

# DARKNESS VISIBLE, FINALLY

## Astronomers reveal first-ever image of a black hole

BY SETH BORENSTEIN

Associated Press

### WASHINGTON

Scientists revealed on Wednesday the first image ever made of a black hole, depicting a fiery ring of gravity-twisted light swirling around the edge of the abyss.

The picture, assembled from data gathered by eight radio telescopes around the world, shows the hot, shadowy lip of a supermassive black hole, one

of the light-sucking monsters of the universe theorized by Albert Einstein more than a century ago and confirmed by observations for decades. It is along this edge that light bends around itself in a cosmic funhouse effect.

"We have seen what we thought was unseeable. We have seen and taken a picture of a black hole," Sheperd Doeleman of Harvard, leader of a team of

See **HOLE** • Page A9

EVENT HORIZON TELESCOPE COLLABORATION/MAUNAKEA OBSERVATORIES VIA AP

This image released Wednesday shows a colorized black hole. Scientists revealed the first image of a black hole after assembling data gathered by a network of radio telescopes.

\_\_ ("WikiLeAks; The Moon, The Universe, Black Holes, Climate Change, E=mc2 & Albert Einstein Theory of Relativity) \_\_  
\_\_ Prophet Muhammad & the Holy Quran '1400 years before the western world & the discoveries of Albert Einstein \_\_

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Edited, Analyzed & Translated.  
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History teaches us that the great German astronomer Karl Schwarzschild made the first discovery predicting the existence of Black Holes while studying Albert Einstein theory of relativity and making calculations of artillery trajectories at the Russian front during world war I in 1916. While, time dilation was first predicted in the Lorentz transformation by Dutch Physicist Handrick A. Lorentz in 1852, before further development in the field with the Lorentz-Fitzgerald contraction by Irish physicist George F. Fitzgerald in late of 1889, not to mention the work of many other western scientist who alleged most of the 21st century discoveries for themselves.

Today perhaps we will come to learn and know that it wasn't Albert Einstein, nor Edwin Hubble, or Karl Schwarzschild who made the first revelations behind the theory of relativity, black holes, expansion of the universe and much more; rather, it was Allah's final prophet and messenger Muhammad with his divine revelations in the Holy Quran and Sunni tradition '1400 years' before even the western world came to existence at a time when Christian pagan cultures were still persecuting people for the false corrupted Biblical believes of the flat earth myth; while declaring all out war on science, reason, and intellect in which Islam protected and reigned supreme over more than any other civilization in history; or future to come.

\_ #First 1st:. Black Holes, Worm Holes, Path ways of Ascending:

Black Holes were revealed for the first time in the world history by the Holy Quran which described them as the knockers stars like a hammer piercing space and time; the evolution of collapsing stars into super nova before piercing the space and time with the ultimate gravitational monster of black hole where all laws of physics breaks and collapses, times slows down and nothing can escapes not even light - known in the Quran as the Tariq i.e., the brightly atomic knocking piercing stars. Allah describes such black holes piercing stars with the likeness of his Angelic forces who exists in the invisible realms of dark matter dimension among guardians, keepers, and preservers who records the deeds of every thing and nothing can escape from them.

\_\_ ""((Holy Quran - Surah Al-Tariq #.86)) (i.e. The Night Space Knocker; Visitor) Verse 1 - 4 :- Allah Speaking to his Prophet Muhammad through his Holy Spirit Archangel Gabriel..:

1. By the heaven and the Tariq (the space knocker, hammer i.e. the space hammering piercing star). 2. And what will make you (what do you know) about the Tariq. 3. It is the hole piercing star (i.e. Hole piercing atomic star). 4. Indeed each and every soul (i.e. there is no human being soul) but has a protector keeper. ( i.e. Preservers, guardians; Angels; Divine beings who record all of deeds and exist in the dark matter dimension).

\_ #Second 2nd:. Expansion of the Universe, Stretching Wide of Space:

Expansion of the Universe was revealed for the first time in human history by the Holy Quran '1400 years' before even 'Edwin Hubble' and his ancestors came to existence; such discovery was made using the Hubble massive telescope after Einstein shock, doubt and denial. As such Edwin Hubble was not the original discoverer but one who approved what prophet Muhammad has already brought in his divine living miracle and glorious revelation, the Holy Quran; Islam's most holiest book which reigns supreme over all other.



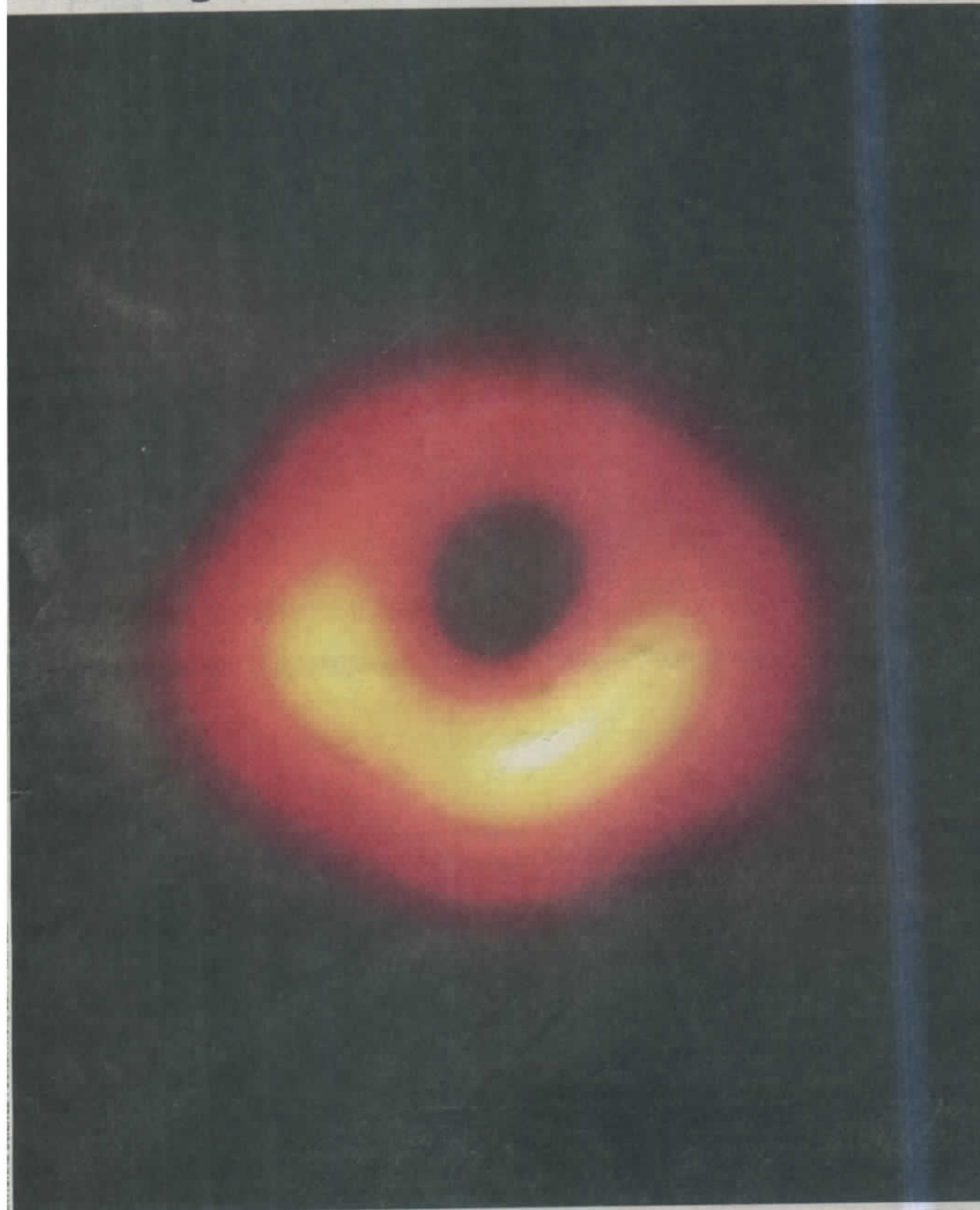
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## First Image Illuminates a Black Hole



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"" ((Holy Quran - Surah Al-Dhariyat #. 51 )) (i.e. Scattering Wind) Verse 47:

47. And the Heavenly universe we constructed with glory, power and might. Verily, we will constantly Expand it ( i.e. Make it spacious i.e. Extend it, Stretch it wide) with vastness thereof.

Here comes another example testing using Einstein famous equation to prove that "Allah" and him alone is the only one with the power and ability to hold, sustain, and constantly expand the massive universe and what's beyond it, is as follow:

$E=mc^2$ ; The energy of an object = (E), and its mass = (M), stands for the energy of the entire universe, its mass, and constant expansion with all of its life, dimensions, stars, dark matter, black holes, planets, forces and what's beyond in the invisible realms.

Any one with the understanding of Einstein intelligence and common sense will come to realize that all religions has failed the test and are 100% false, because its impossible for any of the small & invented false mortal gods; creatures like; (Buddha, Hinduism spirits, Prophet Jesus, and else...etc) in all of the so called man made religions to even have the smallest power or ability to effect the smaller part of expansion in the universe due to the ultimate monstrous energy and massive mass which is beyond any human ability to comprehend or imagine.

The only one with the power and ability to expand and sustain the universe must be way bigger than his universe to have the enough power and energy to sustain it and over come its mass and energy, truly this is beyond any human mind to comprehend or imagine, this is Allah the Almighty; Lord of the universe; the only one true God, Creator and Deity, Lord of Moses, Jesus, and Muhammad in Islam; the only true Abrahamic monotheistic religion of all past prophets and believers.

" (Holy Quran - Surah Al-Baqarah #. 2 - Verse 255)..

Allah.. The foot-stool of his seated throne does extend (encompasses) all over the entire multi-universe heavens and the earth (i.e. 7 Seven multi-universe heavens), and he feel no fatigue (tire) in guarding and preserving them for he is the Most High, Supreme in glory.

Prophet Muhammad Description of Allah; the Expander of the Universe: Allah is an atomic light (as the Sun) between him and his creation 70 layers of protection veil, each layer is larger than the universe it self, if Allah takes off the protection veil between him and his creation then all of the universe would burn up. The likeness of the entire universe (trillions x trillions of light years) to the foot-stool of Allah's throne is like a lost ring in a wide desert, and the likeness of the foot-stool to his throne is like a lost ring in wider desert. Allah wrote all the decrees and knowledge of his creation 50,000 years before existence. Between the ear lobe and the shoulder for one of his Angels among those who carries his throne is the travel distant of 700 years. Truly Allah is the only supreme deity and creator in glory and without him the universe will not expand.

#Third 3rd:. The Earth had Twin Suns (Stars); the Moon was a Shiny Baby Star:

One of the most greatest secrets in our solar system perhaps is the mystery of the moon. It's one of the most miraculous signs of our heavenly realms which no one could ever explain or resolve until now without the help and assistance of the only divine and intelligent book in the world; The Holy Quran has revealed something greatly astonishing in regards to the moon; no where else to be found in history, or even in the 21 century. The Quran spoken of the earth's early moon formation as a smaller baby star along side of the sun in our solar system. The Sunni Hadith's (i.e. Divine teachings of Prophet Muhammad) also confirmed that the earth's early moon was a star, more specifically the moon and the sun were two twins (stars) and the earth was full of light. The Quran also spoken of the early universe formation, the atmospheric layers and the solar system at a time when all people thought the earth was flat.

"" ((Holy Quran - Surah Al-Isra' #.17)) (i.e. Journey by Night) Verse 12:

12. And we made the night and the day as miraculous signs (i.e. the Sun and the moon use to be twin stars; before becoming the moon), then we erased with darkness (i.e. wiped out, turned off) the miraculous sign of the night (i.e. Billions of years ago; the Moon use to be a baby star during the earth's early formation before Allah erased-obliterated it to allow life to exist on the earth), while we have made the sign of the day (i.e. the Sun) as totally bright (i.e. illuminating), that you may seek the bounty of your lord, and so you may know the numbers of years and the calculation of time (i.e. reckoning), and we have explained every thing in details.

"" ((Holy Quran - Surah Mu'-Minun #.23)) (i.e. The Believers) Verse 17:

17. And indeed, we created above you seven layers (i.e. 7 seven atmospheric layers), we are never unmindful of our creation.



"" (( Holy Quran - Surah Al-Anbiya'a #.21)) (i.e. The Prophets and Messengers) Verse 33:

33. It is He who created the night and the day (i.e. solar system), and the sun and the moon. Each of them is floating in a course of an orbit.

- What about our modern day Moon is two pieces ? Twin Moons theory ? Massive Cleft in-between ?

In late of 2012, the world came to learn from planetary scientists in China and at the university of Santa Cruz, California, that our earthly moon is actually two twins.

The truth is in around "610 A.D" Prophet Muhammad was in his early mission at Makkah when his people mocked him demanding the miracle of splitting the moon in-order for them to believe (pagan opposition). Allah did indeed split the moon into two halves until the head for one of Mecca's mountains could be seen in-between the two halves of the moon before they accused Muhammad with black magic, yet the event was observed and recorded in India and China history tablets as strange & unbelievable night. Allah did indeed split the moon and kept it as a sign for the whole world to witness that Muhammad is his final Prophet and Messenger.

"Holy Quran Surah Al-Qamar (The Moon) #54. Verse 1:

The Hour has drawn near and the moon was (i.e cleft asunder) split in two. 2.Yet, whenever they see a sign, they turn away, saying; same old magic..etc

\_\_#Fourth 4th:.\_The General Theory of Relativity & Lorentz Time Dilation; 1400 years before Albert Einstein: ..

The Holy Quran has revealed the General theory of relativity and the wonder of the Lorentz time dilation before any man in history, using the example of Allah forces travel in time and space to declare his glory and wonder in the invisible realms of the universe. We in the other hand came to learn in the modern age how space and time; can warp and distort; to communicate the force of gravity and as such cause the flow of time to slow.

"" ((Holy Quran - Surah Al-Ma'arij #.70)) (i.e. Space Pathways of Ascents, Star Gates) Verse 3:

3. Allah, the Lord of the ways of ascents (i.e. star gates, space pathways, worm holes ) through which. 4. The Angels and the Holy spirit ascend unto him in a single day it measure whereof is 50,000 fifty thousand years.

