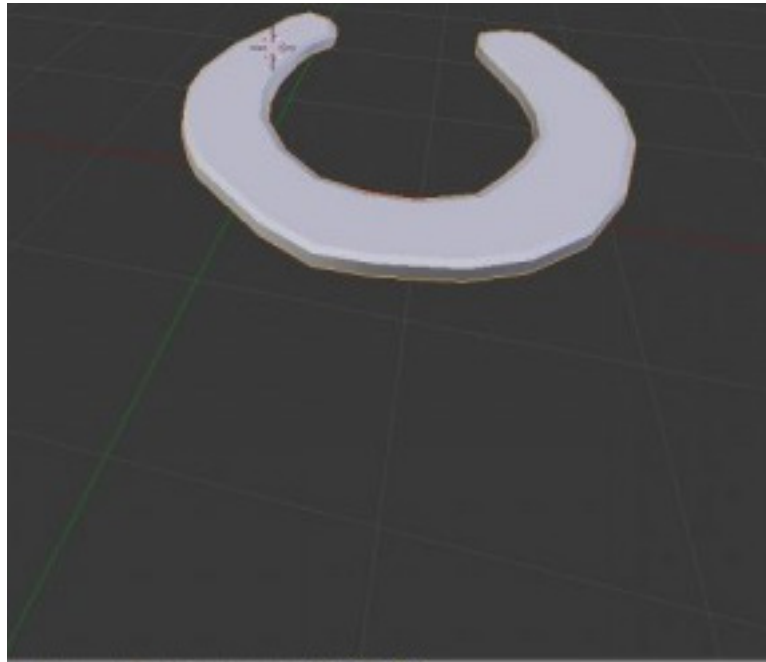


Eric Ross

*Eric Ross Blender
Horseshoe 2014*



3D

Horseshoes

In a world already full of so much stuff I wanted to expand on the Idea of 3D printing horseshoes. This idea is meaningful to me because it has been used in to help horses. My interest in helping horses stems from jobs of my youth in which I worked with horses. I like this idea, the fact that you can scan a horses hoof and 3d print a horse-shoe that will then improve that horses well being is awesome. The horseshoes I've had the privilege to read about were racing shoes and horseshoes that help with a disease called Laminitis. "Laminitis (also termed founder) is inflammation of the laminae of the foot – the soft tissue structures that attach the coffin or pedal bone of the foot to the hoof wall. The inflammation and damage to the laminae causes extreme pain and leads to instability of the coffin bone in the hoof. In more severe cases it can lead to complete separation of and rotation of the pedal bone within the hoof wall. Laminitis is a crippling condition which can be fatal in severe cases. Once a horse has had an episode of laminitis, they are particularly susceptible to future episodes. Laminitis can be managed but not cured which is why prevention is so important". (RSPCA)

In the horse racing aspect of 3d printing the horse can run faster because the shoe is lighter. But cost significantly more because the 3d printed shoes are titanium and the traditional shoes are aluminum. For the treatment of disease in horse hoofs I believe that 3D printing can help so many horses. As this technology advances it never ceases to amaze, so much good is waiting to be done with what we have been given.



CSIRO 3D racing horseshoes

Horseshoes are also symbols of good luck. This was created through ancient folklore during the stone age in Northern Europe and the British

Isles. To scare away goblins and evil the people hung iron horseshoes above their door. The evil was scared of the horseshoes because, it looked like the Celtic Moon gods crescent.

In 2013 CSIRO with help from a horse podiatrists scanned and 3D printed titanium horseshoes for a horse named Holly. For three years Holly had been suffering with Laminitis. The horse's foot is similar to our finger; the hoof wall is like our finger nail and is attached to the bone underneath. Laminitis affects the attachment between the hoof and bone, causing pain and inflammation. "The new shoes will work to redistribute weight away from the painful areas of the laminitic foot and give Holly, and horses like her, the chance to recover" (Smith) Dr. Luke Wells-Smith is a Veterinarian from Australia whose research includes biomechanics of therapeutic horse shoes.



