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# A Shoe Fetish

## Part 2

**I**n assessing whether the shoe artifacts found on Nikumaroro (see “Shoe Fetish Part 1” in the February issue of *TIGHAR Tracks*) might be related to the Earhart disappearance we need to answer two questions:



What information is available about the style and size of shoes that were aboard NR16020 when it vanished?



How do those shoes compare with the artifacts found on the island?



# Earhart's Shoes on the Second World Flight Attempt

In an article appearing in the New York *Herald Tribune* on Sunday, March 7, 1937—ten days before she would depart on the first World Flight attempt—the footgear she planned to take on the trip was described this way:

In the plane she'll wear light, low shoes. And this time she's taking along a pair of heavy, high hiking boots 'just in case,' as she puts it.

A passage in *Last Flight*, in the chapter entitled "Fortaleza and Natal," describes what she took along on the second World Flight attempt:

My wardrobe included five shirts, two pairs of slacks, a change of shoes, a light working cover-all and a trick weightless raincoat, plus the minimum of toilet articles.

The implication is that she had two pair of shoes with her, but photographs seem to indicate that there were actually three pair.



This photo was taken in Bandoeng, Java some-time between June 21 and 27, 1937. AE's shoes, although very similar to the ones in the Calcutta photo above, have a toe cap that is absent in the other blucher oxfords. These toe-capped shoes also appear in photos taken the previous March. We'll call these Pair No. 2.



Photos courtesy Purdue collection.

This photo was taken on June 17, 1937 upon AE's arrival in Calcutta, India. Her shoes are blucher-style oxfords (see "Shoe Fetish Part 1" in February's *TIGHAR*

*Tracks* for definitions of shoe styles) featuring metal shoelace eyelets. Other photos taken during preparation for the World Flight in March 1937 show her wearing what appear to be the same shoes. We'll call these Pair No. 1.



This photo shows AE with her mechanic Bo McKneely, possibly in Miami in late May 1937. The distinctive shoes she is wearing appear in several photos taken during the World Flight, always in a sight-seeing or non-flying context. They seem to have been her walking-around shoes. The sole and heel are both light colored. We'll call these Pair No. 3.

## How do Earhart's shoes compare with the artifacts found on the island?

There seem to be four criteria we can use to determine similarities and differences between the shoes Earhart is known to have worn and the remnants of shoes TIGHAR found on Nikumaroro: style, gender, special features, and size.

### Style

Pairs 1 & 2 were blucher style oxfords. Pair 3 were oxfords but not blucher style. All we can say about the style of the shoe whose sole and heel were found on the island is that it had leather uppers stitched to a rubber sole. If the brass eyelet (Artifact 2-2-G-7/6) found with the sole and heel is a shoelace eyelet, then it seems safe to conclude that the shoe was an oxford (i.e. lace-up) style. From a style standpoint alone, the shoe found by TIGHAR could be any, or none, of Earhart's three known pair.

### Gender

Of Earhart's known shoes, Pairs 1 & 2 seem to be distinctly female, Pair 3 less so. The experts at Bilrite felt that the "fine and close" stitching holes in the sole found on the island are indicative of a woman's shoe and that the small size of the brass eyelet further suggests that the shoe was female. If they're correct, then the shoe found on the island was a woman's oxford. Earhart wore woman's oxfords.

### Special Features

The shoe found on the island had three distinctive features:

-  brass shoelace eyelets (if the single eyelet found is a shoelace eyelet)
-  a black rubber sole (assuming the color has not changed over time)
-  a Cat's Paw replacement heel that originally featured two white "traction plugs".

These features would seem to eliminate Earhart's Pair 3 which did not have metal eyelets and featured a light colored sole and heel. Pairs 1 & 2 did feature metal eyelets and

dark soles. Were the soles rubber? It's hard to be sure, but the photo below (taken in late February 1937 during preparation for the first World Flight attempt) provides a rare glimpse at the bottom of AE's blucher oxfords (although it's not clear whether this is Pair 1 or Pair 2). The uniformly black sole seems to be more consistent with rubber than with leather. Note also the lines of stitching along the edges.



The heels of the shoes in this photo appear uniformly black and perhaps a bit worn. No white "traction plugs" are evident. Contrast that with the photo below, taken a few days later in early March 1937.



This is Pair 2 (note the toe cap) and the lighter-colored bottom of the heel looks markedly different from the heel in the earlier photo.

Pair 1 around the same time are shown at the top of the next page. They have the same look to the heel. It would appear that Earhart had the heels of both pair of blucher-oxfords replaced as part of her World Flight preparations.



Note light edge on heel.

## Size

The reconstructed sole measures roughly 277mm or 10.9 inches, equivalent to an American woman's size 8<sup>1</sup>/<sub>2</sub> or 9. What size were the shoes AE had with her on the world flight? The available evidence is, to say the least, contradictory and falls into four general categories: anecdotal, analytical, artifactual, and photogrammetric.