Analysis

Allah forces travels faster than the speed of light warping space and distorting time to communicate the force of gravity and the infiltration of dimensions as in star gates and black holes:

1 Day/24 Hours travel = 50,000 Earthly Years.

(1 Hour/60 Minutes = 2083 Years).

(1 Minute/60 Seconds = 35 Years).

(1 Second = 7 Months).

Light travels 670 million miles per hour; and 16 billion + 80 million miles per day.

" Quran Surah As-Sajdah #.32 (i.e. The Prostration)- Verse 5 :

5- He manages and regulates (the order of all) affairs from the heavens to the earth; then it all ascend unto him in a single day (the measure) whereof is a 1000 thousand years of your reckoning..

Multi-Universe Space & Time Delay

1 Day = 1000 Earthly Years

(1Hour = 42 Years ).

(1Minute = 8 Months).

(1Second = 4 Days).

" Quran Surah Al-Waqiah #.56 (i.e. The Judgment Event) - Verse 75;

75. (Allah Swearing ) So I do swear by the geographical locations (i.e. settings, distance) of the stars. 76. And verily indeed that is a great oath if you but know (i.e. understand). 77. This is indeed an honorable (Noble) Holy Quran. 78. In a well preserved guarded tablet (in heaven). 79. Which none can touch except those who are purified (Angels).



" Quran Sruah Al-Ana'm #.6 (i.e. the Cattle) - Verse 125:

125. Whomever Allah wills to guide, He open their breast to Islam. But whomever He wills to leave astray, He makes their chest tight and constricted as if they were climbing up into the skies (i.e. low oxygen; pressure stress).

For more information visit the following:-

[www.MiraclesoftheQuran.com](http://www.MiraclesoftheQuran.com)

[www.Islam-guide.com](http://www.Islam-guide.com)

[www.CreationofUniverse.com](http://www.CreationofUniverse.com)

[www.IslamHouse.com](http://www.IslamHouse.com)

[www.Islamreligion.com](http://www.Islamreligion.com)

[www.Insight\\_magazine.com](http://www.Insight_magazine.com)

[www.Endoftimes.net](http://www.Endoftimes.net)

[www.Harunyahya.com](http://www.Harunyahya.com)

Some among the thousands strange wonders narrated from Prophet Muhammad.

1- It was narrated that Allah told his Holy spirit Angel Gabriel, He created a thousand of a thousand different creatures and civilizations neither one of them knew about Humanity or each other existence, nor they knew what's Adam or Satan, indeed all Allah has to do to create something is say be and it is done.

2- It was narrated that Allah created an alien planet world behind the earth's solar system which star and light is white, and inhabited by creatures called the spiritualists who worship Allah all day long.

3- It was narrated that Allah created the first (Human) Adam height (i.e. 60 arm length, cubits tall) and his descendants continue to be shorten until today. (indication how earth's gravity can effect the age and heights of the human race since the descent thousands of years ago).

4- The Animal kingdom is like a chain cycle, once the Locusts disappears (extinct) then all of the Animal kingdom will follow.

5- The Earth is good as long the stars are appearing, once the stars begun to disappear then Earth will go.

6- Allah appointed an Angel to keep the Sun in check contained by throwing ice balls on it and without doing so it would burn the whole earth. (indication of where the Sun spots come from and why the Sun surface is cooler than the corona).

7- The Earth to the Angel of Death is in likeness of a food bowl between his hands, each day He looks into each human face more than a thousand times and when he want to take someone soul he just grabs him.

8- The first thing Allah created is the Pen with the tablets of light created from emeralds and precious stone. He told the pen to write all things and decrees of all existence and then the pen wrote Satan will be created to take Adam out from paradise.

9- It was narrated that Prophet Muhammad said I see what you can't see and I hear what you can't hear; I can hear the heavens (universe shocks) sound waves and cracks, there is not a 5 fingers of space but has an Angel bowing down to Allah. ( indication of the new space wrinkles and shock waves detected by scientist in 2019).



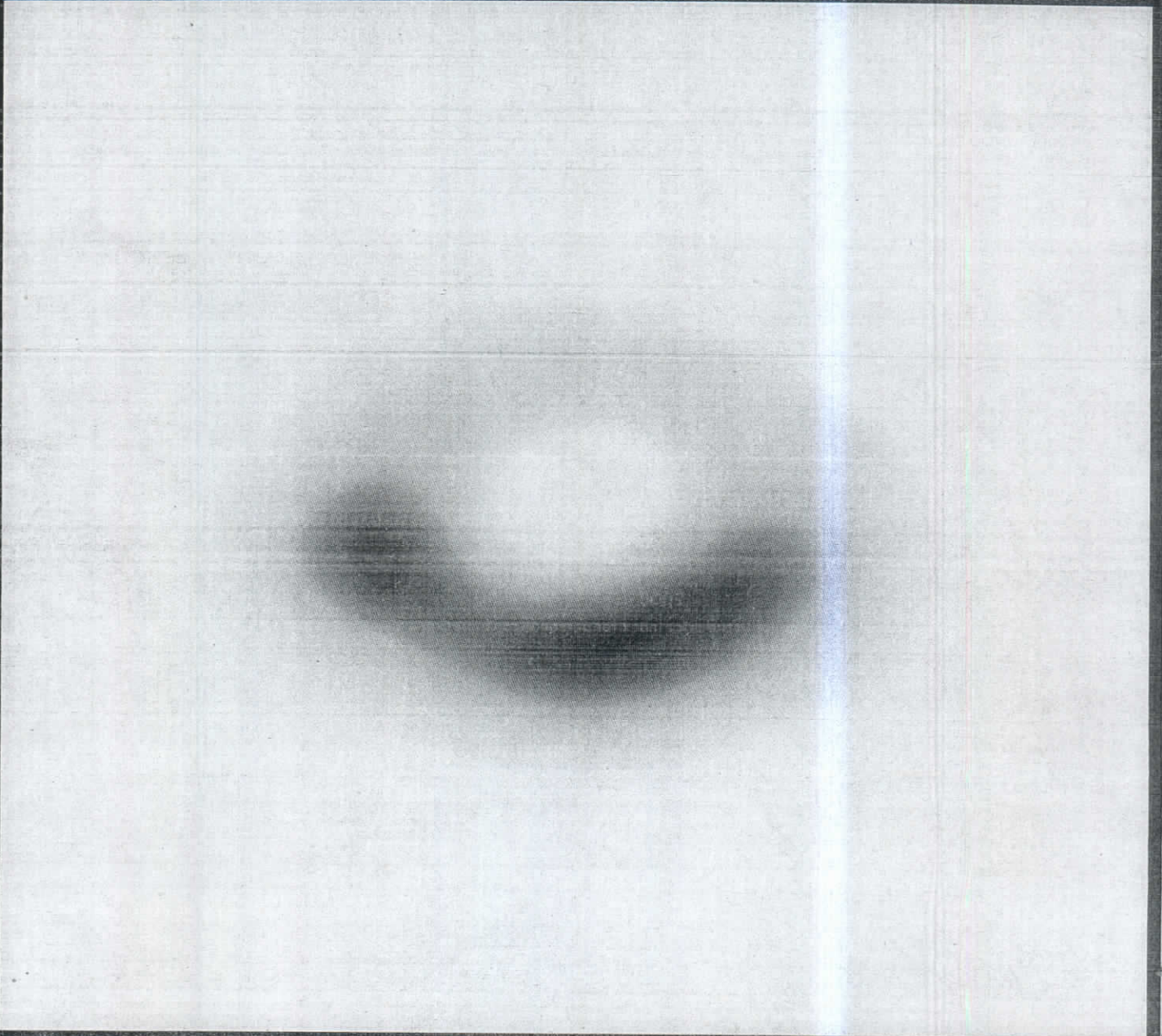
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NATIONAL SCIENCE FOUNDATION/GETTY IMAGES

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The picture, assembled from data gathered by eight radio telescopes around the world, shows the hot, shadowy lip of a supermassive black hole, one

of the light-sucking monsters of the universe theorized by Albert Einstein more than a century ago and confirmed by observations for decades. It is along this edge that light bends around itself in a cosmic funhouse effect.

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See HOLE • Page A9

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# Humanity gets its first look at a black hole

## HOLE • FROM A1

about 200 scientists from 20 countries, announced as the colorized orange-and-black picture was unveiled.

University of Waterloo physicist Avery Broderick, a co-discoverer, declared: "Science fiction has become science fact."

In fact, Jessica Dempsey, a co-discoverer and deputy director of the East Asian Observatory in Hawaii, said the fiery circle reminded her of the flaming Eye of Sauron from the "Lord of the Rings" trilogy.

Unlike smaller black holes that come from collapsed stars, supermassive black holes are mysterious in origin. Situated at the center of most galaxies, including ours, they are so dense that nothing, not even light, can escape their gravitational pull. This one's "event horizon" — the precipice, or point of no return, where light and matter begin to fall inexorably into the hole — is as big as our entire solar system.

Three years ago, scientists using an extraordinarily sensitive observing system heard the sound of two much smaller black holes merging to create a gravitational wave, as Einstein predicted. The new image, published in the *Astrophysical Journal Letters* and announced around the world, adds light to that sound.

The image helps confirm Einstein's general theory of relativity. Einstein a century ago even predicted the symmetrical shape that scientists found.

The picture was made with equipment that detects wavelengths that can't be seen by the human eye, so astronomers added color to convey the ferocious heat

of the gas and dust, glowing at a temperature of perhaps millions of degrees. But if a person were to somehow get close to this black hole, it might not look quite like that, astronomers said.

The black hole is about 6 billion times the mass of our sun and is in a galaxy called M87 that is about 53 million light-years from Earth. One light-year is 5.9 trillion miles.

Black holes are the "most extreme environment in the known universe," Broderick said, a violent, churning place of "gravity run amok."

While much of the matter around a black hole gets sucked into the vortex, never to be seen again, the new picture captures gas and dust that are lucky to be circling just far enough to be safe and to be seen millions of years later on Earth.

A black hole's gravity creates a funhouse effect where you can see light from both behind the black hole and behind you as the light curves and circles around the black hole.

Despite decades of study, there are a few people who deny black holes exist, and this work shows that black holes do exist, said Boston University astronomy professor Alan Marscher, a co-discoverer.

The project cost \$50 million to \$60 million, with \$28 million of that coming from the National Science Foundation. The same team has gathered even more data on a black hole in the center of our galaxy, but scientists said the object was so jumpy they don't have a good picture yet.

The telescope data were gathered two years ago, over four days when the weather had to be just right all around the world.



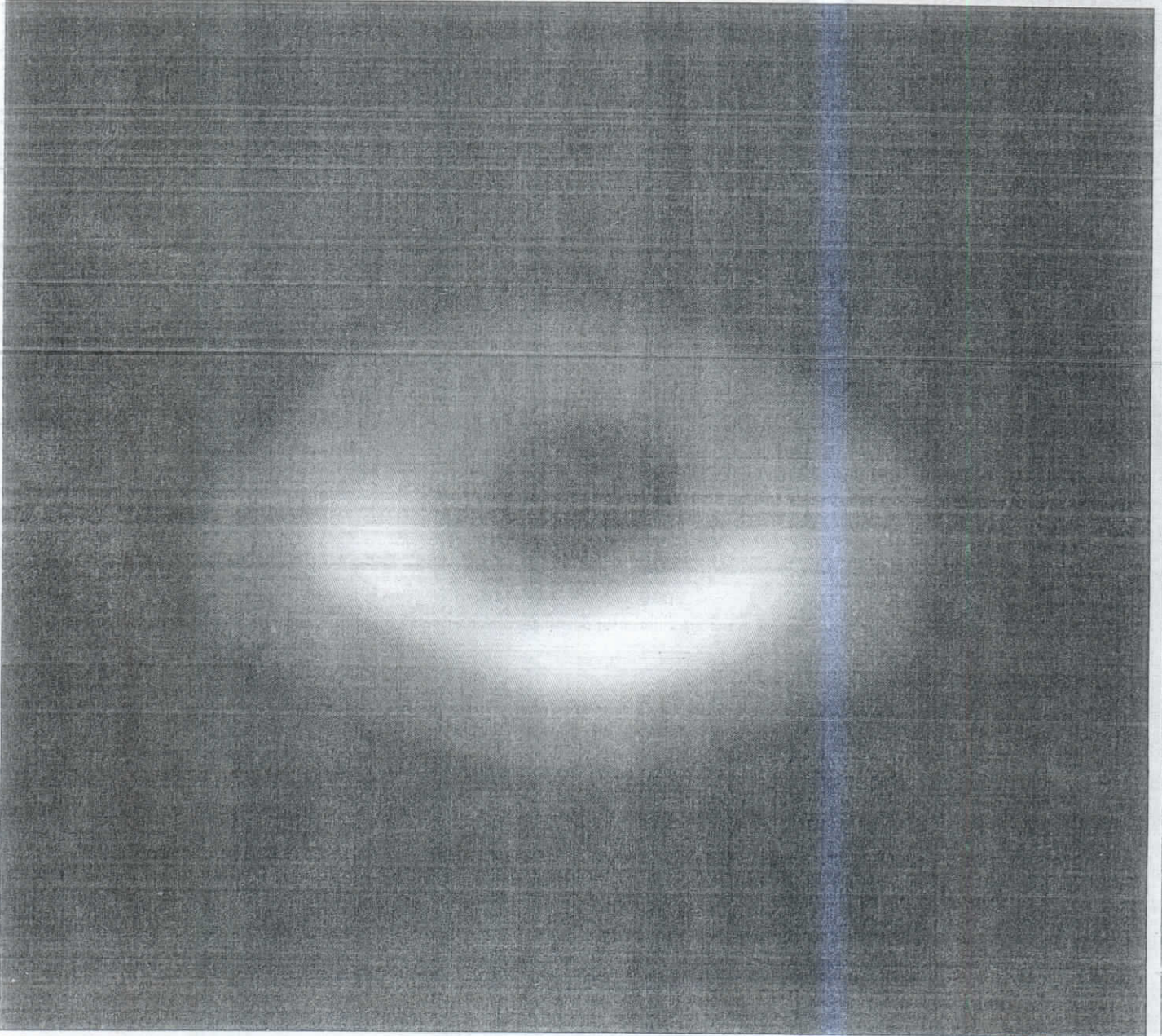
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## U.S. NEWS

# Black Hole Is Seen for First Time

By DANIELA HERNANDEZ  
AND BRIANNA ABBOTT

Scientists revealed the first image of a black hole, providing a peek at an object once thought to be unseeable and confirming some of Albert Einstein's longstanding theories about general relativity.

