



ICE - Triangle Trigonometry

Since the late 1950's, a string of reports have described large, hairy, ape-like creatures (named "Bigfoot") inhabiting the forests of the Pacific northwest. For the last forty years, Bigfoot researchers have made plaster casts of large footprints that have been discovered in wilderness areas all over the United States and Canada.

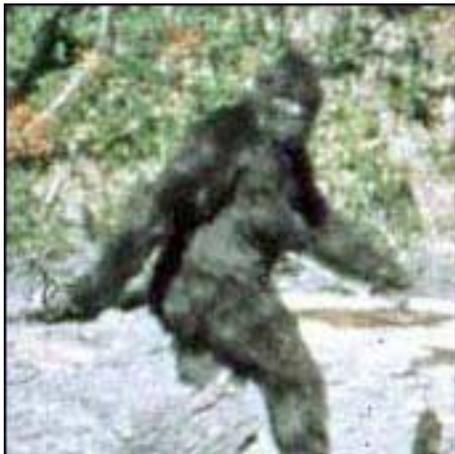


Figure 1: Frame 352 (of 952) from the film taken by Roger Patterson on October 20, 1967, near Bluff Creek California.

Perhaps the most famous piece of evidence presented in support of the existence of Bigfoot is a movie film shot by Roger Patterson near Bluff Creek in Northern California on October 20, 1967 (see Figure 1¹). The short, shaky film shows a hairy bipedal creature that walked away from Patterson, disappearing into some nearby woods.

Several days after the film was made, Patterson returned to Bluff Creek with other Bigfoot enthusiasts. Near the scene of Patterson's encounter, the team discovered large footprints (see Figure 2²). The footprints had an average length of 14.5 inches.

The Patterson film is very controversial, creating friction between Bigfoot investigators and skeptics, and

between "true believers" in the Bigfoot phenomenon. A key issue is estimating the size of the subject that Patterson filmed. If the figure is extremely tall then the film is probably a more credible piece of evidence. If the figure in the film is approximately man-sized, then the film would have been much easier to fake.

Figure 3³ shows one of the last frames from Patterson's film. This film is remarkable because all of the foot of the hairy biped can be seen in the image. This allows a rough estimate of the subject's height to be made.

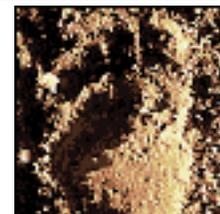


Figure 2: Footprint allegedly made by the subject filmed by Roger Patterson.

¹ Image source: Bigfoot Field Research Organization, <http://www.bfro.net/>

² Image source: Bigfoot Field Research Organization, <http://www.bfro.net/>

³ Image source: Bigfoot Field Research Organization, <http://www.bfro.net/>



Figure 3: Image from Patterson film showing entire foot of subject.

- **Use the picture of the creature in Figure 3 to estimate the height of the hairy biped filmed by Roger Patterson. Note that the entire length of the subject's left foot is clearly visible to the camera.**

- **Figure 4⁴ shows that the hairy biped did not walk with an erect posture. Instead, the creature was bent at the waist. Use trigonometry and Figure 4 to calculate the actual length of the subject's head, chest and torso.**

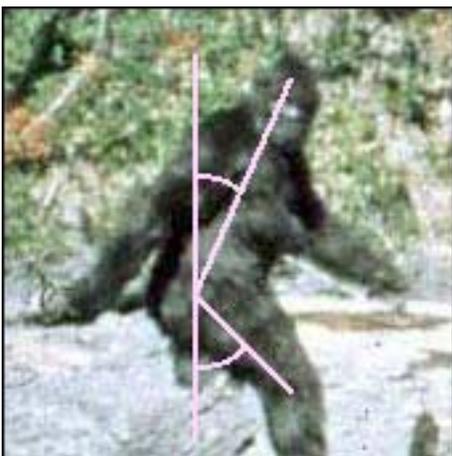


Figure 4: Image from the Patterson film showing the angle between the subject's back and the vertical, and the angle between the subject's thigh and the vertical.

- **Lastly, Figure 4 shows that while the creature is walking, it's thighs are also bent at an angle, rather than straight up-and-down as in human locomotion. Use trigonometry and Figure 4 to calculate the actual length of the subject's thigh.**

- **According to experts on the Bigfoot phenomenon⁵, typical eyewitness reports describe a creature that stands between 7 and 9 feet tall⁶. Could the creature in the Patterson film possibly be this tall?**

⁴ Image source: Bigfoot Field Research Organization. <http://www.bfro.net/>

⁵ Source: Krantz, G. *Bigfoot Sasquatch Evidence*. Second Edition. Blaine, WA: Hancock House, 1999.

⁶ Source: W.H. Fahrenbach. (1998) "Sasquatch: Size, scaling and statistics." *Cryptozoology*, **13**: 47-75.