### Anecdotal

During the 1970s, in the context of allegations that New Jersey housewife Irene Bolam was, in fact, Amelia Earhart, AE's sister, Muriel Morrissey, maintained that Amelia had very small feet. Conversely, former U.S. Customs inspector Peggy Sledge, in her book *The Littlest Smuggler and Other True Stories* tells of frequent visits by Earhart and the standing jokes about her big feet.

### Analytical

Earhart's height, according to the information on her pilot's license, was 5 feet 8 inches. U.S. Army data for predicting foot size by height (useful in knowing what size shoes to stock) indicates that the average foot size for an American woman 5 feet 8 inches tall is 257mm +/- 9.03mm.

In other words, if Earhart had "normal" size feet for her height they were between 248mm and 266mm in length. Her shoes, of course, would be somewhat longer.

### Artifactual

We're aware of two existing pairs of shoes that once belonged to Earhart. The Atchison County Historical Society Museum in Atchison, Kansas (Earhart's birthplace) has a pair of brocade dancing slippers that are reportedly size 6<sup>1</sup>/<sub>2</sub>. It's not clear when in her life Amelia wore them.

TIGHAR has a pair of dress shoes (shown below) that Amelia reportedly purchased in Ireland in 1932. She gave them to her friend Helen Hutson Weber in November of that year, according to Ms. Weber, "not for sentimental reasons but because they hurt her."



The shoes measure 254mm or 10 inches in length—roughly an American woman's size 6<sup>1</sup>/<sub>2</sub>. The shoes are quite narrow, AA or perhaps even AAA width.

### Photogrammetric

The photograph on the next page shows Earhart standing on the wing of NR16020 in Bandoeng, Java approximately ten days before her disappearance. She is wearing Pair 2 and we have a good profile view of her right foot. The rivet lines on the wing are 65mm or 2.5 inches apart, thus providing a convenient scale for measuring the shoe. A straightforward measurement of the shoe in the photo suggests a length of about 278 mm, virtually identical to the length of the reassembled sole found on the island.



However, a recent forensic imaging analysis of the photo by Photek, Inc. of Portland, Oregon tells a different story. As described fully in his Preliminary Letter Of Opinion available on the TIGHAR website) Jeff Glickman of Photek measured the sole of the shoe in the photo at 242.9mm or 9.6 inches—roughly an American woman’s size 6. The same forensic techniques showed the heel of the shoe in the photo to be 55.1mm or

2.16 inches in length. Obviously, comparisons of the length of the sole of Earhart’s shoe to the fragmented sole found on the island are imprecise because we can’t know whether we’ve reassembled the island sole accurately, but the heel comparisons should be fairly reliable.

At 2.16 inches, the heel in the photo seems to be significantly smaller than the 3 inch long heel found on the island. IF the island heel has not swollen significantly due to environmental conditions (such swelling seems very unlikely), and IF Glickman’s measurement of the heel in the photo is correct THEN they can not be the same heel. But here’s the problem: if the photogrammetric measurements are correct, how could a 254mm dress shoe that hurt Earhart’s feet be over a centimeter larger than a 243mm “working” shoe she wore with socks?

Clearly, we haven’t yet solved the riddle of Amelia’s shoes.

### **But what about Fred’s shoes?**

In this photo, probably taken in Miami in late May, 1937, AE is wearing Pair 3 (see above) and Fred Noonan is wearing the type of shoes he’s wearing in virtually all of the available photos. Indeed, Fred’s entire wardrobe seems to consist of the same dark shirt and dark tie with little



white polka-dots, dark trousers, dark socks and dark oxfords.

We don’t have any hard information about Fred’s shoe size but we do know that his height was 6 feet  $\frac{1}{4}$  inch and his feet appear to be in proportion to his body. A fair guess might be that he wore something between an American man’s size 11 (320mm) and size 13 (340mm)—much too large to be the sole found on the island but perhaps not inconsistent with the second shoe heel (Artifact 2-2-G-9).

## **Conclusion**

Sometimes it seems like the more we know, the less we know. The only conclusion we can draw at this point is that we need more information before we can make any reliable determination whether the shoe parts found in 1991 might reasonably be associated with the Earhart disappearance. We need to re-examine the assumptions from which we’ve derived data that seem to be contradictory. For example, our measurement of the rivet spacing on the Electra wing was obtained from one Lockheed 10. All Lockheed 10s should have the same spacing, but is that a valid assumption? Maybe we need to check a few more existing Electras. Are there more shoes once owned by Amelia kicking around someplace that we could measure? We’re already trying to pin down a more precise date for the Cat’s Paw heel. If it turns out that that particular design post-dates the disappearance by even a few weeks we’ll know that the island shoe cannot be Earhart’s.

As always, we welcome your input and will try to keep you up to date as we continue to piece together this puzzle.