The image released Wednesday, of a black hole at the center of a galaxy roughly 55 million light years from Earth, shows a fuzzy ring of oranges and yellows surrounding a dark center, where light is trapped by the object's massive gravitational pull.

"It's the first time we actually have an image of such an important and fascinating object. Every single image you've ever seen—whether it's been in scientific releases or TV shows or movies—has been an artist's impression. This is actually seeing the thing itself," said Clifford Johnson, a physicist and black-hole expert at the University of Southern California.

Until now, scientists had only indirect evidence of the existence of black holes, such as gravitational waves emanating from them. The image is the first direct evidence of one, said Dr. Johnson, who wasn't involved in the work.

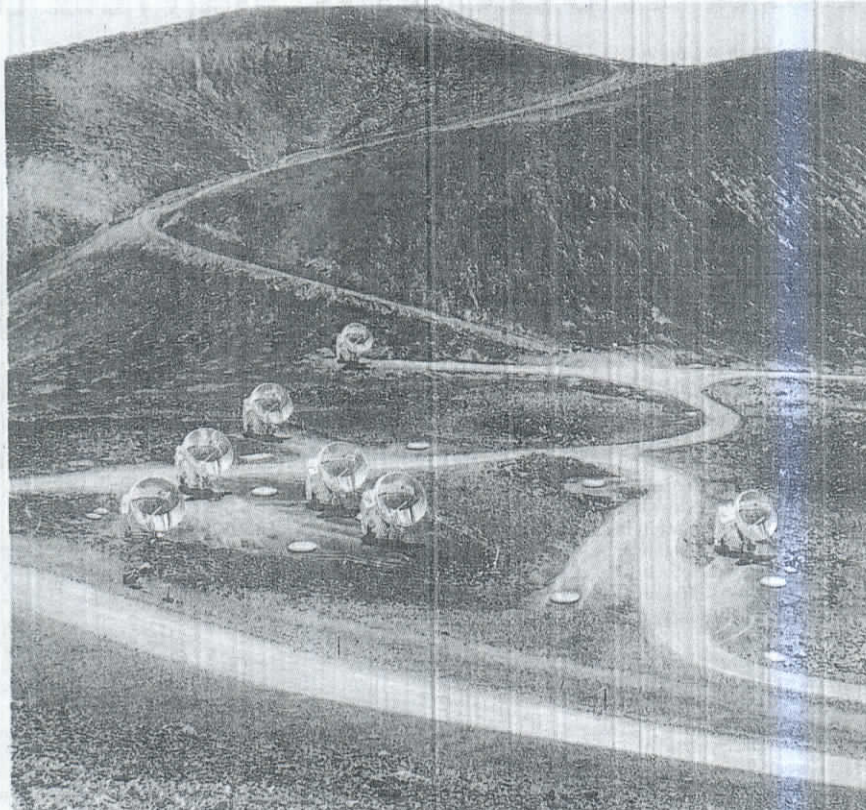
Among researchers who have spent years trying to learn more about the objects, the image evoked a sense of astonishment, wonder, disbelief and surprise.

"It did bring tears to my eyes," said France Cordova, director of the National Science Foundation, which helped fund the research. "This is a very big deal."

A black hole is a region of space so dense and compact that it creates a gravitational pull from which matter or even light can't escape.

Every large galaxy has a supermassive black hole at its center, researchers believe. Many other black holes, called stellar black holes, are caused by stars collapsing in on themselves. They had long been considered unseeable because of their light-devouring nature. Einstein himself didn't like the idea of black holes, though his theory of general relativity predicted them.

Mounting evidence, however, began supporting the prediction, and the first black



Hawaii's Mauna Kea Observatories formed part of the network of telescopes that captured the image.

## Sifting Through the Data for the Image

Computer scientists were key to producing the first-ever image of a black hole. Katie Bouman, a postdoctoral researcher at the Harvard-Smithsonian Center for Astrophysics, helped develop new methods to sift through data from telescopes around the world. She spoke to *The Wall Street Journal* on Wednesday.

### How did you get involved in the project?

"I was always interested in computer vision, which is all about understanding images. I tagged along with my [graduate school] adviser to a talk about [the Event Horizon Telescope project] in late 2013.

They were excited about getting more people to work on the imaging side of the project. I didn't understand much about black holes...but I wanted to work on this project."

### Tell us about the algorithms.

"We used traditional algorithms for radio interferometry [a tool that links multiple radio antennas together]. Their strength is that people understand them. But they require a lot of human intervention and guidance. We've been developing new methods to try to remove the human altogether from the equation."

### Why is the analysis so difficult?

"There are an infinite number of images that can fit the data. You have to point your telescope at the source, and

hole was detected in 1971.

Nevertheless, scientists were forced to rely for years on mathematical predictions to understand the properties

that's hard to do. We would get drifts. We had to algorithmically try to fix that."

### What was the process like?

"We separated ourselves into four teams. Individually, those teams reconstructed their best image from the data, without speaking to each other. After about a month, we came together in Cambridge, Mass. We sat in a room and we showed our best images at the exact same moment."

### What's next?

"We want to develop methods that process the data to get a movie. That's necessary for [studying] other black holes that evolve on much shorter time scales. I really love coming up with new methods that allow us to image things that are invisible to traditional sensors."

—Daniela Hernandez

of the stellar objects. "It's extraordinary to find ourselves at a moment when it's not just math anymore," said Shane Larson, a Northwestern Uni-

versity astrophysicist who wasn't involved in capturing the image.

The international collaboration of researchers took ad-

vantage of some properties that allowed for this kind of photo, including black holes' ability to heat their surroundings to extreme temperatures.

"We can only see it by looking at its ecosystem," said Daryl Haggard, a project collaborator who is a McGill University physics professor.

The image isn't like the kind people take on their cell-phones—of light reflecting off an object. Instead, it was created by capturing radio waves.

Nor is the image a snapshot taken by a single camera. Rather, it was taken by radio telescopes scattered around the planet that were linked together to form a giant, Earth-size virtual telescope.

To get the image, scientists trained their telescopes on the black hole for roughly two weeks. The data from the telescopes were combined by supercomputers in Germany and the U.S., and were then used to produce the image.

The dark center inside the ring captured by the image is known as the black hole's shadow, which is where matter and light are trapped. The ring is created by the massive gravitational pull bending light as it approaches the black hole.

The scene looks as if particles of light, called photons, were trying to climb out of the black hole.

Einstein's equations predicted the appearance of the photon ring and its accompanying shadow.

The object in the image is 6.5 billion times as massive as the Sun, according to the researchers.

Scientists emphasized that the image—and six studies that were published to accompany the announcement—were a kickoff to more scientific exploration to come.

Much remains unknown about the objects. It is unclear, for example, how supermassive black holes like the one pictured form and gain mass. Researchers also debate the physics of black holes.

Another goal is capturing even better images, researchers said. They also hope to use algorithms to sharpen the pictures. They plan to add more telescopes to the network to improve resolution, they said, and would like to put a telescope in orbit eventually.



## HUMAN CAPITAL

CAPTAIN CLASS | SAM WALKER



In the mid-1990s, Sheperd Doleman, a doctoral student in astrophysics at MIT, became fixated on a radical idea. He thought it might be possible to take a picture of a black hole.

In a literal sense, the answer was no, it's not—don't be ridiculous. Black holes are fields of intense gravity from which no matter, or light, escapes. Besides, the only conventional way to see an object across 55 million light years of space is to build a telescope dish the size of Earth. (Good luck writing that grant application.)

The budding astronomer obviously knew this, but he suspected there might be a hack. It wouldn't be easy. And it would require an unprecedented collaboration by scientists all over the world.

For years, Dr. Doleman struggled to raise funds for his long-shot project. In 2008, a small technical breakthrough tipped the scales. The idea, he told me, "went from being impossible to improbable to having real potential."

The project, called Event Horizon Telescope, would ultimately raise more than \$40 million and convince 60 institutes in 20 nations to offer resources, including eight of the world's most expensive telescopes. Before all of that, however, Dr. Doleman needed a team.

His comrades had to be both obsessive and unfazed by the prospect of failure; self-starters who could operate independently in a startup environment. Above all, he says, they had to embrace a culture of trust.

As determined as he was, Dr. Doleman knew he was wading into the deep end. In business, any leader who bets audaciously on a new product or market position knows their work will be judged by the money it makes. In research, where the only currency is knowledge, experiments only succeed if the scientific community accepts the findings.

Put simply, Dr. Doleman, now an astronomer at the Harvard-Smithsonian Center for Astrophysics, was about to gamble his career on a plan he was not certain he could execute and whose findings could be discarded over a single misstep. "It was like jumping off a cliff and building a parachute on the way down," he says.

### If there's a takeaway, it's about the power of a high bar, dissent and ruthless self-criticism.

The only way to "see" a black hole is to capture an image of its shadow. Rather than building one massive telescope, the EHT team wanted to combine the perspectives of many existing ones. Instead of taking pictures, they would capture signals from electromagnetic waves tumbling around the black hole's invisible contours. By feeding that data through an imaging algorithm, they hoped to construct a virtual rendering.

Dr. Doleman's small team slowly grew to an army of 200 ranging from veterans like Sera Markoff, a theoretical astrophysicist at the University of Amsterdam, to postdoctoral fellows like Kazuomi Aki-

# Shining a Light on a Black Hole

The vetting process behind an astronomical breakthrough; how four teams worked independently to eliminate bias and be certain their image was correct



The team members in an October 2017 meeting, above. Below, Sheperd Doleman, at the lectern, announces the first-ever image of a black hole.

yama, who co-lead the imaging group. As they puzzled over how to retrofit telescopes with atomic clocks or ship hard drives from the South Pole, Dr. Doleman gave them wide latitude to improvise.

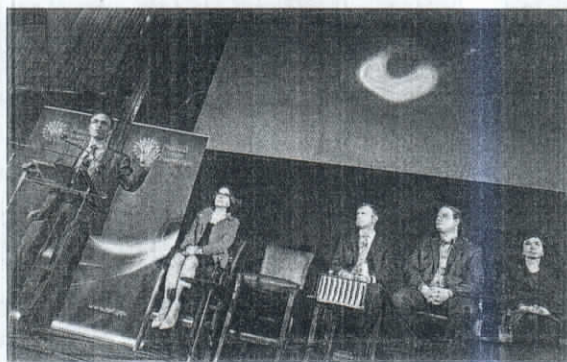
In April 2017, eight telescopes from Chile to Hawaii simultaneously focused on the same supermassive black hole, collecting five petabytes of wave-signal data. Once the data had been processed, the team held four exhaustive all-hands meetings to review it. The next step—reducing it all down to a single image—was the trickiest. This was where bias might creep in.

Analysts working in fields like intelligence or meteorology often make predictions that impact millions of lives. The persistent danger is that whatever they want to believe, or assume to be true, will override their objectivity.

On business teams, the central enemy is groupthink, which occurs when a group's natural urge to seek agreement leads to catastrophically ill-advised decisions.

The chief threat to the EHT imaging team was the consensus that black holes look like rings. To build an algorithm that predicts what data might "look" like, they would have to make hundreds of assumptions. If they harbored any prejudice, even subconsciously, they might corrupt the formulas to produce nothing but rings.

To test their algorithms for bias, the imaging team generated "fake" data designed to evoke other shapes; a crescent, even a snow-



man. If the algorithms still spit out rings, they were clearly biased.

After clearing that bar, the team split into four groups. They were given separate algorithms and sent to four distinct locations to run the telescope data. In July 2018, the four groups reconvened in Cambridge, Mass. Although they used different algorithms, a similar-size ring appeared in each of them, always brighter in the south. "That's when we knew we had something," Dr. Doleman says.

In a final bias test, the team used telescopes to collect data from oddly shaped celestial objects to make sure the algorithms translated those correctly. After two more teamwide reviews, they decided to accept three of the black-hole images and combine

them into one.

The last hurdle was to write six academic papers, submit them to journals for peer review and wait for them to be accepted.

Finally, at a news conference on April 10, Dr. Doleman unveiled the final image—a dark circular void surrounded by flares of orange and yellow. "We have seen what we thought was unseeable," he said. "We have seen and taken a picture of a black hole."

Some prominent skeptics weren't so sure. George Capline, a physicist at Lawrence Livermore National Laboratories, says it's "way premature" for the team to claim it "saw" a black hole. Nevertheless, he said the team's findings seem both solid and significant. "The technical accomplishment was

quite amazing."

In science, "not everyone needs to be convinced," Dr. Doleman says. As far as he's concerned, he considers the image "the biggest return on an investment in the history of astronomy."

If there's a lesson to draw here, it's about setting the bar high, distributing authority, encouraging collaboration across disciplines and, most of all, being relentlessly self-critical. "At every point we encouraged dissent and debate, looked at different viewpoints and interrogated the algorithms," Dr. Doleman says. "We had done so much work that when nature smiled on us, we were ready."

In the torrent of post-announcement coverage, Katie Bouman, a 29-year-old computer scientist, was anointed by the media as the team's chief algorithmic architect. Her response said a lot about the nature of the group. "I don't know why I'm getting so much press," she told PBS. "Lots of people processing those petabytes of data—that's what made it possible."

For Dr. Doleman, the long pursuit of an image yielded something else he hadn't expected. The more time passes, he says, "the more I'm just proud of the team. I think of the team as the thing that was built here."

—Mr. Walker, a former reporter and editor at *The Wall Street Journal*, is the author of *"The Captain Class: The Hidden Force That Creates the World's Greatest Teams"* (Random House).



WILCZEK'S UNIVERSE  
FRANK WILCZEK

## Face to Face With a Cosmic Wonder



**ON APRIL 10**, astronomers working with the Event Horizon Telescope unveiled a "photograph" of the monstrous black

hole that sits at the center of the M87 galaxy, 54 million light years away. Viewed simply as an image, it is neither impressive nor straightforward: It presents a sort of nondescript, blurry, half-glazed doughnut, showing not the black hole itself but the shadow-like distortion it carves in the surrounding illumination. Yet, to a thinking mind, the image reflects the glory of understanding, and to an alert imagination it opens new portals into space, time and deep history.

