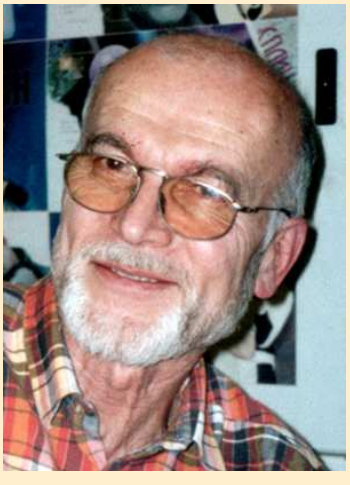
Authoritative Conclusions on the Patterson/Gimlin Film

Over the last forty years, the Patterson/Gimlin film has undergone rigorous examination by highly professional and dedicated people. The following are the conclusions reached by these people.

Dmitri Bayanov



Igor Bourtsev

DMITRI BAYANOV AND IGOR BOURTSEV

RUSSIAN HOMINOLOGISTS

(The following is a reprint from the book, *Americas Bigfoot: Fact Not Fiction*, by Dmitri Bayanov [Crypto Logos, Moscow, Russia, 1997], pp. 156–158).

Conclusion

We have subjected the film to a systematic and multifaceted analysis, both in its technical and biological aspects. We have matched the evidence of the film against the other categories of evidence and have tested the subject with our three criteria of distinctiveness, consistency, and naturalness. The film has passed all our tests and scrutinies. This gives us ground to ask: Who other than God or natural selection is sufficiently conversant with anatomy and biomechanics to "design" a body which is so perfectly harmonious in terms of structure and function?*

The Patterson–Gimlin film is an authentic documentary of a genuine female hominoid, popularly known as Sasquatch or Bigfoot, filmed in the Bluff Creek area of northern California not later than October 1967.

Until October 1967, we had lots of information on relict hominoids but they remained inaccessible to the investigators' sense of vision. We were dealing then with the underwater part of the "iceberg," as it were. October 1967 was the time when the fog cleared and the tip of the iceberg came into view. True, we still can't touch or smell this "tip," and have to be content with viewing it in the film and photographs obtained from the film. But in this we are not much different from the physician who studies a patient's bones without ever meeting the particular patient—just looking at the x-rays. Or from the geologist, who studies the geology of Mars by looking at the photographs of its surface.

The difference is of course that in the geologist's case seeing is believing and, besides, he has all the might of modern science at his disposal. Those photographs cost a couple of billion dollars and nobody dares to treat them frivolously. The Sasquatch investigator, on the other hand, offered his photographic evidence to be studied by science for free and the evidence was not taken seriously.

* I have deliberately phrased this sentence after one in Napier's book. (D.P.)

According to Dr. Thorington of the Smithsonian, "…one should demand a clear demonstration that there is such a thing as Bigfoot before spending any time on the subject." If by a clear demonstration Dr. Thorington means a live Bigfoot be brought to his office, then it would be more of a sight for a layman than for the discriminating and analytical mind of a scientist.

Relict hominoid research is of special, potentially unlimited value for science and mankind. Thanks to the progress of the research, we know today that manlike bipedal primates, thought long extinct, are still walking the earth in the second half of the 20th century. We also know how such a biped looks and how it walks, this knowledge being available now to anyone who wants to use their eyes.

We are indebted for this breakthrough to the late Roger Patterson, who filmed a relict hominoid in northern California in 1967, but who, to our sorrow, was not destined to witness the full triumph of his achievement.

People readily believe photographs taken on the moon, but many do not believe the Patterson–Gimlin film taken here on Earth, showing something of incalculable value for science. They do not believe it because Patterson and his assistant, Bob Gimlin, were men with no academic authority to back their claim.

And so, René Dahinden stepped forth and traveled to Moscow with his own hard earned money to have the film analyzed and appraised in a scientific manner.

This has been done and the result is presented in this paper. The marriage of Russian theory and American practice in hominology has proven to be happy and fertile. By joining forces, we have established not only the authenticity of the film, but also that the Sasquatch is part of the natural environment of North America, and its most precious part at that. May we offer this conclusion as our modest contribution to the cause of friendship and cooperation between the peoples of the Soviet Union and North America.

The search for humanity's living roots is a cause for all mankind and this makes us look forward to new international efforts in this intriguing investigation.

The success of this research is a triumph of broad-mindedness over narrow-mindedness and serves as an example to the world at large, which seems to be in dire need of such a lesson.

March 1977

CRYPTOSPHERE *Fund for Furthering Scientific Explorations and Searches.*

International Center of Hominolgy

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$100,000 REWARD FOR DEBUNKING THE PATTERSON/GIMLIN FILM

Over the years, many unsubstantiated and ridiculous claims have been made that the 1967 Patterson/Gimlin film of a Sasquatch is a fabrication. Similarly, irresponsible writers and superficially informed members of the scientific establishment have scoffed at the film.

This film has been thoroughly analyzed by us at the International Center of Hominology in Moscow, Russia and validated as showing a natural hominoid. We published our detailed analysis and conclusions in Dmitri Bayanov's book, *America's Bigfoot: Fact Not Fiction* (Crypto-Logos Publishers, 1997; now distributed by Hancock House Publishers, Surrey, British Columbia, Canada).

To discredit film "debunkers," we are offering a $100,000 reward to any of them who can successfully demonstrate to a panel of anthropologists and hominologists that the Patterson–Gimlin film is a fabrication showing a human in a costume. Our reward offer is based on the security of equipment, vehicles, and intellectual property of our organization. If a hoax-claimant is serious and confident, and not just seeking media attention, he or she should apply in writing for the reward to: International Center of Hominology, Crypto Logos, 12-3 Osenniy Boulevard, Moscow, 12164, Russia. (A failure to do so indicates that a claim is frivolous or unsupportable or both.)

Dmitri Bayanov
Science Director

Igor Bourtsev
General Director

January 2005

Dr. Dmitri D. Donskoy, Chief of the Chair of Biomechanics at the USSR Central Institute of Physical Culture, Moscow

(The following is reprinted from the book, *Bigfoot/Sasquatch: The Search for North America's Incredible Creature*, by Don Hunter with René Dahinden [McClelland & Stewart Inc., Toronto, Ontario, Canada, 1993], pp. 201–204).

