

The Archimedes Paradox and the Engineering of the Egyptian Pyramids

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Abstract. The report makes some comparisons, as the Egyptians thousands of years before the “discovery” of Archimedes applied “*its Archimedean discoveries*” in the design and construction of the pyramids. I also describe for the first time unknown technology in the construction of the pyramids.

Keywords: Archimedes, Egyptian, Pyramids

*Dedication with great respect to †
Lawrence Badash (1934 – 2010) UCSB*

The ancient Greek nationalism developing for more than two thousand years in Europe and Britain is even more over Archimedes and his unusual paradox.

There exists a big problem connected with the personality of Archimedes and the History of Physics. He was honored as the colossal scientist, creator of the planimetry (plane geometry) and physicist with great contributions to the astronomy. Nobody in the history of the science and the humanity contributed so much to the science! Nobody exists second to him, but around Archimedes, I see very unusual singularity, curiosity and unique paradox. That is a dogma with “*the science*” – like fraud.

Remark: the life of Alexander the Great is between 351 and 323 B.C.

Archimedes was living with distance about over a century, but it is not very precisely. The difference between the dates of death is 111 years. Archimedes died in 212 B.C., Alexander in 323 B.C. We have the difference $323 - 212 = 111$ years.

The whole life of Archimedes is 75 years long ($287 - 212 = 75$). If we subtract by the year of the birth of Alexander – 356 by the number of the year of the birth of Archimedes – ($356 - 287 = 69$) that counting gives us idea for some considerations. If possible Alexander’s the Great life to be longer 69 when was born Archimedes and some as 6 more until 75 we have need 6, by that counting exist the reality for contemporary people to be speakers at the childhood of Archimedes.

Alexander died young, at age 33. If his life were 75 years long it would be for him to be a grandfather to Archimedes ($356 - 75 = 281$). It is understandable that only a single generation exists between them as age difference. They have covered in the reality. With that, remark stay as evidences stream questions that upset him and his similarity. The interests stay also over the big number of questions that never upset them and never become as interest for them, if we can be able by the distance of the time to determine them. Which questions are far away for the ancient peoples of the Alexander’s Phalanx connected with the contemporary conditions of the facts and have important theoretical interest valid for the history as science? Those are

imaginings of understandings over the structures of the solid matter. Here is eventually the idea of how solid matter can be technologically produced by human.

It is known and absolute truth already over two thousand years that the Egyptian civilization was destroyed by the Phalanx of Alexander the Great. The soldiers of the Phalanx kills all Egyptian slave-holding system, all slave-owners and any dangerous one, but they are unable to destroy all that is built by the Egyptians: pyramids, sphinxes, water channel systems, wall paintings, frescoes, ceramic, and agriculture around the river Nile. All those are stone produced. The ideologists of the Phalanx have in contempt the political importance for creating that kind of Pyramids. They never use the idea for their purposes in those variants. We do not see in the history and in the archaeology of the Hellenic territory, any tombs for the noble Hellenic people that look as the Egyptian model, neither before Alexander nor after him.

There is indication that they hate the kind of tombs, they do not like even any modification in any adaptable form for them. However, it exists with the Thracians! They do create tombs for their noble leaders. The Thracians build their tombs by soil, as round hill, not exactly like the Egyptians.

The Egyptians Pyramids are archaeological existence with bigger historical distance over five thousand years before Archimedes. The basic configuration and the form of the Egyptian Pyramids is the mathematic of the triangle, the square. A Pyramid with its capacity is a mathematical definition with all line statutes and laws of the trigonometry, as we named today. There exist also astronomical landmarks and points on the sky as orientations.

It is not very clear how long did Archimedes stay in Egypt. Some writings by this period point that it is 12 years. As a matter of fact, the intellectual elite of the Hellenics did not come from the continental territoriality of the ancient Greece, but from the Hellenics inhabited islands, only and with priority. Archimedes is the most typical in that direction evidence and example.

