



My Quest for an Internet

In this, the ninth installment of our weekly series at emeagwali.com, we focus on "*Gulliver's Travels*," a book that influenced Philip Emeagwali.

Gulliver's Travels—A Book That Influenced Me

Transcribed and edited from a lecture delivered by Philip Emeagwali. The unedited [video](#) is posted at emeagwali.com.

The first novel I read was "*Gulliver's Travels*." Jonathan Swift wrote it in 1726 as a satire and parody of humanity. In the novel, Gulliver was shipwrecked in Lilliput, a land of tiny and small-minded people. I read it in 1963, sitting on the veranda of our house on Gbenoba Road in Agbor, Nigeria. My father had hailed it as a "classic" and persuaded me to read it.

The novel made an impression on me because it enabled me to travel in my mind to a fictional place created by a writer that had lived two-and-a-half centuries earlier. At the time, the farthest I had ever travelled was to Onitsha, my ancestral hometown,



about an hour away. And Lagos, our nation's capital, seemed as distant as the North Pole.

Over the years, although my interests shifted from science fiction to non-fiction to my own discoveries, Gulliver's fantasy travels have remained a metaphor for my journey to the *terra incognita* of the supercomputer that is connected as an internet. My imagination pushed towards the undiscovered territories of computations and communications performed at unimagined speeds seen only by me and executed with techniques and technologies known only to me which were yet to enter into textbooks.

My Journey to the Frontiers of Internet

To me, those discoveries and inventions were like islands that could not be found on a map. In my mind's eye, I journeyed to where the fastest computations and communications occur—the two-to-the-power-of-16 (or 65,536) sub-computers connected as an internet. I mapped my sub-computers onto the 65,536 vertices of a hypercube that is a metaphor for an internet in the 16th dimension.

The 6-inch tall Lilliputian of Swift's journey represents my sub-computer. And the Lilliputians that overpowered Gulliver represent my sub-computers that outperformed a supercomputer and solved a grand challenge problem. Communicating seamlessly and synchronously as one cohesive unit, those sub-computers computed 65,536 times faster than each working alone.

My Journey to the Frontiers of the Supercomputer

The word "computer" was coined 700 years ago. And for those seven centuries it was applied to the constantly advancing frontier of reinventing computers to



A "send off" family portrait with cousin Charles (sitting far right) *en route* to Coventry, England. I (standing far right) read "*Gulliver's Travels*" a few months later. (December 24, 1962)

perform the fastest computations. The word “supercomputer” came into popular usage in the 1970s. It refers to the fastest computer and so, by definition, the supercomputer had existed as long as the computer.

I came at the crossroad where the supercomputer was reinvented as an internet. My first invention was a theorized internet that comprised of 66,000 computers enshrouding the Earth.

I called it a hyperball. I theorized it as computers connected as an internet and programmed it as sub-computers that computed as a supercomputer.



I (front row, 3rd from left) lived at this all-boys Catholic boarding school named Saint George's Grammar School, Obinomba, Nigeria. Ms. Mary Carl (middle, seated) our librarian assigned me classic such as "*Rip van Winkle*." (From January 1966 to April 1967)

Beyond the Frontiers

Back in 1989, I performed 3.1 billion calculations per second, which made the headlines because it was an unbelievable leap over previous boundaries. Then it was milliseconds—thousandths of a second for a computer. Next, it was microseconds—millionths of a second for a supercomputer. Although I did not know it then, the time interval between calculations of a nanosecond—a billionth

of a second for my 65,536 sub-computers connected like an internet—was so small it was impossible to measure directly with existing timer technologies.

It took me two years to invent an indirect technique for measuring the computational speed of my 65,536 sub-computers, which were simultaneously and synchronously communicating as an internet. I measured the then un-measurable 3.1 billion calculations per second by iterating them a thousand times to slow them to a measurable 3.1 million calculations per second, which broke the world record set in 1989.



I (first from left, front row) and my (Erameh House) dormitory mates at an all-boys Catholic boarding school called Saint George's Grammar School, Obinomba, Nigeria (1966)

My Journey to Lilliput

Today, the frontier in communications is the internet, which performs the fastest communications possible. At the crossroads of computation and communication,

a unit of time is calibrated at one billionth of a billionth of a second. It is called an attosecond, which is defined as one quintillionth or ten-to-the-power-minus-18 of a second. Gulliver's journey to Lilliput is my metaphor for computations and communications executed within a quintillionth of a second.

