1101 30TH STREET, NW, SUITE 500
WASHINGTON, DC 20007

info@emeagwali.com
donita.brown@emeagwali.com

202-203-8724 - Washington
+44 (0)20 7078 7400 - London
443-850-0850 - Curator, Dr. Donita Brown
801-640-9971 - Fax & Voicemail
800-673-6737 - Booking Agent

What Did Emeagwali Discover? —Part 12

In this, the 12th installment of our weekly series at emeagwali.com, we take a walk down memory lane to the early 1970s with Philip Emeagwali.

I Want to be a Mathematician

Transcribed and edited from a lecture delivered by Philip Emeagwali. The unedited video is posted at emeagwali.com.

I had lived in the United States for twelve hours. It was March 25th, 1974, in Room 36 of Butler Hall, on the campus of what is now known as Western Oregon University in Monmouth, Oregon. After breakfast with Jim, a student in his third-year and my guide, he asked me what my plans were for the day. Not wanting to waste any time, I told him, "I want to be a mathematician."

An hour later, we were in the office of a research mathematician named Beryl M. Green. I was taken aback by Green's physical stature. He towered over me in height and size, something I was not accustomed to. When he spoke, I did not understand him. I wasn't even sure what language he was speaking. When I spoke, he did not understand me. And perhaps he did not know what language I was speaking. Jim looked puzzled but listened silently and attentively to conversation.

That meeting remains vivid in my memory because it was my first conversation with a mathematician, and a dream come true. Prior to that meeting, the

mathematician that influenced me was Clement Vavasor (C.V.) Durell. He was an English schoolmaster who died in South Africa in 1968. He was the best-selling textbook writer for secondary schools in the British Empire.

Two days earlier, I had been in distant Onitsha, Nigeria, in the heart of Africa and amongst people that could not even identify Oregon on the map. I left West Africa and its Atlantic Ocean and discovered North America and its Pacific Ocean. However, I did not come to America as an explorer of the continent and its ocean; rather, I came as an explorer of the Information Age, and to meet American mathematicians as an explorer of ideas and knowledge. I wanted to travel uncharted territories in human knowledge, and to specifically push the frontiers of mathematics.

My research to create new mathematics and to perform the fastest calculations did not begin in the United States. They began in Nigeria during the post-Biafra war period. I was living along Venn Road, Onitsha, in the then East Central State and also near Eke market in Ibusa, in the then-Midwest State of Nigeria. I lived a stone's throw behind Ibusa's only hospital, where my father worked as a nurse.

One mistake I made was that I put more time and effort in mathematics and physics. I solved problems from texts by C.V. Durell. I also solved problems from my hefty, blue hardcover book with the phrase "Infinitesimal Calculus" as part of its title.

On weekends or in late afternoons, some of my seven siblings are home from Sacred Heart Primary School. And our two-bedroom house would become noisy and crowded, so I would sneak into the unlocked classrooms of Sacred Heart Primary School. It was located across the main road at Ibusa's Eke market. (Sacred Heart has been renamed Umejei Primary School.) At night, I studied with a kerosene lamp.

In Ibusa, I studied alone at home during the morning hours. I did not find learning alone difficult. But I missed the lack of socialization and human contact. Occasionally, I will visit the family of Mr. Okafor, my former mentor at Saint Georges' Grammar School, Obinomba. I was friends with his oldest son Gregory and his younger brother Austin Okafor way back in 1966 in Obinomba.

On a couple of occasions, I helped Austin organize a dance party. He asked me to distribute promotional flyers that said girls would not pay admission fee. That offer enticed one or two girls to dance with fifty guys.

Two years later, I was in Monmouth, Oregon strolling on campus on my first Saturday evening in the U.S. I heard the Beatle's song "Come Together" blasting from the school's gym. I learned it was a dance party and discovered that girls paid admission fee. I was surprised that they were three times more girls than boys and that I was the only black at the dance party.

For the next 15 years, I remained a research mathematician that focused on harnessing the power of 65,000 sub-computers that were connected as an internet. In my search—re-search—for new mathematics, I used the arsenal of rationality to search for order within apparent chaos, to draw analogies between different phenomena, to reduce complex systems to their core essences, and to make a connection between physics and mathematics.

At the frontier of mathematical knowledge, I focused more on meanings that transcended my oceans of data and disconnected facts. I reflected more on the poetry of deep science and those timeless truths that run through mathematical physics, computing, and the internet.

I am a physicist and a mathematician and a computer scientist and more. As a physicist, I pointed out to oil company geophysicists that four forces exist inside every petroleum reservoir. As a mathematician, I discovered that the Exxon Mobil

