

DERMATOGLYPHICS IN CASTS OF ALLEGED NORTH AMERICAN APE FOOTPRINTS

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Abstract

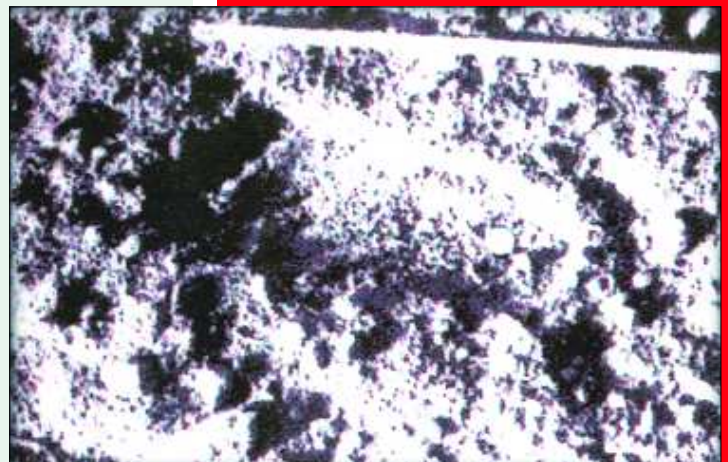
Perennial reports of giant apes, commonly referred to as “Bigfoot” or “Sasquatch,” have emanated from the montane forests of the United States and Canada. Hundreds of large humanoid footprints have been discovered. Many of these have been photographed and/or preserved as plaster casts. In some instances, soil conditions were such that dermatoglyphics, or skin ridge details, were preserved in the footprints and transferred to the casts. The casts featured here have been evaluated in collaboration with a professional latent fingerprint examiner. Ridge detail displays distinguishing characteristics including bifurcations, ending ridges, short ridges and scars.

However, the dermatoglyphic features are distinct from those of humans in consistent ways. First, the ridges themselves are wider on average than found in humans and non-human primates. Within the hominoids, ridge width is positively correlated with foot size. Second, the pattern of flow of the ridges is distinct. For example, in humans the ridges usually flow transversely across the side of the foot, while in the casts the flow tends to be longitudinal. The possibility of hoaxing is considered and the implications for the existence of an unclassified North American ape are examined.

Introduction

The presence of dermatoglyphics on Sasquatch footprint casts was first reported at length in the published literature by the late Professor Grover S. Krantz (1983 and 1992). These casts originated from the Blue Mountains of southeastern Washington. This, however, was not the first instance of such skin ridge patterns being noted in footprints. As early as 1967, John Green observed ridges in 38-cm (15-inch) tracks discovered beside the Blue Creek Mountain road in northern California. The road surface consisted of a very fine rain-dampened dust, “It even appeared to show the texture of the skin on the bottom of the foot, grooved in tiny lines running the length of the print” (Green, *On the Track of the Sasquatch* [1971], p. 47). “It gave the appearance of wood grain; no ridges were noticeable the next day” (Green, personal communication).

Footprint that showed evidence of possible dermal ridges (Blue Creek Mountain road, California, 1967).



MATT CROWLEY'S FINDINGS

Recent experimentation and studies by Matt Crowley revealed that in some cases, under specific conditions, artifacts can appear in plaster that have the appearance of dermal ridges. The exact mechanism of this process is not fully understood at this time, and needs further experimentation. While we do not believe such was the case with the casts presented here, Matt's findings are important and need to be mentioned. Please see: Matt Crowley and the Dermal Ridges Controversy, page 167, for further insights.