Qualitative Biomechanical Analysis of the Walk of the Creature in the Patterson Film

As a result of repeated viewings of the walk of the two-footed creature in the Patterson film and detailed examination of the successive stills from it, one is left with the impression of a fully spontaneous and highly efficient pattern of locomotion shown therein, with all the particular movements combined in an integral whole which presents a smoothly operating and coherent system.

In all the strides the movement of the upper limbs (they can be called arms) and of the lower limbs (legs) are well coordinated. A forward swing of the right arm for example, is accompanied by that of the left leg, which is called crosslimb coordination and is a must for man and natural for many patterns of locomotion in quadrupeds (in walking and trotting, for instance).

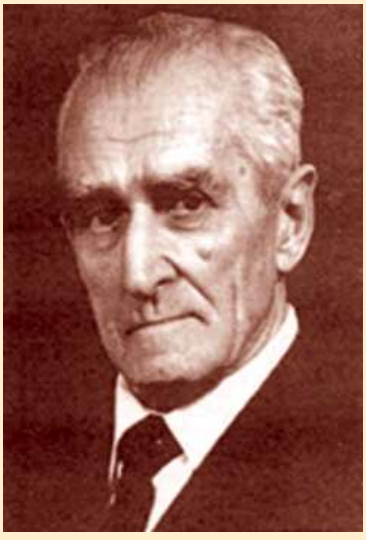
The strides are energetic and big, with the leg swung forward. When man extends the leg that far he walks very fast and thus overcomes by momentum the "braking effect" of the virtual prop which is provided by the leg put forward. Momentum is proportional to mass and speed, so the more massive the biped the less speed (and vice versa) is needed to overcome the braking effect of legs in striding.

The arms move in swinging motions, which means the muscles are exerted at the beginning of each cycle after which they relax and the movement continues by momentum. The character of arm movements indicates that the arms are massive and the muscles strong.

After each heel strike the creature's leg bends, taking on the full weight of the body, and smooths over the impact of the step acting as a shock-absorber. During this phase certain muscles of the legs are extended and become tense in preparation for the subsequent toe-off.

In normal human walk such considerable knee flexion as exhibited by the film creature is not observed and is practiced only in cross-country skiing. This characteristic makes one think that the creature is very heavy and its toe-off is powerful, which contributes to rapid progression.

In the swinging of the leg, considerable flexion is observed in the joints, with different parts of the limb lagging behind each other: the foot's movement is behind the shank's which is behind the hip's. This kind of movement is peculiar to massive limbs with well relaxed muscles. In that case, the movements of the limbs look fluid and easy, with no breaks or jerks in the extreme



Dr. Dmitri D. Donskoy

"In normal human walk such considerable knee flexion as exhibited by the film creature is not observed and is practiced only in cross-country skiing."

points of each cycle. The creature uses to great advantage the effect of muscle resilience, which is hardly used by modern man in usual conditions of life.

The gait of the creature is confident, the strides are regular, no signs of loss of balance, of wavering or any redundant movements are visible. In the two strides during which the creature makes a turn to the right, in the direction of the camera, the movement is accomplished with the turn of the torso. This reveals alertness and, possibly, a somewhat limited mobility of the head. (True, in critical situations man also turns his whole torso and not just head alone.) During the turn the creature spreads the arms widely to increase stability.

In the toe-off phase the sole of the creature's foot is visible. By human standards it is large for the height of the creature. No longitudinal arch typical of the human foot is in view. The hind part of the foot formed by the heel bone protrudes considerably back. Such proportions and anatomy facilitate the work of the muscles which make standing postures possible and increase the force of propulsion in walking. Lack of an arch may be caused by the great weight of the creature.

The movements are harmonious and repeated uniformly from step to step, which is provided by synergy (combined operation of a whole group of muscles).

Since the creature is man-like and bipedal, its walk resembles in principle the gait of modern man. But all the movements indicate that its weight is much greater, its muscles especially much stronger, and the walk swifter that that of man.

Lastly, we can note such a characteristic of the creature's walk, which defies exact description, as expressiveness of movements. In man this quality is manifest in goal-oriented sporting or labour activity, which leaves the impression of the economy and accuracy of movements. This characteristic can be noted by an experienced observer even if he does not know the specifics of given activity. "What need be done is neatly done" is another way of describing expressiveness of movements, which indicates that the motor system characterized by this quality is well adapted to the task it is called upon to perform. In other words, neat perfection is typical of those movements which through regular use have become habitual and automatic.

On the whole, the most important thing is the consistency of all the above mentioned characteristics. They not only simply occur, but interact in many ways. And all these factors taken together allow us to evaluate the walk of the creature as a natural movement without any signs of artfulness which would appear in intentional imitations.

At the same time, despite all the diversity of human gaits, such a walk as demonstrated by the creature in the film is absolutely non-typical of man.

Dr. Dmitri Donskoy, right, in discussion with Dr. Grover Krantz, Moscow, 1997.

"The movements are harmonious and repeated uniformly from step to step..."

"And all these factors taken together allow us to evaluate the walk of the creature as a natural movement without any signs of artfulness which would appear in intentional imitations."

Dr. Donald W. Grieve

CONCLUSIONS REACHED BY DR. D.W. GRIEVE, READER IN BIOMECHANICS, ROYAL FREE HOSPITAL SCHOOL OF MEDICINE, LONDON, ENGLAND

(The following is reprinted from the book, *The Search for Big Foot, Monster, Myth or Man?* by Peter Byrne [Pocket Books, New York, N.Y., U.S.A., 1976], pp. 137–144).

Report on the Film of a Proposed Sasquatch

The following report is based on a copy of a 16mm film taken by Roger Patterson on October 20th, 1967, at Bluff Creek, northern California which was made available to me by René Dahinden in December 1971. In addition to Patterson's footage, the film includes a sequence showing a human being (height 6 ft., 5 1/2 in (196.9 cm) walking over the same terrain.