CSIRO Holly 3D Horseshoe

That same year CSIRO also created 3D horseshoe for a race horse named Titanium Prints. The printed horseshoes are half the weight of traditional aluminum horseshoes. Here is what CSIRO's titanium expert had to say " 3D printing a race horseshoe from titanium is a first for scientists and demonstrates the range of applications the technology can be used for." (Barnes) Mr. John Barnes is Titanium Technologies Theme Leader Future Manufacturing Flagship, at CSIRO.

Curtis Burns in Florida uses a 3D printer to design his Polyflex horseshoes before they go into mass production. Polyflex shoes are glue-on urethane shoes that allow the hoof to flex.



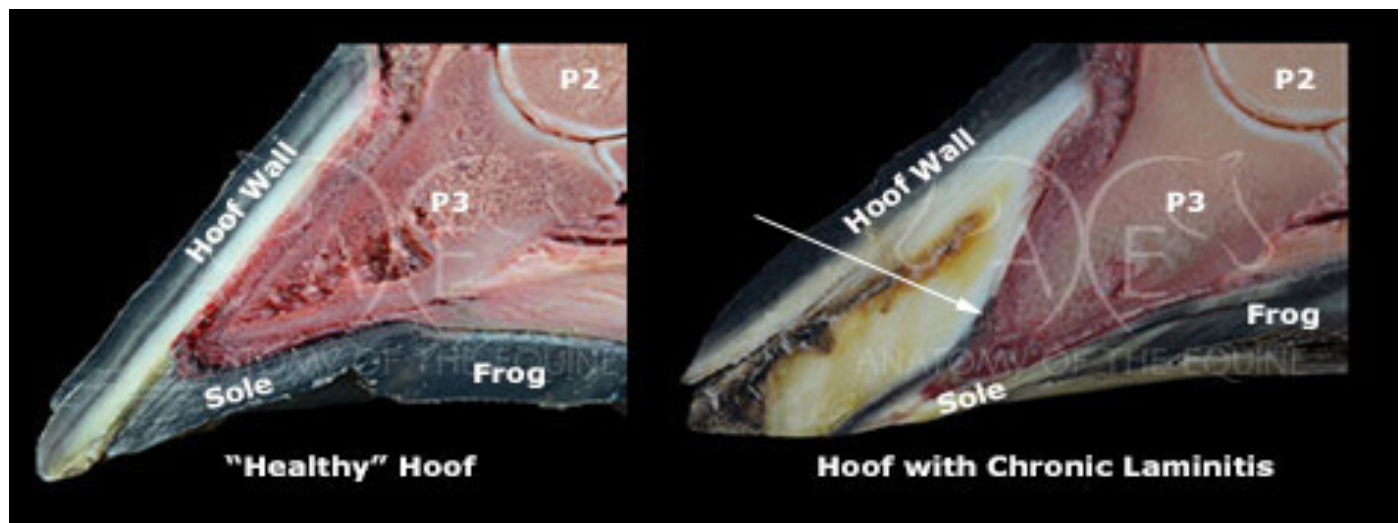
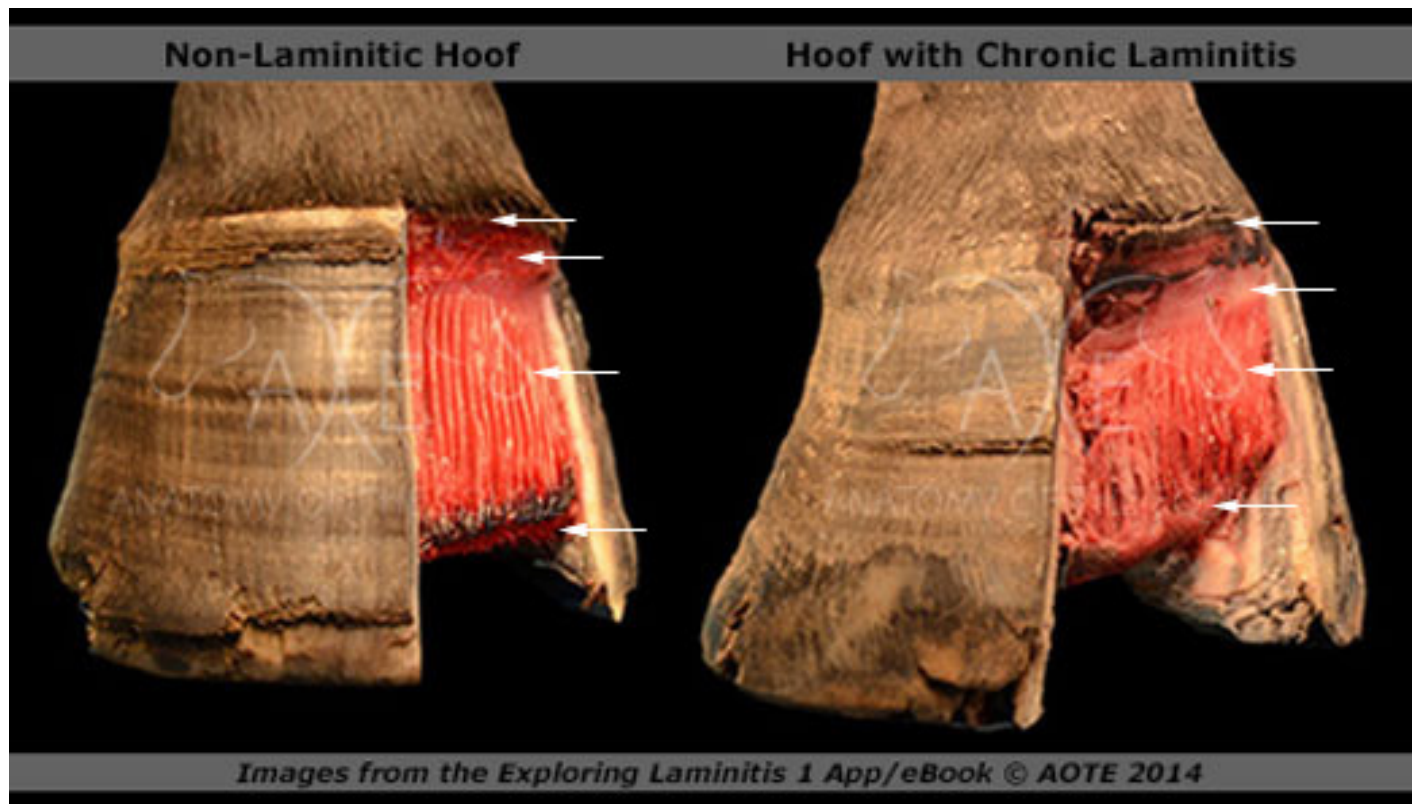
Curtis Burns Polyflex Horseshoes