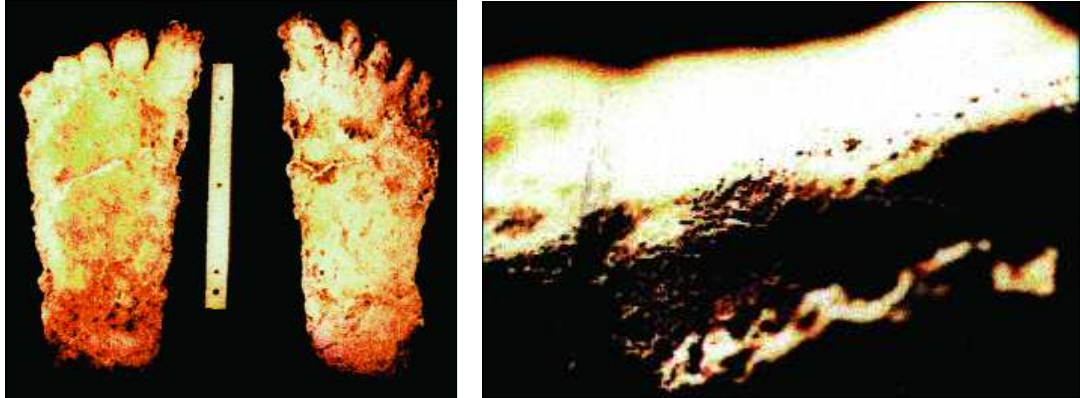


THE MYSTERY CAST

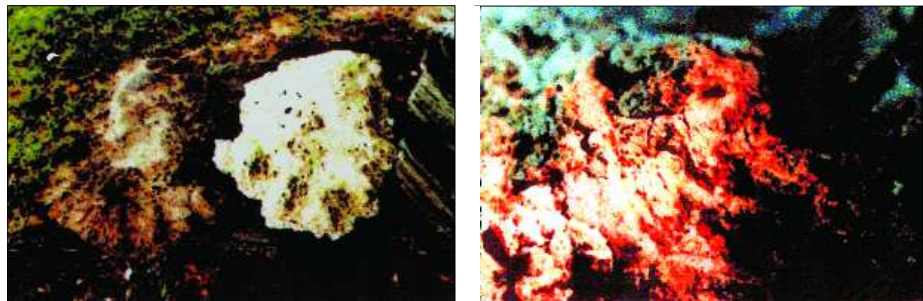
The cast copy seen below (shown in the original book), which appears to show dermal ridges and was said to have been from tracks found on Blue Creek Mountain, was actually from tracks found on Onion Mountain (1967). John Green remembers the cast, but recalls that he discarded it. Just how the cast later showed up is a mystery. Whatever the case, Rick Noll obtained it whereupon lines that appeared like dermal ridges were observed. At this time, the credibility of the ridges as being actual dermal ridges is uncertain.



Examination of a set of original casts made by Bob Titmus near Hyampom, California on April 28, 1963, reveals ridge pattern about the digits on one cast, especially the medial side of the hallux where the plantar pad is prominent. Dermal ridges are evident flowing parallel to the edge of the foot. The footprints, measuring over 43 cm (17 inches), were found in wet mud. This individual's tracks were found in the region on several occasions over a six-year period.



Another instance occurred near Blanchard, Idaho in 1977. Large 42-cm (16.5-inch) footprints were discovered crossing a wet, muddy road. Several witnesses observed lines or “veins” in some prints that were interpreted as dermal ridges. These were preserved in subsequent casts. This incident was investigated at considerable length by Dr. James Macleod et al., of North Idaho College (personal communication).

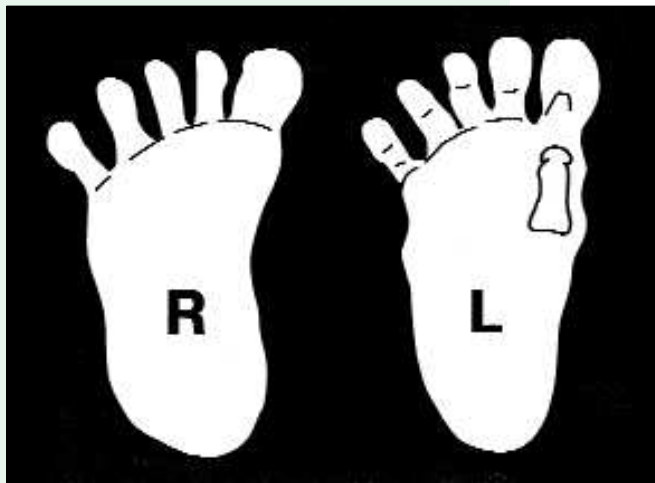


An additional dramatic example of ridge pattern was identified on a set of casts from the Blue Mountains in 1984. Referred to by Krantz as “Wrinkle Foot,” these specimens from Table Springs (Walla Walla River) exhibit extensive ridge detail across the plantar surface of the cast. The set includes a right and left pair measuring 33 cm (13 inches) long and a partial print of the distal end of the right foot.