The main purpose in analyzing the Patterson film was to establish the extent to which the creature's gait resembled or differed from human gait. The basis for comparison were measurements of stride length, time of leg swing, speed of walking and the angular movements of the lower limb, parameters that are known for man at particular speeds of walking.[1] Published data refer to humans with light footwear or none, walking on hard level ground. In part of the film the creature is seen walking at a steady speed through a clearing of level ground, and it is data from this sequence that has been used for purposes of comparison with the human pattern. Later parts of the film show an almost full posterior view, which permits some comparisons to be made between its body breadth and that of humans.

The film has several drawbacks for purposes of quantitative analysis. The unstable hand-held camera gave rise to intermittent frame blurring. Lighting conditions and the foliage in the background make it difficult to establish accurate outlines of the trunk and limbs even in unblurred frames. The subject is walking obliquely across the field of view in that part of the film in which it is most clearly visible. The feet are not sufficiently visible to make useful statements about the ankle movements. Most importantly of all, no information is available as to framing speed used.

Body Shape and Size

Careful matching and superposition of images of the so-called Sasquatch and human film sequences yield an estimated standing height for the subject of not more than 6 ft. 5 in/1.96m. This specimen lies therefore within the human range, although at its upper limits. Accurate measurements are impossible regarding features that fall within the body outline. Examination of several frames leads to the conclusion that the height of the hip joint, the

gluteal fold and the finger tips are in similar proportions to the standing height as those found in humans. The shoulder height at the acromion appears slightly greater relative to the standing height (0.87:1) than in humans (0.82:1). Both the shoulder width and the hip width appear proportionately greater in the subject creature than in man (0.34:1 instead of 0.26:1; and 0.23:1 instead of 0.19:1, respectively). If we argue that the subject has similar vertical proportions to man (ignoring the higher shoulders) and has breadths and circumferences about 25 percent greater proportionally, then the weight is likely to be 50–60 percent greater in the subject than in a man of the same height. The additional shoulder height and the unknown correction that should be allowed for the presence of hair will have opposite effects upon an estimate of weight. Earlier comments[2] that this specimen was just under 7 ft. in height and extremely heavy seem rather extravagant. The present analysis suggests that Sasquatch was 6 ft., 5 in (1.96 m) in height, with a weight of about 280 lb (127 kg.) and a foot length (mean of 4 observations) of about 13.3 in (34 cm).

Timing of the Gait

Because the framing speed is unknown, the timing of the various phases of the gait was done in terms of the numbers of frames. Five independent estimates of the complete cycle time were made from R. toe-off, L. toe-off, R. foot passing L., L. foot passing R., and L. heel strike respectively giving: *Complete cycle time* = 22.5 frames (range 21.5–23.5). Four independent estimates of the swing phase, or single support phase for the contra-lateral limb, from toe-off to heel strike, gave: *Swing phase or single support* = 8.5 frames (same in each case).

The above therefore indicates a total period of support of 14 frames and periods of double support (both feet on the ground) of 2.75 frames. A minimum uncertainty of ± 0.5 frames may be assumed.

The present analysis suggests that Sasquatch was 6 ft. 5 in (1.96 m) in height, with a weight of about 280 lb (127 kg.) and a foot length (mean of 4 observations) of about 13.3 in (34 cm).

Stride Length

The film provides an oblique view and no clues exist that can lead to an accurate measurement of the obliquity of the direction of walk which was judged to be not less than 20º and not more than 35º to the image plane of the camera. The obliquity gives rise to an apparent grouping of left and right foot placements which could in reality have been symmetrical with respect to distance in the line of progression. The distance on the film between successive placements of the left foot was 1.20x the standing height. If an obliquity of 27º is assumed, a stride length of 1.34x the standing height is obtained. The corresponding values in

modern man for 20º and 35º obliquity are 1.27 and 1.46 respectively. A complete set of tracings of the subject were made, and in every case when the limb outlines were sufficiently clear a construction of the axes of the thigh and shank were made. The angles of the segments to the vertical were measured as they appeared on the film. Because of the obliquity of the walk to the image plane of the camera (assumed to be 27º), the actual angles of the limb segments to the vertical in the sagittal plane were computed by dividing the tangent of the apparent angles by the cosine of 27º. This gave the tangent of the desired angle in each case, from which the actual thigh and shank angles were obtained. The knee angle was obtained as the difference between the thigh and shank angles. A summary of the observations is given in the table shown at left.

FRAME NO.	EVENT OR COMMENT	ANGLES MEASURED ON LEFT LIMB					
		Apparent on film			Corrected for 27° obliquity		
		Thigh	*Knee*	*Shank*	*Thigh*	*Knee*	*Shank*
3	R. toe-off	+ 7	14	− 7	+ 8	16	− 3
4		+ 1	19	− 18	+ 1	21	− 20
5		− 7	10	− 17	− 8	11	− 19
6	blurred	− 18	3	− 21	− 20	3	− 23
7	R. foot pass L.			UNCERTAIN			
8				OF			
9				LIMB			
10				OUTLINES			
11	R. heel strike			HERE			
12		− 27	13	− 40	− 30	13	− 43
13	L. toe-off	− 25	22	− 47	− 28	22	− 50
14		0	61	− 61	0	64	− 64
15		+ 10	63	− 53	+ 11	67	− 56
16	L. foot pass R.	+ 10	64	− 54	+ 11	68	− 57
17		+ 13	62	− 49	+ 14	66	− 52
18		+ 17	45	− 28	+ 19	50	− 31
19		+ 23	38	− 15	+ 25	41	− 16
20		+ 28	29	− 1	+ 31	32	− 1
21	L. heel strike	+ 17	6	+ 11	+ 19	7	+ 12
22		+ 20	10	+ 10	+ 22	11	+ 11
23		+ 19	16	+ 3	+ 21	18	+ 3
24	R. toe-off	+ 17	18	− 1	+ 19	20	− 1
25		+ 19	33	− 14	+ 21	36	− 15
26		+ 8	15	− 7	+ 9	16	− 7
27		+ 2	19	− 17	+ 2	21	− 19
28	R. foot pass L.	+ 4	28	− 24	+ 4	30	− 26
29				NO MEASUREMENT			

The pattern of movement, notably the 30º of knee flexion following heel strike, the hip extension during support that produces a thigh angle of 30º behind the vertical, the large total thigh excursion of 61º and the considerable (46º) knee flexion following toe-off, are features very similar to those for humans walking at high speed. Under these conditions, humans would have a stride length of 1.2x stature or more, a time of swing of about 0.35 sec., and a speed of swing of about 1.5x stature per second.

