

Casting Ancient Egyptian Stoneworks

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Stone statues, obelisks, stele and columns created by Ancient Egyptian artisans are beautiful works of art that have survived for millennia. These Egyptian stoneworks are made of granite, diorite, basalt, schist and limestone. Egyptologists claim these statues were carved using copper and iron tools. Current theory holds that dolerite pounders along with copper and iron tools were used to carve granite statues and obelisks which can be over 100 feet tall.



Fig. 1 Detail in Egyptian Sarcophagus

Ancient Egyptian stoneworks contain incredible detail that can contain hair plaits, necklaces, feathers, amulets and other intricate details. In some Egyptian statues, obelisks and columns the images can be deeper than two inches from the surface of the stonework. It seems improbable that Ancient Egyptian stoneworks could be carved using copper and iron chisels to achieve this kind of detail, leaving behind no chisel marks.

I believe Ancient Egyptian statues, obelisks, stele, sarcophagi, columns, pyramid blocks and casing stones were cast using a stone and natron (sodium carbonate) combination. By combining granite, diorite, basalt, sandstone, schist or limestone with natron and water Egyptian artisans were able to cast stoneworks. I believe the only carving done to some Egyptian stoneworks was by stone masons under orders of usurping Pharaohs after the stoneworks were cast.



Fig. 2 **Mohammed points to carvings done by artisans using copper tools on granite at the Famine Stele**

Casting Egyptian Statues, Columns and Pyramid Blocks

Ancient Egyptian artisans used an ingenious way to add hieroglyphics, figures and detail to their stone artworks. Beeswax, or another temporary material was molded or cut into hieroglyphics, scenes of daily life, depictions of animals, etc. and these wax hieroglyphics were placed on the inside of a casting form prior to casting. The wooden casting forms were then filled with a cementitious mixture of natron and crushed stone dust and chips. Water was then added to start an exothermic reaction. Once the cementitious material completed the exothermic reaction it was turned into a solid stone product with the temporary hieroglyphics attached to the inside of the form.

When the casting process was complete the casting form was removed and the temporary hieroglyphics were washed away or gouged out depending on the material. Detailed hieroglyphics and pictures would emerge “carved” into the face of the Egyptian tomb walls, columns, obelisk or statue after the temporary hieroglyphics were removed.



Fig. 3 Workers sealing and painting statues from the Tomb of Rekhmire

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This method of stone casting was used on tomb murals, statues, pyramid blocks, casing stones, stelae, obelisks, sarcophagi, columns and other Egyptian stone artworks.

Egyptian stoneworks needed special care after completion of the casting process. After casting was completed a layer of salt would rise to the surface of the cast stonework. This salt layer could be stopped by sealing the cast stonework.

By sealing Egyptian cast stoneworks the curing process could continue and stabilize the salt of the natron component of the cementitious material. This protective sealant may have been applied to the interior of the casting form before the cementitious material was introduced. The protective sealant would be reapplied and made thicker when the cast stonework was removed from its casting form. We can see a scene of this process in the Tomb of Rekhmire above in Figure 3.

Salt was found on the interior chamber walls of the Khufu/Apophis Pyramid when it was opened in 820 A.D. by Abdullah al Mamun. The walls of the interior chambers of the Khufu/Apophis Pyramid have had a continuous buildup of salt which has been removed by mechanical means numerous times over the last forty years. Some people believe the carbon dioxide from visitors' breath is causing the salt leaching problem of the granite interior chambers of the Pyramids. If this is true then salt should also be leaching from the granite walls of cathedrals, churches and office buildings around the world. It seems strange that the granite chamber walls of the Giza Pyramids are the only granite walls in the World that leach salt. If carbon dioxide causes salt to leach from granite then it should appear everywhere you find granite walls. But, that's not the case.

I believe the real reason for salt leaching from Pyramid chamber walls is that they were cast using a natron and granite mixture. This is the most logical conclusion when you consider salt isn't leaching from granite walls anywhere else in the world. If a layer of beeswax or another sealant is applied to the walls of the interior chambers of the Giza Pyramids the salt leaching problem should disappear.