When I was a boy in Africa, I travelled with Gulliver in my imagination to Lilliput and Brobdingnag. Growing up, I became an explorer in the "fictions" of new ideas. At the frontiers of science and technology, the discoveries and inventions are Lilliputian or Brobdingnagian proportions.

Fantasy influences invention and innovation, just as ideas precede journeys of discovery. In the 1980s, hypercubic supercomputing in the 16th dimension was a science-fictional fantasy, a genre that encourages the technologist to go where no one has thought to go before. For me, performing a calculation or sending an email within an attosecond was a destination that began with an idea as fantastic as Gulliver's travels to Lilliput.

Philip Emeagwali

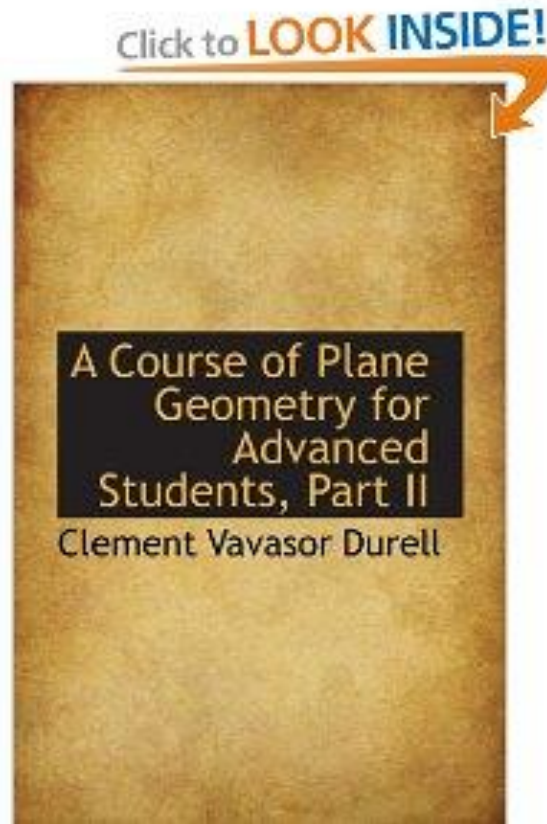
[Philip Emeagwali](#)

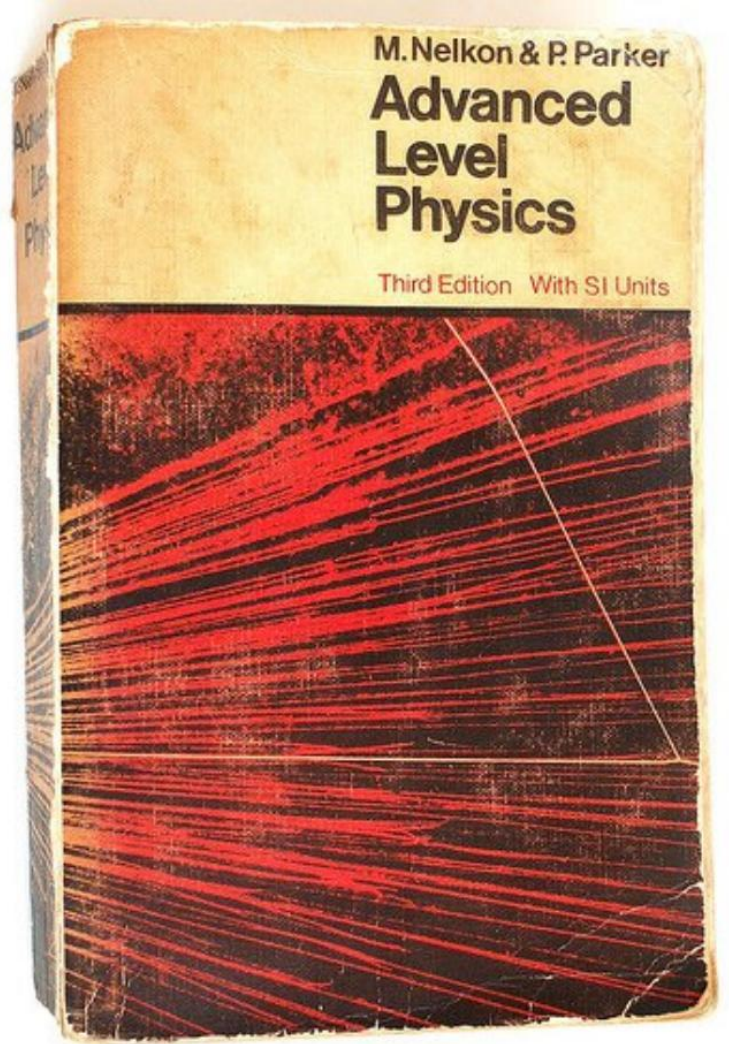
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GULLIVER'S TRAVELS
JONATHAN SWIFT

Additional Books—That Influenced Me





A Person—That Influenced Me



My father, James Emeagwali, second from right (front row). Notice he was the only nurse holding a book in his hands.

