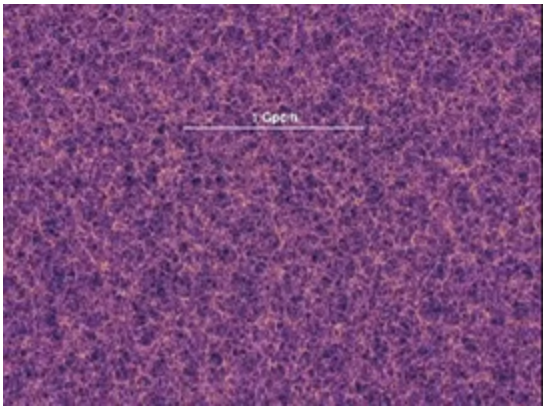
I never thought a 'cold star' could exist, but then learning about it, and a lot of other planets and stars, I had a thought.
We already know a gas star can become a solid planet, but what about a brown dwarf or other cold star getting more material, diversifying it since it wouldn't be hot enough to melt the materials, and becoming a planet that is the center of its own solar system? The old idea of the solar system orbiting the planet might be true in some other system(s). Then in Farscape, Rigel said that his species are the owners of "the fabled star planets". No one went into detail, but I'm assuming it means multiple brown dwarfs with habitable landmass and oceans on them (Heimerians, Rigel's species, are aquatic

in nature) and those stars orbit a bigger celestial body as though the stars were planets. We've already seen stars large enough to be home to such a machination, and systems with multiple stars that orbit each other in the center, so I just think this is a logical extension.

Black Hole Gravity Creates Spheres

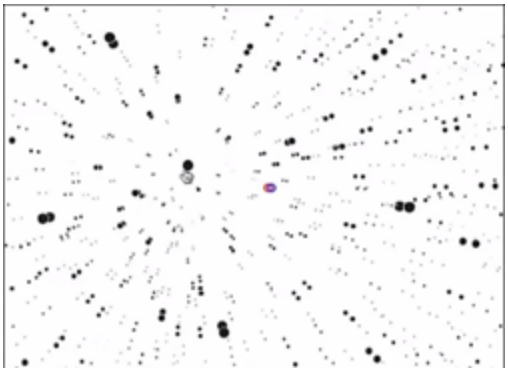
Image above is a d100, or 100 sided dice. I'll explain it in a minute. I might be crossing the Aquarian "genius/lunatic" line here, though I do enjoy a good game of hopscotch in that regard. My idea here (I was thinking about attempting to extrapolate recipes from video games to make dinner at the time I came up with this, so please try not to hold it against me) is that if black holes have infinite gravity, and are always pulling on everything regardless of distance, then it would be feasible, at least to me, that there would be effectively (for the sake of argument) equal pressure pulling on everything from each direction at the same time, consistently. I have heard at least one scientist say that the theory of gravity may be wrong or might not even exist, so I use that as a weak backup at best. What if it is either undetectable or insufficiently investigated phenomenon in regards to black holes that reacts to the magnetic, electric, or thermal energies of large bodies (moons of certain sizes and bigger, as an example), which is what causes them to become quasispheres?

Ignoring gravity, this explanation would grant the same effects, since it would be pulling things towards a planet in a very slightly curved arc, in each direction. I have a 100 sided dice to use when playing Advanced Dungeons & Dragons. I imagine that each side of the spherical dice is a black hole, and our planet, as an example, is in the center of them. If each pull at the same rate but the rate is weak at far range, then it would turn any shape into a sphere or close to it, as the Earth isn't actually spherical, but would also keep things from falling off of the sphere because it would not be falling towards, but forcing its way against the power of multiple holes.



Black Hole Wormhole

People better than I have described the theory of wormholes being born in the center of black holes, so I won't bother getting into it, no sense reiterating what someone else already said better. Above, you see the universe, as I'm sure you're already aware.

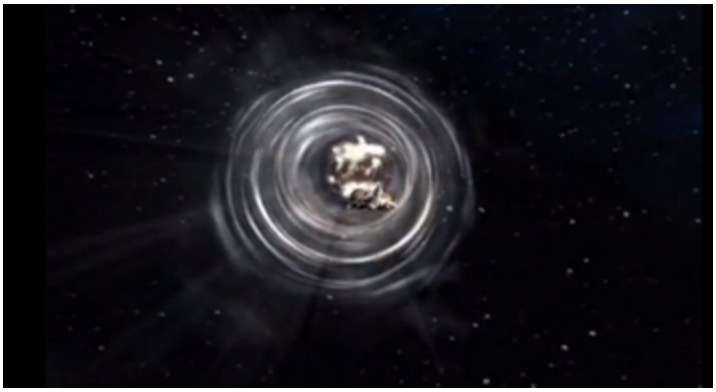


Cosmological Principle Argument

My argument isn't with the cosmological principle, but again with the exact words used. Vsauce showed a couple slides overlapping, showing that all points in space are the center of the universe, scientifically. If that is the case, then again I argue the Big Bang Theory, but also argue against the words "the universe is expanding". Would you say a molecular bond is 'expanding' if it begins losing charge and its nucleus disintegrates? No, you'd say it was disintegrating, or dissipating. The above is an image of the aforementioned slides.