Conclusions

The unknown framing speed is crucial to the interpretation of the data. It is likely that the filming was done at either 16, 18 or 24 frames per second and each possibility is considered below.

If 16 fps is assumed, the cycle time and the time of swing are in a typical human combination, but much longer in duration than one would expect for the stride and the pattern of limb movement. It is as if a human were executing a high speed pattern in slow motion.

	16 fps	18 fps	24 fps
Stride length approx.	262 cm.	262 cm.	262 cm.
Stride/Stature	1·27–1·46	1·27–1·46	1·27–1·46
Speed approx.	6·7 km./hr	7·5 km./hr	10·0 km./hr
Speed/Stature	0·9–1·04 sec.[1]	1·02–1·17	1·35–1.56
Time for complete cycle	1·41 sec.	1·25 sec.	0·94 sec.
Time of swing	0·53 sec.	0·47 sec.	0·35 sec.
Total time of support	0·88 sec.	0·78 sec.	0·58 sec.
One period double support	0·17 sec.	0·15 sec.	0·11 sec.

It is very unlikely that more massive limbs would account for such a combination of variables. If the framing speed was indeed 16 fps it would be reasonable to conclude that the metabolic cost of locomotion was unnecessarily high per unit distance or that the neuromuscular system was very different to that in humans. With these considerations in mind it seems unlikely that the film was taken at 16 frames per second. Similar conclusions apply to the combination of variables if we assume 18 fps. In both cases, a human would exhibit very little knee flexion following heel strike and little further knee flexion following toe-off at these times of cycle and swing. It is pertinent that subject has similar linear proportions to man and therefore would be unlikely to exhibit a totally different pattern of gait unless the intrinsic properties of the limb muscles or the nervous system were greatly different to that in man. If the film was taken at 24 fps, Sasquatch walked with a gait pattern very similar in most respects to a man walking at high speed. The cycle time is slightly greater than expected and the hip joint appears to be more flexible in extension than one would expect in man. If the framing speed were higher than 24 fps the similarity to man's gait is even more striking. My subjective impressions have oscillated between total acceptance of the Sasquatch on the grounds that the film would be difficult to fake, to one of irrational rejection based on an emotional response to the possibility that the Sasquatch actually exists. This seems worth stating because others have reacted similarly to the film. The possibility of a very clever fake cannot be ruled out on the evidence of the film. A man could have sufficient height and suitable proportions to mimic the longitudinal dimensions of the Sasquatch. The shoulder breadth however would be difficult to achieve without giving an unnatural appearance to the arm swing and shoulder contours. The possibility of fakery is ruled out if the speed of the film was 16 or 18 fps. In these conditions a normal human being could not duplicate the observed pattern, which would suggest that the Sasquatch must possess a very different locomotor system to that of man.

"My subjective impressions have oscillated between total acceptance of the Sasquatch on the grounds that the film would be difficult to fake, to one of irrational rejection based on an emotional response to the possibility that the Sasquatch actually exists."

"The possibility of fakery is ruled out if the speed of the film was 16 or 18 fps."

D.W. Grieve, M.SC., Ph.D.,
Reader in Biomechanics
Royal Free Hospital School of Medicine
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2. Green J. (1969), *On the Track of the Sasquatch* (Cheam Publishing Ltd.).

J. Glickman

"Despite three years of rigorous examination by the author, the Patterson–Gimlin film cannot be demonstrated to be a forgery at this time."

Conclusions Reached by the North American Science Institute (NASI)

Under the direction of J. (Jeff) Glickman, a certified forensic examiner, the North American Science Institute (NASI) performed an intensive computer analysis on the Patterson/Gimlin film over a period of three years. At the same time, the institute carried on with general bigfoot research previously performed by The Bigfoot Research Project. In June 1998 Mr. Glickman issued a research report entitled "Toward a Resolution of the Bigfoot Phenomenon." The report's main findings applicable to the Patterson/Gimlin film are summarized as follows:

1. Measurements of the creature:* Height: 7 feet, 3.5 inches (2.2 m); Waist: 81.3 inches (2.1 m); Chest: 83 inches (2.11 m); Weight: 1,957 pounds (886.5 kg); Length of arms: 43 inches (1.1 m); Length of legs: 40 inches (1.02m). (See Note below on height/weight.)

2. The length of the creature's arms is virtually beyond human standards, possibly occurring in one out of 52.5 million people.

3. The length (shortness) of the creature's legs is unusual by human standards, possibly occurring in one out of 1,000 people.

4. Nothing was found indicating the creature was a man in a costume (i.e., no seam or interfaces).

5. Hand movement indicates flexible hands. This condition implies that the arm would have to support flexion in the hands. An artificial arm with hand movement ability was probably beyond the technology available in 1967.

6. The Russian finding on the similarity between the foot casts and the creature's foot was confirmed.

7. Preliminary findings indicate that the forward motion part of the creature's walking pattern could not be duplicated by a human being.

8. Rippling of the creature's flesh or fat on its right side was observed indicating that a costume is highly improbable.

9. The creature's feet undergo flexion like a real foot. This finding eliminates the possibility of fabricated solid foot apparatus. It also implies that the leg would have to support flexion in the foot. An artificial leg with foot movement ability was probably beyond the technology available in 1967.

10. The appearance and sophistication of the creature's musculature are beyond costumes used in the entertainment industry.

11. Non-uniformity in hair texture, length, and coloration is inconsistent with sophisticated costumes used in the entertainment industry.

*Measurements of arms and legs are not applicable for intermembral index calculations because they went to the fingertips and sole, not the wrist and ankle.