The circumstances that slavery system of Egypt was destroyed and it was not dangerous to be studied, investigated and researched, illustrates how inquisitive Greeks visited that oldest miracle, Egypt, and all there was under their observation, study, and evidently was described in lectures to the other Greeks after their later returning to their island fatherland. The feeding of the villages and the towns on islands territory is very easy: fish, clams, cuttle-fish, olives, birds and eggs. Eating of all that and many other types of seafood is easy for consummation row. The islands did not need fire all millenniums in the past. Hunting all that food is possible without any metal, only by hands. By the very old time, the island habitants reached there by the trunks free destroyed by the storms. The boats late for contacts at the very primitive times between the small islands are produced very simple technology: knitting by green sticks and covering with row skin by rabbits or dogs.

The main advantage of the islands' populations is that they do not have a historical enemy. The island isolation is the absolutely guaranty that populations do not have enemies. The island is surrounded by water and it never come to the need to build a fortified wall or any kind of fortifications for defending against aggressors many centuries before they developed contacts in active forms. During the ancient period, the island Hellenics had the perfect chance never to be under attack, but they formed active ideology as aggressors on the other way. With the activities of the Hellenic people, we can see a large group of ideas that they despise. Many of existing ideas and experience were documented by the civilization, but the Hellenics totally ignored them. They did not like to study them – elsewhere they had contemptuously attitude. By that way is possible for us to explain the interruption in the technological understanding towards the civilization by the building experience.

It is simple for understanding and explanation that Archimedes employed much older mathematical, physical, architectural, and astronomical knowledge for technological and architectural purposes.

It is remarkable that in the old Jewish literature we do not have any mathematical or other evidences about the Archimedes' heroism as creator of group of sciences.

The sheer existence of the Pyramids is evidence that many millenniums before Archimedes Egyptians owned his discoveries. The building of any of the Pyramids needs the knowledge, many precise instruments for triangulation measurements, apparatus, horizontal lines and plenty of experience. In very strange direction, it concerns also the hydraulic discovery of Archimedes, the hydraulic screw that sunk and moved up volumes liquids. It also looks as discovered by Egiptians, but only described by Archimedes.

Archimedes was unable to know to guess or to grasp the real technology for building the Pyramids. That is true because the work of the Phalanx has destroyed all builders' groups all engineering and architectural and measuring staff and all heavy workers, or slaves, captured by the white population of old communities as slavery.

If we give advantage to Archimedes' historical scientific priority as contributions and discoveries, because it is a different model of intellectual complex, it will not be correct – it is not the historically truth, it is a paradox of the 21 century. In the science, there must be continuity, but we do not have any second Greek scientist and physicist. Furthermore, we not have any mathematician either; the succession must be there, but we do not have it and here stays the paradox as a chain.

We do not have right to ignore in favor of old Hellenics the historical role of Egypt and the African continent of the beginning the civilization.

The event of the conflict against the Egypt shows the war between two national systems in very different levels of development. With the destruction of the

intellectual elite of the first system plenty of knowledge, experience, and traditions were lost. We can find many details and elements connected with them.

The whole of the African continental model is typically individual and it never developed itself with some different intellectual successes or with some new models of another civilization so it did not offer anything.

Few years ago in my fly to Ethiopia, the pilot offered us an interesting show. He passed very close over the Pyramid's valley next to the Great Nile. In that way, I have the unusual chance to see in the both ways architectural miracle of the Egypt Pyramids twice from the sky.

In that profile by all historical past, it is visible that the antic cultures have long periods of lethargy. The example with China has different value. China for the same length of time as Africa did not create other novelty as discovery with marvelous value except the basic seven discoveries of China. Seven main discoveries of the antiquity belong to the old China (paper, gunpowder, compass, porcelain, Great Wall, all hydraulics of the Yellow river, and the religion systems of Buddha and Confucius). Inventing the technologies of production the iron and steel stays open for real knowledge.

A specific and new detailed investigation over the African type of models is important to be done now. We have big numbers of old artifacts in Egypt and Africa but all must be reanalyzed under new criteria.

A stone stele monolith rock long 24 meters exists in Adua, Ethiopia. It was stolen by Mussolini. That stone-monument was broken before several centuries at the time of the war near Adua, but that rock might have been longer before. That kind of manufacturing if produced by stonecutter's way is impossible without iron tools, but looks produced by those. Here exist engravings and relief as cut. If that producing method is by casters' way, we can ask why we do not have any historical description over that technology if the Hellenics really have deeply arrived in Ethiopia. That Adua-mountain probably is older than three millenniums.

