

A MEDIUM *BETWEEN* WORLDS

by DAVID GOOD





A MEMBER OF THE EXPLORERS CLUB SINCE 2018 AND A 2023 EC50 HONOREE, DAVID GOOD IS CURRENTLY PURSUING A DOCTORATE IN HUMAN MICROBIOME RESEARCH AT THE UNIVERSITY OF GUELPH IN ONTARIO. HE IS THE AUTHOR OF *THE WAY AROUND: FINDING MY MOTHER AND MYSELF AMONG THE YANOMAMI*.



I had been lying in my hammock feverish for days, constantly checking my temperature. As the readings rapidly rose to 105°F, I became increasingly apprehensive. I was exhausted, shaking uncontrollably, and sweating profusely. I felt delirious, drained of all energy. Though I could “feel” the pounding of the equatorial sun and the heat radiating from the hearth, I was shivering. I felt ice cold.

I was in the throes of a dangerous malarial attack. The plasmodium parasites were invading my red blood cells, replicating, and then bursting into my bloodstream like popped balloons filled with confetti. The uncontrollable shivers, clinically known as paroxysms, debilitated me. The Yanomami call it the *prisi prisi*.

I mustered every ounce of energy I could to sit up in my hammock. I looked around, noticing the Yanomami villagers lying in their hammocks, eerily somber. My mother was gazing at me, her face full of fear.

“Ya jariri nape,”—“I am sick, Mother,” I said. Then, my uncle, a great shaman, shuffled up beside me, placed his hands on my head, and vigorously stroked them down to my chest to suck out the evil spirits consuming my soul. For the Yanomami, the provenance of my illness comes from the attack of evil spirits known as *shawara*. Deep in his hallucinating trance, he engaged in a fierce battle with the evil entities that were attempting to kill me. My beloved uncle, or *shoape*, was going to battle for me.

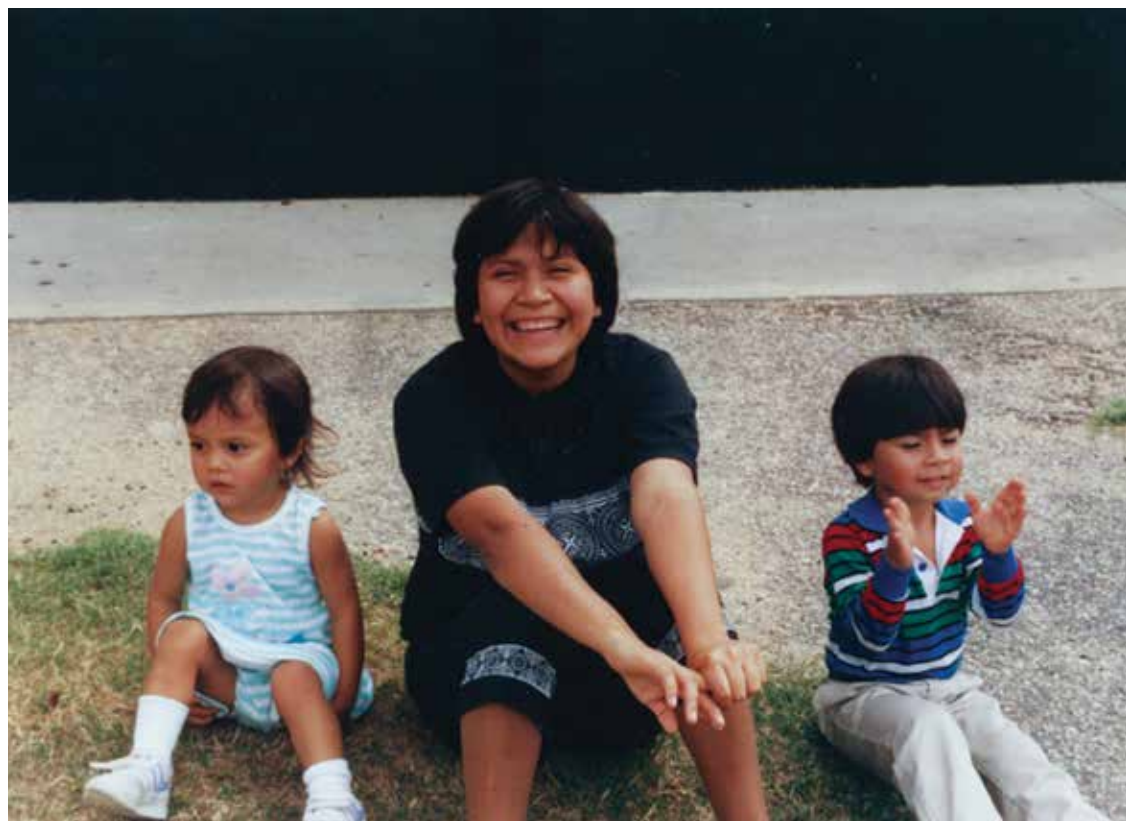
With violent shouts and aggressive chants, my uncle wrapped his arms around my torso to hoist me out of my hammock. I tried to support my own weight, but my legs failed me. I slumped my arm around his shoulders. As he carried me to the ground, a deafening chorus of wailing and crying rose from the villagers. It was as if they had just witnessed me pass away. I glanced up and saw my mother pouring tears of agony.