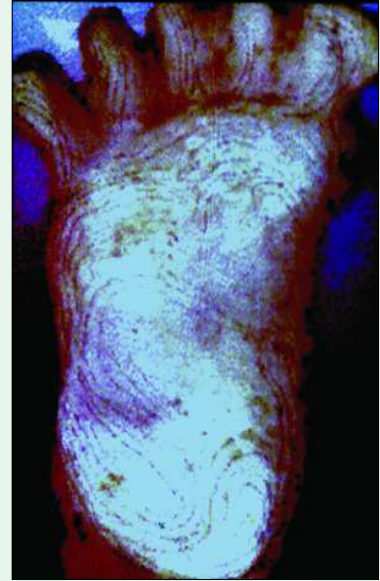
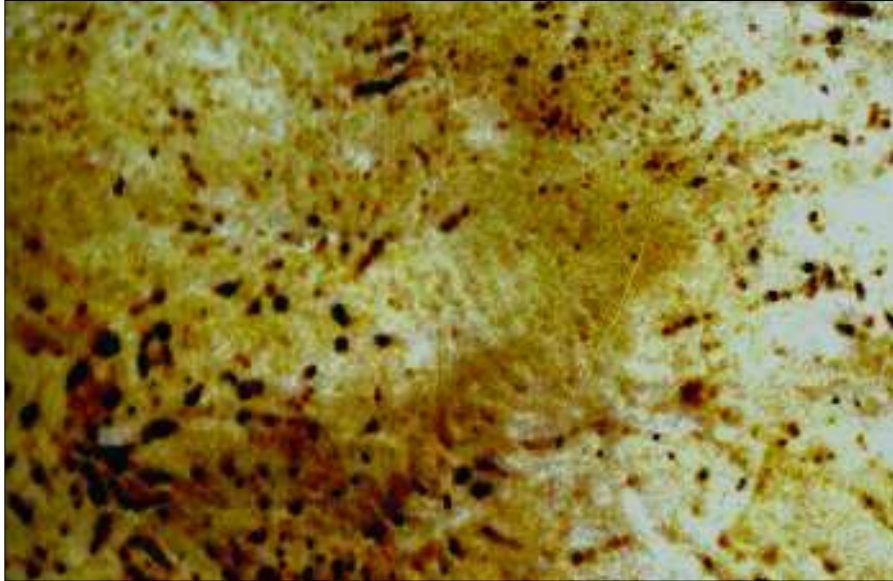
Krantz noticed that the right and left feet were not precise mirror images of one another and attributed this to geriatric crippling. However, if the midfoot is flexible, as proposed by Meldrum (1999), then the variance can be more readily accounted for by the expression of a greater degree of supination in the right foot than the left. If the right leg was externally rotated, the resulting supination would raise the medial border of the foot slightly, including the proximal end at the hallucial metatarsal, and internally rotate the calcaneus relative to the midfoot. These are precisely the distinctions evident in the casts.

The left foot is fully pronated and both the distal and the proximal ends of the hallucial metatarsal are fully impressed into the substrate. The impressions of the taut plantar aponeurosis can be seen

most evident in the right, more fully pronated foot. The enlarged ends of the joints of the metatarsal permit an appropriate length estimate of 6.5 cm (2.6 inches). This is consistent with an evident relatively shorter metatarsophalangeal observed in other casts where flexion creases and bony landmarks permit length estimates. The partial print clearly shows strong dorsiflexion of the metatarsophalangeal joints, confirming the identification and placement of the first metatarsophalangeal joint. This combined with the pronounced plantarflexion of the interphalangeal joints and abduction of the digits, especially the first and fifth. Although the toes conform to the shape of those of the complete right foot, the positions are varied and yet are appropriate to the context of securing a toehold on an inclined bank.



The outline tracing of the left foot is reversed for contrast to the right foot. The inferred position of the hallucial metatarsal is indicated.



A county deputy sheriff in Georgia responded to a repeated disturbance on a farm on the flood plain at the Flint River in 1996. Large 46-cm (18-inch) tracks were found on the river bank and extending into the water. A cast was made of one of the clearest tracks by the deputy on duty. Close examination of the cast revealed a dermal ridge pattern of a comparable texture and flow pattern evident in previous casts, which was subsequently confirmed by a latent fingerprint examiner.

“Close examination of the cast revealed a dermal ridge pattern”



Latent Feature Examination: The casts were examined by Officer J.H. Chilcutt, latent fingerprint examiner, Conroe Police Department, Conroe, Texas. Officer Chilcutt brings not only an expertise in human fingerprint examination, but expertise in non-human primate print examination spanning five years and over

1,000 finger, palm and sole prints. His examination of these casts confirmed the presence of dermal ridge pattern with typical characteristics such as bifurcations, ending ridges, and short ridges. However, the ridge width was on average twice that of human samples and the flow pattern was also distinct. The dermal ridges trend lengthwise along the sole of the foot, especially along the margins, whereas human ridges tend to flow transversely across the sole of the foot. In addition, examples of scarring are present on the Walla Walla casts. Ridge flow interrupted by healed cuts displays characteristic distortions.

Ridge texture, often expressed as ridge count (i.e., ridges/cm) is quite variable among primates, ranging from 35 ridges/cm in some prosimians to 10–15 ridges/cm in Old World monkeys. Even these values can vary within an individual foot. It has been suggested that the dermatoglyphics on the Sasquatch casts could be accounted for by some process such as expanding moulded human dermatoglyphics (Baird, 1989). Baird describes a method of enlarging a latex mould with kerosene. This process was replicated in our lab with latex molds of human feet with clear ridge detail. It resulted in a uniform expansion of the mold and attempts to disproportionately expand selected areas created deformation and warping of the mold. The process also left the mold extremely brittle and difficult to handle without damaging it. More fundamentally, this method fails to address the distinctions of ridge flow pattern evident in the casts.

“However, the ridge width was on average twice that of human samples and the flow pattern was also distinct.”