to improve human foot health in similar ways. So I believe that without a doubt that these experts would agree. In a world full of so much stuff, a horseshoe that restores life is worth making more of.

In closing what I've learned about 3D printing and horseshoes only adds kindling to my desire. That desire is to see this idea through to completion. Horses are noble creatures, that since the beginning of time we have made work for us. We have used horses in battle and have we've made them things we were too weak to accomplish. After all we have asked of them, it's only right for me to try and expand on an idea to help them. I'll leave you a quote I like from *Ralph Waldo Emerson* "Riding a horse is not a gentle hobby, to be picked up and laid down like a game of solitaire. It is a grand passion. It seizes a person whole and once it has done so, he/she will have to accept that his life will be radically changed."

Dr. Andrew Schneider a human Podiatrist in Houston Texas commented on CSIRO work with horse podiatry, in the article "A Tale of Horseshoes, Podiatrists and Grey's Anatomy" He says that " I find this new development in 3D print technology very exciting. I already create custom orthotics for my clients, using the inserts to help your feet work as efficiently as possible, making the rest of your body more stable. Right now, I make the orthotics from a mold I take of your foot when it's in a 'neutral' position; once that mold is made, I modify the orthotic to create a shape that will counteract the unique problems created by your own biomechanics." (Schneider) I think it's really good that Dr. Schneider is excited for this technology. He envisions what this means for the future of human Podiatry.

