

Is There be Life Elsewhere in the Universe?

A.J. Olatunji

Department of Geography and Planning Science, University of Ado-Ekiti,
P.M.B. 5363, Ado-Ekiti, Nigeria

Abstract: One of the challenges facing scientists of today is how to unravel the mystery surrounding the origin of man, earth and the observable universe. It has taken them to the depth of the oceans, the earth's interior, the moon and other planets, proposal to visit the nearest stellar neighbor and explorations to the deepest parts of the universe. These challenges are as old as the primordial history of mankind himself and has continued to generate controversies among ordinary laymen, spiritualists, religious leaders and ever-increasing number of scientists world wide. This study describes salient aspects of the earth the solar system and galactic history. It explores the possibility of existence of life in other parts of the observable universe. The description is based on evidences from scientific discoveries, space probes, spiritual explanations, the spate of Unidentified Flying Objects (UFOs), the search for Extraterrestrial Intelligence (Project SETI), the possibility of Intelligent Design of the Universe (IDU) and the present state of earth man's knowledge and technology. The result of all explanations however showed that there is presently absence of evidence of life elsewhere in the universe. Though, man has not been able to establish whether there is evidence of absence of life elsewhere in the universe also. This is because man can still not predict clearly what could happen in future as man's knowledge and technology continues to increase.

Key words: Universe, existence of life, available explanations, man's technological knowledge, future prospects

INTRODUCTION

It is quite unusual to present the title of a study as a question. It is so designed here, to arouse the curiosity of the prospective reader, to inspire him to read further and to show that we should be concerned about things that are happening amidst those billion stars in the universe, for if they do not exist there we probably will not exist here also. It is this belief that inspires the title of this study.

The question I have asked seems to be a little bit cynical but a genuine one. It is a question about which not only the ordinary layman but also ever-increasing number of scientists, religious leaders, spiritualists and even ardent atheists would want to know the answer.

This study describes an incomplete but thought-provoking explanation on the origin of earth and the universe through scientific and other available evidences. The study also shows that the present state of earth' man's knowledge and technology can not unravel this fact and that it would constitute a challenge for future generations.

THE EARTH, THE SUN AND THE UNIVERSE

Much research has been conducted by scientists about the mysteries of nature, the earth and the

observable universe. Evidences have shown that the earth is not alone in the universe. The Earth and its moon are members of the solar system together with other planets revolving around the sun which is at the centre of the system (Allegre and Stephen, 1994). The sun is a star of yellow dwarf class with type G spectrum and belonging to population II in astronomical parlance (Noyes, 1982).

By Euclidean geometry approximations, it takes the moon 28 days to move round the earth and the earth 365 days to move round the sun once. The sun also hurtles round the Milky way the home in the universe once in every 250 million years at the speed of about 200 km sec⁻¹ (Army, 2004).

Looking aloft in the sky in a clear night, you will see an endless expanse of stars. They may be grouped into constellations (e.g., The Plough and The Southern Cross) or a much bigger groupings of galaxies. The sun is a star and a member of the gigantic galactic confederation known as the Milky Way star system which contains about 200-300 billion co-stars clustered together (Crosswell, 1996). These star systems are stretched out across space in form of a huge plate or thin watch and the infinitesimal earth is known to be located somewhere near the southeast edge (Orr, 1976; Army, 2004).

The sun with the entire solar system which looks pretty large to the rather small eyes is shown to be but a

tiny speck in an unimaginably large universe. There is absolutely limitness number of stars and limitless time to discover them all. Even if one is sampling stochastically with a probable chance of one planet in a billionth star one is tempted to believe that at least several scores of stars out of the whole stars in the galaxy will probably have their own solar systems. Again one or two solar systems may by chance, possess the ecospheric properties similar to that of the planet earth and may probably support life.

But this is by no means all. the Milky way galaxy is but one of the 100 billion galaxies that comprise the visible universe according to Arny (2004). Two examples of such extra-galaxies are the M31, Great Andromeda galaxy and the Orion Nebula. Some of the galaxies are greater in dimension than the Milky Way and hence has the preponderance of holding more stars. Astronomers soberly say that there may be well an indescribably large numbers of such galactic systems (Orr, 1976; Garching, 1984). This may increase the probability of those stars with their own solar systems and perhaps life-supporting planets.