The Universe is Shrinking

Let's say the cosmological principle is right, again, but we'll have another go at it anyway. Has anyone proposed the idea that though the stars in the universe show 'expanding' trajectories, it is actually shrinking, despite initial evidence? What if, say, black holes truly do have 'infinite' gravity? That would mean that even a billion light years away, that black hole's gravity has an effect. However, because the black holes are not uniform in placement, that is why the universe looks like a sponge. The image above is of the Time Prophet from Lexx. Something she said "Time had a beginning, and time has an end. You will live your lives again, exactly as before. I can see into the old cycles of time, but not very clearly, mind you." The reason for the Time Prophet is due to (my) logical extension of my hypothesis. If there was indeed a big bang, then all matter and energy flew out. Then black holes form naturally, which begin to pull materials towards them, and along that path, enough of it collides that planets, stars, and solar systems are born on the way to the hole. Holes pull on each other, though, too, and eventually once everything else is eaten, they eat each other, making the Big Crunch, which makes a Big Bang, which makes a Big Crunch, and a never ending cycle is seen. Nothing living in this universe could ever see it even if immortal, of course, but it would be a cycle.



Fixed Size vs. Monster Spiral

Pictured above is the “fractal core” from Lexx, which I described earlier, but I didn’t want to put the image there because it would be too many pictures in a row. What if that pretty pink sponge of our universe isn’t all there is? I mean, you can tell just by looking at it that there’s more. But what if, say, we are part of the Milky Way Spiral Galaxy, but what if the universe is just part of a spiral arm of an impossibly big spiral universe? That might explain why it’s expanding- the ‘monster spiral’, I’ll call it, just began those hundred billion years ago. Just an infant, really- our monster spiral is still expanding because it was newly formed, and won’t begin to compress for a long time yet, when it will reach its ‘pan’ state, then collapse into a single black hole and cease to exist. Compare the idea of a ‘monster spiral’ with a ‘fixed size universe’. Hypothesis on this one is again based on spiral galaxies since they’re easy to imagine due to my own familiarity. A galaxy begins- something explodes in the center, and some of the mass stays there (bulge) and some becomes arms as it is spinning when the explosion occurs. The matter and energy attract each other and flatten out and become arms, blah blah blah. Stars die and become black holes, and suck up everything. Then just one day, ‘poof’, they aren’t there anymore. What if they create wormholes in the center, whose ‘out’ hole is the center of the universe? Not only one wormhole would form, of course, so some of the material goes to our own universe, some goes to others. Each universe in turn feed themselves and each other- just as galaxies go further and further from the center, their stars age and die and eat each other, becoming giant black holes that eventually blink out of existence. What if there is only so much distance from the center time can get something, making it so that the universe is actually a sphere? Getting outside where this sphere ends wouldn’t be possible for stars since they’d become black holes before that and split though their wormholes.

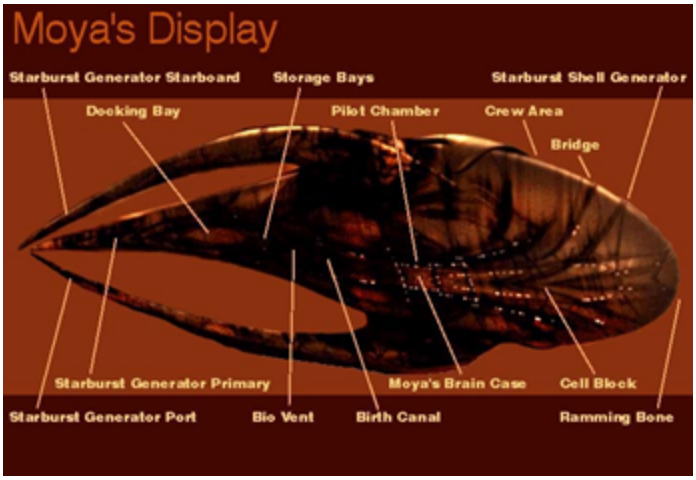
STARS DON’T AGE

Pictured above- Sol. Of course stars age, but I don’t think time actually matters in that

regard- I don't think that the accepted theory is right, so I'll say my own.

Fission/Fusion and Debris Buildup

I used the image above of a glass of silty water to represent the buildup of debris. My idea is that stars die not because they convert everything into carbon and are left with nothing to burn, but because they become so full of solid material that they can no longer retain a healthy fission-fusion relationship with their components. The energy creates gaseous matter, which ignites and explodes, but the explosions are sufficiently powerful that it causes fission and converts the fuel from oxygen back to helium, allowing it to explode again. The energy loss is salvaged as well, which both creates new helium and sheds light. The solid matter however, such as a planet or asteroid slamming into a sun, only gets converted into carbon, as the explosions aren't powerful enough or the right type to turn it back into gas. Stars die from getting sick, basically. Stars might very well need a certain amount of solid matter, but as with everything, even good things, too much becomes bad. If this hypothesis is true, it would explain how 'VY Canis Majoris' got to be as big as it is.