Experts on this idea seem to be in unison, this is something that can be great. The ability to not only help horses that are crippled and in pain, but improve their hoof health for eons to come. But through this idea, I discovered someone wanting



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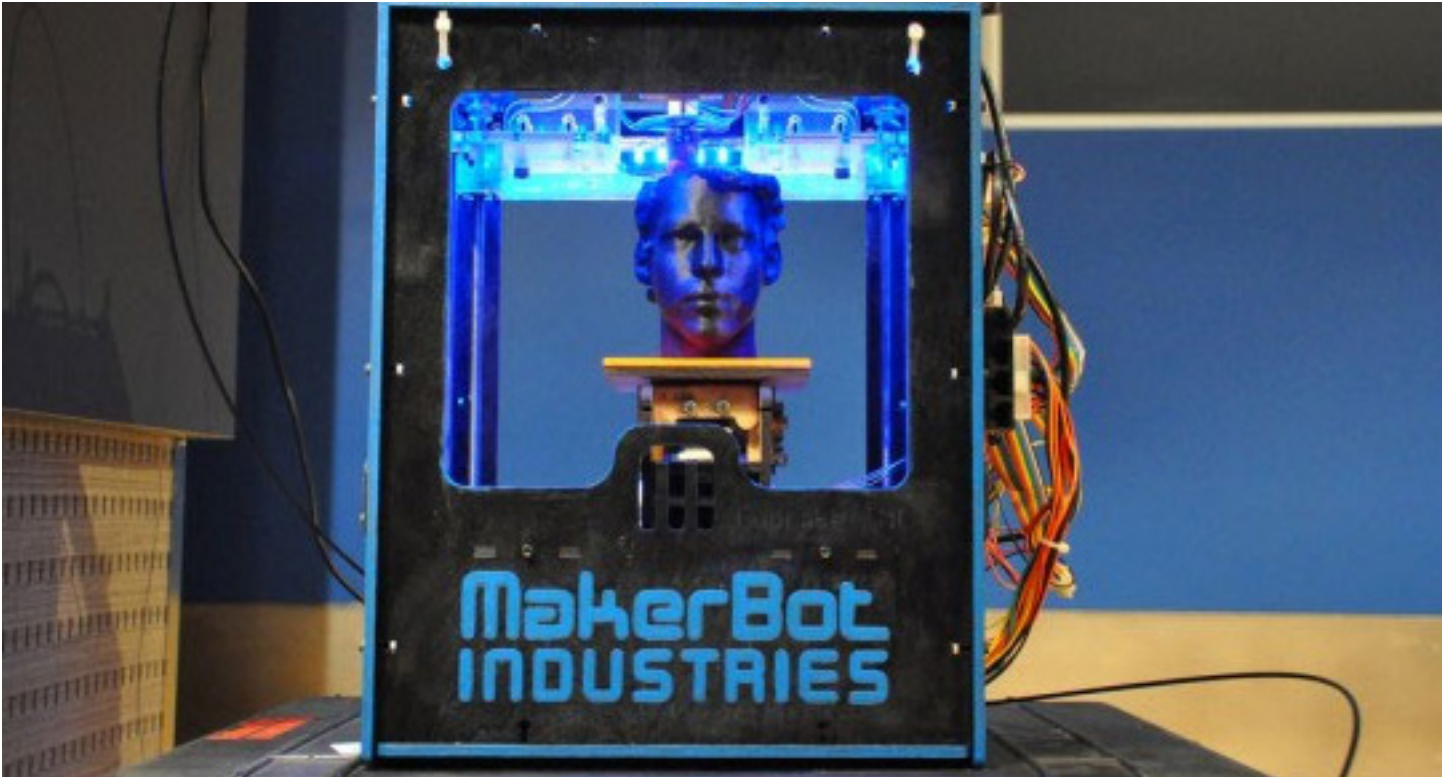
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3D Printer (b. 1983) I'm a device that can be used to print objects from software on the computer.