The stone is the hardest body of the nature. The greatest paradox stays in the ignorance of the creation over the history connected with the physics of that in simple models. The first Egyptians do not live closer to the mountains. They do not have possibility to cut pieces and move them to be able to build the Pyramids. Nevertheless, they have that architectural miracle and even now, we do not know how they have built their miracles. The very old Egyptians do not have technology for manufacturing rocks and even small stones. I have not found the history of this technology in all directions.

Let us go back again to Archimedes. The Greeks at his time did not explain to us the mastering of the Pyramids, but that mastering existed for one or ten millenniums before the Hellenics or specifically before Archimedes. Here we have two directions of thinking. One is the mathematical way of architectural creation,

unknown to the Greeks and untruly ascribed to Archimedes. The other way of understanding is that Egyptians kept the secret of that technology.

Archimedes paradox unprecedentedly has printed in all European and World Encyclopedias in all languages including in Britannica [1] and already many centuries stays inside as uncritical and not correct for the World range of history variant. In addition, the genius of Einstein except his Nobel Price disposing his theory of the relativity mix himself with his unknown reality over that paradox. That creates a new paradox for the science between the Nobel winners.

J. G. Landers [2] glorified in the same style like many authors for the notorious Archimedes, but he also mentioned the skepticism against Archimedes pointed out by Marcellus [3]. J. G. Landers used non-critically all statements over the works of Archimedes as scientific persuasive by theoretical levels, but not proven by real examples as experimentalism [4]. All archaeological evidences are arguments against the Archimedology as paradox for the science in comparison to the slavery constructed Egyptian governmental system at that far and old antic period. In our cosmic age now, we do not have similar example for understanding as the Archimedes paradox representing in the Mediterranean civilization until our contemporary days. The monograph "*Engineering in the ancient world*" [2] is addressed to the Greek and Roman engineers and full eliminated real achievements of the Egypt.

The Secrets of the Builder's Technology in the Ancient Egypt

The super-secret of the Pharaohs' architects dropped in my hands during my research that I did in Ethiopia 1972 – 1973. On my attending a funeral ceremony next to Shashamane town with an interest as researcher, in the corner of the cemetery I saw a single man non-understanding English. Without any communications between us, I observed something unusual that he did. It was impossible at that moment to ask help by translator. The old man was crying with tears. Next to him was a fresh grave. There were four buckets around him, two of them with hen eggs and two others with sand. He prepared next on the hard place by several glasses in the ground a casting form with the model of typical Amharic cross with other six additional specific forms. All that being supported with wooden sticks his grave cross was ready for cementing. In addition, he had a trowel, the masonry tool.

My big question was connected with the eggs. Is there any religion reason for people around that man to brings two buckets with about 5 – 6 hundreds eggs and to keep them in the cemetery. I simply, with respect, gave to him a silver Emperors coin. The respect and his bending thankfulness was for me evidence as that man is very poor and in very deep religious honoring directed to the relative for who he was here. As he took the silver coin he started to break the eggs, all of them were raw, and to collect yellow and white contents together, separating the shells. He filled the bucket by all eggs liquid after that he started mixing sand by hands, moving it in the

eggs bucket. When he mixed all that eggs and sand together, he and emptied that wet paste in the cross casting form. With his fingers, he fixed in the center of that not yet ready cross my silver coin and formed in the drying sand-eggs casting some other religion symbols.

A week later in my back way to Addis Ababa I came on to the cemetery to see what was happening with that grave cross. It was not difficult for me to see that as stone cementing eggs-sand cross was already fixed in traditional vertical way and my attempt to cut a piece by that cross-casting stone was difficult. The strong sun, the wind and the eggs-glue had hardened all mysteriously as stone.

Seeing that practical demonstration for me it was very easy to understand the technology used by the Egyptians to produce their Pyramids several millenniums ago. That poor Ethiopian man showed me the simple discovery for producing stones that was invented near river Nile, to build in that way the miracle, the Giza World.

All stayed very simple! In Egypt sand exist every around. It is possible to collect millions of eggs by many different birds at night next to the big river. The sand is here, the glue (eggs) also. The sun heat dries quickly and hardens that mixture and the Pyramid part by part and it is ready in less time as a few mounts. For one engineering project of a middle size Pyramid, probably not more than a thousand men are enough to work as slaves.