Moreover, there is probably not a single universe. Many universes may constitute the entire cosmo. The universes have also been theorized to be ever-expanding using the evidence from the Doppler effect enunciated by Hubble and Humason.

One could at this point ask how it could be possible to conceive so many stars, galaxies and universes. The answer may never be directly verified. This is why scientist's thought are most of the time inundated with soluble question that are trivial and crucial questions that are insoluble. But a way out might sound a little bit metaphorical in the sidelines. Suppose you Endeavour to think of the number of individual grains of sand in all seashores in the world, all the grains of sands put together would not equal the number of stars in the universe. Suppose again that a spermatozoa would attempt to swim across the Atlantic Ocean from Florida coast in USA to Port Harcourt in Nigeria, its effort will be far easier compared to an intergalactic or interstellar space travel (Dressler, 1994).

SCIENTIFIC VERSUS SPIRITUAL EXPLANATIONS

Information about life and origin of the universe have been rendered both scientifically and spiritual. Both are different ways of knowing reality. Whereas scientific knowledge is based on the observations and investigations of the physical and tangible world, spiritual knowledge is often dictated by extra physical experiences. This difference does not necessarily constitute a conflict.

Rather, it emphasises that cultivating the domains of spiritual realms and scientific realms constitute different pathways to knowledge.

A typical example of spiritual explanation in understanding the origin of life and the universe is seeing in the complex mythologies of the Dogon tribe of Mali. This tribe inhabits part of the Bandiagara escarpment area of the Republic of Mali. They were said to possess such detailed knowledge of astrophysics only just known to occidental civilization. Their complex mythologies have helped in explaining philosophical problems such as the origin of the world and of men. One of such rare extra-physical knowledge is there long discovery that the Dog Star (Sirius) in the constellation of Canis Major is being orbited by a white dwarf neighbor (probably a planet) not even visible to the naked eye. The study of Sesti (1991) provides beautiful illustrations on the history and mythology of constellations from many ancient cultures.

SCIENTIFIC DISCOVERIES AND SPACE EXPLORATIONS

Of utmost importance are the information rendered by advanced science and technology on the origin of life, universe and space explorations. This has increased tremendously since the rocket age ushered-in by the development of Vicker II rockets during the world war era. This almost paralleled the Jet Age. The nuclear age was ushered-in when a single B 29 Bomber of the US Airforce atom-bombed the Japanese city of Hiroshima on August 6th, 1945. This was closely followed in 1957 by the launching of Sputnik I, the first artificial satellite by the Russians and the landing of terrestrial footprint on the moon by the Apollo II mission of the Americans in July 20th 1969.

The present day witnesses various space programmes and even proposal to visit the nearest steller neighbor-Centauri Proxima. In 1977, for example the NASA (USA) among many other space programmes, launched Voyagers I and II space probes to scan planets Uranus, Neptune Jupiter and Saturn and thereafter obeying Newtonian law of motion into the endless space. An if you are existing there signify message was engraved in the spaceship's module by mounting automatic, gold-plated record changers and a display of humanoid pictures. We also have today, several space shuttle programmes and advanced radio telescopes (e.g., the Hubble's Space Telescope) mounted on artificial satellites to peep deep into the endless space. Several of such space exploration programmes abound in contemporary history and this shows that people here are deeply interested in what lies

ahead in space. Besides, it may be a right step in the right direction in search for greener pastures when the resources of the earth are eventually exhausted.

EXTRATERRESTRIAL INFLUENCES AND THE PHENOMENA OF UNIDENTIFIED FLYING OBJECTS (UFOs)

It is pertinent to examine what may perhaps prove to be the most obvious manifestations of astronomical or extraterrestrial infiltrations into the adorable planet. This may further strengthen the arguments on whether life really exist elsewhere in the universe or not. First is the study of comets, asteroids, meteorites and bolides that worders about in space. These areal phenomena on coming to areas of earth's gravitational influence are attracted towards the centre of gravity.

These objects sometimes appear as a flash of light caused by friction with the atmosphere but many of them eventually reach the surface half-burnt perhaps with a bang! Some traditional believe often attribute these objects to certain ungodly deities. However, this has been described by astrophysicists as gentleman's space probes, since these space objects can come to us and on close examination, have revealed a lot of information on the origin and composition of matter in the universe. For millions of years of earth's history, the planet has received barrages of bolides, meteorites and asteroid impactions, many of them measuring between 600 mls to 60 mls in dimension and many as tiny as the grain of sand (Levy, 1994).