equation had summed only three forces. I correctly summed all four forces, namely: pressure, viscosity, gravity, and inertia. As a supercomputer scientist, I was the first to simulate petroleum reservoirs on asynchronous message-passing sub-computers that were connected as an internet.
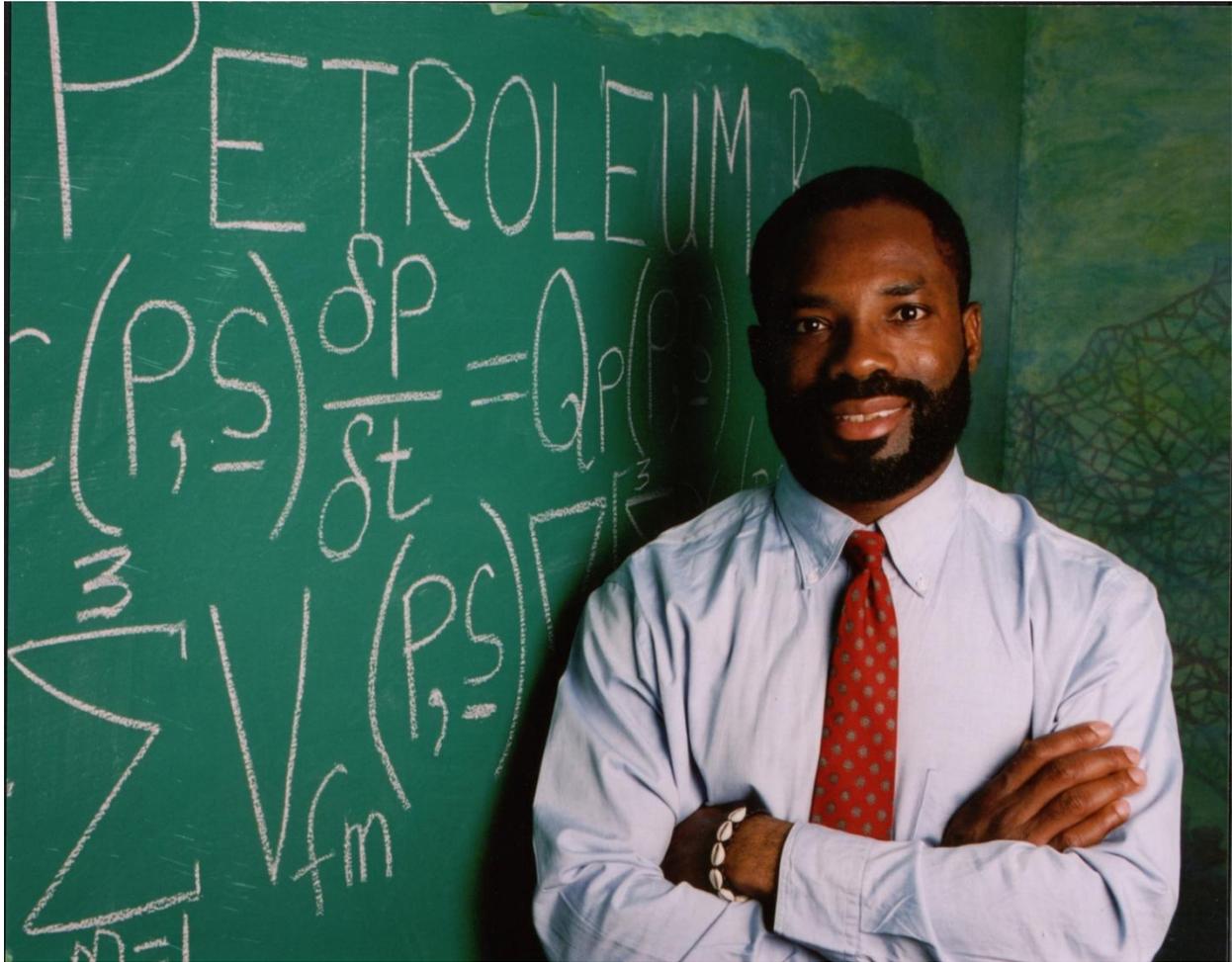
I wrote on the board the actual equations used by the oil company Exxon (now Exxon Mobil) to simulate the flow of oil, water, and gas inside its petroleum reservoirs.

This photo of me at age 17 was taken by a photographer across the street from the Catholic Church in Ibusa, Midwest State, Nigeria. I had dropped out of school. I was so hopeful of coming to the United States that I received my social security number in 1972, two years before I left Nigeria. Two years earlier, in 1970, I saw an M.I.T. brochure in Onitsha. It inspired me to take the American Scholastic Aptitude Tests and my results earned me a scholarship to the United States. (Philip Emeagwali, circa mid-1972)
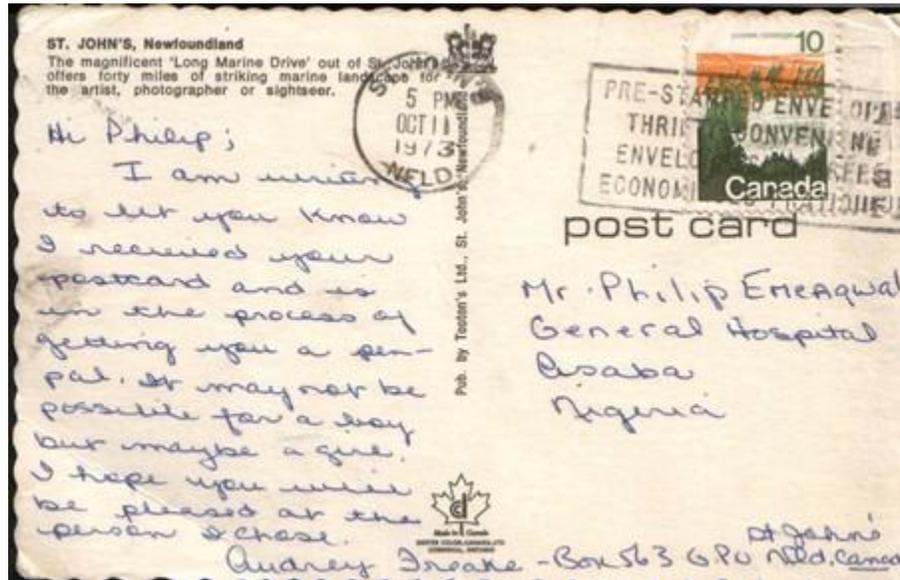
The two images above are the front and back of a postcard sent to me from a pen friend in St. John's, Newfoundland, Canada. The only friend I had outside Nigeria was a Canadian pen pal.