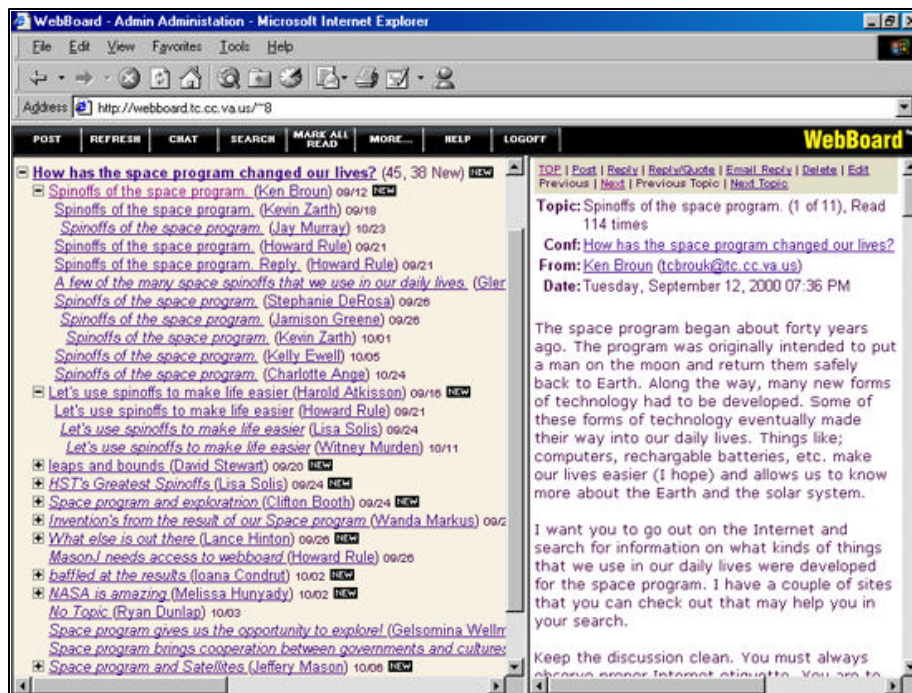


Spin-offs of Space Program: How has the space program changed our lives?

Astronomy, K. Broun, TCC, Sept. 2000 Webboard



From Professor Ken Broun:

The space program began about forty years ago. The program was originally intended to put a man on the moon and return them safely back to Earth. Along the way, many new forms of technology had to be developed. Some of these forms of technology eventually made their way into our daily lives. Things like; computers, rechargeable batteries, etc. make our lives easier (I hope) and allows us to know more about the Earth and the solar system.

I want you to go out on the Internet and search for information on what kinds of things that we use in our daily lives were developed for the space program. I have a couple of sites that you can check out that may help you in your search. Keep the discussion clean. You must always observe proper Internet etiquette. You are to reply to my main question and then reply to one other person's response. Minimum 80 words for each reply.

<http://www.thespaceplace.com/nasa/spinoffs.html>
<http://nctn.hq.nasa.gov/>
<http://spaceflight.nasa.gov/index-n.html>
<http://www.sti.nasa.gov/tto/online.html>
<http://www.thespaceplace.com/links.html>
<http://www.jsc.nasa.gov/pao/factsheets/factsheets/spinoffs/>

<http://seds.lpl.arizona.edu/technology/links.shtml>
<http://robotics.jpl.nasa.gov/tasks/hazbot/accomplishments/spinoff/hazbot-spinoff.html>
<http://www.sti.nasa.gov/tto/shuttle.htm>
<http://ccf.arc.nasa.gov/dx/basket/storiesetc/spinoff.html>
<http://techtran.msfc.nasa.gov/sitemap.html>

By the way, Velcro was not a spinoff from the space program.

Selected Student Responses

"Spin offs" from space innovation has definitely improved our survival and extension of life on earth. It's amazing to know that the things we overlook, but rely on every day for the protection of our lives as in the smoke detector were developed for the space program. Just as, the portable medical equipment used in our ambulances. And we have been led to believe that items such as the pace maker, or heart pumps were developed solely from the medical field for the medical development of saving lives(here on earth).

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Spinoffs on Some of these forms of technology eventually made their way into our daily lives. Things like; computers, rechargeable batteries, etc. "The use of robotics in situations involving hazardous materials can significantly reduce the risk of human injury. The Emergency Response Robotics Project is developing a teleoperated mobile robot allowing HAZMAT (hazardous materials) teams to remotely respond to incidents involving hazardous materials." "The technologies being recognized are those for anti-shock trousers, flame retardant seat materials and the radiation barrier." Anti-shock trousers are a spinoff of anti-gravity flight suits. Basically a suit with lines in it that inflate to force blood back in to a persons brain when high G-forces are encountered. The flame retardant materials are pretty self explanatory and the radiation barrier was developed for the extreme temperatures of space. Other spinoffs would include tang, thermal insulated blankets, carbon composites used in automobiles and aircraft and smoke detectors.

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The space program, since its beginnings, in the 1960's has produced many spin offs that either affect us in our daily lives or effect us in one aspect or another in our lives. The following is a small sample of some of the spin offs and how they affect us in our daily lives:

- Enriched baby foods-NASA developed a micro algae-based, vegetable-like oil formula that contains two essential fatty acids which is found in human milk but not in most baby formulas, these fatty acids are believed to be important for infants' mental and developments.
- Scratch-resistant lenses: for those of us who wear glasses, NASA modified a version of dual ion beam bonding which gives lenses a film of diamond-like carbon that provides both scratch resistance and helps to reduce water spots on lenses.
- Better brakes: where would cars be without breaks? NASA developed a high-temperature composite space materials that help provide for better break linings. Used on trucks and on our cars.
- Advanced welding torch: originally developed for joining light alloys together, it is used by major appliance manufacturers for welding sheet metals ie-washer/dryers and toasters.

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I think that one of the greatest spinoffs from the space program has been the advancements in air travel. Such examples as the jumbo jet, Boeing 777. Its lightweight materials, and break-through technology in the cockpit and controls give it great advantage in air travel. I don't want to copy too much from the web site about the Boeing 777, so <http://www.sti.nasa.gov/tto/spinoff1997/t1.html> You should visit it if you have time, it was an interesting web page. So, how does everyone else feel about NASA's involvement in Aircraft Design?

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In regards to what Jamison Greene wrote, regarding the technology of the Boeing 777, I believe that NASA should be involved in the engineering and development of our aircraft. The Navy's new F/A-18E/F super hornet, is a prime example. It's through the innovation of space technology that we can development an aircraft that is lite weight, out maneuvering, but yet powerful enough to carry the heaviest of payloads in comparison to most air/air and air/ground combat aircraft. The technical advance in the cockpit alone is quite impressive. Like the Boeing, the electronics are more sophisticated, and better constructed than anything yet to date.

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The space program has helped people out tremendously. It's amazing that without NASA, and trying to put people into orbit, we wouldn't be able to go on the internet right now. And the internet has helped in huge ways. WE're able to get information to help with school, check out things about other parts of the world, etc. And what about the infamous smoke detectors in homes. Some of us wouldn't even be here if it weren't for them. That is a major help for people everywhere.

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While watching the recent space shuttle launch, a friend asked me "What could they be doing up there that it would take one hundred missions?". At the time I did not have an answer, but I do now. Most people simply do not realize the benefits of these one hundred space shuttle missions and the effect that they really have on our lives. I admit, until visiting some of the web sights I had no idea that so many things that we use every day originated in our space program. Who would have thought that my running shoes were spinoffs from moon boots? I guess I thought that they were just up there looking for little green men.