Second in what Arny (2004) describes as backyard astronomy (Newton and Teece, 1995). During clear nights and at appropriate period of the year, we can study a great number of stars. With the naked eyes, we can explore a vast expanse of the universe spawing over 2.2. million light years away (Berman, 1995).

Third is the recent quest to unravel the mystery surrounding the so called Unidentified Flying Objects (simply referred to as UFOs) whether they are real or imagined. UFOs are supposedly aerial phenomena. This is a fact which people claimed to have recorded from ground based visual observations by pilots and passengers in aircrafts by radar installations from photographs, satellites and even astronauts in orbits around the earth. They were believed to have emanated from other planets in outer space.

Since World War II when aviation became frequent, the phenomena of UFO appeared to be no longer a mystery, as more and more authenticated sightings and landings from different parts of the world continued to appear in the press, television, radio and newspaper, etc.,

Examples were (Kent and Jeffery, 1975) Oslo in Norway, London, Italy. Most scientists and UFO researchers are now convinced that these mysterious aerial objects emanate from some more advanced planets in or outside the solar system. What seems to strengthen this view is the fantastic technological advancements credited to the supposed engineers of these aerial objects.

Can UFOs be regarded as missiles in the secret lists or closely-guided technologies of the world superpowers?:

Among many observations and explanations put forward is the view that ascribes the manufacture of UFOs to Russia, USA, Britain or some other world powers. It is only fair to state that a few of the so-called UFO sightings may well be related to prototype aircrafts of unusual design like the Stealth Advanced Technology Bomber of the USA Airforce designed to be radar proof. Others are advanced missiles, jet fighters, satellites and guided bombs in the secret lists of the arsenals of the world superpowers. Several of such cases existed during the cold wars between America and Russia when test flights of ballistic missiles were mistaken for actual attack due to computer error in early warning or monitoring devices. Another example was Project Blue Book which was a United States Airforce programme for investigating UFOs between 1947 and 1969. Also in 1997, USA released some classified information that they had been operating high flying secret spy planes and that more than half of the UFO reported during the 1950 and 1960s were these planes.

The authenticity of UFOs-real of imagined: To many assiduous scientists, the authenticity of UFOs emanating from outer space is still enshrouded by a thick veil of uncertainty. However, one is tempted to believe, at least theoretically speaking that some systems resembling those of the earth must be locked-up in some places amidst those billion stars, galaxies, the universes the entire cosmo, those missing masses and dark matter (Bochum, 1985; Naeye, 1996; Krauss, 2000).

We are probably not alone in the universe. I think the problem is that we have not had the technological know-how on how best to contact the extraterrestrial neighbours if they ever existed or at least to validate further their non-existence. Though, if it ever does turn out that they are really existing there and those sightings recorded hitherto on this subject are proved beyond reasonable doubts, the chances are that those extraterrestrial beings would be more technologically advanced than people in the planet Earth described by Copernicus as a minute incidental speck in the universe of almost an inconceivable vastness.

Thus, comparatively speaking, the greatest minds in the present scientific community will be reduced to rubbles. Perhaps, it would be best for astronomers to stick to their radio telescopes mounted on artificial satellites for more information and radio signals from the depth of the universe rather than embarking on a futile journey to space in search for possible extraterrestrial kindreds.

The state of earth-man's technology: Although, there is no immediate danger of the planet Earth being overrun by extraterrestrial beings if their existence later turns out to be the truth. Given the own technologies, a major percentage of the so-called sightings can be explained in terms of earthly events or man-made objects misinterpreted by witnesses through unusual situations, hallucinations, imaginations or simply lack of knowledge. For example, some cells can be detached and moved freely on the retina of the eyes appearing to be projected into the sky and mistook to be an aerial phenomenon.

On a number of occasions also, UFOs have been supposedly seen to perform aerial acrobatics at tremendous speed of over 1,000 miles h^{-1} , showing incredible maneuverability and acute control in split second timing without colliding, remaining stationary in the air and simply dodging an approaching missile sideways when fired at.