**Fig. 4 “Unfinished” casing stones of the Menkaure Pyramid
– Note the lack of chisel marks**

Two different methods were used for casting stoneworks in Ancient Egypt. The first method of casting used wooden forms lashed together with ropes. Temporary hieroglyphics were placed on the interior of these casting forms before the cementitious material was introduced. This method was used to cast most of the pyramid blocks of the Giza Pyramids, Egyptian statues, obelisks and stone columns.

A second method of casting stoneworks produced an “unfinished” look and it used a combination of wooden forms, ropes and cloth bags lashed together. Cloth bags and wooden casting forms were used in the casing stones of the Menkaure Pyramid, the walls of Machu Picchu and the walls of Cuzco. A sack of cloth was attached to wooden forms on the sides and the front of the forms would take the shape of the bulging front face of the cast stones. This gave them their distinctive bulging or “unfinished” shape.

In today's concrete industry some types of cement is transported in cloth bags. These cloth bags are called sling bags and some weigh over four tons. Ancient stone artisans used a similar type of cloth to form the casing stones of the Menkaure Pyramid. After casting the “unfinished” stones the cloth or woven container would be cut away and the wooden form would be moved to its next position and a new cloth bag would be attached to the wooden sides and filled with cementitious material to create the next stone in a course of the pyramid.



Fig. 5 **Stack of cement sling bags each weighing about three tons**



Fig. 6 **“Unfinished” cast wall at Cuzco**

Photo by Don Flood

Casting Mistakes

Many Egyptian statues and sculptures have broken noses and or headdresses. Some believe that the noses and uraeus of Egyptian statues were destroyed by succeeding Pharaohs to diminish the strength of the former Pharaohs. But, there are many statues of Egyptian Pharaohs with intact noses and uraeus. Why would some be spared?



Fig. 7 Cast Egyptian head with casting defects

A more reasonable explanation for damaged Egyptian statues, obelisks and sculptures is that they were caused by casting mistakes. Some of these casting mistakes include forms breaking during the casting process, beeswax hieroglyphics that were crushed or shifted during casting or water did not reach the most distant areas of the casting form to complete the exothermic process that turned it into solid stone.

Once water is added to the stone and natron(sodium carbonate) cementitious mixture the hardening process starts immediately. Without the correct ratio of water to cementitious material or an insufficient amount of water was added to the mixture the exothermic reaction would not be completed. These mistakes would produce a defective product. If the exothermic reaction of the cementitious material did not start you ended up with a pile of cementitious material spilling out of the casting form when it was removed. These casting mishaps are the cause of the “broken” noses, ears, headdresses and other parts we see today in some Ancient Egyptian stoneworks.



Fig. 8 **Shallow hieroglyphics caused by a form break during casting of a Karnak obelisk**

The casting forms used to cast obelisks, columns and statues would occasionally break or shift during the casting process. In the areas underneath a broken casting form the cementitious material would not have taken the full imprint of the wax hieroglyphics. Sometimes the wax hieroglyphics were damaged during casting which left excess material inside the “carved” image. In Figures 8 and 9 we can see examples where a casting form broke or water didn’t reach the cementitious material during casting and the exothermic reaction didn’t produce the desired product.

In an attempt to prevent casting defects some artisans placed the cementitious stone mixture into the casting form in a wet state. Once the casting artisans started putting the wet stone/natron mixture into the casting form they had to continue until the form was completely filled. If the casting was done in stages there would be a division that would appear as a crack between the sections of the finished product.

Casting Obelisks

When a Pharaoh commissioned an obelisk he would determine the story line he wanted to express on the four faces of the obelisk. Pharaoh’s artisans would then carve hieroglyphics out of an easily pliable material, such as beeswax and arrange the temporary hieroglyphics onto rolls of papyrus. Once the storyline and designs were

approved by the Pharaoh the temporary hieroglyphics would be transferred to the interior walls of the casting forms prior to casting.