The making of the image was a tour de force of science and technology. The black hole is enormous, with a radius of roughly 9 billion miles (or one hundred times the distance from the Earth to the sun) and a mass equivalent to two quadrillion Earths. But because it is so far away, it occupies only a tiny portion of the sky, so we must use a very large, exotic telescope to see it. In fact, the Event Horizon Telescope isn't a single instrument but a system of eight radio dishes at six far-flung locations in Hawaii, Arizona, Spain, Mexico, Chile and Antarctica. Astronomers used precise atomic clocks, accurate within a trillionth of a second, to synchronize data from all these places and then stitched it all together using supercomputers.

The concept of a black hole goes back to the 18th century, when the English astronomer-clergyman John Michell calculated that a sufficiently large star couldn't shine because light wouldn't move fast enough to "lift off" and escape the star's gravity. But Michell's conjecture outran the physics of its time, which didn't understand light, gravity or stars well enough to support it.

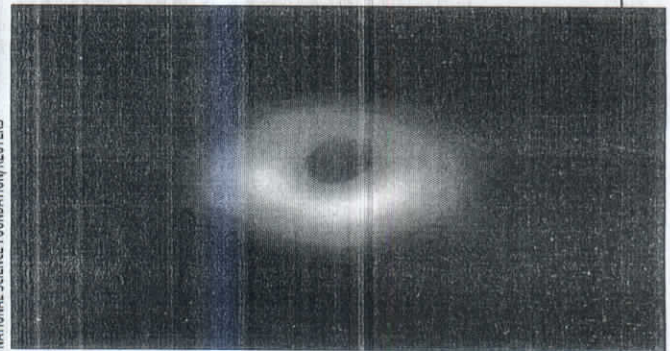
The foundations for the modern understanding of black holes weren't laid until the early 20th century, building on James Clerk Maxwell's theory of electromagnetism and Albert Einstein's theory of relativity. In 1939, J. Robert Oppenheimer and Hartland Snyder wrote "On Continued Gravitational Contraction," the most important paper in the history of black holes. They considered what would happen to a dust cloud of any size and uniform density as it collapses through the force of gravity. Observers within the dust cloud would find themselves surrounded by matter, and they would experience a universe broadly resembling our own, which would eventually end in a "big crunch." But observers outside the collapsing cloud would see it wink out into a black hole, as gravity at its boundary increases beyond the ability of light—or any form of matter—to escape.

Oppenheimer and Snyder's work made it clear that black holes were a plausible outcome of known physical processes. It also makes the astonishing suggestion that a black hole can be a universe and vice versa, differently viewed. I don't think physics has fully digested this idea, even today.

It would be surprising if M87's black hole revealed fundamentally new physical processes. Such gigantic black holes have low density and exert only weak forces on the outside, albeit on a grand scale. But by comparing and contrasting the central black holes in different galaxies, we will learn about how galaxies form and evolve. Our own Milky Way galaxy also harbors a central, giant black hole, hidden from direct observation by enshrouding dust.

Seeing the black hole image, my mind flashed back to an earlier iconic image, the "Earthrise" captured by Apollo 8. The black hole is much bigger and more imposing, as a physical object, but also much less complex—not to mention less user-friendly—than our Earth. It's a wonderful world that is home to both.

NATIONAL SCIENCE FOUNDATION/REUTERS





# Check your compass: Magnetic north pole is on move

Update on location is earlier than usual; GPS is unaffected

BY SETH BORENSTEIN

Associated Press

**WASHINGTON** • True north isn't quite where it used to be.

Earth's north magnetic pole has been drifting so fast in the last few decades that scientists that past estimates are no longer accurate enough for precise navigation. On Monday, they released an update of where true north really was, nearly a year ahead of schedule.

The magnetic north pole is wandering about 34 miles a year. It crossed the international date

line in 2017, and is leaving the Canadian Arctic on its way to Siberia.

The constant shift is a problem for compasses in smartphones and some consumer electronics. Airplanes and boats also rely on magnetic north, usually as backup navigation, said University of Colorado geophysicist Arnaud Chulliat, lead author of the newly issued World Magnetic Model. GPS isn't affected because it's satellite-based.

The military depends on where magnetic north is for navigation and parachute drops, while NASA, the Federal Aviation Administration and U.S. Forest Service also use it. Airport runway names are based on their direction toward magnetic north and their names change when the

poles moved. For example, the airport in Fairbanks, Alaska, renamed a runway 1L-19R to 2L-20R in 2009.

The U.S. National Oceanic and Atmospheric Administration and United Kingdom tend to update the location of the magnetic north pole every five years in December, but this update came early because of the pole's faster movement.

The movement of the magnetic north pole "is pretty fast," Chulliat said.

Since 1831 when it was first measured in the Canadian Arctic it has moved about 1,400 miles toward Siberia. Its speed jumped from about 9 mph to 34 mph since 2000.

The reason is turbulence in Earth's liquid outer core. There

is a hot liquid ocean of iron and nickel in the planet's core where the motion generates an electric field, said University of Maryland geophysicist Daniel Lathrop, who wasn't part of the team monitoring the magnetic north pole.

"It has changes akin to weather," Lathrop said. "We might just call it magnetic weather."

The magnetic south pole is moving far slower than the north.

In general Earth's magnetic field is getting weaker, leading scientists to say that it will eventually flip, where north and south pole changes polarity, like a bar magnet flipping over. It has happened numerous times in Earth's past, but not in the last 780,000

years.

"It's not a question of if it's going to reverse, the question is when it's going to reverse," Lathrop said.

When it reverses, it won't be like a coin flip, but take 1,000 or more years, experts said.

Lathrop sees a flip coming sooner rather than later because of the weakened magnetic field and an area over the South Atlantic has already reversed beneath Earth's surface.

That could bother some birds that use magnetic fields to navigate. And an overall weakening of the magnetic field isn't good for people and especially satellites and astronauts. The magnetic field shields Earth from some dangerous radiation, Lathrop said.



## \_\_\_\_\_ Extinction is Coming! Climate Change & Global Warming; Magnetic North Pole is on the Move ? \_\_\_\_\_

Gretta Gretta !!

This is truly is an amazing event, scientist juts confirmed what's prophet Muhammad has already promised in his prophecies concerning the end of times final days apocalypse in the major signs of the hour.

Scientist has confirmed that the movement of the magnetic north pole is "pretty fast". Since 1831 when it was first measured in the Canadian arctic it has moved about 1,400 miles toward Siberia. Its speed jumped from about 9 mph to 34 mph since 2000. The main reason is turbulence in Earth's liquid outer core. There is a hot liquid ocean of iron and nickel in the planet's core where the motion generates an electric field. This has changes akin to weather; like magnetic weather. While the south pole moving slower. In general Earth's magnetic field is getting weaker where it will eventually flip, where north and south pole changes polarity, especially the magnetic area over the South Atlantic which has already reversed beneath Earth surface.

Islam's final and most greatest seal of prophets Muhammad has promised in his prophecies that the Earth's will flip at the very end of the caliphate apocalypse in which the Earth will stop still for a few days in darkness with a long night before the Sun will finally rise up from the west to the east in a reversal course to the normal motion indicating a total flip effecting the whole earth movement in the solar system around the Sun. Muslims believe this will be the final sign in which the doors of repentance will be shut closed forever in preparation for the collapse of the universe and the day of resurrection for day of judgment.

Prophet Muhammad also promised 3 intercontinental massive earth quakes which will struck the Earth's East, West, and at last will cause the swallowing of the Arabian peninsula with global volcanic fire eruption starting from the bottom city of Aden in Yemen.

Prophet Muhammad also spoken of the climate change as a divine destination part of the end times caliphate apocalypse. He specifically spoken of the Earth time-line changes where today's Scandinavian countries time-lines will eventually change and moves toward the Middle East in a sign on how the whole world will be effected by changes in climate and time zone.

Prophet Muhammad has mention specific signs for the close end of climate change and earth's magnetic field.

- 1- (3) three continuous years of famine and drought (40%, 80%, and 100%) around 2050.
- 2- Extreme deaths among, plants, animals and humans.
- 3- The most important sign is the dry up of water in the Jordan valley (Dead Sea, Jordan River, Galilee and Tiberias).
- 4- Increase lightening and storms in which people will ask each others about who was struck by lightening the day before.
- 5- Acidic rain in which houses of brick will not protect ( result of radiation from nuclear wars effect).
- 6- Collapse of world governments & scientific institutions after world war in preparation for the Dajjal (Zionist false messiah).
- 7- Civil unrest, wars and anarchy.
- 8- Time zone changes in Middle East and around the world.
- 9- The Moon increase in size; indication of effect by magnetic fields where Earth and Moon become closer in distant.
- 10- More wars & Anarchy in the world, Middle East and specifically Iraq and Syria, the Euphrates uncovers a mountain of gold.
- 11- Collapse of the industrial age and modern day technology.
- 12- Earth quakes, violent weather and volcanic eruptions.
- 13- North Pole and South Pole flip of positions.
- 14- The Rise of the Sun from the West to the East.
- 15- Collapse of the solar system and the universe crunch.



- Summary of Other Prophecies by Prophet Muhammad in Regard to Climate Change and the End times:

- 1- Black flags rising from Khorassan (Afghanistan Mujahedeen era).
- 2- Siege Iraq and then Syria by the Romans. ( U.S, Allies, and Russian invasion of Iraq and Syria 1990-2019).
- 3- Return of the Caliphate flag and ideology fighting armies (Until caliph Al Mahdi; the chosen guided one takes over).
- 4- Return of all Zionist Jews to the Holy land in preparation for the emergence of their false messiah the Dajjal (Anti-Christ).
- 5- Fighting and tribulation like a blinding smoke, collapse of the Middle East governance and return of the guided Caliphate.
- 6- Peace treaty and capture of Jerusalem from the Jewish Zionist occupation.
- 7- Peace treaty with Europeans against a common enemy invaded them from behind (U.S, Russia, China, Korea, Iran, Syria?).
- 8- Nuclear wars and collapse of modern era, including all international currency systems.
- 9- Peace treaty collapse; Fighting between the Muslims caliphate forces and Europeans Christian armies.
- 10- Muslims victory and conquer of Rome after European/American defeat with much deaths on both sides.
- 11- Appearance of the Anti Christ - Dajjal for his Zionist Jews loyal soldiers.
- 12- Descent of Islamic prophet (Jesus) Esa the Messiah Son of Mary'am in Damascus to lead the rest of the caliphate forces to liberate Palestine and kill all his enemies among Zionist and followers of the false messiah (Dajjal).

For More Details - Google; ( the End of times, Dajjal, Caliphate of Al Mahdi, Major and Minor Signs of the Hour by Prophet Muhammad ) .



### 8. Science:

The Quran, which was revealed fourteen centuries ago, mentioned facts only recently discovered or proven by scientists. This proves without doubt that the Quran must be the literal word of God, revealed by Him to the Prophet Muhammad ﷺ, and that the Quran was not authored by Muhammad ﷺ or by any other human being. This also proves that Muhammad ﷺ is truly a prophet sent by God. It is beyond reason that anyone fourteen hundred years ago would have known these facts discovered or proven only recently with advanced equipment and sophisticated scientific methods. Some examples follow:<sup>32,33</sup>

#### A) The Quran on Human Embryonic Development:

In the Holy Quran, God speaks about the stages of man's embryonic development:

{ We created man from an extract of clay. Then We made him as a drop in a place of settlement, firmly fixed. Then We made the drop into an *alaqah* (leech, suspended thing, and blood clot), then We made the *alaqah* into a *mudghah* (chewed substance)... } [23:12-14]

Literally, the Arabic word *alaqah* has three meanings: (1) leech, (2) suspended thing, and (3) blood clot.

In comparing a leech to an embryo in the *alaqah* stage, we find similarity between the two<sup>34</sup> as we can see in figure 1. Also, the embryo at this stage obtains nourishment from the blood of the mother, similar to the leech, which feeds on the blood of others.<sup>35</sup>

The second meaning of the word *alaqah* is "suspended thing." This is what we can see in figures 2 and 3, the suspension of the embryo, during the *alaqah* stage, in the womb of the mother.

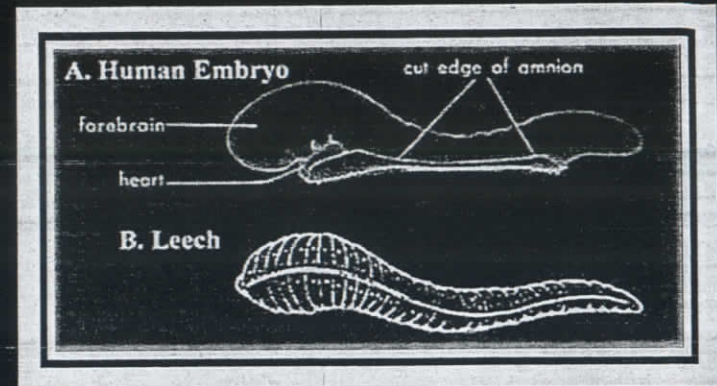


Figure 1: Drawings illustrating the similarities in appearance between a leech and a human embryo at the *alaqah* stage. (Leech drawing from *Human Development as Described in the Quran and Sunnah*, Moore and others, p. 37, modified from *Integrated Principles of Zoology*, Hickman and others. Embryo drawing from *The Developing Human*, Moore and Persaud, 5th ed., p. 73.)

