

## Episode 7 – Why'd It Have to Be Bats?

[Radio scanning stations, crackles into doowop rendition of the hymn “Rock of Ages,” and continues to play in the background.]

INTRO: Hello, everyone! Welcome to this episode of Rock of Ages. Rock of Ages will take on a different form as we all adapt to the challenges of this year. This project has been made possible by the diligent work, research, time, and vocal talents of the interpretive staff at Carlsbad Caverns National Park. This time on Rock of Ages, we're joining one Dr. Constantine in 1957 as he completes his groundbreaking research on bat skeletons found inside the park. What mysteries await him in those dusty bones? Sit back, mind the bats, and listen to our park's history.

[Music fades to silence.]

NARRATOR: July 24, 1957. 45 minutes southwest of Carlsbad Cavern, former Naval captain and renowned bat expert Dr. Denny G. Constantine has arrived at his research station in Slaughter Canyon. He enters what is known as New Cave after a grueling hike 500 feet up the cliff face, loaded down with equipment. He's alone in the darkness with only a couple of lanterns and his thoughts for company. Dr. Constantine has devoted his research to the study of rabies for the past several years, a disease on the rise that has only recently been observed in mammals across North America. Its sudden appearance in 1953 has caused a stir in the scientific community. Its prevalence in areas with bat colonies is of great curiosity, and these extremely mobile creatures may provide the answer to the sudden widespread occurrences in other mammals. And where there are bats, there is Dr. Constantine. Today is no exception. Dr. Constantine sets off in search of answers surrounding this curious disease as exhibited in the Mexican free-tailed bat. However, a chance observation of the extinct bat skeletons found within New Cave leads him to wonder about another matter entirely.

[Water drips in the background. Dr. Constantine's voice echoes in the cavern chamber.]

CONSTANTINE: Bats. [Heaves a heavy sigh.] Why'd it have to be bats? My old shipmates were right: choose your rate, choose your fate. And mine . . . is bats.

[Heavy cases set down, latches open as Dr. Constantine begins to unpack. Equipment is set up on the cave floor and field table.]

[A bit facetious.] Half-mile hike uphill in a hundred and ten-degree heat just so I can freeze in a cave to study . . . bats. [Huffs loudly.] Why couldn't I pick something easy, [with rising enthusiasm] something tropical, like the nesting habits of . . . of flamingos! That's it; flamingos in the Caribbean. White sandy beaches and easy to find, easy to spot giant pink birds. [More reflective.] Of course, where's the fun in doing something that easy? Besides, bats are far more fascinating, anyway. [Shakes it off.] Enough self-pity; time to get to work.

[Places lab equipment on table, unscrews containers, instruments rattle.]

So far, I've learned a lot about rabies transmission among living species of bats, but not their extinct counterparts. Is it truly a recent phenomenon in North America, or has it been around longer, unnoticed? The hike up here may have been a pain, but pulling fossils from a trenched guano mine beats digging through fresh guano in Carlsbad Cavern. And far fewer pesky tourists.

[Reads aloud as he scribbles in his notebook, pencil scratches on pages.]

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Date: July 24, 1957.

Location: New Cave, Fossil Alley.

Outside Temperature: Hot as Hades.

Internal Temperature: 57-degrees.

Now to remove these bones from sediment without breaking them. [Brushes dirt, scrapes sediment with a small pick. Sounds of delicate excavation continue in background.] These skulls are a lot easier than those darn wing and leg bones farther up in the cave. I'll just carefully scrape away 10 square centimeters of sediment at a time, for consistency's sake. Whatever skull happen to be in that sector will be the sample, even though bats only have one head.

[Delicately brushes loosened dirt away from bones.]

Time for some measurements. [Reads aloud as he scribbles in his notebook, pencil scratches on pages.] Sample number zero one, tack, one eight, tack, eight three. Let's see. . . .

Skull length: 17.4 millimeters.

Height of braincase: 5.8 millimeters.

Width of braincase: 9.1 millimeters.

Alveolar width across molars: 8.1 millimeters.

[Slightly befuddled.] Wait. . . . [Pauses.]

This can't be right. [Paper rustles as he flips through notebook.] Taxonomy and structure of the wing bones tell me these should be free-tailed bats [pauses] . . . but these skulls are way too big, even for Pleistocene relatives. And the skulls are much squarer, if I'm not mistaken. I must have measured wrong. Let's try again and get it right this time.

[Water drips in the background as Dr. Constantine's pencil scratches across notebook.]

No. My measurements were correct. These can't be Mexican free-tailed bats; the measurements are at least ten, maybe even thirteen times larger! But, they are free-tails; just not any I've ever seen. Did I just discover an unknown extinct species? Surely someone else knows about these bats. They can't be isolated to this one cave. I'll have to check references once I get back to the university, but this could be a huge discovery! If these are indeed a previously unknown species, that hike was worth it in more ways than one.

[Water drips in the background as Dr. Constantine continues to mutter measurements aloud. Pencil scratches across notebook. Scene fades to silence.]

NARRATOR: Dr. Constantine wrote a letter to one of his colleagues on May 19, 1958 confirming his suspicions about the Pleistocene-aged skeletons found in what is now Slaughter Canyon Cave. He recognized almost instantly that this species is distinct from the Mexican free-tailed bat, also known as the Brazilian free-tailed bat, which inhabits the region today. Fossils of this previously unknown species have not been found anywhere except in Slaughter Canyon Cave and in some guano deposits in Carlsbad Cavern.

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Dr. Constantine continued his rabies research at Carlsbad Caverns National Park for many years after this discovery. He determined that the transmission of rabies from bats directly to humans is almost non-existent unless the person handling the infected bat is bitten. Unlike other mammals, bats infected with the disease do not become aggressive and attack for no reason. When they do bite humans and other creatures, it is in retaliation for being harassed. But, it is not this groundbreaking research that immortalized Dr. Constantine. It was a result of his efforts to identify the bones in Slaughter Canyon Cave, and his ability to recognize the unique skeletal features as distinct from modern free-tailed bats, that his legacy lives on at Carlsbad Caverns National Park. It was with pleasure that this extinct species was named after the man who discovered it: The Constantine's Free-tailed Bat.

[Doowop rendition of the hymn "Rock of Ages" begins and continues to play in the background.]

OUTRO: Thank you for listening to this episode of Rock of Ages. This episode featured the voices of rangers Rick Taylor as Dr. Denny Constantine, and Aubrey Brown as the Narrator. This episode was researched and written by Rick Taylor and Aubrey Brown. Recording production was done by James Gunn and Anthony Mazzucco, music and audio engineering by Gabe Montemayor, with Abby Burlingame and Aubrey Brown at the creative helm. Join us for our next episode, coming soon! Thanks for listening. See ya next time . . . and happy trails!

[Music fades to silence.]