They are coming two different questions by that Egypt engineering. First, one is how and who did that discovery creating stone by egg-glue and sand mixture. It is visible that when egg becomes squashed in sand by human step after until the next morning a small stone is already formed. Because it is stonily dry place, not any insect or microorganisms can destroy that kind of boll. Even the termites are indifferent. Next, important geographical consideration has to be as remarkable moment. That meteorological area is rain-less, dry, desert area in Africa. Millennium years without water over the Pyramids saved those buildings from destruction. Certainly, some parts of the surface are deformed by many other reasons. There is a wind in there, but all in the back there is a long period before our epoch and us.

How were the pyramids built? Now Internet does not offer any correct way of understanding the Egyptian engineering's with the masonry and manufacturing of the Pyramids [5]. About the technology "*eggs-glue-sand*", it is possible a stone to be formed manually in a way of very high quality. The castings applications are the bamboo wooden sticks and the large palm lives, also some algae by the Nile water. In very precise new archaeological investigations it is possible to find the real details in using all unknown and review those used method.

My happy event in meeting the man in Ethiopia offers me the key of answering the main point in the secrets of the Egyptians genial builders and it is very strange why over 2300 years that secret was really unknown. It is the similar paradox as the Archimedes.

It is also a reasonable question why lately around Egypt, in Old Judea, in all territory that was hold by the Greeks and next by Romans that eggs-glue-sand technology never becomed in use. In the African Carthage there are similar conditions, but we do not find there similar buildings, because deficiency of all that stays important.

It is applicable only in the territory of Egypt. Nile River is the planet of the birds. The Egyptian Sun is the next moment. Moreover, that invention evidently belongs to the ancient Egyptians only.

How that secrecy was saved in Ethiopia? Why the person I met unexpectedly did all the secrecy manually of front of me? That was my great research chance. I am sorry, that as I was without any speech with him as deficiency of language contact and understanding. In addition, I do not know as the Coptic people, their priests probable know that simple casting masonry way of production of gravestones. However, probably also that is known between only few dedicated. The deeply spiritual pain of the man near Shashamane town and probably my gift of silver coin he had accepted as highly friendly reaction that is why he did his job in front of me and dedicated me in it. The monument of the Adua stone was produced only by that way of African ancient technology.

It is strange that this question attracts attention now over 2000 years after its false creation. The architectural science does not have answer how the pyramids are built in the old Egypt. I have a real reason to ask Archimedes for some of his scientific achievements, as they do not belong to him, because they are real mathematically visible comprehensions taken from another civilization. They belong to him. They belong to the Egyptians, but as the power of the Phalanx destroyed all reality, no one was able to read the Egyptian texts any more, and all secrets stayed forgotten for millenniums.

As the Cheops (Khufu 2900 – 2877 B.C.) pyramid was built already 5000 years ago, then how the architects of that epoch were able to construct all that forms as Archimedes, the creator and discoverer of the triangle, all trigonometry, the plane geometry, the physics, the hydrology, and many other things was born about 3000 years late.

It is amazing how the Egyptians 3000 or 5000 years before Archimedes were able to build that forms as big and high as mountains. They must to be the first people inventors of the building glue. Archimedes was in Egypt for 12 years. He studied there all the knowledge by the Egypt architects. His writings were the first in old Greek and the pupils think that the mathematics and all scientific considerations are “*discovered*” by him. That is an illusion. It is not permissible anymore because by all evidences that the pre-Egyptians demonstrated, Archimedes is not the creator of all mathematics and space measurements sciences. The Egyptians are those.

Archimedes is a plagiary man following them. However, he failed to re-invent the egg-glue-cementing capability.

That ideal building forms we have seen near Nile river are amazing and this is the absolutely evidence as Archimedes simply was a pupil, but not a diligent scholar under the Egyptians as teachers.

With Pythagoras (497 – 580 B.C.), we have the same situation! Which is it! Remember the Greek legend by Aeschylus regarding Prometheus and the theft of the fire from the Gods.

It is very understandable that the war between civilizations at the beginning of the contact between the different societies and many nations on different levels – racial, national, and religion – creates conflicts and historically open ways for vanished important technical, engineering and military secrets and finally all that belongs to the deepness of the science.

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