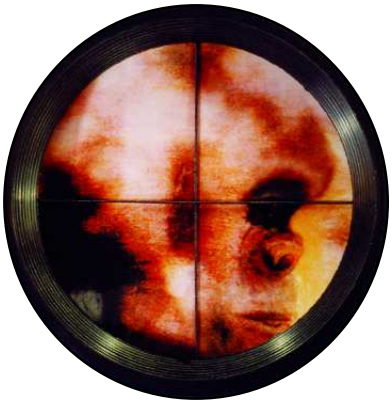
J. Glickman with some of his computer equipment.

Mr. Glickman closes his scientific findings with the following statement:

"Despite three years of rigorous examination by the author, the Patterson–Gimlin film cannot be demonstrated to be a forgery at this time."

Personally, I believe Mr. Glickman did an excellent job. The main criticism voiced by many bigfoot researchers was his estimate of the creature's weight. Nevertheless, while we have generally settled on a much lesser figure than his estimate (1,957 pounds or 886.5 kg), Mr. Glickman stands firm on his figure.

Unfortunately, the NASI Report did little or nothing to heighten the credibility of the creature in the eyes of the general scientific community. Full recognition by science demands that there be a body, a part of a body, or at least bones. This issue has raised a lot of controversy and has divided researchers on the question as to our right to kill one of the creatures. Up to this point in time, those people who claimed they had the opportunity to shoot a sasquatch did not do so because the creature looked too human.

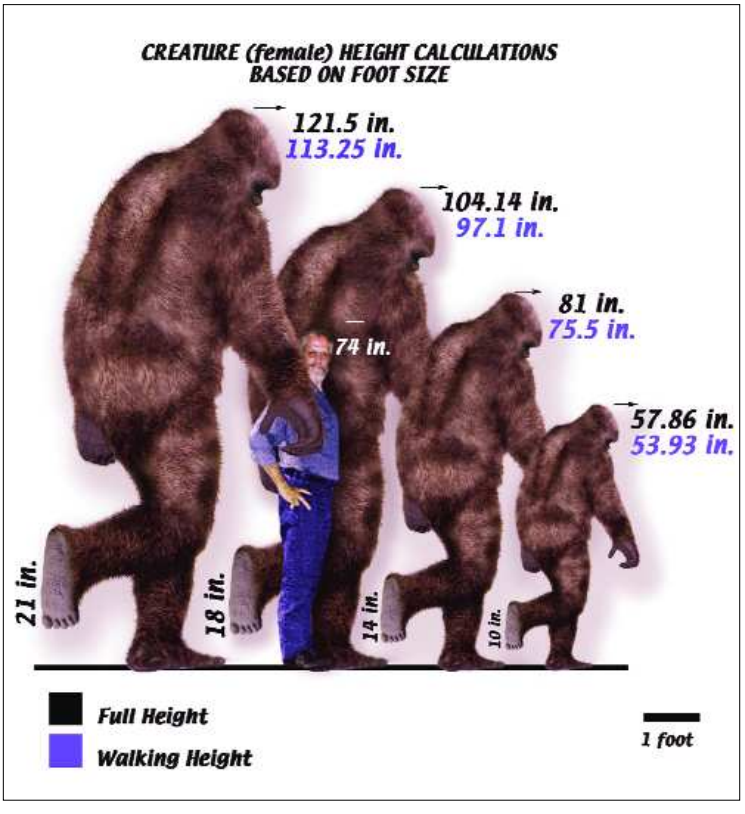


Note on Height and Weight

The actual walking height of the creature in the film has been the subject of considerable controversy. The late Dr. Grover Krantz arrived at a maximum walking height of 72 inches (1.83 m); John Green, 80 inches (2.03 m); Dmitri Bayanov and Igor Bourtsev, about 78 inches (1.98 m); Yvon Leclerc, 75.5 inches (1.92 m); J. Glickman, 87.5 inches (2.22 m); Dr. Donald Grieve, 77 inches (1.96 m); Dr. Esteban Sarmiento, just under 6 feet (1.83 m). In all cases, to determine the height of the creature if it were standing fully erect, we must add something. As the foregoing calculations are based on different film frames, then the specific amount added will differ. Dr. Krantz estimates that the final figure can be reasonably determined by adding between 8 percent and 8.5 percent to the walking height.

The weight of the creature at 87.5 inches (2.2 m – NASI) is now more conservatively estimated by Dr. Henner Fahrenbach at 542 pounds (245.5 kg). However, Dr. Sarmiento places it between 190 and 240 pounds (86.1–108.7 kg).

Whatever the case, the creature filmed was quite tall and massive. The illustration shown on the right is by Yvon Leclerc, who is seen in the comparison.



Dr. Grover S. Krantz

"In many popular publications about the sasquatch there are claimed connections with the truly paranormal, and even fewer scientists want to deal with this."

Conclusions Reached by Dr. Grover S. Krantz
Anthropologist, Washington State University

The following is from *Bigfoot/Sasquatch Evidence* by Dr. Krantz (Hancock House Publishers, 1999), pp. 122–124.

Current Status

No matter how the Patterson film is analyzed, its legitimacy has been repeatedly supported. The size and shape of the body cannot be duplicated by a man, its weight and movements correspond with each other and equally rule out a human subject; its anatomical details are just too good. The world's best animators could not match it as of the year 1969, and the supposed faker died rather than make another movie. In spite of all this, and much more, the Scientific Establishment has not accepted the film as evidence of the proposed species. There are several reasons for this reluctance that are worthy of some discussion.

Most of the analyses of the film and its background were made by laymen; their studies and conclusions were published in popular magazines and books, not scientific journals. Most of these investigators did not know how to write a scientific paper or how to get one published. If they had submitted journal articles, these probably would have been rejected simply because the subject was not taken seriously by the editors, no matter how well the articles may have been written. Thus the potentially concerned scientists were simply unaware of the great quantity and quality of evidence. Most of them had heard about the movie, but were reluctant to look into it until someone else verified it. Since they all took this attitude, preferring not to risk making themselves look foolish, nothing much ever happened.

Patterson's was the first movie film ever produced purporting to show a sasquatch in the wild. Since that time many more films have appeared. I have seen eight of them and they are all fakes. A few of the most absurd of these are available on a video cassette. (One other shows a distant, non-moving object that could be a sasquatch, but there is no way to find out for sure.) Given that such faking exists now, it is not surprising that scientific interest in supposed sasquatch movies is even less today that it was back in 1967.