Places—That Influenced Me



We lived in the nurses quarter (closest to the hospital and across the prison walls) of General Hospital, Agbor, Midwest Region, Nigeria. The dates were circa November 1966 to May 1967.



When we were living on Gbenoba Road (mid-1963 to October 1966), my father made me do 100 maths problems an hour. We played soccer along the then unpaved street. I learned to ride in monkey style my father's 1958 model Raleigh bicycle on this street. I walked along this street to Saint John's Primary School and church.



River Ethiope, Abraka. I swam at 6 a.m. and 6 p.m. each day from January 1966 to April 1967 in the segment of this river adjacent to Saint George's Grammar School, Obinomba.



Photographer: Emiel Jegen



Guestbook Letters, Unedited

Date: 9/1/2007, 12:24 am, GMT +6
Name: ibezimako iroka <196.201.68.187>
Location: refuge camp in ivory coast
Number: 202

I have listed to all your interviews and appreciate your courage,i wish i had the opportunity like u when you left as a refuge,now we are facing a spiritual war

and more keep dropping out of school with no hope of going back because, people like you is serving the western world that is kill our brains and are using you as an object, my brother you have reached the hight come back and help MASSOB to expose the wicked NIGERIAN GOVERNMENT, i think you are old enough, if you think that your lovely son will appreciate the position you placed him when you die, it would be the biggest regreat of your life. USE YOU ACCESS TO EXPOSE NIGERIAN GOVERMENT YOU KNOW THE TRUTH

Date: 8/31/2007, 7:22 am, GMT +6

Name: Adewale
Adewumi <70.145.96.207>

Location: Palm Coast, FL

Number: 201

Great achievement. May you continue to achieve greater and greater things for the

glory of God and the salvation of our beloved country, Nigeria.

Date: 8/24/2007, 1:29 am, GMT +6

Name: Frederick
Roberts <129.207.176.13>

Location: Prairie View A&M University

Number: 200

Today is the most important day in the life of the world. Why? Because Dr. Phillip Emeagwali was born on this day. There is no other person in the world like you and there will never be. When God created you, he created a special and unique individual, never to be duplicated by any stretch of the imagination.

Happy Birthday Dr. Phillip Emeagwali.

I wish for you the best in your future and that you also have many more prosperous years.

Date: 8/23/2007, 10:38 pm, GMT +6

Name: ISAIAH EMEKA
ANYAOKEI. <81.199.44.50>

Location: ONITSHA

Number: 199

DEAR BIG BROTHER PHILIP, YOU ARE A GENIUS JUST LIKE THE GREAT ZIK OF AFRICA BUT WHY IS IT THAT DESPITE ALL THIS GREATNESS YOUR PEOPLE ARE SUFFEREING?

I HOPE AND BELIEVE THAT GREAT SUCCESS IS WHEN YOU ARE SUCCESSFUL AND PEOPLE AROUND YOU ARE GIVING A SENSE OF BELONGING?

WHAT DOES IT PROFIT US ONITSHA PEOPLE TO HAVE SUCH A BIG BROTHER AND STILL WE ARE NOT HELPING EACH OTHER?

THERE ARE A LOT OF BRAINS IN ONITSHA BUT MOST OF THEM ARE

FROM A POOR HOME AND NONE TO HELP WHY IS THIS HAPPENING TO THE GREAT ONITSHA THAT BROUGHT INDEPENDENCE TO NIGERIA.

IS IT NOT TIME UP FOR ONITSHA ADO N`IDU TO BECOME A FEDERAL STATE SO THAT WE WILL REAP THE FRUIT OF OUR LABOUR NIGERIANS?

Date: 8/20/2007, 10:24 pm, GMT +6

Name: DayInBlackHistory.com <130.207.119.125>

Number: 198

We have recently an entry on Prof. Philip Emeagwali to DayInBlackHistory.com (<http://www.dayinblackhistory.com>).

DayInBlackHistory.com can be best described as a community driven, interactive online periodical about the black experience. Each day, DayInBlackHistory.com highlights black icons, events, and more that have shaped the world on that day in history. The site is supported by a growing community and is completely free.