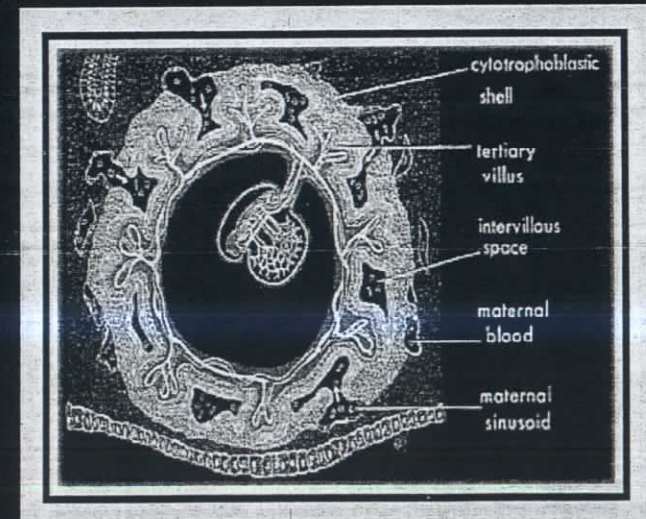
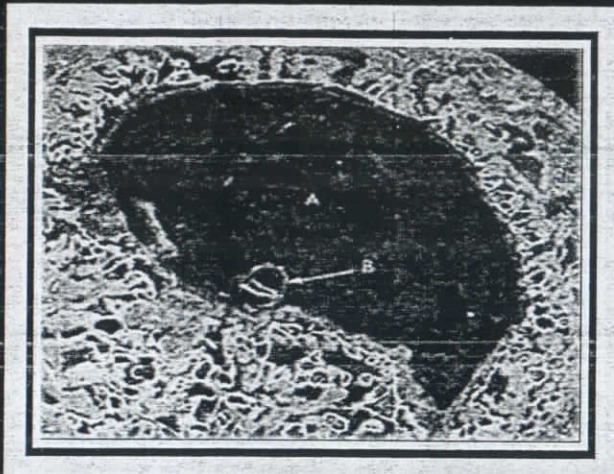


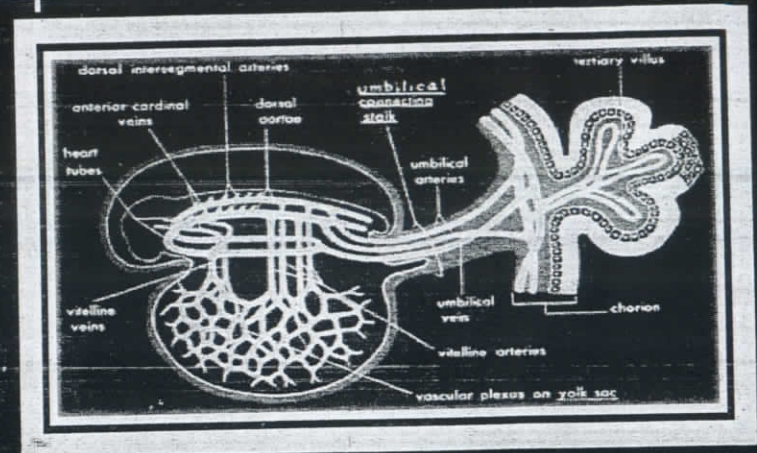
Figure 2: We can see in this diagram the suspension of an embryo during the *alaqah* stage in the womb (uterus) of the mother. (*The Developing Human*, Moore and Persaud, 5th ed., p. 66.) (Click on the image to enlarge it.)





**Figure 3:** In this photomicrograph, we can see the suspension of an embryo (marked B) during the alaqah stage (about 15 days old) in the womb of the mother. The actual size of the embryo is about 0.6 mm. (The Developing Human, Moore, 3rd ed., p. 66, from Histology, Leeson and Leeson.)

The third meaning of the word *alaqah* is “blood clot.” We find that the external appearance of the embryo and its sacs during the *alaqah* stage is similar to that of a blood clot. This is due to the presence of relatively large amounts of blood present in the embryo during this stage<sup>36</sup> (see figure 4). Also during this stage, the blood in the embryo does not circulate until the end of the third week.<sup>37</sup> Thus, the embryo at this stage is like a clot of blood.



**Figure 4:** Diagram of the primitive cardiovascular system in an embryo during the *alaqah* stage. The external appearance of the embryo and its sacs is similar to that of a blood clot, due to the presence of relatively large amounts of blood present in the embryo. (The Developing Human, Moore, 5th ed., p. 65.)

So the three meanings of the word *alaqah* correspond accurately to the descriptions of the embryo at the *alaqah* stage.

The next stage mentioned in the verse is the *mudghah* stage. The Arabic word *mudghah* means “chewed substance.” If one were to take a piece of gum and chew it in his or her mouth and then compare it with an embryo at the *mudghah* stage, we would conclude that the embryo at the *mudghah* stage acquires the appearance of a chewed substance. This is because of the somites at the back of the embryo that “somewhat resemble teethmarks in a chewed substance.”<sup>38</sup> (see figures 5 and 6).

How could Muhammad ﷺ have possibly known all this 1400 years ago, when scientists have only recently discovered this using advanced equipment and powerful microscopes which did not exist at that time? Hamm and Leeuwenhoek were the first scientists to observe human sperm cells (spermatozoa) using an improved microscope in 1677 (more than 1000 years after Muhammad ﷺ). They mistakenly thought that the sperm cell contained a miniature preformed human being that grew when it was deposited in the female genital tract.<sup>39</sup>



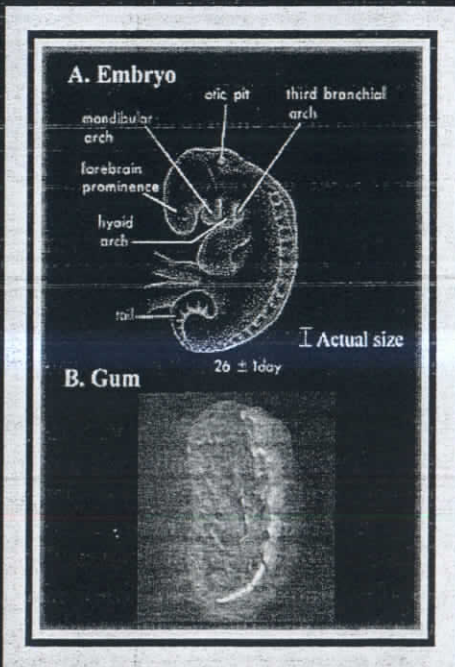
**Figure 5:** Photograph of an embryo at the mudghah stage (28 days old). The embryo at this stage acquires the appearance of a chewed substance, because the somites at the back of the embryo somewhat resemble teeth marks in a chewed substance. The actual size of the embryo is 4 mm. (The Developing Human, Moore and Persaud, 5th ed., p. 82, from Professor Hideo Nishimura, Kyoto University, Kyoto, Japan.)



**Figure 6:** When comparing the appearance of an embryo at the mudghah stage with a piece of gum that has been chewed, we find similarity between the two.

A) Drawing of an embryo at the mudghah stage. We can see here the somites at the back of the embryo that look like teeth marks. (The Developing Human, Moore and Persaud, 5th ed., p. 79.)

B) Photograph of a piece of gum that has been chewed.



Professor Emeritus Keith L. Moore is one of the world's most prominent scientists in the fields of anatomy and embryology and is the author of the book entitled *The Developing Human*, which has been translated into eight languages. This book is a scientific reference work and was chosen by a special committee in the United States as the best book authored by one person. Dr. Keith Moore is Professor Emeritus of Anatomy and Cell Biology at the University of Toronto, Toronto, Canada. There, he was Associate Dean of Basic Sciences at the Faculty of Medicine and for 8 years was the Chairman of the Department of Anatomy. In 1984, he received the most distinguished award presented in the field of anatomy in Canada, the J.C.B. Grant Award from the Canadian Association of Anatomists. He has directed many international associations, such as the Canadian and American Association of Anatomists and the Council of the Union of Biological Sciences.

In 1981, during the Seventh Medical Conference in Dammam, Saudi Arabia, Professor Moore said: "It has been a great pleasure for me to help clarify statements in the Quran about human development. It is clear to me that these statements must have come to Muhammad ﷺ from God, because almost all of this knowledge was not discovered until many centuries later. This proves to me that Muhammad ﷺ must have been a messenger of God."<sup>40</sup>

Consequently, Professor Moore was asked the following question: "Does this mean that you believe that the Quran is the word of God?" He replied: "I find no difficulty in accepting this."<sup>41</sup>

During one conference, Professor Moore stated: "...Because the staging of human embryos is complex, owing to the continuous process of change during development, it is proposed that a new system of classification could be developed using the terms mentioned in the Quran and *Sunnah* (what Muhammad ﷺ said, did, or approved of). The proposed system is simple, comprehensive, and conforms with present embryological knowledge. The intensive studies of the Quran and *hadeeth* (reliably transmitted reports by the Prophet Muhammad's ﷺ companions of what he said, did, or approved of) in the last four years have revealed a system for classifying human embryos that is amazing since it was recorded in the seventh century A.D. Although Aristotle, the founder of the science of embryology, realized that chick embryos developed in stages from his studies of hen's eggs in the fourth century B.C., he did not give any details about these stages. As far as



it is known from the history of embryology, little was known about the staging and classification of human embryos until the twentieth century. For this reason, the descriptions of the human embryo in the Quran cannot be based on scientific knowledge in the seventh century. The only reasonable conclusion is: these descriptions were revealed to Muhammad ﷺ from God. He could not have known such details because he was an illiterate man with absolutely no scientific training.”<sup>42</sup>

### B) The Quran on Mountains:

A book entitled *Earth* is a basic reference textbook in many universities around the world. One of its two authors is Professor Emeritus Frank Press. He was the Science Advisor to former US President Jimmy Carter, and for 12 years was the President of the National Academy of Sciences, Washington, DC. His book says that mountains have underlying roots.<sup>43</sup> These roots are deeply embedded in the ground, thus, mountains have a shape like a peg (see figures 7, 8, and 9).

This is how the Quran has described mountains. God has said in the Quran:

{Have We not made the earth as a bed, and the mountains as pegs?} [78:6-7]

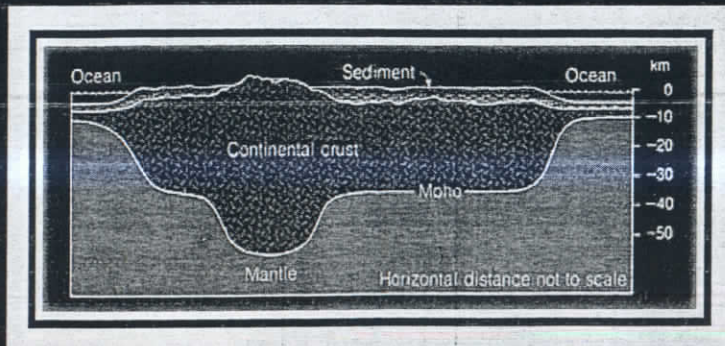


Figure 7: Mountains have deep roots under the surface of the ground. (*Earth, Press and Siever, p. 413.*)

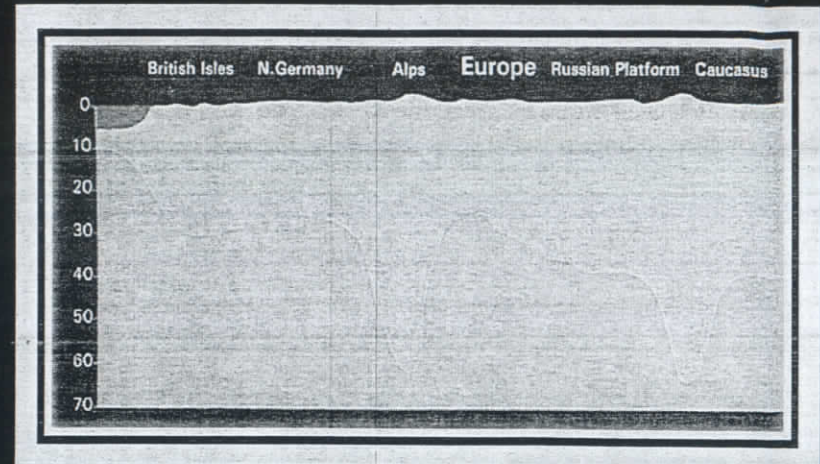


Figure 8: Schematic section. The mountains, like pegs, have deep roots embedded in the ground. (*Anatomy of the Earth, Cailleux, p. 220.*) (Click on the image to enlarge it.)

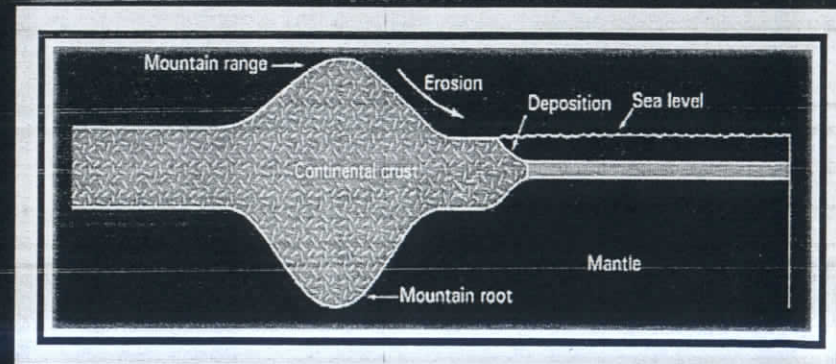


Figure 9: Another illustration shows how the mountains are peg-like in shape, due to their deep roots. (*Earth Science, Tarbuck and Lutgens, p. 158.*) (Click on the image to enlarge it.)

Modern earth sciences have proven that mountains have deep roots under the surface of the ground (see figure 9) and that these roots can reach several times their elevations above the surface of the ground.<sup>44</sup> So the most suitable word to describe mountains on the basis of this information is the word 'peg,' since most of a properly set peg is hidden under the surface of



the ground. The history of science tells us that the theory of mountains having deep roots was introduced only in the latter half of the nineteenth century.<sup>45</sup>

Mountains also play an important role in stabilizing the crust of the earth.<sup>46</sup> They hinder the shaking of the earth. God has said in the Quran:

**{And He has set firm mountains in the earth so that it would not shake with you...} [16:15]**

Likewise, the modern theory of plate tectonics holds that mountains work as stabilizers for the earth. This knowledge about the role of mountains as stabilizers for the earth has just begun to be understood in the framework of plate tectonics since the late 1960's.<sup>47</sup>

Could anyone during the time of the Prophet Muhammad ﷺ have known of the true shape of mountains? Could anyone imagine that the solid massive mountain which he sees before him actually extends deep into the earth and has a root, as scientists assert? A large number of books of geology, when discussing mountains, only describe that part which is above the surface of the earth. This is because these books were not written by specialists in geology. However, modern geology has confirmed the truth of the Quranic verses.