In many popular publications about the sasquatch there are claimed connections with the truly paranormal, and even fewer scientists want to deal with this. The lunatic fringe has the sasquatch moving through space–time warps, riding in UFOs, making telepathic connections, showing superior intelligence, and the like. All of these enthusiasts try to capitalize on anything new that comes out on the subject. Most of them will eagerly

latch on to any scientist who shows an interest, and attempt to lead him/her down their own garden path. It is tantamount to academic suicide to become associated with any of these people.

Finally, and most important, there is the absence of any definitive proof that the sasquatches exist at all. If this had been a known species, the Patterson film would have been accepted without question. But without the clear proof that biologists are willing to accept, a strip of film is of little persuasive value. Of course a film like this would have been accepted as fairly good evidence for a new species of cat or skunk, but even then the type specimen would still have to be collected to make it official. For something so unexpected (at least to science) as the sasquatch, the degree of proof that is required rises proportionally.

"If this had been a known species, the Patterson film would have been accepted without question."

What is said here about scientific ignorance regarding the Patterson film is equally true for the footprint evidence and the testimony of eyewitnesses. None of this is normally published in the scientific journals, hoaxes do occur, and the lunatic fringe is all over the place. I don't know of a single scientist who has firmly denied the existence of the sasquatch on the basis of a reasonable study of the evidence. Instead of this, most scientists deny it because, to the best of their knowledge, there is no substantial body of evidence that can be taken seriously.

"I don't know of a single scientist who has firmly denied the existence of the sasquatch on the basis of a reasonable study of the evidence."

Some of the Russian investigators, not part of their Scientific Establishment, have pushed hard for further study of the Patterson film. Their hope is that such work might establish the existence of these creatures without the necessity of collecting a specimen directly. I wish this were true. Scientific knowledge of the mechanics of bodily motion certainly has advanced in the last twenty years since Donskoy and Grieve studied the film. There are experts in sports, medicine, anatomy, athletics, running shoe design, special effects, and prosthetics who could probably make informed judgments on this film. Dmitri Bayanov has urged me and others to pursue these experts, but what efforts have been made along this line have produced no useful results. I can't afford another full round of expert-chasing after my episode with the dermal ridges, but at least I have tried.* Perhaps someone else will pursue this more diligently in the future. It is not likely that further study of the film can extract any more information than I already have, but it would make an enormous difference if a neutral expert with more appropriate credentials could just confirm what has been presented here.

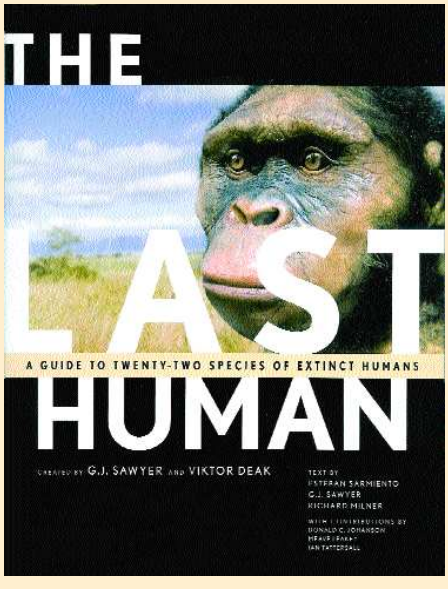
"There are experts in sports, medicine, anatomy, athletics, running shoe design, special effects and prosthetics who could probably make informed judgments on this film."

(See page 131 for photograph of dermal ridges.)*

NOTE: Mr. J. Glickman, a neutral expert with appropriate credentials, did essentially confirm Dr. Krantz's findings as previously presented (NASI Conclusions). The only contentious issues were the creature's height and weight calculated by Glickman.

Dr. Esteban Sarmiento

"I was unable to find conclusive evidence from the film as to whether the filmed individual is real or is a human dressed in an ape suit."



This work with text by Esteban Sarmiento, G.J. Sawyer, and Richard Milner tells the story of human evolution, the epic of Homo sapiens, *and its colorful precursors and relatives.*

Foreword to the Following Report

In the course of events, Dr. Esteban Sarmiento was consulted on the Skookum Cast. He subsequently performed an analysis on the Patterson/Gimlin film and provided a report. Although his report is *not* consistent with the findings previously presented, Dr. Sarmiento is a highly qualified and world-renown professional in physical anthropology. As such, I am pleased to present his findings. If some researchers do not agree with his conclusions, then they need to provide proof and convince Dr. Sarmiento that he is not correct.

Conclusions Reached by Dr. Esteban Sarmiento, Anthropologist—Research Associate—Mammalogy, American Museum of Natural History, New York

Opening Comments:

Here is a summary of my Patterson/Gimlin bigfoot film analysis. I have worked with all of the great apes in the wild and have nearly 25 years experience doing so. My expertise is in primate functional anatomy, thus the analysis I provide is in what I am an expert in.

As regards the film, I am certain of all the data based on length measurements, although, if I intended to publish these, I would re-measure them many times to get accurate estimates as to the possible degree of error. The data summarized below that is dependent on film speed I am less certain of. However, none of it would affect my conclusions or taxonomic assessment.

I was unable to find conclusive evidence from the film as to whether the filmed individual is real or is a human dressed in an ape suit. I did find some inconsistencies in appearance and behavior that to some might suggest a fake (i.e., a human dressed in an ape suit), but nothing that conclusively shows that this is the case. I think, based on the film, it will be difficult for anyone to prove conclusively if this is real or a fake. At the least, it will prove very costly or time-consuming to do so.

Patterson/Gimlin Film Analysis

Speed of film:

Verification by the individuals who took the film, and/or knowledge of the camera type/brand they used, would be the surest way to ascertain film speed. I looked for falling leaves or movement of debris that could be used to estimate frames per second, but saw none that was clear enough to use for this purpose. Human trembling has an average frequency (one of the supposed causes of camera movement and likely the only cause once the camera is stabilized) that, when multiplied by length of

displacements (blur) on the original movie frame (or multiplied by the number of movie frames that motion in one direction appears on), can be used to estimate film speed. I had no means to do this. I, therefore, took the given video speed at the beginning of the film (I supposed this was the 16-18 frames per second, more or less a standard speed, claimed by the professional animator K.W. Council) as the actual film speed. I did not test this claimed speed, but believe it is reasonable.