All this crying scared me. I wanted to yell out, “Shut up, everyone! I’m not dead!” I slowly crawled to my medicine bag to find my antimalarial pills, praying that I took them in time and that my uncle was successful in saving my soul.

The following day, I awoke with a little more strength. My mother was beside me,

OPENING SPREAD: DAVID GOOD CHATS WITH A COUSIN WHO SPORTS *hi-i* STICKS IN HER NOSE AND LIPS AND POMPOMS OF DRIED GRASS IN HER EARS. FACING PAGE: GOOD GETS A PROPER YANOMAMI “BOWL” HAIRCUT FROM HIS MOTHER. ALL IMAGES THIS STORY COURTESY DAVID GOOD.





feeling my forehead and asking if I was hungry. She gave me a few roasted grub worms and plantains. Though I was peckish, I wasn't quite in the mood for beetle larvae. I smiled at her and shook my head. I was comforted by a feeling I had not known most of my life—a mother's nursing touch, care, and love.

I am the product of an incredible love story. In the 1970s, my father, Kenneth Good, was a PhD student in anthropology at Pennsylvania State University. For his fieldwork, he was tasked to study the Yanomami people in Venezuela. When he immersed himself among one of the most remote communities, one known as Hasapuweiteri, to research their hunting patterns and dietary intake, he realized that to truly understand Yanomami society, he had to learn their language. However, that took time—a lot of time. What was supposed to be a 15-month research stint culminated in 12 years of living and researching with the Yanomami. And that is how he met my mother, Yarima.

Yarima and her family adopted my father into their village as one of their own. They showed him a world where everything you needed to live, be happy, and survive could be found in the surrounding rainforest. Their lives were characterized by a sustainable and equitable system of reciprocity. Through this harmonious and communal way of life, my father described his experience as discovering the "essence of what it means to be a human being."

What started as a friendship eventually evolved into a romantic relationship. Outwardly, their union did not echo the Shakespearean notion of love, romance, and grandiose weddings commonly seen in Western society. However, this doesn't

mean there was an absence of love and human bonding. Ken and Yarima tied their hammocks next to each other, signifying that, from that moment, they share the same hearth as husband and wife.

I came to understand the appeal of my father's decision to live among the Yanomami for so long. There was no written form of their language. All their knowledge, mythologies, and histories were passed down orally. There was no year, decade, or tax season. The Yanomami lived their lives according to the cycles of the tropical rainforests, just as their ancestors had for thousands of years. Their counting system was relatively simple. *Mahu*, "one," *porakapu*, "two," and *pruka*, "many," for anything more than two. And no one was ever truly alone. There was always the support of an entire village to raise children, find food, and provide shelter.

Though my parents were from two radically different cultures, they fell in love, married, and began a unique intercultural family. While pregnant with me, it was decided that my parents would travel to the U.S. My mother's journey to the States was likened to stepping through a cosmic portal and entering a world so foreign to her that there was hardly a thing she could relate to. She had never seen a car before, or her reflection in a full-length mirror; or used electricity or money; or heard horns, bells, whistles, or sirens; or worn clothes or shoes. All of this was new to her.

She confronted cultural traits and norms that were nowhere near the realm of Yanomami cognition. Nonetheless, my mom adapted surprisingly well. She soon learned a little bit of English and how to use money, change baby diapers, and work the television. She enjoyed the cinema, rollercoasters, and eating Kentucky Fried Chicken. I have numerous happy memories with my mother, from dancing to Michael Jackson to walking around parks in our New Jersey neighborhood.

FROM TOP: DAVID GOOD WITH HIS MOTHER AND INFANT SISTER IN THE AMAZONIAN RAINFOREST AND DURING THEIR TIME IN SUBURBAN NEW JERSEY.





As a family, we made several return trips to the Amazon, using funds my father had raised from movie option deals and his memoir, *Into the Heart*, which describes his pursuit of love and knowledge among the Yanomami. My sister was born on a banana leaf in the jungle; my brother was born in New Jersey.