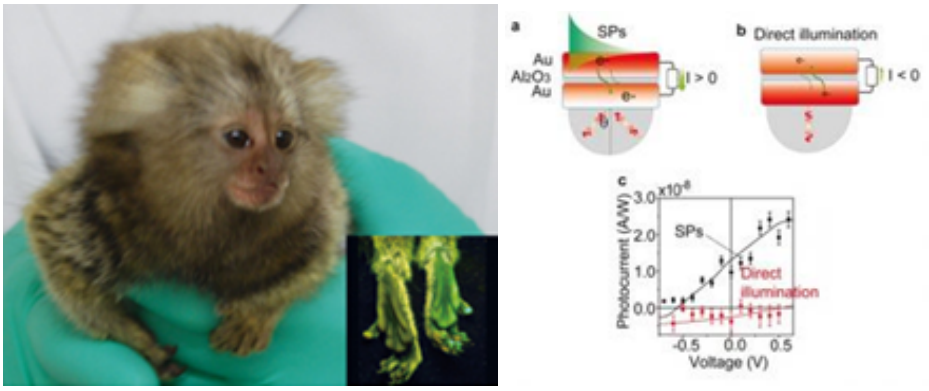


LIVING STARSHIP

Above: Moya, a biomechanical starship from Farscape. She is a machine, but has all the functions of a biological entity, including birth, death, and the ability to think for herself, develop as a person, and feel pain. Looking at the technologies coming out, in my uneducated opinion, are sitting around without anything constructive being done with them, I thought I'd present them at the same time, not as random 'why the heck not?' projects, but as puzzle pieces. Other technologies would be required to glue the pieces together of course, but I think we can use these technologies, though primitive in comparison to what they need to be, to create a living starship. Would cut costs of space down significantly if the equivalence of a space ship egg can be launched into space and just wait a year or two and have a ship already there. If nothing else, we find out we fail miserably and have an idea of how to do it right because of it. Some of the below technologies show ship tech that might be considered cybernetic, mechanical, or organic, though each is either composed of life forms or based on them.

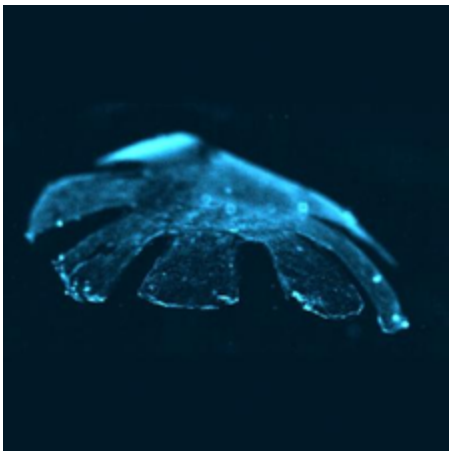
Lab-Grown Organs and Tardigrades

Pictured above is a tardigrade, the only animal able to survive unprotected in the void of space and resurrect itself upon entering comfortable living conditions, which I think was a NASA discovery. What if we created a space ship frame using the lab-grown organ frame stuff, whatever it is? Basic protein? I admit laziness in not remembering or keeping notes on it. Now let's say we seed it with tardigrade cells. Though the animals are normally microscopic, we could still use the genetic material of a few hundred of the little bugs to seed a shuttlecraft-sized ship, but it would take a long time and require quite the impressive lab just for the growth space.



Jelly Monkeys and Robotic Flowers

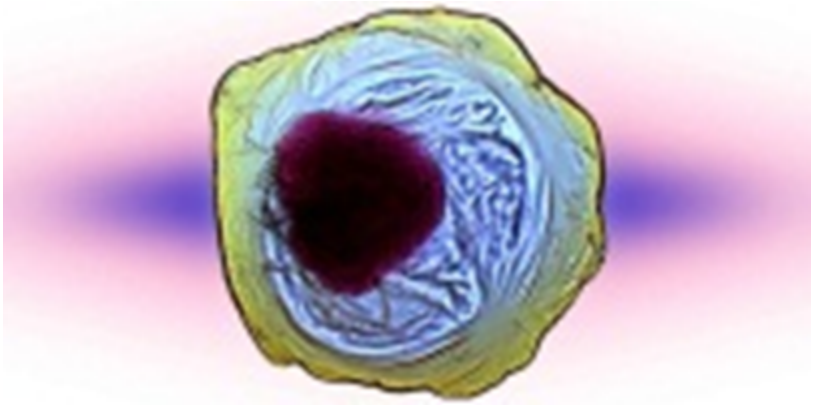
For whatever reason, the Japanese spliced the bioluminescence genes from a jellyfish into some howler monkeys, and each cell shows signs of it- even its bones glow in blacklight. They bred, and the gene was passed down. Excellent! This is a good frame for many things. But what to combine it with? How about the synthetic leaf that copies how leaves work by converting light into basic sugars? I thought a ship would be able to be fine if it had solar panels to charge itself up, but useful light only goes so far away from a star. So with that in mind, why not have it generate its own light? If the starship glows by itself, and consumes basic sugars and can convert its own light into those sugars, then it can perpetually feed itself. After doing more research, I saw that (if memory serves) Panasonic is doing the leaf thing on a large scale.