Earthly objects can now behave in similar fashion. For example, there are now military jet fighters and bombers that can travel three to seven times the speed of sound (i.e., Mach 3-7). The Harrier Jump Jet of the Royal Air Force displayed during the Falkland crisis in 1982 was said to possess incredible acrobatic and maneuverability skills. Likewise, the US Navy F14 Tomcat Interceptor's operational dogfight skill was displayed during the shoot-out over the Mediterranean sea in 1981 with Libya.

In another instance, a ground observer viewing the French-made, air to sea exocet missile soaring out of seawaves at nearly the speed of sound and rising about 6 ft. above water surface to home-in on the hub of its target (usually surface ships) may mistake it to be an unusual phenomenon. The exocet missiles fired by super Exocet Jet fighter of the Argentine's Airforce used this rare combination of skill and accuracy to send the HMS Sheffield, a cruiser of the Royal Navy to the bottom of the ocean during the Falkland crisis in early 1980s.

Today, unmanned missiles and aircrafts can now be computer guided to areas inaccessible to man and as such viewed from a far distance as astronomical puzzle or simply UFOs. An example of this was when the US skylab

satellite was moving out of orbit in 1976 towards the earth's surface (it was first discovered by an amateur British astronomer).

One of the options considered was to computer-guide an F15 jet fighter to a height inimical to manned flight to blast the faulty satellite in space before reaching the earth's atmosphere.

Another example is the high altitude long range Unmanned Airborne Vehicles (UAV) such as the Global Hawk (Okoronkwo, 2003; Petrie, 2003). Further, the medium-range, sophisticated Tomahawk cruise missile of the US Airforce which can cruise at a tree-top height (apparently to evade radar detection) before homing-in on its target may appear unfamiliar to a garden observer who may mistake it for an UFO. Today, there are so many polar-orbiting, geo-synchronous, sun-synchronous and geostationary satellites aloft that can be mistaken by a ground observer to be unusual phenomena.

The above facts are not meant to disprove the possibility of UFO existence as most of the facts about them can be explained through authentic sightings even in space where man's influences are meager. Many of such cases are on record. In Sirocco, New Mexico, 1964, a Police Officer witnessed the take off of an unidentified aluminium-coloured machine which had landed with a roar.

Subsequent examination of the area revealed a depression and burnt marks where the machine had landed and footprints of a type not known on earth. USAAF workers reported seeing a strange glowing object in a forest on the morning of December 27, 1980.

Belgian Airforce reported how between 1989 and 1990 they scrambled F16 fighter Jets to investigate series of UFO sightings. British Authority also released 800 cases of UFO sightings on August 18th, 2009. The case of Captain Thomas Mantel was widely reported in the 1950s. His Mustang p 51 fighter jet disintegrated after a hot pursuit of an UFO.

The British Ministry of Defence released recently on television, several archival encounters with UFOs between 1981 and 1996. One of them was a striking account of two boys who reported being spoken to by an alien from an object about 4 houses high and 40 ft. away from them in a field on May 4, 1995.

THE SPACE TIME CONTINUUM

Many views about UFO may also be explained through the concepts of space and time. The celebrated

Scientist, Albert Einstein, theorized that time is the fourth dimension after scientists interpretation of width, depth and height of earthly phenomena. Many UFO occurrences may be explained as being in a different time dimension relative to the present time or the existence of another medium on which the own physical earth is super imposed. One of such view is that of disappearance of many objects, like the then widely publicized flight 19 (a jet fighter group), ships and submarines in the Bermuda Triangle (Kent and Jeffery, 1975).

Many people now believe that these objects are being teleported to other planets or media in the universe and that the island only act as port or collecting centre. Though, explanations on this mystery still elude scientists, a ray of hope was let loose on discovering that the island is the only place on earth where magnetic north points to the true north according to Kent and Jeffery (1975). This is an unusual geodetic phenomenon.

Distance perception and estimation in space-time continuum: An important point about the time dimension is when considering the gross distance to cover if one ever embarks upon a journey into space. Earnest astronomers have been peering through great telescopes of the world for a long long time and they have come to the settle conclusion that we are in a pretty big universe. Distances are so great that it is meaningless expressing them in kilometres, nor can we depend upon any extraneous means of transportation. The interplanetary visitors or engineers of UFOs (if they ever exist elsewhere in the universe) are probably going to travel by time in which a billionth mile can be covered in sec, thus facilitating their easy transport into the solar system or other parts of the universe.