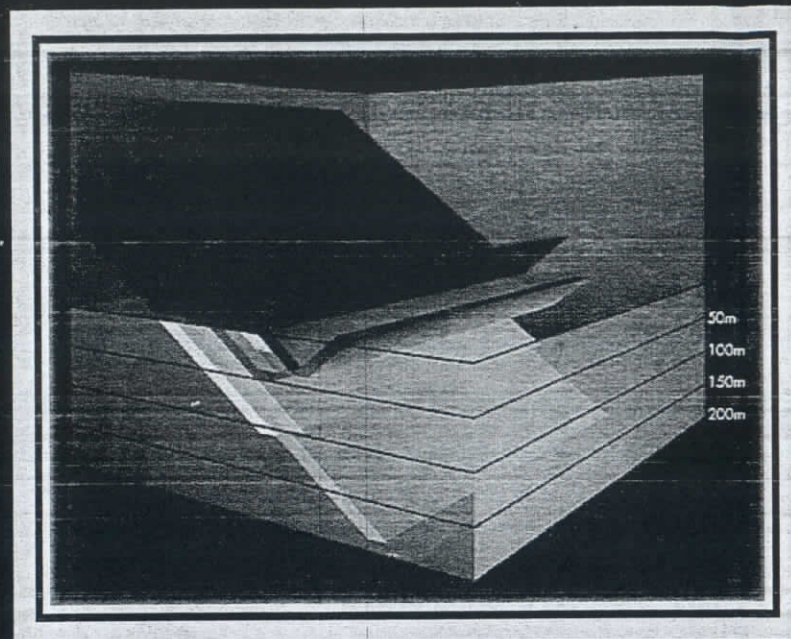
### C) The Quran on Deep Seas and Internal Waves:

God has said in the Quran:

**{Or (the unbelievers' state) is like the darkness in a deep sea. It is covered by waves, above which are waves, above which are clouds. Darkneses, one above another. If a man stretches out his hand, he cannot see it....} [24:40]**

This verse mentions the darkness found in deep seas and oceans, where if a man stretches out his hand, he cannot see it. The darkness in deep seas and oceans is found around a depth of 200 meters and below. At this depth, there is almost no light (see figure 15). Below a depth of 1000 meters there is no light at all.<sup>48</sup> Human beings are not able to dive more than forty

meters without the aid of submarines or special equipment. Human beings cannot survive unaided in the deep dark part of the oceans, such as at a depth of 200 meters.



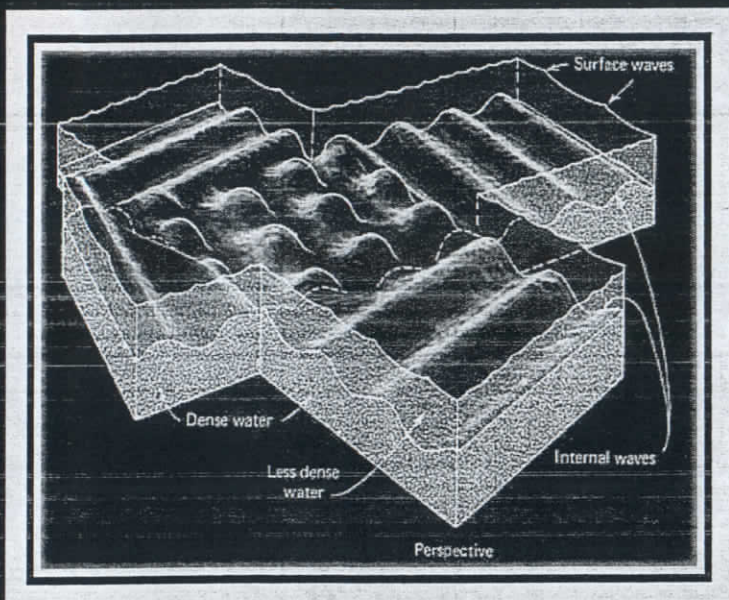
**Figure 15:** Between 3 and 30 percent of the sunlight is reflected at the sea surface. Then almost all of the seven colors of the light spectrum are absorbed one after another in the first 200 meters, except the blue light. (Oceans, Elder and Pernetta, p. 27.)

Scientists have recently discovered this darkness by means of special equipment and submarines that have enabled them to dive into the depths of the oceans.

We can also understand from the following sentences in the previous verse, "...in a deep sea. It is covered by waves, above which are waves, above which are clouds....", that the deep waters of seas and oceans are covered by waves, and above these waves are other waves. It is clear that the second set of waves are the surface waves that we see, because the verse mentions that above the second waves there are clouds. But what about the first waves? Scientists have recently discovered that there are internal waves



which "occur on density interfaces between layers of different densities."<sup>49</sup> (see figure 16). The internal waves cover the deep waters of seas and oceans because the deep waters have a higher density than the waters above them. Internal waves act like surface waves. They can also break, just like surface waves. Internal waves cannot be seen by the human eye, but they can be detected by studying temperature or salinity changes at a given location.<sup>50</sup>



**Figure 16:** Internal waves at interface between two layers of water of different densities. One is dense (the lower one), the other one is less dense (the upper one). (Oceanography, Gross, p. 204.)

#### D) The Quran on the Origin of the Universe:

The science of modern cosmology, observational and theoretical, clearly indicates that, at one point in time, the whole universe was nothing but a cloud of 'smoke' (i.e. an opaque highly dense and hot gaseous composition).<sup>51</sup> This is one of the undisputed principles of standard modern cosmology. Scientists now can observe new stars forming out of the remnants of that 'smoke' (see figures 10 and 11). The illuminating stars we see at night were, just as was the whole universe, in that 'smoke' material. God has said in the Quran:

**{ Then He turned to the heaven when it was smoke... } [41:11]**

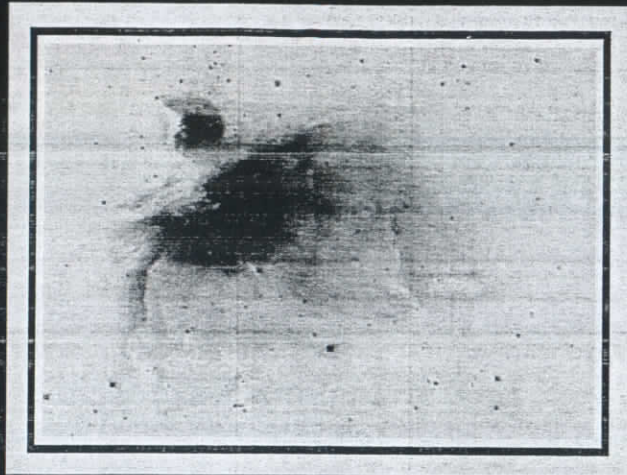
Because the earth and the heavens above (the sun, the moon, stars, planets, galaxies, etc.) have been formed from this same 'smoke,' we conclude that the earth and the heavens were one connected entity. Then out of this homogeneous 'smoke,' they formed and separated from each other. God has said in the Quran:

**{Have not those who disbelieved known that the heavens and the earth were one connected entity, then We separated them?...} [21:30]**

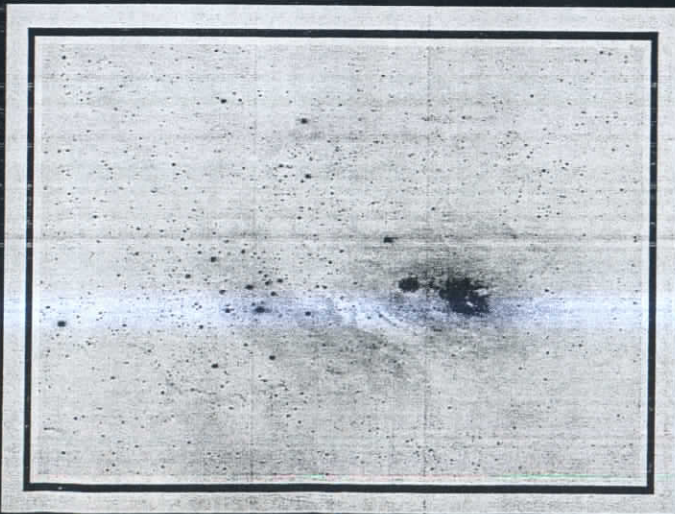
Dr. Alfred Kroner is one of the world's renowned geologists. He is Professor of Geology and the Chairman of the Department of Geology at the Institute of Geosciences, Johannes Gutenberg University, Mainz, Germany. He said: "Thinking where Muhammad came from . . . I think it is almost impossible that he could have known about things like the common origin of the universe, because scientists have only found out within the last few years, with very complicated and advanced technological methods, that this is the case."<sup>52</sup>

Also he said: "Somebody who did not know something about nuclear physics fourteen hundred years ago could not, I think, be in a position to find out from his own mind, for instance, that the earth and the heavens had the same origin."<sup>53</sup>





**Figure 10:** A new star forming out of a cloud of gas and dust (nebula), which is one of the remnants of the 'smoke' that was the origin of the whole universe. (*The Space Atlas*, Heather and Henbest, p. 50.)



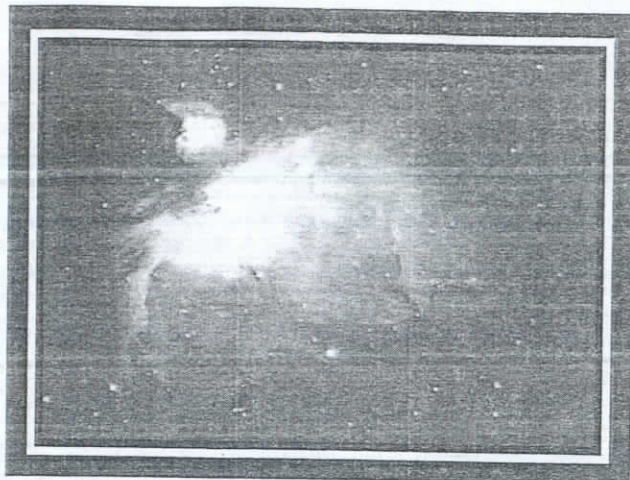
**Figure 11:** The Lagoon nebula is a cloud of gas and dust, about 60 light years in diameter. It is excited by the ultraviolet radiation of the hot stars that have recently formed within its bulk. (*Horizons, Exploring the Universe, Seeds*, plate 9, from Association of Universities for Research in Astronomy, Inc.)<sup>54</sup>

The **scientific evidences** of the Quraan clearly prove its Divine Origin. No human could have produced a book, **fourteen hundred years ago**, that would contain **profound scientific facts**, to be discovered by humankind centuries later. The Quraan, however, is not a book of Science but a book of Signs. These **signs invite Man to realize** the purpose of his existence on earth, and to live in harmony with Nature. The Quraan is truly a message from Allah, the **Creator and Sustainer of the universe**. It contains the same message of the Oneness of God, that was preached by all prophets, right from **Adam, Moses, Jesus to Muhammad** (peace be upon them).<sup>55</sup>

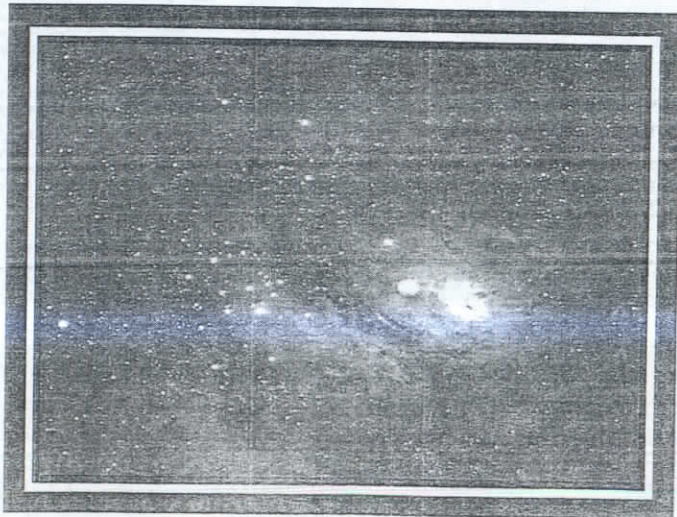
These eight reasons (Physical incapacity, Sincerity, Psychology, History, Consistency, Inimitability, Prophecy, and Science) together form a strong cumulative case in favor of the Qur'an's divine origin. Hence Muslims can be confident that the belief of Islam, which is based on the Qur'an, is true.



What is the Purpose of our Life?



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# FOREWORD

## THE ISLAMOPHOBIC FOUNDATION OF "WESTERN CIVILIZATION"

WARD CHURCHILL

What do I think of Western civilization?  
I think it would be a very good idea.