Fig. 9 Hieroglyphic defect in obelisk caused by insufficient water during the casting process

Pharaohs next decision would be to pick out the granite used to form the obelisk. Pharaoh would be shown different areas around Aswan where large quantities of granite could be removed and used to cast an obelisk. Pharaoh would chose an area of Aswan granite to ensure a consistent color throughout the cast obelisk. If granite was used from more than one area you would get a finished obelisk with different colored sections. The obelisk in Figure 10 shows where two different areas of granite were used in the casting process.

In 2003 Dr. Zahi Hawass identified seven separate depressions where large quantities of granite at Aswan were removed for what he believed was obelisk carving. Dr. Hawass believes these areas are where obelisks were carved out as a solid obelisk, transported to its final erection site and then hieroglyphics were carved into its face using copper tools before being erected in its final position. It's more likely that these seven depressions were for obelisk casting not carving. Granite was pounded out and transported to Karnak for casting as obelisks and other stoneworks.



Fig. 10 Karnak obelisk with granite collected from two different areas used in casting the obelisk

The Aswan granite used to cast obelisks was removed with the help of dolerite pounders. Dr. Zahi Hawass has recovered over ten thousand dolerite pounders from the Aswan area. These dolerite pounders were used by workers who turned the solid Aswan granite into dust and small chips. This granite dust would be collected in cloth or reed baskets and transferred by barges on the Nile River to the casting site.

Wooden casting forms would be built at the obelisk casting site and temporary hieroglyphics would be placed on the inside of the form prior to casting. Obelisk casting was done in one session using a wet or dry mixture of granite dust, granite chips, natron and water. Obelisk casting required a large amount of manpower. A discussion of the number of men required to cast an obelisk can be found in the Papyrus of Anastasi. The Papyrus of Anastasi states one obelisk casting session lasted six hours.

The hieroglyphic for casting obelisks is currently interpreted as “to destroy” and it consists of two casting forms with one at an angle to the other. This angled casting form may represent the angle used during the casting process for obelisks. After completion of the casting process the obelisk would be hoisted into its final vertical position. If the

casting was done at an angle on a temporary platform of sand this would make it easier to erect the completed cast obelisk.



Fig. 11 Workers casting pyramid casing stones from Tomb of Rehmire
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Casting the Head of the Sphinx

The Sphinx is one of the most enigmatic sculptures ever created by Man. Many have theorized on its meaning, symbolism and when it was built. Some have theorized that the Sphinx was built thousands of years prior to the construction of the Giza Pyramids.

I believe the Sphinx was created to represent the God Shu and is a component of the Giza Throne Complex. The Giza Throne Complex is composed of the three Giza pyramids, the Sphinx, the Wall of the Crow, the “workmans barracks” west of the Khafre/Osiris pyramid, and a secondary buried wall that I call “The Wall of the Moon”. Shu was the God of the Air or Sky. One of the forms Shu took was of a being with the body of a lion and the head of a Man.

The body of the Sphinx was carved from the limestone of the Giza Plateau. The slope of the Giza Plateau allowed the Egyptians to remove material around the body of the Sphinx to create its distinctive shape. The chosen site for the Sphinx did not allow the Egyptians to carve its head because of the sloping terrain at that location. The Egyptians solved this problem by casting the head of the Sphinx. The head of the Sphinx may have been cast numerous times since its construction around the time of the Giza Pyramids construction. The model for the current head of the Sphinx was probably Thutmose IV. Pharaoh Thutmose IV restored the Sphinx and removed the sand inside the Sphinx enclosure according to the Dream Stele about 3400 years ago.

The cast layers of the Sphinx's head are very distinct and have been depicted on sketches of the Sphinx since Napoleon's expedition to Egypt in 1798. The horizontal lines that run thru the mouth, nose, eyebrows and forehead of the Sphinx mark the different casting layers. The Sphinx builders were unable to cast the Sphinx head in one session due to its height.



Fig. 12 The cast head of the Sphinx, possibly the image of Thutmose IV?

After a layer of the Sphinx's head was cast a quantity's of salt would rise to the surface of the completed layer. This salt residue should have been removed prior to casting the next layer. The horizontal lines running thru the Sphinx's mouth, nose, eyebrows and forehead show that this salt residue wasn't completely removed prior to casting the next layer. It appears that six or more separate casting sessions were required to cast the entire head of the Sphinx.