By 1992, we had become a peculiar family that captivated the hearts and attentions of millions worldwide. *National Geographic Explorer* caught wind of our story, filmed one of our return trips, and turned it into an award-winning special titled *Yanomami Homecoming*.

On the surface, we were a happy family. But inside, my mother felt a deepening sense of loneliness and sadness. She never thought we would spend so much time away from her village. In the U.S., she couldn't call upon her sisters to go crabbing in nearby creeks or collect firewood and was nowhere near as competent as she was in the jungle. This took a tremendous emotional and psychological toll on her.

It was during a subsequent trip to the Amazon in 1992 that my mother made the heartbreaking decision to separate from the family and remain in her rainforest home. That would be the last time I'd see my mother for 20 years. As a young boy, I internalized her decision to stay behind as abandonment and felt that I wasn't "good enough" to be her son.

I struggled with my mother's abrupt absence from my life and battled with understanding who I was as a Yanomami Indigenous person living in the suburbs of New Jersey. But, after spending many years in turmoil, I decided the only way to find peace would be to embark on a quest to find and reunite with my mother. It would be the greatest challenge of my life as I was no great explorer, spoke no Spanish, or Yanomami for that matter, and I had a deathly fear of bugs.

I eventually connected with Venezuelan anthropologist Hortensia Caballero-Arias, who had been working among the Yanomami for nearly three decades. She offered to take me under her wing and help me find my mother. And so, in 2011, we began our adventure by taking a boat ride up the mighty Orinoco, surrounded by lush greenery and exotic wildlife. The journey was long and arduous, but the breathtaking scenery made it all worthwhile. I couldn't help but feel a sense of awe and wonder as I was reminded of the sheer beauty of the Amazonian landscape.

The familiarity of the beating sun, the bite of the mosquito, the sultry, humid air, the smells of the jungles, and the sounds of the parrots flying above transported me back in time. I found myself not experiencing something new, but reminiscing on old memories, to a time when I was just a young boy attached to my mother. I was finally returning home.

After several days of travel, we reached the trailhead that led to Hasapuwei-teri. Many Yanomami villagers flocked to the riverbank, eager to see who arrived. Our translator explained who I was and that I was there to find my mother. The villagers emphatically confirmed that my mother was here and alive but

PREVIOUS SPREAD: DAVID GOOD IN THE COMPANY OF HIS YANOMAMI FAMILY. ABOVE: GOOD'S MOTHER, YARIMA, WITH THE FAMILY'S PET CAPUCHIN IN HASAPUWEI-TERI. FACING PAGE: GOOD'S NIECE HOLDS UP AN ENORMOUS MUSHROOM SHE FOUND IN THE RAINFOREST.









was out collecting plantains. While a boy ran to fetch her, I was ushered into the village. Everyone was excited about my presence. They crowded around me. The clicks of their tongues and oohs and ahhs continued for what seemed like forever as they investigated me like I was an alien specimen—which in many ways I was.

I scanned their faces and was taken aback by their beautiful features. The women had donned flowers in their ears and painted their faces with the paste of red annatto seeds. Pierced through the nasal septum and lower lips were small wooden sticks known as *hii ii*. As I looked into their dark, slightly almond-shaped eyes, I realized that all these people were my people. I was reminded again that I wasn't some explorer or researcher who had reached the Yanomami for the first time. I was having a family reunion.

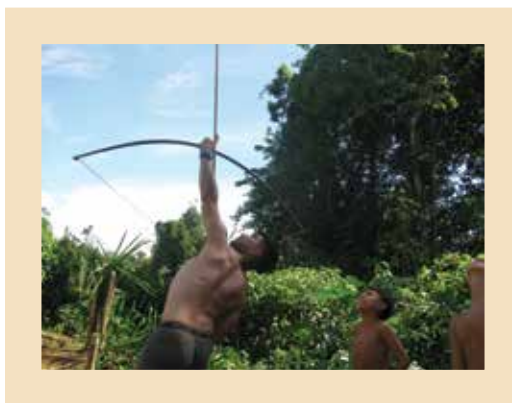
Then I heard whispers of "Yarima, Yarima" as my mother walked into the village. Everyone backed away.

As I stood up from my hammock, I instantly recognized her. My heart was racing, not knowing how to behave or greet her. She was shaking as if she had seen a ghost. She couldn't speak English, and I couldn't talk in Yanomami. I put my hand on her shoulder and eked out the word, "Mom." She immediately looked up at me, recognizing that English word she probably had not heard in 20 years.

I said, "Mom, it's me, your son, David. I'm home."

We both broke down crying, holding each other closely. After all these years with no contact, we were together once again. It was clear that the bond between a mother and her son could not be broken.