Cybernetic Jellyfish

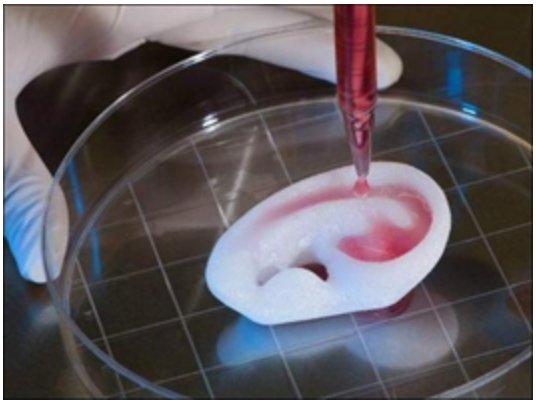
Another project that fascinated me was this cybernetic jellyfish made with basic machine parts (so to speak) and muscles taken from deceased lab rats. It is able to move on its own and attempt to hunt, and though relatively impressive, still nowhere near the level it must be at in order to be a true independent life form. It is, by definition,

a cyborg, however. It's a start if nothing else.



Inorganic Life and Regenerative Circuitry

The scientists who created this said that it isn't at the stage needed to have it act like coral or barnacles even, which they want that purpose to save the city of Venice from sinking into the lake. If this technology is mastered, then we can have it effectively genetically grow functional machines, or even combine it with organic cells and have a truly genetic cyborg, which I don't even think Isaac Asimov thought of. However, this would make all tech, specifically space, extremely affordable. If our global society wasn't based on greed, that would actually mean something. If nothing else, it could at least ensure machines in space are repaired since they'll regenerate. Hooray for the Borg.



Lab-Grown Human/Animal Hybridized Skin Grafts

Imaged above is a frame for a human ear being seeded with genetic material, so it will eventually be an ear of the patient made with their own DNA. This might not even be needed, but let's assume it is for the time being. As soon as it is learned what species can or can't survive on Mars, it might be a good idea to hybridize our astronauts with the

skin of the plants or animals that can survive there, as breathable air would be difficult. Yes, we could bring canisters of liquid air so they have something to breathe, but the cost of weight is very high, and it's heavy. To lower the cost, if a lab-grown organ, specifically skin, is grown via a combination of the astronaut's own skin or stem cells (as was finally allowed to be used) in addition to the stem cells of that which can live there, and surgically applied to the astronauts, then they would be able to live that much easier. We already know that human skin must breathe in addition to the lungs. This was learned in James Bond movies when actresses had full body paint and started suffocating because their skin itself didn't breathe. But what if their skin was able to breathe the natural Martian atmosphere even though our lungs can't? It would not fully replace the need for our planet's atmosphere, but would lessen it. I wouldn't suggest trying it on the astronauts first, anyway. There would be more than enough fetishists that would pay to have their skin combined with animals and bugs and plants, so why not let the space agencies or private companies rack up some money while having willing test subjects in which to perfect the technology? I don't even think it would be a permanent change; the body would naturally not replenish those cells and after 7 years the non-human cells would be gone. The reason for the hybrid skin is so the rejection process is minimalized if not negated, and the human cells would already have evened out with the other cells, so medical issues would be unlikely, at least in theory.

SPACE SHIP TECH

Below are various technologies I thought might need another idea thrown into their pot, for various reasons. As per usual with all chapters, I'm aware that I don't know everything, but sometimes that's for the best. An example is I was trying to help someone fix their VCR over the phone. We got everything investigated and nothing seemed to be wrong, until the person's kid pointed out it wasn't plugged in. Sometimes you need a layman to point out the obvious because you're too busy looking at the complex.

TIME

Perception of time and functionality of timekeeping devices vs. actual time.

Electrical Transmission is Not Time

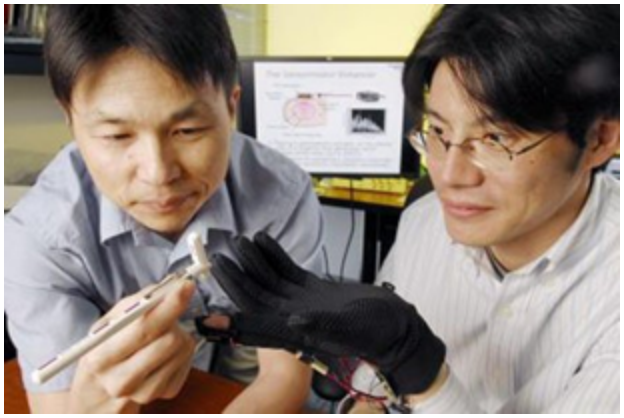
I have but a couple simple questions here. It is said that time moves slower the further you are from a large body, or the opposite, I don't remember. But I do remember that five seconds go by in space at a different rate than on Earth. Is it time itself? I have the sneaking suspicion that it is not, but in fact the transmission of electricity that the time measurement devices rely on to function that slows, and so it seems time doesn't move at the same rate, but in fact it does. Are liquid crystal, digital, and other time-keeping means being used? It's like I keep trying to teach people about fire- fire is not hot. What is hot, however, is that which is burning. But is not necessarily the fire- I've stuck my hands in a fireplace while it was roaring, and not even singed a hair on my arm while wreathed in flame. The wood though? That burns. I'm wondering if time differential is being subject to the same logical fallacy- measuring the effect, not cause. If you want to test out my fire theory, take a very long bath or shower to get your fingers pruney, and light a candle or have a small fire going. Stick your hands in the fire itself, near the top. Don't move your fingers, let the flame lick you. The fire doesn't feel any different than turbulence in the water when someone swims past you. This of course has nothing to do with space anything, but since I used it as an example I thought I should present the way to prove my theory right.