"bigfoot has more or less the same proportions as humans."

Size of animal:

Verification of camera used and measurements of trees, trunks and stones around and through which bigfoot walked would be the most accurate way at arriving at bigfoot size. An accurate size estimate would entail, 1) knowledge of camera lens used [e.g., 20mm, 50mm, 100mm, etc.] 2) returning to the area to measure landmarks (big stones or tree trunks) that were present when the film was taken and, 3) measuring the size of these landmarks on each frame relative to that of bigfoot.

Given that the creature's foot length is known from casts of its footprints, its size can also be estimated using these proportions, and from stride length measurements. I lacked data to use any of these methods (I did not know footprint length, stride length and did not return to the original locality).

I could only ascertain bigfoot's size based on the relationship between lower limb length and stride frequency, with lower limb length being the unknown variable. This is accurate as long as film speed is accurate and the animal has more or less the same proportions as humans. Napier's claim (1973) that step length is inconsistent with track size can only be shown if animal size is verified (see also kinematics).

"no ape or monkey that I know of shows the hair pattern seen around bigfoot's sole."

Bigfoot's appearance:

Aside from its human-like characters, bigfoot has a number of characters that are odd. The plantar surface of the feet is decidedly pale, but the palm of the hand seems to be dark.[1] There is no mammal I know of in which plantar sole differs so drastically in color from the palm. Moreover, the sides (up to an inch or more from the base) of the sole are devoid of hair. Normally, one would expect the hair to grow down to the level of the substrate (ground), where wear would keep it at ground length. Such hair growth around the feet is seen in all apes and monkeys, and no ape or monkey that I know of shows the hair pattern seen around bigfoot's sole. The light-colored sole with an apparently high hairline around it gives the impression of footwear.

1. I found no evidence that the light colored soles were the result of film overexposure, since they were light colored even in frames where the above ankle and leg were decidedly dark.

"The lack of hip sway during walking makes the walk of the bigfoot individual appear more like a human male than a human female."

The gluteals, although large, fail to show a humanlike cleft (or crack). Gluteal size appears too large not to be associated with a large visible cleft. As such it is hard to imagine how hair alone would hide this cleft. I was unable to see genitals of any type, male or female. There also is no visible sexual swelling as may occur in females with a true estrus cycle. What appear to be breasts, indicates this individual is probably a female. The lack of hip sway during walking makes the walk of the bigfoot individual appear more like a human male than a human female.

The face does not seem to have mouth, nose or eyes, but this is likely the result of film resolution. The supposed "herniated *rectus femoris m.*" seems enormous in proportion to the thigh and is in the position to be the *vastus lateralis.*

Overall Bigfoot behavior:

"From my experience with mammals, most mammals freeze in place when they first sight a human, and try to make eye contact when it senses the observer has sighted it."

Bigfoot shows behavior that is strange for a wild mammal that has been surprised by humans, and recognizes humans are observing it. From my experience with mammals, most mammals freeze in place when they first sight a human, and try to make eye contact when they sense the observer has sighted it. (There are actually studies published on this. For example it has been shown that mammals that make eye-contact are less likely to be chased down and eaten by lions.)

Apes attempt to hide behind foliage or other natural obstacles and try to get a direct look at the observer. They move only if the observer makes a direct and continuous approach to it. When they do move, they move very quickly, crashing though the forest, and do not look back.

Great apes often defecate prior to or at the beginning of their escape. An ape of this size unfamiliar with humans, if it felt trapped, would probably charge a human. In this regard, bigfoot's walk, which is deliberate but by no means a hectic escape, is peculiar. I have never seen any ape that is un-habituated allow itself to be filmed for such a long sequence. Probably, the most peculiar character is that bigfoot does not attempt to hide behind a natural obstacle, but keeps methodically plodding along at the same pace regardless of distance to observers.

"Probably, the most peculiar character is that bigfoot does not attempt to hide behind a natural obstacle, but keeps methodically plodding along at the same pace regardless of distance to observers."

Moreover, it casually turns around to look back at the observers. I was reminded of a walking race in which the lead runner turns around to see how far its competition is behind it. As such, it would seem that this individual was very familiar with humans, or more specifically, with the people shooting the film. It was clearly not very curious about their presence, or truly frightened by them.

Its movements leave no doubt that this animal is fully terrestrial and has compromised most types of arboreal behaviors.

Bigfoot proportions:

These are clear from the film. I measured these straight from a 50” TV screen, pausing the video. External measurements (not to be confused with bone measurements) of relative lengths were all done from lateral camera shots and are after methods described by Schultz (1956). Measures of relative diameters were averaged from relative diameters of both lateral and frontal (anterior or posterior) camera shots.

Bigfoot has lower limbs that are approximately1.2 times* longer than upper limbs, and long relative to trunk length (~1.7x).** Upper limbs are nearly 1.5x trunk length. Hip plus lower back (lumbar column) length is slightly less than thoracic length (.83x). Thigh length is 1.2x leg length, and arm length is approximately 1.25x forearm length. Lower limb length is about 3.5x foot length, and upper limb length is approximately 4x hand length. Thigh circumference is approximately 1.6x arm circumference.

Bigfoot’s chest girth at 1.75 is less than my own at 1.8 (and probably that of many professional athletes), but larger than the human average (~1.6). [Chest girth is given as trunk circumference divided by trunk length. I calculated chest circumference as (anteroposterior chest diameter plus mediolateral chest diameter) x *pi*/2. I measured above the pendulous portion of bigfoot’s breasts. In my calculation, *pi* was taken as equal to 3.142.]

In all of the above relative values, bigfoot is well within the human range and differs markedly from any living ape and the ‘australopithecine’ fossils.

“bigfoot is well within the human range and differs markedly from any living ape and the ‘australopithecine’ fossils.”