Members post original entries on topics, edit existing entries, and even vote in polls. The site marks Emeagwali's birthday (<http://www.dayinblackhistory.com/showarticle...>).

For those of you that are interested in Emeagwali's accomplishments, you are invited to adopt his entry and provide a short story/bio about him for August 23rd. A picture is already provided.

Date: 8/15/2007, 4:20 am, GMT +6

Name: afam
okwuowulu <71.163.212.160>

Location: greenbelt,maryland,usa

Number: 197

i need to meet emeagwali. It is amazing that people talk so much abt him but i must confess he is no where to be seen. What exactly has he achieved.

Date: 8/14/2007, 9:05 am, GMT +6

Name: Nwaiwu Martin
Chigozie <196.201.151.5>

Location: Maths & Computer
Science Department
Owerri Imo State

Number: 196

I first heard about you some months back, but I thought that all was a joke only to see that it is not a joke rather a reality. More grease to your elbow. pls send me some of your secret knowledge about computerto <teddymartC@yahoo.com> or 08034143525/08059013883/08084825683

Date: 8/2/2007, 11:27 pm, GMT +6

Name: Sadiq Iskeel
Adekunle <80.78.18.114>

Location: Nigeria Lagos Ikeja

Number: 195

It is an interesting Website i love it so much. I am looking forward to a time when i will meet Prof Emegwali.

Date: 8/2/2007, 10:25 pm, GMT +6

Name: Katrina Carey <162.119.240.103>

Number: 194

I first learned of you several years ago while assisting my son on a book report for school. Upon going to the library and asking the librarian if there were any books written about you. She said stated, "I never heard of him, let me check the internet". I then smiled at her baffled look. She was anxious and astonished as she lead my son and I to the encyclopedias and other compendiums. Thank you for difference and contributions you have made to our society. The world is better because you are in it!

Date: 7/24/2007, 5:28 am, GMT +6

Name: Nonso ok <196.207.243.249>

Location: senegal

Number: 193

emeagwali ,a great mind from Biafra

Date: 7/23/2007, 7:17 pm, GMT +6

Name: OKANUME
ANSELM <204.14.42.157>

Location: ONITSHA

Number: 192

Emeagwali is a name now know as the fruit of labour and messenger of the black poeple. your my mentor.

Date: 7/23/2007, 7:10 pm, GMT +6

Name: friday brian <213.42.21.152>

Location: dubai

Number: 191

you great icon.

Date: 7/4/2007, 3:27 pm, GMT +6

Name: Onugba Michael <65.14.32.3>

Location: Ahmadu Bello University,
Zaria, Kaduna State, Nigeria

Number: 190

You are indeed a very great achiever,
infact the achiever of the century. I am so
proud of you. Keep up the good work.

Date: 7/4/2007, 3:18 pm, GMT +6

Name: Onugba Michael <65.14.32.3>

Location: Ahmadu Bello University,
Zaria, Kaduna State, Nigeria

Number: 189

You are a great achiever of our time and I am so proud of your achievements. You are a great NIGERIAN.
One love.

Date: 6/25/2007, 4:20 pm, GMT +6

Name: Ikeazor Anieto <204.14.42.157>

Location: IMT ENUGU

Number: 188

I LOVE UR ACHIEVEMENTS. WHAT DO U INTEND TO DO 4 UR MOTHERLAND NIGERIA. U SEEMS VERY INTERESTED TO UR HOST COUNTRY AMERICA. TRY 2 AID THE YOUTHS AND THE GOVT OF THE DAY. THANKS .CALL ME ON 234 806 387 1875

Date: 7/2/2007, 11:28 am, GMT +6

Name: Adedamola
Oladeinde <74.98.78.179>

Location: Canada

Number: 187

An Unparallel Achiever, epitome of wisdom and Motivation for many generations to come.

Date: 6/24/2007, 3:26 am, GMT +6

Name: TAJUDEEN
AMUSA <196.200.4.226>

Location: NIGERIA

Number: 186

I AM PROUD OF YOU EMEAGWALI

Date: 6/21/2007, 4:18 pm, GMT +6

Name: Adeolu
Akinsanya <82.206.131.167>

Location: Covenant University, Ota,
Nigeria

Number: 185

Sir, Reading so more about makes me simply describe you as an epitome of achievement, But we need Here in Nigeria and Africa as a whole for an utmost rejuvenation in our continent. We Really Love and Cherish you as a worthy Mentor, BUT COME HOME.



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