Damage to Sphinx Enclosure Walls Caused by Liquids

The Sphinx is at the lowest elevation of the Giza Throne Complex built on the Giza Plateau. In one illustration from Dr. Mark Lehner's book, *The Complete Pyramids*, it depicts a harbor just in front of the Sphinx. Its possible that the Sphinx enclosure may have been inundated during the yearly floods in Ancient times. These flood waters may have been trapped inside the Sphinx enclosure. It's possible that the Sphinx and the enclosure wall may have been wet during much of the year in Ancient Times prior to the renovation done by Pharaoh Thutmose IV when it was covered in sand.

The South and West Enclosure walls surrounding the Sphinx have some unusual wear on their surfaces. Studies by Dr Robert Schoch and John Anthony West have led them to believe that the Sphinx and its enclosure walls were built between 12,000 and 38,000 years ago. They based their ideas on the damage caused by liquids to the limestone enclosure walls and the sides of the Sphinx. They believe the source of these damaging liquids is rainwater and this damage was caused by more than 12,000 years of exposure to the elements. But, it's possible that this damage was caused by another source. It may be that the damage done to the Sphinx and its enclosure walls was caused by liquids used in offerings to the Ancient Egyptians Gods over millennia by hundreds of thousands of Osiris Pilgrims.

In addition to the possible yearly flooding of the Sphinx enclosure a large number of Osiris Pilgrims may have been adding liquids to the Sphinx enclosure during ritual baths, washings and purifying eliminations that they offered to Shu during their trip around the pylons of the House of Osiris, which is the Giza Plateau. The Pyramid Texts and Egyptian Book of the Dead mentions numerous pylons or stations where Osiris Pilgrim are required to participate in ritual washing, bathing or purifying. Some of these ritual bathings/washings/purifying actions probably took place on the edge of the Sphinx enclosure. One of the purifying rituals may have included urinating onto the Sphinx enclosure wall.

The liquids from these purifying rituals would eventually flow over the edge of the Sphinx enclosure wall and probably kept the Sphinx and the enclosure wall soaked in water and urine. This efflux offering may have been given to represent the creation of Heaven and Earth. By offering urine to the God Shu, the Osiris Pilgrims were reliving the moment of Creation.

The water and urine offerings from the Osiris Pilgrims most likely accelerated the destruction of the limestone walls of the Sphinx enclosure southern and western walls and the Sphinx. This ritual washing/purifying performed by thousands of Osiris Pilgrims over millennia could have caused the damage we see today.

If the Sphinx enclosure was used a collection basin for efflux from Osiris Pilgrims this could have led to the creation of saltpeter on the enclosure walls. With the addition of tons of urine on the enclosure walls saltpeter may have been created and possibly collected for use as a fertilizer or a fire starting material. Saltpeter causes a destructive action on the surfaces where it is found. The destructive force of the saltpeter on the

Sphinx enclosure wall would have been compounded by scraping the saltpeter crystals off the walls. The damage caused by ritual urine offerings may be the reason for the damage we see today and explain the liquid damage done to the Sphinx and the southern and western enclosure walls.



Fig. 13 Young woman possibly praising Shu along southern Sphinx enclosure wall

The Sphinx enclosure may have been used for different aspects of Egyptian religious worshipping before the Nile shifted away from the Giza Plateau. We will probably never know the true purpose behind the Sphinx's creation unless clues are uncovered at the hidden location of the Sphinx's twin, which represents the Goddess Tefnut. The Sphinx's twin is probably hidden under the sands of the Giza Plateau due West of the Sphinx. Read about the Sphinx's hidden twin in the article about the Giza Throne Theory at www.gizathrone.com.

Cleopatra's Needle

In New York City's Central Park you can visit the obelisk dedicated to Thutmose III which is known as Cleopatra's Needle. This obelisk is located in Central Park just behind the Metropolitan Museum of Art. Cleopatra's Needle was originally known as the Obelisk of Alexandria. It was gifted to the United States by the Khedive of Egypt and erected in Central Park in 1881.