My Yanomami family soon began calling me by name, Anyopo-we. As I soon learned, my name meant "long way around." Indeed,



I'd taken the long way around obstacles to be here among my people, back where I started, after a two-decade-long detour.

Upon rediscovering my heritage in the Amazon and learning more about the destruction of the Amazon, I felt that it was my responsibility to use my unique position, being a Yanomami who was socialized, educated, and trained in Western society, to help protect against the nefarious harms that were encroaching upon my family's territory. I also committed myself to learning the language of my people to the best of my ability.

I returned to the U.S. renewed and impassioned to advance my academic training and set up an infrastructure to help the Yanomami. In 2015, I completed my master's degree in biology at East Stroudsburg University of Pennsylvania. I was also admitted to their Business Accelerator program to establish a nonprofit called the Yanomami Foundation (a.k.a. the Good Project). In 2017, after being featured on NPR and BBC World Service, I was contacted by Maria Gloria Dominguez-Bello and Larry Weiss, who introduced me to the field of the human microbiome research. Weiss, in particular, propelled my trajectory in graduate research and on a path that continues to shape my life.

PREVIOUS SPREAD: DAILY LIFE IN HASAPUWEI-TERI. FACING PAGE: DAVID GOOD'S BROTHER TAKES A BREAK DURING THE REROOFING OF THEIR HOUSE FOLLOWING A STORM. ABOVE: GOOD HONES HIS ARCHERY SKILLS.

In 2021, I enrolled in the doctoral program at the University of Guelph in Ontario, under the eminent Emma Allen-Vercoe. With her training and guidance, I aspire to become the world's first Yanomami microbiome scientist.

Much research has already been conducted on subjects of Western, industrialized societies, leading to a deeper understanding of how an imbalanced gut microbiome is a significant factor in causing inflammatory and autoimmune diseases. What has been almost universally found is that the gut microbiomes of individuals suffering from myriad conditions, such as diabetes, cancer, atopy, asthma, obesity, heart disease, depression, anxiety, and more, have less diversity of species and function than individuals who do not suffer from these afflictions. None of these are found within my Yanomami community.

My research addresses the following questions: One, what are the characteristics of a healthy microbiome? Two, which of the bacterial species necessary for good health are missing in industrialized individuals? And three, how can we regain what we have lost over time?

In my approach, I study the microbiomes of Yanomami communities that have not been subjected to the detrimental effects of industrialization and urbanization, i.e., my direct Yanomami family. As a researcher, I have a responsibility to contribute to science so that we may better understand our natural world. Furthermore, I have a familial obligation to carry out this project as it lies close to home—quite literally.


As a Yanomami, I am approaching this project not only as an academic endeavor, but also to carry out my mission to help protect my family and my rainforest home. I am grateful for the knowledge and training acquired from Western society. It has helped me establish the Yanomami Foundation. However, I am acutely aware of how Western culture has destroyed the Amazon rainforest and negatively affected Yanomami health

on a physical, emotional, and psychological scale. Thus, I aspire to help the millions worldwide suffering from chronic, inflammatory diseases, while mobilizing support to protect the Amazon rainforest and preserve the Yanomami way of life.

During that fearful experience of my worst malarial attack while spending time with my mother, I was on a mission to collect microbiome samples for my research. While I couldn't exactly explain to my Yanomami family all the processes involved in DNA extractions, culturing bacterial strains, and data analysis, they all recognized how important this was to me and how I wanted to use this research to help protect them.

I felt blessed that my study subjects were my very own family. Yet they were not simply subjects but my research partners and coproducers of scientific knowledge. Their biological legacy is not to be objectified as datapoints. The Yanomami are the masters of the rainforest, understanding its cycles more than any scientist. Thus, this endeavor to study the Yanomami microbiome is a family project.

Weak and frail, I gathered my swabs and tubes, picked up my pen and field book, and pressed on. I looked at my mother, smiled, and said, "Ya temi, nape,"—"I am alive, Mother."

For 20 years, I rejected my Yanomami heritage. Today, I am proud to be Yanomami and be on the pioneering edge of discovery research that I hope will allow us to learn more about what makes us human. We live in a microbial world after all. I tell myself, before I enter my laboratory in Guelph, that all this work is for my people, and I press on each day as if my family's life and livelihood depend on it. Because they do. 

FROM TOP: DAVID GOOD INVENTORIES MICROBIOME SAMPLES TAKEN FROM HIS YANOMAMI COMMUNITY. THE COLLECTED SAMPLES ARE ANALYZED IN HIS LABORATORY AT THE UNIVERSITY OF GUELPH IN ONTARIO.