ARMOR

Pictured above is of course a breastplate. I have a couple ideas on spacecraft armor, but ideas on personal armor as well, and the reasons behind why I think it is required.

Bio-Suit Armor Attachments

I do think that armor attachments are needed, not for battling space aliens or any of that, but to help protect the astronaut's own clumsiness and the suit that might get damaged if they slip on something. You really don't want a simple scrape to make your veins explode. The first two images are of Prof. Dava Newman wearing her next-gen space suit she designed and is perfecting; the last image is of armor worn by motorcyclists. Smoothly designed armor pieces similar to sports equipment or bicycle safety might be good ideas, such as protecting the knees, elbows, shins, and forearms. Of course astronauts will train in the correct AU (that's what we measure gravity in, right?) but the landscape in that AU is not fully predictable, so caution seems appropriate, especially on another planet.

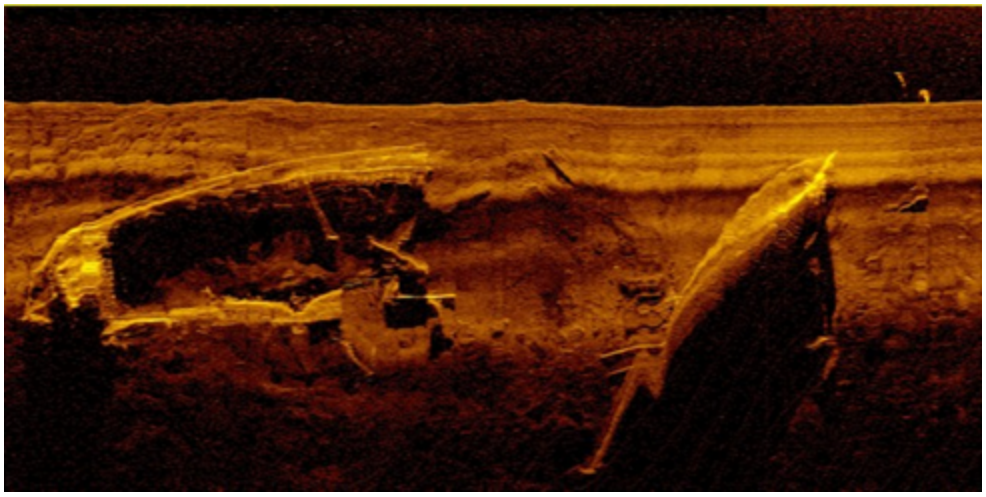


Sensitive Gauntlets

Looking at robotics and armor, I can't help but see a logical extension. Fingers, at least that of clumsy people (I'm not clumsy, but I am absent-minded and easily distra- oooh shiny!) are easily and often damaged. Do we want to risk damaging the suit that protects that astronaut? I think not. But we also want to be able to feel what things… feel like while being protected. Incorporate tactile gloves to the armored bio suit.

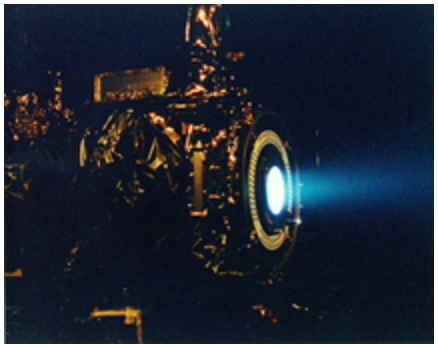
Non-Newtonian Velocity-Matching Armor

Pictured above are the feet of Adam Savage (a Mythbuster host) who combined blue food coloring, corn starch, and water, and while still fluid, ran on top of it and it became solid as pressure was applied. We would need to develop a non-Newtonian fluid that won't freeze in space, but would it be useful as a filler within ship hulls to protect against impact? You can walk on water with (at least) some of these fluids as they become solid when pressure is applied, but also the question is if the speed of the impact bypasses the hardening of the liquid into a solid, which I'm sure it would. The end-result idea of this, if it is used at all, is that the hull remains filled with the stuff as liquid, but then remain solid in places where the exterior of the ship was punctured. We really need something able to match the velocity of any impact as it happens, without being destroyed. An additional idea I had was likely less realistic or useful, but I might as well say it, right? Since you answered that rhetorical question with 'yes', I will do so. Does microwave radiation help protect astronauts from cancer via photonic boom? If so, we could have the ship hull full of that radiation type and shielded so the photons don't pass all the way through the ship, or at least not as dangerously.