Dr. Zahi Hawass has requested the return of Cleopatra's Needle to Egypt. Dr. Hawass feels the environmental forces of New York City are damaging this obelisk. Dr. Hawass

believes Cleopatra's Needle was carved out of solid granite using copper and iron tools. When in reality this obelisk was cast using granite and natron. The damage that is currently affecting Cleopatra's Needle is due to it's wax sealant being removed by environmental forces.

Cleopatra's Needle has suffered serious degradation to its surfaces from environmental forces. The book *The New York Obelisk Cleopatra's Needle with a Preliminary Sketch of the History, Erection, Uses and Significations of the Obelisks* by Charles E Moldenke published in 1891 highlights this damage. Dr. Moldenke's book has some beautiful illustrations and translations of the hieroglyphics which cover Cleopatra's Needle as seen in 1881. These illustrations show that casting mistakes occurred during the casting of Cleopatra's Needle on the West and South faces. In the preface to Dr. Moldenke's book he mentions that Cleopatra's Needle had a coating of paraffin wax in the 19th century. Dr. Moldenke felt that the wax coating would not holdup against the harsh New York weather. How right he was.

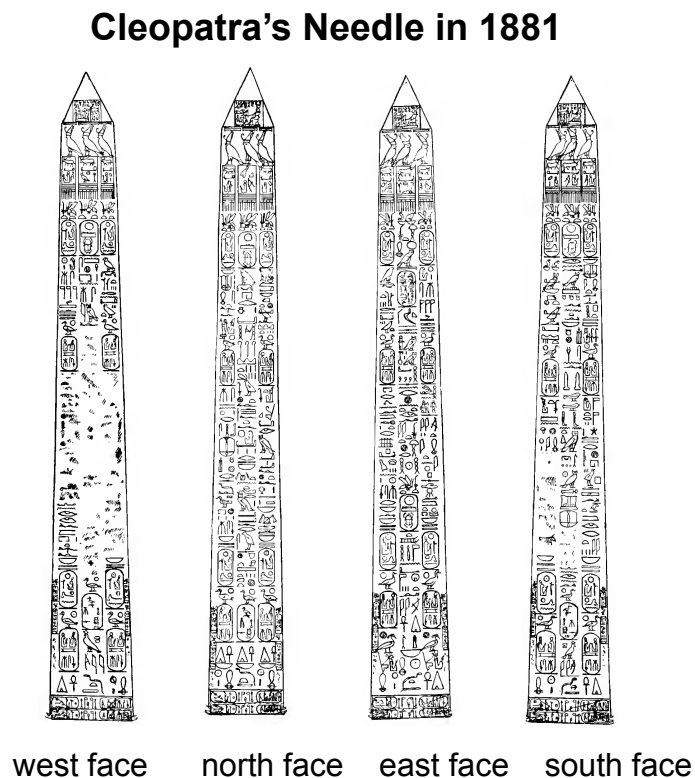


Fig. 14 Illustrations of Cleopatra's Needle in 1881
from - *The New York Obelisk Cleopatra's Needle with a Preliminary Sketch*
of the History, Erection, Uses and Significations of the Obelisks
by Charles E Moldenke

When sealants covering Ancient Egyptian stoneworks are removed they are likely to release the salt component of the cementitious material used to cast them if the curing process has not completed. This salt rises to the surface of cast objects and can be seen as a white film of salt on many cast Egyptian stone artifacts. This salt release weakens the cast object and can lead to degradation and the destruction of these beautiful cast stoneworks.



Fig. 15 **South face of Cleopatra's Needle**



Fig. 16 **West and South face of Cleopatra's Needle**

Since the erection of Cleopatra's Needle in Central Park in 1881 severe damage has occurred to this obelisk. This damage has been caused by the loss of it's paraffin sealant which kept the salt component in stasis. When the sealant was removed by rain, wind and smog the majority of the hieroglyphics from the South and West faces of Cleopatra's Needle have been washed away. This degradation will continue until Cleopatra's Needle is sealed again with a coating of paraffin or another sealant. Cleopatra's Needle doesn't need to be returned to Egypt to save it from further damage. It only needs a fresh coat of wax.