Perhaps the fastest spaceship that can ever be manufactured by the earthman will be travelling at the speed of light put at $2.9976 \times 10^{10} \text{cms}^{-1}$ (>7 times around the equator). This is a tremendous speed of course but infinitesimally parochial compared to the vast distances to be covered if one travels in space. Time traveling in space has been calculated using the distances that an object or a spaceship traveling at the speed of light will cover in a year. This is called a light year (an equivalent of 6 trillion miles or 9.5 trillion km).

So we say that it takes light 1.3 sec to travel from earth to the moon. The sun is about 8.3 light minutes away from the earth and the solar system occupies an area of 12 light h across. The nearest stellar neighbour-Centauri proxima (i.e., alpha centauri) is 4.5 light years away from us. The Dog Star-Sirius in the constellation of Canis Major is 8 light years away from us. Riegels a star in the constellation of Orion lies 900 light years away.

This in essence, means that an extra-terrestrial being or a spaceship travelling towards us at the speed of light from Riegel must have started the journey 900 years ago to be able to arrive here today!. This was about the 12th century when the Normans conquered the Saxons in Great Britain.

The Crab Nebula is 4000 light years away. The galaxy, the milky Way is about 100,000 light years across while the sister galaxy, the M31 Great Andromeda is 2.2 million light years away. The fourthest celestial objects that can be seen with the naked eyes are also over 2.2 million light years away. The edge of the visible universe lies 15 billion light years away. This means that light travelling to the earth from the edge of the visible universe began its journey over 10 billion years before the earth even existed (Army, 2004).

It sound rather astonishing and beyond comprehension to believe that these can still be regarded as the nearest neighbours in the universe described by Copernicus (1543) as being of almost an inconceivable vastness. For example, the cluster of galaxies to which the Milky Way. Belongs is called Local Group with 30 galaxies as members according to Army (2004), It is when we start considering some stellar bodies known as quasars that we can really have a grasp of distance stars. The quasars are the brightest and most distant heavenly celestial objects in the universe with their distances ranging between 10-15 billion light years away from us. The age of the universe itself according to Garching (1984) is estimated to be 17 billion years.

Staggering as the statistic is to the human mind, astronomers have looked out East, West, North and South into the endless space through great telescopes of the world (e.g., the Hubbles space telescope) some 500 million light years and they have not reached the limits of the universe. They are still seeing more and more stars and galaxies. Truly, the dimension of the universe is staggering, the stars in the universe are countless, we have really a pretty big universe. See for example, the 'Local group of galaxies (comprising 30 of them) aforementioned also belongs to a bigger group known as Local super cluster.

This in turn, belongs to another bigger group called the Great Attractor which then belongs to the indescribably big universe (Dressler, 1994; Army, 2004). We may now begin to think that distance perception and estimation by light years may seem to be inadequate also. Scientists might start considering the ability to travel with the speed of thought which is about a million time faster than the speed of light as stipulated by Orr (1976). Remember also that there is probably not a single universe as reiterated earlier on. Many universes may

constitute the entire cosmos. Another method of estimating intergalactic distances is to measure them in per sec (pc). $1^{-1} c$ is equivalent to 3.26 light years and it is about 3×10^{13} (30 trillion) km according to Army (2004).

THE SIZE OF STARS

In the clear night sky, the stars seem to be so tiny just like mere pin pricks of light in the vast darkness. In reality they are by no means small at all. It was due to the tremendous distances. The sun, a star which we are familiar with is a huge ball of gas over 100 times the diameter of the earth and over 300 times more massive. It has a radius of about 70,000 km.

Astrophysicists hopefully alert us that there are stars with radiative power of about 5000 times that of the sun which looks so glorious to us in the sky.

The Betelgeuse is another bright red star in the shoulder of Orion. This star is a splendor of starry heavens that is 215 million miles in diameter (compared to the earth which is a mere 8000 miles in diameter). Betelgeuse is some 250 times the diameter of the great star-the sun. It is so huge that if it were hollow, it could contain not only the sun but also the complete orbits of Mercury, Venus, Erath and still have some 15 million miles beyond (Orr, 1976).

Again, it is astounding to believe that Betelgeuse is by no means the biggest start in the universe. We have for example the Antares which is twice as big as Betelgeuse in size.