Electronic Sonar and Regenerative Armor

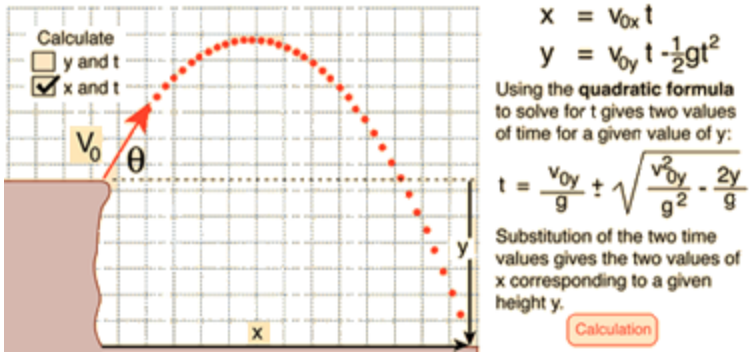
A better idea than liquid armor is a hull that repairs itself, and doesn't even need someone to notice the damage, or cameras or anything looking. I was thinking instead of a sonic device, such as is used on ships to check for shipwrecks at the bottom of the sea, or density differences in solid rock. If we have an electromagnetic pulse go through the outer hull and transmit the shape of the hull to its sensor repeatedly, then a hole would appear as a black spot, since the electricity didn't travel in that location. Seeing that as a problem, the metal would have to act as human skin, and recognize the hole as damage and repair itself. In order to even pretend this is possible within any span of realistic time, memory metal would have to be used, which I think exists in some form. The goal of this one is that the damaged metal reverts to the shape it was supposed to be in before damage, and seals itself by excited electricity bolting across the edges, making the metal weld at low-temperature and without fire, since there isn't any air in space.



EVASION

The best defense of course, is not having to need defense, but at least in martial arts

and video games, the ability to not get hit to begin with is much better than resilience. On that note, I present something that might already be in place, actually. I think I read that the satellites in place have some evasion skills in place already. Image above is an ion thruster.



Video Cameras and Trajectory Calculation

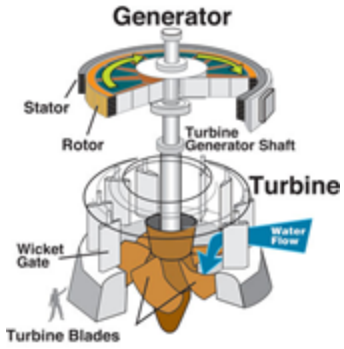
Using the absolute highest resolution cameras available on an external track, combined with a trajectory calculating algorithm and various small ion thrusters throughout the ship, the spacecraft could potentially evade incoming debris or meteorites that would otherwise impact upon it. That is, if the thrusters are both upgraded so they can be smaller in size, cheaper to produce, require less energy to run, and are positioned in a way that a single quick burst could let the ship move not only in the six cardinal directions (think of a six sided dice) but also the directions that that dice's corners are present at.

OBSOLESCENCE THROUGH THE STARS

I am very glad that science is taking a worry of mine into account. I was thinking "What if we do have good tech and send people and ships through space to colonize, but before the ship even arrives, better technology has come out, allowing for the travel to be faster, and society would have changed since that crew left as well. Those brave, forward-thinking explorers of the first crews would be backwards bumpkins in comparison when they finally arrive, by their own descendants. Not much different there, but would be less desirable since they'd be very far descendants and not have emotional connections with each other. It would be like meeting someone from ancient Egypt. By math, we are ALL related to EVERYONE in the distant past, somehow. But do you love them? Respect them? The society as a whole based on what they contributed maybe, but not on a personal level. There would only be problems, I think.

POWER

Different energy generation ideas, besides the cybernetic perpetual self-feeding described above, and questions about other power supplies.



Dam It to Full Power

I don’t know how all of the tech in space gets its power, but has anyone thought of using the technology present in hydroelectric dams to generate energy? I can conceive of part of the ship beginning to spin at a certain time, and because there is no friction, it wouldn’t stop. Something could be in place to keep it from spinning too much, if that happens to be a thing. If just the spinning motion can generate electricity, I don’t want a potential source wasted.

Solar Panel Pollution

A question I thought that might be important is this: Do solar panels react to light, or

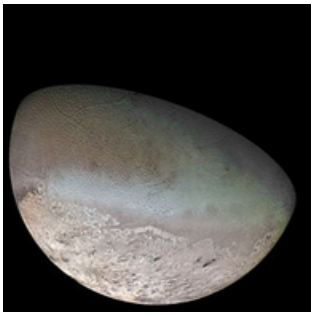
absorb it? I worry about background space radiation that permeates everything, and wondering if we are causing pollution. Not pollution in the sense of leaving something, but in cleaning what isn't meant to be cleaned. I'm aware I'm going too far in this idea, but it might cause unforeseen effects in other solar systems that pass through where we once were, and if there is an intelligent and unhappy civilization there, they could follow that pathway right to us, considering what we irresponsibly did as an act of war. Even if not, it might cause stars to supernova faster than we want which could affect us.