The Usurping Pharaohs

A number of Ancient statues and columns were "claimed" by succeeding Pharaohs. These statues and columns were altered and modified to add the names and exploits of usurping Pharaohs. Usurped statues and columns will contain original hieroglyphics which are clear and detailed in marked contrast to shallow and ragged hieroglyphics added by the artisans working for the usurping Pharaohs. Some Pharaohs added hieroglyphics to the base of their statues to foil usurping by other Pharaohs. This did not stop the usurping of statues but, in some cases it can help identify the Pharaoh who originally commissioned the cast stonework.



Fig. 17 **Contrast between cast and carved hieroglyphics on usurped stonework**

Carved hieroglyphics of usurping Pharaohs should have rivaled or been better than the original hieroglyphics of carved stone artworks. Because the tools used by the usurping workers would have been more modern and stronger than the original artisans. But, usurping hieroglyphics do not compare in quality to the original hieroglyphics in Ancient Egyptian stoneworks. Current theory doesn't explain why usurping Pharaohs would accept inferior workmanship of their stone masons compared to the masons of the Pharaoh who commissioned the building of the stonework.



Fig. 18 **Contrast between cast and carved hieroglyphics on usurped column**

The true reason for the difference between the detailed original hieroglyphics in Egyptian stoneworks and the shallow, ragged hieroglyphics of usurpers is that Ancient Egyptian stoneworks were cast. The usurping hieroglyphics we see on Egyptian stoneworks were carved into cast stoneworks with copper and iron tools at a later date after the stoneworks were cast. Granite cannot be effectively carved using copper tools. And copper tools cannot produce the detail we see in the original hieroglyphics of cast Egyptian stoneworks. The only logical conclusion you can reach is that these Ancient Egyptian stoneworks were cast and carvings were introduced at a later date with copper tools directed by usurping Pharaohs.

To Cast or Not to Cast? That is the Question

It's time to re-examine Ancient Egyptian Pyramids and stoneworks with a new eye. For years the accepted theory stated that Ancient Egyptian stoneworks were carved using copper and iron tools. But, the hieroglyphics done by usurpers doesn't come close to the original in quality and depth. When you realize it's possible to cast granite, schist, sandstone, limestone and basalt you have to ask the following question. Were Ancient Egyptian stoneworks carved or cast? And if you can cast a granite stonework why would you try and carve a granite stonework?



Fig. 19 Ancient Egyptian statues with some characteristic casting clues

Here are some clues to help determine whether an Ancient Egyptian statue, obelisk, column or sarcophagus was cast or carved –

Is the space between the arms and torso of a statue filled with material?

Is the space between the beard and neck of a statue filled with material?

Is the space between the knees and feet in kneeling statues filled with material?

Does the statue or column contain usurping hieroglyphics which lack detail or depth?

Does an Egyptian stonework have deposits of salt appearing on its unwaxed surface?

Does one surface of the statue or sarcophagus have a rough texture?

Does an obelisk have misshapen, shallow or uneven hieroglyphics?

Does an Egyptian statue have a support pillar on the back of the statue?

Is there no open space between the legs and throne of a sitting figure?

Is the space between the left foot and right foot of a standing statue filled with material?

If the answer to the preceding questions is yes then it's likely you're looking at an Ancient stonework which was cast with a natron/stone mixture.

Preserving Egypt's History

To effectively preserve an ancient object you must first understand how it was produced or created. Without this knowledge you can destroy ancient objects you want to save.

Coating ancient objects with materials you believe will preserve them for posterity may actually accelerate their destruction. Understanding how an ancient artwork was created should help you determine the best way to preserve that artwork or stonework.

To the custodians of Ancient Egyptian cast stone artifacts it would probably be a good idea to make sure a layer of sealing material remains on the surface of these stoneworks. If Egyptian statues and columns were carved, it can't hurt to keep them covered in a sealing material. But, if they were cast using a natron/stone mixture then it is possible they may lose compressive strength when they are exposed to today's environmental factors. Currently, salt is appearing on the surfaces of some Egyptian artworks in museums around the world.