—Mohandas Gandhi (1931)

In *Islamophobia: The Ideological Campaign Against Muslims*, Stephen Sheehi has provided an intensive guide to the formation of the most modern—American—sociopolitical constructs evolved by The West in furtherance, both at home and abroad, of its domination of Islamic regions. Formed in the shadow of the Islamic Other, the early relationship of The West to the Islamic world impacted not only the very essence of "Western Civilization" but also led to the catastrophic socio-pathology of Western imperialism which continues to devastate the non-European peoples of the world, Muslims and non-Muslims alike

Certainly, it is not without a large degree of irony that Bernard Lewis and Samuel Huntington's harangues on the "clash of civilizations," as Sheehi's thought-provoking study notes, are the harbinger of a new wave if not new form of Islamophobia. The author's insightful taxonomy of the "civilizational discourse" at the heart of Islam and Muslims makes it difficult to decide whether the phenomenon oxymoronically referred to as "Western Civilization" might be more aptly characterized as a fraud or as a grim farce. In either case, it has always been a fiction. Even the geographic status of "Europe" is invented. Far from being a continent in its own right—less still "*The Continent*," as most eurocentrists have long-since proclaimed it<sup>1</sup>—Europe, the territorial locus of "The West," is, "geographically speaking[,]... simply a large western peninsula of Asia."<sup>2</sup>

Culturally, the situation is still more contrived. The very term "Europe," after all, originated with the Phoenician word *'erub*, connoting "a place of nether darkness" and ignorance.<sup>3</sup> It is perhaps self-evident that those inhabiting a domain viewed for well over a millennium as amounting to no more than a benighted



cultural backwater, utterly irrelevant to the affairs of civilized societies, might well have come to harbor certain resentments. No less obviously, such resentments were in all likelihood fueled by an ever deepening and more intractable sense of cultural inferiority. While "The West" would later claim cultural descent from the classical civilization of ancient Greece, concocting from the late-eighteenth century onwards an elaborate evidentiary stew intended to "prove" the "Aryan" identity of the Greeks, the reality is that classical Greece and its antecedents were linked far more closely, both culturally and genetically, to Egypt and the Levant than to anything northward.<sup>4</sup> Moreover, the emergence of The West was separated from its supposed antecedent by a disjuncture lasting several centuries after the fall of Rome, a truly "Dark Age" during which the "Church purposely suppressed classical Greek [i.e., "pagan"] knowledge."<sup>5</sup>

That the intellectual tradition of classical Greece was not only preserved but extended and refined was exclusively the result of Arab-Islamic scholarship for more than seven hundred years. It was in the great Islamic universities established in Cordova, Toledo, Baghdad, Damascus, Cairo, Fez, Tunis, Isfahan and Khorason, producing such eminent philosophers as al-Farabi (d. 951), Ibn Sina ("Avicenna," 980-1137) and Ibn Rushd ("Averroës," 1126-98), that The West would eventually learn of Aristotle and his peers.<sup>6</sup> Indeed, the key role played by Islamic thought was evident in the inception of the "Western identity" itself, a matter which traces to the coronation of Charlemagne in 800 C.E. and the concomitant establishment of his "Holy Roman Empire," an entity otherwise known as "Western Christendom."<sup>7</sup>

Since the purpose of the exercise was to (re)assert the ascendancy of what would become Roman Catholicism over the orthodoxies of Eastern Christendom (i.e., Byzantium), it was essential that the former distinguish itself from the latter on theological grounds. The requirement was largely met by the appropriation, usually without attribution, of Islamic interpretations of scripture. As the eminent historian Maxime Rodinson stated,

Avicenna [Ibn Sina] gave the Latin West a model of original synthesis [adding] the dimension of religious salvation and creative divinity, both essential to [Roman Catholic] thought. Beyond this, his work suggested an original way of rethinking the connections between God, the world and man by encompassing Aristotle's theories of epistemology.... [Western] philosopher theologians [merely] adapted Avicenna's Islamic terminology to Christianity. For example, what Avicenna had said regarding the Muslim imam, Roger Bacon applied to the pope.<sup>8</sup>

Even as this process was underway, the empire established by Charlemagne was being consolidated by his Carolingian successors on the pattern of their progenitor's conquest and forcible conversion of "pagan tribes" to the west, north, and east of the imperial capital at Aachen (on the extreme west-central boundary of present-day Germany).<sup>9</sup> Various expedients were attempted to resolve the integral question of how best to concretize an attendant sense of specifically Western identity at the grassroots level. The instrumentality by which such a sweeping galvanization of

consciousness might be realized was found when, during the Council of Claremont in 1095, it was decided to launch the first Crusade.<sup>10</sup>

The stated purpose of the initial western European invasion of "the East" was to "recover" the Christian Holy Land from the Arab Muslims who possessed it.<sup>11</sup> Not only the first Crusade but the eight that followed reveal powerful desires on the part of western Europe's emerging elites both to engage in wholesale plunder and to gain control of such lucrative Levantine trade centers as Tyre, Acre, and Jaffa (the only immediate source of China's fabled silk, tea, and spices, as well as ivory, jade, aromatics, exotic fruits, and other luxuries).<sup>12</sup> At least three of the Crusades, the fourth (1202-04), fifth (1217-21), and seventh (1248-54), were diverted from the Holy Land altogether, targeting the even richer prizes of Constantinople and Damietta (Egypt) instead.<sup>13</sup>

Equally important from an elite perspective, the campaigns were organized as a means of both amplifying and concretizing the legitimacy/authority inhering in the Roman papacy, and, thereby, that of a hierarchy of nobles endowed with papal sanction to wield more secular forms of power.<sup>14</sup> The same can be said with respect to the *Reconquista* which, by 1249, had reduced the once extensive Islamic dominion of al-Andulus (Iberia) to the area around Grenada.<sup>15</sup>

The entire endeavor, of course, was contingent upon mobilizing relatively massive numbers of common folk to serve as fodder in what amounted to wars of aggression.<sup>16</sup> It was necessary that, to borrow a term from Rodinson, those adhering to the tenets of Islam be "diabolized" in the popular consciousness, a propaganda function pursued with relentless zeal by the clergy. So virulent was the process of clerical indoctrination that in short order Muslims, as such, were widely perceived as something not simply alien but threatening, an Other than human life-form not so much warranting as quite literally *demanding* of eradication.<sup>17</sup>

Hence, the comportment of Western Christendom's crusading "Warriors of God" from the moment they set foot in the Holy Land.<sup>18</sup> As was contemporaneously recounted by the Byzantine princess Anna Komnene (Comnena), for example, upon capturing the city of Maarat an-Numan and massacring its residents in 1098, "our troops boiled pagan adults in cooking pots. They impaled children on spits and ate them grilled."<sup>19</sup> Similar atrocities, albeit somewhat lesser in scale, were registered at Nicaea later the same year and at Antioch early in the next.<sup>20</sup> The fall of Jerusalem in July of 1099 was also marked by a general massacre of the Muslim and Christian population in which "neither women nor children were spared" while the bulk of the city's Jews were trapped in their synagogue and burned alive.<sup>21</sup> Such was, in the view of Pope Paschal II, "a Holy slaughter."<sup>22</sup>

Both the magnitude and the nature of the psychic catharsis embodied in this historical moment are as conspicuous as they are remarkable. Where the collective "sense of self" essential to the formation of cultural identity had been effectively absent in The West, it abruptly cohered, not as an affirmative signification but as a negative, i.e., as a unified posture of conscious contradistinction to the Islamic Other.<sup>23</sup>

In simplest terms, the compulsion of the West to nullify the perceived superiority of the Islamic Other devolved not simply upon negating the Other's existence, as at Jerusalem in 1099, but on claiming the attributes giving shape to the Other's superior status, thereby in effect incorporating the attainments of the Other



into its own conception of self. This process of internalization was undertaken both in the most literal possible fashion, as when the Crusaders ate the flesh of their Muslim victims at Maarat al-Numan,<sup>24</sup> and more figuratively, in the far broader, sustained, and more important assimilation—i.e., ingestion and digestion—of Islamic philosophy, science, and technology.

Although such intellectual pilferage had quietly commenced some three centuries earlier as means of distinguishing Western Christendom from its Byzantine competitor, the theft did not reach the dimension of outright "cultural cannibalism" until the advent of the Crusades.<sup>25</sup> By the thirteenth century, Thomas Aquinas and other "Western thinkers" were boldly plagiarizing the work of philosophers like Ibn Rushd while purporting to "debunk" it.

Indeed, the Islamophobes that Sheehi deconstructs in this present book willfully neglect or guilefully explain away the Islamic heritage of "Western civilization" even though indebtedness of the latter to the former is widely acknowledged in almost every discipline of the sciences and social sciences. Most of the mathematical, scientific, architectural and engineering knowledge, which gave rise to The West's so-called Renaissance ("rebirth"), was similarly cannibalized from Islam. While Western historians have routinely attributed inventing the algebraic method to the third-century Greek mathematician Diophantus, it was actually conceived in its modern form by Ibn Musa al-Khwarizmi around 820 C.E.<sup>26</sup> Over the next four hundred years it underwent such development by Ibn al-Khwarizmi's successors that, even as late as the nineteenth century, many of the "brilliant new conceptions" credited to Western mathematicians—e.g., the "Viète's Laws" and the "Ruffini-Homer Method"—were simply rehashes of techniques perfected by Islamic scholars.<sup>27</sup>

Islamic understandings of calculus, trigonometry, astronomy and non-Euclidean geometry were swallowed whole by The West and thereafter pronounced to have been its own discoveries.<sup>28</sup> Even in such sophisticated areas as numbers theory, Arab mathematician Ibn al-Haytham ("Alhacen") employed by 1000 C.E. what is now referred to as "Wilson's Theorem" after the Englishman John Wilson who purportedly "discovered" it in 1770.<sup>29</sup> The decimal system of fractionation was first conceived by Persian mathematician Abu al-Hasan al-Uqlidisi during the late tenth century and transmitted to The West by his successor, Jamshid al-Kashi, a little more than four centuries later, while the modern symbolic notation for fractions—i.e., separating the numerator and denominator with a horizontal line—was developed by Moroccan mathematician Abu Bakr al-Hassar during the twelfth century.<sup>30</sup>

Islamic astronomy was particularly advanced, with Persian polymath Nasir al-Din al-Tusi not only demonstrating the errors of Ptolemy's methods and resulting computations but, in 1247, advancing a theorem now known as "Tusi's Double" virtually identical to that published by Nicholas Copernicus in 1543.<sup>31</sup> In fact, the scientist Willy Hartner discovered that Copernicus' mathematical proof of the proposition was ultimately provided by Ibn al-Tusi in 1261 and that there is a clear appearance that the former simply copied the latter (without attribution).<sup>32</sup>

One reason Islamic mathematics was so far ahead of that in The West was the *ghubar*, a set of Arabic numerals—including the zero, a concept unknown in Europe until the eleventh century and not commonly employed there until the sixteenth—facilitating computational complexities impossible to attain via its Roman counterpart.<sup>33</sup> Without the predication of Islam's scientific revolution, the "Western tradition" of science would have been impossible in many other ways.<sup>34</sup> Indeed, the so-called scientific method itself may be seen to have originated in procedures for verification by replicable experimentation developed by Ibn al-Haytham and Ibn Zakariya al-Razi (Rhazes), *circa* 1000 C.E.<sup>35</sup> By then, the process of peer review—the veritable *sine qua non* of contemporary "Western" scholarship—had already been introduced by Syrian scholar Ishaq bin Ali al-Rahwi in his *Ethics of the Physician* and was widely practiced by Islamic scholars.<sup>36</sup>

Muslim scientists and physicians were responsible for the discovery of infectious diseases, with Ibn Sina clearly identifying tuberculosis as prominent among them and introducing the method of quarantine to combat its spread during the eleventh century.<sup>37</sup> From there, he extrapolated the concept of epidemiology, including risk factor analysis and the idea of the syndrome for diagnostic purposes.<sup>38</sup> So comprehensive and advanced was Ibn Sina's fourteen-volume *al-Qanun fil-Tibb* (*Canon of Medicine*), completed in 1025, that it remained a mainstay of medical instruction in Western universities until well into the nineteenth century, while many of the practices he advocated therein—clinical trials, randomized controlled trials, and efficacy tests, as examples—are still adhered to today.<sup>39</sup>

From Southwest Asia and North Africa came not only many of The West's key medical concepts, including the theory of microbes,<sup>40</sup> but its medical institutions as well. The first public hospital (*bimaristan*) was established by Harun al-Razi in Baghdad in 805 C.E., and such hospitals thereafter proliferated rapidly throughout the Islamic world. So, too, pharmacies were first established in Baghdad during the early tenth century where formal training and licensing of both physicians and pharmacists were required as of 931 C.E. in order to provide ready access to the approximately 760 clinically-tested medicinal plants and derivative drugs, including surgical anesthetics, eventually catalogued by Ibn Sina in his *Canon*.<sup>41</sup>

Given the availability of general anesthesia in Islamic medicine, surgical practice—including forms of neurosurgery—and understandings of human anatomy were far more advanced than anything possible in The West.<sup>42</sup> Techniques described by the Andalusian physician Abu al-Qasim al-Zahrawi in his early-eleventh-century treatise *On Surgery and Instruments*, for example, were not fully replicable in Europe for nearly six hundred years.<sup>43</sup> Since Muslim pharmacological advances were contingent upon intimate familiarity with both botany and chemistry, moreover, appropriation of Islamic medical knowledge established the basis upon which "Western science" was consolidated in these areas as well.<sup>44</sup>

Even in physics, ostensibly the most Western of all sciences, Islamic thought prefigured that of The West by centuries. By the eighth century, Medina-



born polymath Ja'far ibn al-Sadiq had not only refuted Aristotle's notion of the "four elements," but may well have advanced a rudimentary particle theory of matter.<sup>45</sup> In the ninth, astronomer Ja'far ibn Musa ibn Shakir clearly foreshadowed Newton's law of universal gravitation with a theory refined by Ibn al-Haytham during the eleventh century and unified by polymath Abu al-Fath Khazini during the twelfth.<sup>46</sup> Newton's laws of motion, first enunciated in 1687, were also presaged in the work of Ibn al-Haytham, Ibn Sina, the Andalusian polymath Ibn Bajjah ("Avempace"), and the twelfth century Arab-Jewish scholar Abu Hamza al-Baghdadi.<sup>47</sup> It seems worth noting that, notwithstanding Newton, Ibn Sina's general concept of momentum is still applied in physics.<sup>48</sup>

Hundreds of years of technological advancements within the Islamic world infused a "new rationalism" to The West. The Western Renaissance would have been impossible without the foundation laid by Islam in the applied sciences of architecture and engineering. The ogival arches, as well as the methods of ribbed and pitched vaulting, essential to Gothic architecture and its Baroque successor, were lifted directly from Islamic templates in the Levant, Anatolia, Sicily, and Iberia.<sup>49</sup> By the same token, Muslim engineering techniques, especially those pertaining to water transfer, pumping, storage, and irrigation, were, in combination with various crop types developed by Islamic botanists, responsible for such agricultural advancement as was made in The West prior to the sixteenth century.<sup>50</sup>

Finally, there is the matter of technology. Public clocks, for instance, could be found in Baghdad as early as 750 C.E., while eyeglasses would have been impossible without the highly refined understanding of optics provided by centuries of Islamic research.<sup>51</sup> Paned glass, and stained glass as well, were widely-used in Muslim domains long before they made their first appearance in western Europe.<sup>52</sup> Paper was invented by Ts'ai Lun in China, *circa* 100 C.E., and was already being milled in large quantities in Baghdad in 830. Likewise, the printing press made its first appearance in China *circa* 600 C.E, while moveable type was invented by the printer Pi Sheng in 1041, *not* the German printer Johannes Gutenberg.<sup>53</sup> These inventions were absorbed and developed by the Muslim world from which The West acquired them.