Bigfoot range of joint motion and plane of segment movement:

Ignoring speed for the moment and concentrating only on plane of segment movement and range of joint motion, bigfoot shows striking similarities to humans. Principally, thigh and leg segment motion is in the plane of forward movement, with the knee joint axis perpendicular to forward movement. Moreover, there is hip drop on the lower limb swing phase. Although apparently more bent-kneed than humans at mid-stance of the bipedal cycle, bigfoot shows the ability to extend the knee joint at end of bipedal swing phase (just prior to heel strike) and to extend the hip joint at the end of bipedal stance phase. Bigfoot clearly shows heel strike at the initiation of the stance phase and what must be a distinct toe off at the end of stance phase. The latter are both human hallmarks. Bigfoot’s toe-off is associated with plantar foot flexion (clearly seen in the film) and must have also been associated (given the hip and knee joint position) with hyper-extended metatarso-phalangeal postures, although the latter cannot be verified from film.

“concentrating only on plane of segment movement and range of joint motion, bigfoot shows striking similarities to humans.”

* There is concern with this figure. John Green notes: "...his estimate that the leg length is 1.2 times the arm length (if I understand that correctly) gives an IMI (intermembral index) of 87, far out of the human range." When questioned on this point, Dr. Sarmiento noted that the IMI based on external measurements has a much greater value in humans than that based on upper and lower limb long bones. He referred John Green to Shultz’s 1956 publication on proportions and reiterated that the Bigfoot value was well within the human range.

** For clarification, the symbol **~** used in this discussion means, “approximately,” and **x** means, “multiplied by,” or “times.”

"In both these respects (i.e., upper limb coupling and plane of segment movement) Bigfoot is similar to humans."

"This head movement is unique to humans when compared to living apes and is associated with a well-balanced head and a specific neck curvature."

"The only difference that I could see between bigfoot and humans in posture and movements was that its trunk was tilted slightly more forward."

"My calculations show bigfoot was just under 6 ft. in height with an approximate error between 5'8" and 6'3"."

Upper limb movement is typically human. The retractive (motion opposite to forward movement) phase is marked by elbow extension with the most extended postures occurring at the end of the phase. The protractive swing phase (motion in same direction as forward movement) is marked by elbow flexion, with greatest flexion occurring at end of the phase. Moreover, elbow and shoulder flexion is more marked than elbow and shoulder extension. Upper limb segments movements are in somewhat different planes than forward movement, progressing from anteromedial to posterolateral. Upper-limb movement is diagonally coupled to lower-limb movement. In both these respects (i.e., upper limb coupling and plane of segment movement) bigfoot is similar to humans.

More surprisingly, despite what appears to be a considerable neck muscle mass (the large bulge in the area of the *trapezius m.*), bigfoot shows an extremely mobile head. The head is able to axially rotate nearly 90 degrees effortlessly and also with considerable velocity. This head movement is unique to humans when compared to living apes and is associated with a well-balanced head and a specific neck curvature.

The bigfoot trunk also has a considerable degree of axial rotation, and the animal is able to turn its upper trunk around to look backwards without breaking stride. Most of the axial trunk rotation appears to be occurring between thorax and lower back, as it does in humans. I did not measure the range of joint motion since I felt, given the quality of the film, the accuracy from actual measurements would not be that different from my visual estimates, and the former is considerably more labor intensive. The only difference that I could see between bigfoot and humans in posture and movements was that its trunk was tilted slightly more forward. Humans achieve these trunk postures when compensating for extra weight, especially from a backpack which shifts overall center of gravity posteriorly. Vertical displacements of lower limb segments are greater than is normal for humans walking on level surfaces, but is consistent with humans walking on uneven substrates with varying substrate footing.

Kinematics of Bigfoot limb segment movement and body size:

As long as the indicated film speed is correct, bigfoot's speed of upper and lower limb segment movement provides an indication of bigfoot's lower-limb length. Considering bigfoot's bipedality is similar to humans, Grieve and Gear's (1966) formula for step frequency, relative time of swing, stride length and stature, can be used to predict bigfoot's height (stature) and lower limb length. My calculations show bigfoot was just under 6 ft. in height with an approximate error between 5'8" and 6'3". Given this height and its proportions, I estimate bigfoot's weight to be

between 190 and 240 lbs, well within the human range, and considerably below that of many professional football and basketball players who show slower swing times.

If the film was shot at a slower speed than 16-18 frames a second, bigfoot would be taller. If shot at a higher speed, bigfoot would be shorter. If bigfoot has shorter lower limbs relative to its height than humans, bigfoot would be taller, and if the converse were true he would be shorter than estimated.

Bigfoot taxonomy:

Covered in hair and possessing what appear to be mammary glands, bigfoot is no doubt a mammal. Complete disassociation of arm and thigh from the trunk, plantigrade foot postures, and what appear to be five fingered hands and feet without claws (albeit the latter was not certain on the hands and could only be verified for the feet based on footprints) suggests a hominoid (the group encompassing humans and great apes). Proportions and segment movement, especially as regards neck, foot and knee, are so human-like that this form, unless shown otherwise, must be classified within the human genus *(Homo).* Presence of pendulous inflated breasts without any signs of a nursing infant or late term pregnancy indicates the breasts are continuously enlarged as in humans. Gluteals are also enlarged as in humans. Only through bio-molecular studies and/or dissection of living or cadaver specimens, and proof of parallelisms, could this individual be called anything but *Homo.* In this regard, I strongly disagree with K. W. Council that this individual is not in the genus *Homo.* Bigfoot's movement, especially its neck and trunk movement, indicate it is more or as closely related to modern humans as some of the fossil taxa within the genus *Homo.*

March 4, 2002*

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"Proportions and segment movement especially as regards neck, foot and knee are so human-like that this form, unless shown otherwise, must be classified within the human genus (*Homo).*"

* Although this report was completed and provided by Dr. Sarmiento to another person on this date, it was not provided to me until January 9, 2005. As soon as I received it, I worked with Dr. Sarmiento on general formatting and editing, and then provided it to major sasquatch researchers. My first book, *Meet the Sasquatch*, was already in print at that time, so I could not include the report. Inclusion in this book is the first major publication of the report. CLM