*Fig. 20 Cache of cast Egyptian statues found at Karnak
courtesy of G. Legrain*

Conclusions

When natron (sodium carbonate) is mixed with limestone, granite, basalt, schist or sandstone and combined with water an exothermic reaction occurs which transforms the mixture into a solid block of stone. By combining natron with granite, basalt, schist, sandstone or limestone with the proper water/stone ratio you can create beautiful solid stone objects.

By placing carved designs made of a temporary material, like beeswax, to the interior of casting forms it was possible to create “carved” hieroglyphics and scenes of daily life on

cast Egyptian stoneworks. When a cast stone object was removed from its casting form the temporary hieroglyphics were washed away leaving a reverse or negative design in the cast stone object which appears to be “carved” into the surface of the cast stone artwork.

Some Ancient Egyptian statues and columns contain carved artwork and hieroglyphics which were carved by workers of usurping Pharaohs. These usurping workers used copper tools to carve jagged, shallow designs and hieroglyphics on the surface of cast stone artworks. Usurping hieroglyphics and designs are of inferior quality because it is impossible to carve hard stone with copper or iron tools with any detail or depth.

Ancient Egyptian workers using diorite balls crushed granite, schist, basalt, limestone and sandstone into a coarse gravel and dust. By combining this stone dust with natron and water the Ancient Egyptians could cast pyramid blocks, stelae, statues, obelisks, columns, sarcophagi and tomb walls.



Fig. 21 **Detail of cast Egyptian stonework**

The Giza Pyramids core blocks were cast using wooden casting forms. These casting forms were filled with a mixture of natron and crushed limestone. Once the form was filled with the cementitious material of stone and natron water would be added to start an exothermic reaction. When the cementitious material completed the exothermic

reaction it hardened into a solid block of stone and it appears to be natural stone. The wooden casting form would be removed, repositioned and the process was repeated over and over again as the Ancient Egyptians built the pyramids on the Giza Plateau.

Stone casting was done using either a wet or dry cementitious mixture. The dry method involved filling a casting form with the cementitious material and adding water to start the exothermic reaction to turn the mixture into a solid product. The wet method of casting required casting with a wet mixture which was prepared as the form was being filled. By using the wet casting method the casting artisans could avoid areas inside the casting forms where there was an incomplete exothermic reaction. The dry method of casting occasionally led to “broken” headdress, noses, ears, etc., because the cementitious material did not start or complete the exothermic reaction due to a lack of water.

When European explorers arrived in Egypt in the 18th and 19th century many of the Ancient Egyptian monuments were covered with colorful paint and highlights covering the detailed mural scenes and hieroglyphics. Today these same monuments have lost their colorful coatings due to environmental forces. Some Egyptian monuments are also displaying a salt buildup that has been blamed on water coming from underground sources. To prevent a further deterioration of Ancient Egyptian stone artworks it is necessary to seal them with a layer of beeswax or another sealing material to protect them from today’s environment. The cost of sealing Ancient Egyptian monuments would be a small price to pay to preserve these great works of art.

The Rosetta Stone had a wax coating when it was uncovered by a French soldier in 1799. This layer of sealing wax has been removed. If the Rosetta Stone was cast, as I believe, then the removal of its protective wax coating can lead to its destruction. You can probably observe salt leaching from the Rosetta Stone’s hieroglyphics today and the leaching will continue until it is sealed again. The Rosetta Stone needs a new coat of beeswax and the longer we wait the more likely it will experience irreversible damage.

The time has come to re-evaluate our perception of Ancient Egyptian stone artifacts and how best to preserve them for future generations.

About the Author- I currently hold two United States patents which combine sodium carbonate(natron) with limestone, granite, schist, sandstone or basalt with water to re-constitute the cementitious material into solid stone objects or products. Please check out U.S. Patents - #6,264,740 and #6,913,645 at the web site - www.uspto.gov.