THEORIES ON THE ORIGIN OF THE EARTH AND THE UNIVERSE

Many theories and explanations have been put forth to help explain the origin of the earth and the universe (Trefil, 1983). Examples are the Big Bang theory, the Nebulae hypothesis. The planetesimal hypothesis of Moulton and Chamberlain, 'The Protoplanet Theory of Weizgacker and the Expanding Universe Theory of Hubbles and Humason. One theory leads to the other, probably a bigger and better one, propounded within the framework of existing paradigms or scientific rules that prevails at such times. Hence, theories can be challenged, changed, modified or discarded if found inadequate as science progresses. For example, the recent discovery of cosmic X ray sources by scientists which could only have come from the aftermath of an unimaginable (thermonuclear) explosion lent support to the 'Big Baing' theory (Garching, 1984). Marshak (2001) also supports the idea that the expanding universe began at a specific time with a cataclysmic explosion.

SEARCHING FOR EXTRA-TERRESTRIAL INTELLIGENCE IN THE UNIVERSE

Since 1960s, earnest astronomers have begun listening to extra-terrestrial radio signals with project OZMA that monitors radio emissions from several nearby star systems. More recent project SETI (Search for Extra-Terrestrial Intelligence) used powerful receivers that automatically scan billions of radio wavelengths to search for signals from other civilizations. Just of recent also, astronomers claimed to have received coded radio signals from space. Several new heavenly bodies and planets are being discovered every day. Facts and proofs now exists that many galaxies (and other heavenly bodies) are moving towards us while others are racing away from us at tremendous speed (Garching, 1984). Hubbles and Humanson (Army, 2004) demonstrated this phenomenon with the Doppler Effect which explains how the theory of an expanding universe supports the idea that galaxies are racing away from each other at incredulous speeds.

In the quest to unravel the mystery surrounding the possibility of extra-terrestrial kindred's, many questions will however remain insoluble and when solved will further generate more insoluble questions. One of the questions still to be resolved by earnest scientists is whether the universe will goo in expanding for ever or whether it will start to contract again in future.

Lucretius wrote in 50 BC that it is in the highest degree unlikely that the earth and sky is the only one to have been created. The British Astronomer, Sir Martin Rees also said absence of evidence (of life elsewhere in the universe) is not the same as evidence of absence. However, like so many of the most interesting issues in science, this story has no definitive explanation. Two groups of scientists have now emerged on this issue the many worlders who believes that millions of planets with life exist in the galaxy with advanced civilization and the loners who argues that we are the only intelligent life in the galaxy.

In the open-end and liberal search for extra terrestrial kindreds, we must not limit the search to created being that uses oxygen for life. After all in the planet earth we have life forms that are anaerobic in nature. Life forms that utilizes oxygen for respiration were able to evolve and became successful in the planet because the atmosphere of primordial earth was rich in ozone from which oxygen for breathing was initially synthesized (Marshak, 2001; Army, 2004) a foremost astronomer alerted us that the visible (i.e., luminous) objects amounts to a mere 1% of the universe's total mass. He asserted that what we presently see of the universe is much likely seeing the footprint of an invisible man, a super-being who leaves a

track but whose nature and physique we do not know. In a much similar, view, Army gave incredulous description of galaxies looking like a wristwatch watch in sideview with a bulge at the centre but tapers-off towards the periphery. We can then imagine what the nature of the hand would be the physique of the superbeing who bears the hand. Perhaps this was what inspired King David to declare that: The heavens declare the glory of God and the firmament shows his handiwork many people now believe in the idea of Intelligent Design of the Universe (IDU).

CONCLUSION

Conclusion of this study seems to be as unending as the probes into extra-terrestrial life origin of earth and the universe and space exploration itself. At present, astronomers are saddled with the arduous tasks of utilizing different sensors for detecting different bands of the electromagnetic spectrum. They are currently utilizing over 60 octaves in the visible band alone. Other bands that can still be utilized include the cosmic x rays, ultra violet infrared, radiowaves and much longer waves.

However, the whole subject for discussion remains a mystery and it would be best to leave you readers with the words of Niel Armstrong, the first man to set terrestrial foot on the moon during the Apollo II mission of July 20th 1969 who said. Mystery creates wonders and wonder is the basis for man's desire to understand. Who knows what mysteries will be solved in the own time and what new riddles will become the challenges of future generations.

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