GRAVITY PLATING

Ever since I heard of 'gravity plating' on Star Trek, it's been stuck in my head. How is that even possible? It isn't, right? But maybe something can act like it…

Electromagnetic Giraffes

First, we'll start with the Bio-Suit. An astronaut would have to be wearing that for any of it to work. By itself, it fixes the problem of bone loss, pressure, blah blah blah. Now, we also need it to do one other thing, and the ship's interior has to step up its game as well. The reason there is an image of an old trolley car above is it gave me the idea that the suit and floor tiles could have the same electromagnetic relationship. The panels on the 'floor' would react to the magnets in the astronaut's boots, but only around 10-15 pounds of force instead of a big electromagnet because we only want normal or lighter steps required; just enough to stand on a surface but light enough to not have to yank your feet up or drain much energy out of the system.

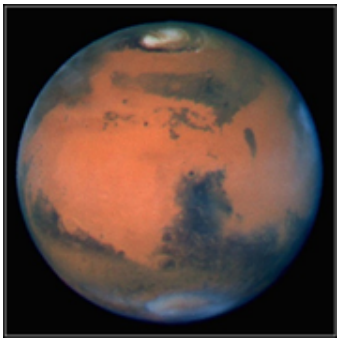


ICE MOON GROWS HOT

I liked very much hearing about the cryovolcanoes on Triton, and the fact that no one had a definitive idea on exactly why the moon's temperature has been increasing. I have an idea, which I don't know if someone presented yet or not. My niece is 8 and she is afraid of volcanoes so she didn't go to Hawaii, but I told her about Triton's volcanoes that shoot ice water and snow and she thought it sounded fun.

Debris Buildup, Buoyancy, and a Volcanic Core

Thinking about stars not aging and dying due to element fusion made me think of this. Do we have any way of telling exactly how many times that moon has been struck by debris material, specifically the heavy metals that meteors are comprised of? If enough of it hit that ice moon (with yummy ice water volcanoes, bring a pitcher and some lemons), then surely the heavy metals would be more buoyant than the ice, especially if it caused holes when it hit, which it surely would have. Enough of it builds up over time, the heavy parts sinking to the core, making the center heavy metal instead of ice. Plus, that water might well be colder than the ice is, as water below freezing exists below the ocean, but since it is flowing, it doesn't freeze though its temperature would suggest it to do so. If enough of this metal builds up in the center, then it might somehow liquefy and become liquid magma, and the cryovolcanoes would suggest this as a possibility though there probably isn't enough metal to be in the volcanic debris, but just enough to excite the moon.

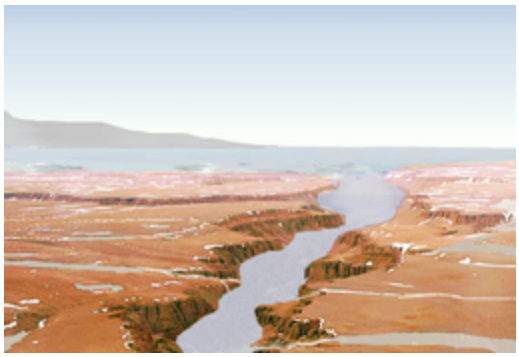


MARS

Various ideas on the history or current state of Mars.

Different Cameras Cause Water to Flow

I want the answer to be ‘no’ on this, but I can’t help but ask the question anyway. It appeared that water was flowing on Mars, if you look at a few different photos of the same geographic region from different years. However, the question is this- was it just a trick of the light and differentiation between camera resolution? I really don’t want you to say ‘yes’, but I also don’t want to believe a lie. There is also always the chance that a passing CO2 cloud filled what looks like a riverbed, but is actually a valley. I do want it to be flowing something, though, even though the temperatures would not support it.



Waters of Mars

Yes that was a Doctor Who reference. In regards to the Martian river delta- why didn’t we land at the river mouth? Is it because of no solar activity and the robots would shut down, or there wasn’t enough flat land for a safe landing, or what was it exactly? I think we should set up an outpost or stationary robot over there to just inactively observe. Just plugging this idea in here- why aren’t the Mars robots giving Google updates? Google Earth lets you switch planets to the Moon and Mars, but I’d like to use the

Google street view tech and the Mars footage together to let more people explore.

Bacteria Seeding

I remember a lecture or interview (I watch so many things with you in it that I don't remember which is which) where it was revealed that a lot of people have volunteered to go to Mars, even if they die there as soon as they arrive, and it isn't just nut jobs offering. I think it's an excellent idea, because we already know the decay process of humans here on this planet, but not on the red planet. We could bring not just humans, but dead other stuff, and not sterilized. Very important that it isn't sterilized, actually. The reason why is so that we can watch the decay process on Mars, specifically the microbial growth on dead matter. By studying this, we may have better ideas of where to look for native Mars single-celled organisms, or if organisms from our own planet can survive there at all. Maybe the bodies decay far faster than usual, or not at all, or the microbes evolve and become something completely different because the environment is so different from what it is used to. I don't see a reason to fail to study this. Plus, I'm very sure that it would be necessary information in order to genetically engineer flora for that planet, if we decide to do so.

Stationary Horticulture Surveyor

In regards to bacteria seeding, we should probably have a few sets of the same animal or plant matter to study while on Mars. Some left open, some sterilized, some protected only by the same materials that the space suits would be constructed. This way we could see if certain things could even survive there. We would likely want to start with something basic, like some earwigs and simple plants such as lichen, or something else that can survive in comfortable climates for humans. I personally like it to be dark, cool, and damp, but that's because I'm a fun guy. I apologize while subsequently looking proud of myself for my lame joke. This would be another robot that doesn't need to move, but just sit motionless checking the statuses of its different samples.