Much the same history pertains to guns and the gunpowder without which guns would have been quite pointless. Although The West did its best to credit Roger Bacon with inventing gunpowder during the thirteenth century, the substance actually originated in China five hundred years earlier and Islam acquired knowledge of it by 1240.<sup>54</sup> Predictably, given this chronology, the Chinese may also have invented guns, the earliest surviving example—a cannon—of which dates to 1288.<sup>55</sup> Muslim armies and inventors possibly developed such weapons even earlier; the Bishop of Léon reported their use by Muslim forces at Seville in 1248, as did Ibn al-Hassan during the battle of 'Ayn Jalut in 1260.<sup>56</sup> The first known *picture* of a gun in The West did not appear until 1326, and the first known use of a cannon was in 1346, at the battle of Crécy.<sup>57</sup> Most likely, the first "Western" cannon was purchased from an Islamic source.<sup>58</sup>

The increased potency and durability that derived from "the development

of 'corned' gunpowder from the 1420s" gave The West a decisive advantage over its opponents.<sup>59</sup> The fact remains, however, that absent a technique for purifying saltpeter long-since discovered by Muslim chemists, there would have been no high-grade powder to corn.<sup>60</sup> In any case, whatever advantages The West obtained from the corning of gunpowder and attendant advances in weaponry were plainly insufficient to allow it to surmount the Ottoman power that blocked direct access to the goods and profits of Cathay (China) and Hindustan (India). This remained the case even after the Mongol onslaughts of the thirteenth-fourteenth centuries—with which western Christendom allied itself—repeatedly laid waste to Baghdad and other easterly centers of Islamic civilization.<sup>61</sup>

Ottoman power was temporarily able to forestall the menacing desire of European powers to further penetrate Asia. The West was therefore compelled to redirect its efforts. During the early fifteenth century, Portugal attempted to circumvent the "Islamic Barrier" by sailing southward along the coast of Africa, then eastward across the Indian Ocean.<sup>62</sup> It was not until 1498 that Vasco da Gama would finally reach Calcutta via the Cape Route, however, and by then another Iberian seafarer, Cristóbal Colón ("Columbus"), had opened up a whole "New World" while attempting to reach the "Far East" by sailing west.<sup>63</sup> Both ventures created venues for the Western mode of "intraspecies predation" on a previously unimaginable scale.<sup>64</sup> Not only was the territory of two entire continents—three, counting Africa—suddenly available for the taking, but, more important in the moment, the resources therein: human, mineral, and agricultural.<sup>65</sup>

The effects were genuinely transformative. The flow of precious metals into Iberia from the Americas as the hemisphere "discovered" by Colón was named by The West, was by 1600 in itself sufficient to underwrite Europe's subsequent "industrial revolution."<sup>66</sup> No less can be said of the profits accruing to England and France from the trade in slaves and sugar, and subsequently in cotton, by the end of the eighteenth century. Here, we see the origin of capitalism, in the "modern" sense of the term.<sup>67</sup> As well, the basis upon which The West would rapidly evolve and mass produce certain technologies—especially in the areas of weaponry, transportation, and communications—that empowered a mere handful of countries in western Europe to extend their imperial domains during the nineteenth century to the point that, by the early twentieth, they and their settler offspring in North America would claim possessory rights over the great bulk of the Earth's surface.<sup>68</sup>

In substance, the entire trajectory of Western expansion begun during the early fifteenth century reflected a ripening of the fundamental pathology from whence the identity of The West had arisen, to the point that an identically dehumanizing perception was projected to encompass *all* Others, everywhere, with ever-increasing virulence and intensity. Not only was the same sort of intellectual/cultural cannibalism practiced by The West against Islam in evidence at every step along the way, but it was physically extended against newly-othered populations on a scale so vast as to all but eclipse the massacres at Maarat an-Numan and Jerusalem during the First Crusade.

As many as twenty million blacks from Africa's west coast had been



consumed by the transatlantic slave by 1870.<sup>69</sup> At least two million of them did not survive the "Middle Passage" from Africa to the Americas.<sup>70</sup> Many liberal and neoconservative Islamophobic tirades pay far greater attention to the sub-Saharan Arab slave trade than to the thousands of African Muslims who were enslaved and shipped in bondage to the Americas.<sup>71</sup> There was no shortage of killing, both direct and indirect, involved in the continuous raids mounted by Western slave traders to harvest human merchandise from central Africa.<sup>72</sup> To this must be added the wave of slaughters attending the conquest of Africa's interior during the late nineteenth and early twentieth centuries.<sup>73</sup>

The magnitude of the human toll taken among Africans is evident in the facts that, from 1650 to 1900, the population of Europe rose from 104 million to 423 million, while that of Africa rose from 100 million to only 120 million.<sup>74</sup> In the Americas, the impact was greater still. For the hemisphere as a whole, a population estimated as having been 145 million on the day Colón came ashore was reduced by some ninety-five percent within two centuries.<sup>75</sup>

The same voracious consumption of Other populations marked The West's struggle to maintain its station of global dominance through the "classic" mode of colonialism during the half-century beginning in the mid-1930s. From 1936-39, the British pioneered brutal techniques to suppress the Palestinian Revolt that the French would use in Indochina and Algeria, and the U.S. in Vietnam, over coming decades. Perhaps a million lives were swallowed up between 1945 and 1948 by Britain's attempt to control the outcome of India's decolonization.<sup>76</sup> Ten years prior, the British pioneered the brutal techniques to mercilessly suppress the Palestinian revolt (1936-1939) that the French would use in Algeria and the Americans in Vietnam, only a short time later. The Dutch effort to forestall Indonesian independence from 1946 to 1949 resulted in upwards of 100,000 deaths.<sup>77</sup> Belgium's attempt to reassert dominion over the mineral-rich Katanga region of the newly-independent Congo in 1960 led to an untold number of dead—perhaps a million or more.<sup>78</sup> Such were the death spasms of what Frantz Fanon described as "a dying colonialism."<sup>79</sup>

To be sure, a sublime irony attends the apparent success the Third World decolonization movement had achieved by the late 1970s. Discounting neither the plainly extraordinary sacrifices made during their liberation struggles by colonized peoples, nor the generally debilitating effect of these struggles upon their colonizers' capacity to sustain the existing imperial system,<sup>80</sup> it must be emphasized that what actually gutted the empires was Adolf Hitler's application of unadulterated colonialist principles to The Continent itself during World War II.<sup>81</sup> The conditions thus imposed—of a sort routinely endured by colonized Others, often for centuries—left western Europe so devastated after barely five years that it no longer possessed the strength to subjugate Others in its accustomed manner.<sup>82</sup>

Hence, the postwar "age of transition,"<sup>83</sup> a period marked not only by a supposed shift from colonial to "postcolonial" realities,<sup>84</sup> but of the locus of The West itself from the Old World to the New.<sup>85</sup> The latter shift was accompanied by a rapid and primarily U.S.-engineered reorganization of the mechanisms through

which Western dominion would be maintained during the last half of the twentieth century. Soon to be termed "neocolonialism" by Kwame Nkrumah and other Third World liberationists,<sup>86</sup> this new and more sophisticated approach utilized the very destitution of the former colonies resulting from sustained expropriation of their wealth by The West as the primary means of keeping them "in their place." Whole new institutions, notably the World Bank and International Monetary Fund (IMF),<sup>87</sup> were created for purposes of lending them funds gleaned from their own exploitation in order that they might overcome their typically acute conditions of "underdevelopment."<sup>88</sup>

To "qualify" for such "developmental loans," Third World governments have from the outset been required to demonstrate their "commitment to free market economics,"<sup>89</sup> a matter invariably hinging upon their implementation of domestic policies subordinating the well-being of their own populations to the profitability of Western corporate enterprises undertaken within their borders.<sup>90</sup> Hence, the wealth of the Third World has continued to be siphoned off by The West at rates rivaling, and in some cases exceeding, those prevailing under colonialism in its classic form.<sup>91</sup> This, combined with the ever-increasing cost of their debt service, has left many of the former colonies even poorer than they were prior to attaining their independence.<sup>92</sup>

The implications of such an arrangement cannot be overstated. During the 1970s, it was estimated that some 2.25 billion people in "the darker nations" were trying desperately to subsist on annual incomes of less than U.S. \$200 per year, about 800 million of them on less than \$100.<sup>93</sup> By the mid-1980s, the situation had reached the point of "a silent genocide" in which the World Health Organization (WHO) reported that an average of eleven million Third World children were dying every year from malnutrition and/or want of medicines costing only pennies per dose.<sup>94</sup> In 1990, according to World Bank data, the flow of profit from "developing nations" to The West reached record levels while, concomitantly, it was reported that the share of global wealth accruing to the forty-one poorest countries had fallen from twenty-three to eighteen percent over the preceding decade.<sup>95</sup> The situations of all forty-one had, in the view of the IMF, degenerated still further by 2009.<sup>96</sup>

Suffice it to say that what the WHO described as a "silent" genocide has never been especially silent to the communities whose children—and adults, for that matter—were and are still dying by the millions. Nor have the reasons for it been especially mysterious to them (it's really not terribly difficult to discern that one's life and the lives of those one holds dearest have been devalued to the point of something less worthy of preservation than toilet paper).<sup>97</sup> Correspondingly, they've sought more or less continuously to depose the U.S.-installed regimes whose very reason for existence, apart from self-enrichment, has been to assure "maximum returns on investments" by Western corporations at the direct expense of their respective peoples.<sup>98</sup>

This, in turn, has since the 1960s prompted the U.S. to maintain the stability of "overseas business environments" by providing its Third World client regimes with military/police training,<sup>99</sup> and an ever-increasing inventory of weaponry,



munitions, communications/data storage/surveillance technology, and other equipment useful for little else but the repression of popular desires to alter the status quo.<sup>101</sup> The resulting system of U.S.-sponsored "Third World fascism" has compounded the agony already suffered by the populations of the former colonies by, among other things, routinizing torture and lethal violence, the latter not infrequently on a massive scale.<sup>101</sup> No fewer than 200,000 people, roughly 85 percent of them indigenous Mayans, were slaughtered by the Guatemalan military and police seeking to quell popular resistance to government land-use policies during the 1980s and '90s.<sup>102</sup> That's but one example. There are *many* others.

In retrospect, the fundamentally racist and culturally chauvinistic dimensions of the new world system ushered in by the United States during the postwar period seem transparently obvious. While reparations never for a moment figured into its planning for the formal decolonization of the Third World, the U.S. spared neither time nor expense in facilitating reconstruction of the western European industrial capacity, including that of Germany, in the aftermath of World War II.<sup>103</sup> So, too, the productive infrastructure of vanquished Japan, a country deemed to have become so thoroughly Westernized by the 1930s that even Hitler entered into alliances with it.<sup>104</sup> That the entire procedure was designed and intended to engender *precisely* the results obtained—that is, enabling The West to feed with greater efficiency than ever before upon the very flesh of a global mass of utterly-dehumanized Others—was, or should have been, clear from the outset.

Indeed, the triple-hubbed arrangement of planetary power established by the U.S. between 1945 and 1965 has proved an ideal medium through which "elite planning for world management" can be/has been conducted, a matter amply reflected in the formation of the Trilateral Commission in 1972. Self-described as a "private sector counterpart to the [governmental] Council on Foreign Relations," the Commission's purported mission is to advance policy recommendations leading to "smooth and peaceful evolution of the global system."<sup>105</sup> While such a goal sounds worthy enough, its actual meaning was quite starkly revealed in one of the Commission's first studies, published in 1975, wherein it was concluded that an "excess of democracy," together with "interference in international exchange by national governments," comprised the principal barriers to the system's "smooth evolution."<sup>106</sup> Curtailing—or, better yet, eliminating—both problems, of course, would ultimately render the system more "peaceful."

It would be a serious error to dismiss this as typical rightwing prattle. Among the members of the Trilateral Commission have been many of the more influential policymakers of the capitalist world.<sup>107</sup> Moreover, the recommendations implicit to the Commission's 1975 report have been implemented. "Interference" by national governments in international exchange has been curtailed through compacts like NAFTA, and broader arrangements are even now being worked out during the heavily-secured meetings of the World Trade Organization.<sup>108</sup> As to the curtailment of "excessive democracy," much of what has already been said about U.S. sponsorship of Third World fascism should be sufficient to make the point. Those who nonetheless entertain doubts on the matter are invited to discuss it with a Palestinian or, as is so eloquently emblemized by Mumia Abu-

Jamal, author of the preface to this book, a person of color within the U.S. itself.

In sum, the operant reality is that overwhelming force is increasingly employed against anyone, including entire peoples, offering meaningful resistance to what is meant to be the final consolidation of Western hegemony. For reasons both straightforward and far too complex to go into here, the strongest challenges to such ambitions over the past twenty years have come from the Islamic grassroots, and sometimes from Islamic governments as well. Thus have things come full circle, with Islam once again standing between The West and fulfillment of the psychopathic fantasies upon which its sense of self was born and has always been based. Once again there is need to make examples, e.g.: the U.S.-imposed deaths of over one-half million Iraqi children during the '90s, simply to impress upon the country's leaders the gravity of George H.W. Bush's dictum that "What we say, goes."<sup>109</sup> Once again, such horrors are "justified" through a concerted campaign of vilification directed against the victims.

This, then, is the context of the resurgent Islamophobia dissected with unflinching brilliance by Stephen Sheehi in the pages that follow. In doing so, he provides a transcendent service, not only in the way he illuminates the phenomenon he is immediately describing, but, since Islamophobia comprises the original mold from which all ensuing variations of Western racism were given form, a much broader and deeper range of phenomena as well. Only through such unpackings of its substance—or lack of it—can we ever hope to come to grips with the eurosupremacist mentality, and thereby, perhaps, find a means of curing the *vétikeo* disease by which remains its cardinal symptom.<sup>110</sup> If so, it may be that Gandhi's "good idea" can at last be realized. If not, the utility of *Islamophobia* will reside in the analytical insights assisting the rest of us to better understand what we're up against. Either way, or both, the value of this book is incalculable, and Stephen Sheehi is due our deepest thanks and admiration for his courage in writing it.