Grown Stone Home

This subchapter is riddled with even more "ifs" than others, as a warning. Let's look at the idea of the inorganic cells being used to effectively make limestone buildings and structural integrity bonuses, as the designers originally planned on using it for. If Mars did have a civilization and their technology went in the same path in at least that direction, how could we tell if the rocks are just rocks or parts of buildings? If buildings are redesigned to look like natural parts of the landscape, then what of other civilizations looking at our planet after we're gone? Would there be any trace left? They could stand in Los Angeles, California and think it was just strange natural rock formations. We might really need to look into Mars to see for sure if this ever happened.

September 11 Attacks Against the Twin Towers

When the World Trade Center fell, I saw something I don't think anyone else did. What I saw- Mars. What if there WAS a civilization there? With the weather as it is, and no magnetic shield, what would be left, if anything? The towers were just dust. Steel, cement, light bulbs, people, wood. All that remains is just unidentifiable dust, and that was within a few hours at most in some cases. If Mars did have a civilization, then I don't think there'd be anything left to find, honestly.

H.G. Wells Wasn't Wrong

My last idea is about the incomprehensibly large volcano on Mars. Can we figure out a time that it went off? Might it maybe be… 65 million years ago when the dinosaurs died due to an asteroid impact and that asteroid happened to be one of the initial rocks that exploded from Mars when the volcano became active?
I'm very aware that many of my theories are incompatible with each other, contain invalid information, or are dumbed down to the point of having purely ignorable words. I thought it best to make it as accessible as possible, and I thought I should get my thoughts out there anyway, since the old saying is true- "If you fail to try, you try to fail". Thank you for your time, and I hope that something in this paper was of use to someone, if for no other reason than something to read on the can.

DEATH OF A COMET

What causes a comet to streak like it does? If it is friction, then what is rubbing against it to flake off its ice? If it is gravity of planets and other bodies yanking it off, why would it appear to be so consistent when its orbit isn't? Is it that the comets have internal tectonic activity but not enough gravity to hold itself together from its own cryoeruptions?

RAINBOW CLOUDS

Years ago, over Ontario, CA, I saw clouds like this. It was about 10:50 P.M., and other than normal city ambient lighting, the clouds were bright rainbow colors. I only saw it because I was the dishwasher and had a load of recyclables to chuck in the dumpster, but once I saw the clouds, I brought out the cooks and waitresses, and let the bartender and diners know what was outside, in case they were interested. Someone later said it was the military testing anti-missile defense systems and that was blown up missile chemical debris, but I didn't believe them (though they didn't know that, I simply agreed due to the fact I didn't think they were the kind of person to investigate or theorize and there's no point arguing with those people since it won't get you anywhere). What could possibly make it so that certain clouds only last for a few hours, and during their lifetime, they are all colors of the visible spectrum and produce their own light, even visible in a pure black sky?

BUDONG

Thought up in Farscape, a species native to space itself. Bigger than some moons, these huge space monsters survive mostly by eating rock and ice, and get their water and mineral requirements that way. We are only able to ‘see’ planets by measuring scans of where they’ve passed, and not even directly see them with our current technology. This failing makes me think other things might be in space that we also can’t detect because our instruments are still too primitive. Might it be possible to find a species suited for 100% space exposure, and not being restricted by oxygen requirements (since insects on our planet went from averaging seven feet long to averaging one inch long, it makes sense to me) it could effectively act like a goldfish? I’ve seen goldfish get HUGE if the bowl is big enough, they live long enough, and they have enough food, but stay small if the bowl they’re in is also small. Might something like this exist, theoretically?

“THE DOCTOR” SHOWS UP

If The Doctor showed up and asked me where in all of time and spaceI wanted to go, I’d choose the Gliese system (come on now, who wouldn’t want to see if Gliese 581c has purely black fauna that might also be blacklight reactive? Plus I very much want to get a good amount of Ice 10 from Gliese 436b so I can make a house out of never-melting ice), any system with a cold star (I want to see if any of those Y class brown dwarfs are actually M class planets), 55 Cancri e (I want to see if the diamond planet has mineral impurities making it colored, pure and clear, or like a giant disco ball), and any of the solar systems that make up Orion’s belt, since the stars that make up Orion’s constellation are in the same spots my very few freckles are in (except reversed). I’d also rescue books from the Great Library while still letting it burn so the timeline isn’t screwed up. Where would you go?

Bio Suit: http://mvl.mit.edu/EVA/biosuit/
Inorganic Life:
http://www.ted.com/talks/lang/en/rachel_armstrong_architecture_that_repairs_itself.html
Cyborg Jellyfish: http://news.harvard.edu/gazette/story/2012/07/behold-the-artificial-jellyfish/

Artificial Leaf: http://web.mit.edu/newsoffice/2011/artificial-leaf-0930.html
Glowing Monkey: http://news.bbc.co.uk/2/hi/science/nature/8070252.stm
Vsauce's explanation of cosmological principle:
http://www.youtube.com/watch?v=3pAnRKD4raY

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