Study of Ancient Grain Storage Techniques during Famine/ Drought - Lessons learnt from the Time of Prophet Joseph (as)

By

Professor MMH Nuri*

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*Professor MMH Nuri is Professor and Chief Executive of Tahir Heart Institute (THI), Chenab Nagar (Rabwah) Pakistan. THI is a state of the art, not for profit, partly charitable heart hospital in the most impoverished region of Punjab Pakistan. He is also Chairman, Humanity First Pakistan, an Ahmadi organization, presently working in Tharparkar, Sindh, Pakistan, for the famine and drought victims.
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In the present day and age wisdom of the Holy Quran as expounded by Khalifatul Masih the IV\textsuperscript{(ru)} and the V\textsuperscript{(aba)}, surpasses all human wisdom.

Hadhrat Amir-ul-Mominin, Khalifatul Masih the V\textsuperscript{(aba)}, in his Friday sermon, dated 4\textsuperscript{th} November 2011, forewarned the entire world, particularly European Ahmadis to stock food ration in the wake of present financial downturn and impending nuclear conflict.

Prior to this, Hazrat Khalifatul Masih the IV\textsuperscript{(ru)}, in one of his Tarjumatul Quran class on Surah Yusuf, advised Ahmadi scholars to search and explore various grain storage techniques during the period of Prophet Joseph\textsuperscript{(as)}. This information, thus gathered, may be helpful in planning grain storage methodology in the present day and age.

Introduction

If we look at ancient Egyptian history, we would come to know about the great famine which hit the Nile valley for seven years. ‘Joseph! O thou man of truth, explain to us the meaning of seven fat kine which seven lean ones devour, and of seven green ears of corn and seven others withered; that I may return to the people so that they may know.’ He replied, ‘You shall sow for seven years, working hard and continuously, and leave what you reap in its ear, except a little which you shall eat. Then there shall come after that seven hard years which shall consume all that you shall have laid by in advance for them except a little which you may preserve. Al-Quran (Surah Yusuf 47-49) \textsuperscript{[1]}

Evidence shows that the great famine was during the time of Pharaoh Djoser, about 4600 years ago. Prophet Joseph’s\textsuperscript{(as)} divine wisdom exalted him to the status of financial adviser, ‘prime minister’ (Imhotep) \textsuperscript{[2]} during which Egypt (which encompassed many neighbouring nations) became a truly great nation.
It had gathered the wealth of all the surrounding nations by selling grain to them during the drought. During the seven years of plenty, under Prophet Joseph’s (as) wise guidance, people began to organize a great administrative center that would handle the collection and selling of the grain to all the surrounding nations effected by famine.

**Ancient Storage Techniques**

During Prophet Joseph’s (as) time several techniques of food storage were under practice. Some of the most common long storage methods were:

1. **Underground Storage**

   Considering the climate conditions of Egypt and the conditions that were to come during famine, Prophet Joseph (as) wisely selected underground storage as the primary form of storage because of its large capacity and long term protection of grains. Some primary advantages of underground method of storage were:

   (i) Low cost of construction as compared to that of above ground storage of similar capacity,
   (ii) Ambient temperatures are constant and relatively low.
   (iii) Relatively safe from thieves as they are hardly visible.
   (iv) Fewer problems with rodents and insects.
   (v) No need for continuous inspection.

   Underground storage method is still practiced in Sahailian countries (Senegal, Mali, Nigeria, Chad, Sudan), India, Turkey, and southern Africa. This method of storage is still
used in dry regions where the humidity level does not endanger the contents. Conceived for long term storage, these pits varied in capacity (from a few hundred kilograms to 200 tons). This was the main storage method adopted by Prophet Joseph(as).

![Figure 2: Some of the grain storage bins used by Prophet Joseph(as) for storage purpose.][5]

### 2. Solid wall bins

Many of the advantages of underground storage bins were also shared by solid wall bins. Such grain stores were usually associated with dry climatic conditions, as in ancient Egypt, under which it was possible to reduce the moisture content of the harvested grain to a satisfactory level simply by sun drying it. This was another storage method which was probably ingeniously devised by Prophet Joseph(as). Solid wall bins were therefore traditional in the Sahalian region of Africa, and in southern African countries. Silos are the most common example of solid wall bins still in practice. The capacities of such silos could vary from 150 kg to 10 tons.

![Figure 3: Image of a solid wall bin used to store grains.][6]

### 3. Clay Jars
These were large clay containers whose shape and capacity vary from place to place. The upper part was narrow and was closed with a flat stone or a clay lid, which was sealed in position with clay or other suitable material. They were used for storing seeds and legumes. Probably these clay jars with grains were distributed to effected people for safe transportation and storage.

4. **Calabashes, gourds, earthenware pots**

These small capacity containers were most commonly used for storing seed and pulse grains. They had a small opening, thus they could be made hermetic by sealing the opening with clay or wooden cork. Although in use in ancient times, calabashes, gourds and earthenware pots were most unlikely to be used in ancient Egypt.

5. **Storage baskets (cribs) made exclusively of plant materials**
In humid countries, where grain cannot be dried adequately prior to storage and needs to be kept well ventilated during the storage period, traditional cribs are made by using locally available plants such as reeds, bamboo, timber etc., usually for less than three years. These plants were not in excess in the African region.

These storage baskets were unlikely used due to their small storage capacity and the climatic conditions of the region.

Figure 6: Storage baskets made from organic material such as plants leaves or stems \([11]\)

**Grain Storage Bins (as designed by Prophet Joseph\(^{(as)}\))**

Egyptologists found a large complex at Saqqara which contained the future burial site of the Pharaoh Djoser, but also included a walled in center which contained huge grain storage bins.\([11]\)

The structure of the complex discovered, revealed that there was only one entrance into this center and there was a single outside entrance into the system of storage bins.

Figure 7: The complex at Saqqara Egypt, built during the reign of the Pharaoh Djoser. Prophet Joseph\(^{(as)}\) built this complex. \([12]\)

Surrounding the Step Pyramid of Pharaoh Djoser, is a very beautiful and elaborate wall containing one real and thirteen false entrances.
At the main entrance at the Southern end on the east wall, one enters a long hallway of forty columns, twenty on each side. Each column is connected to the main wall by a perpendicular wall, forming small rooms between each column.

Figure 8: Main entrance at east wall of step pyramid [13]

Figure 9: Graphic view of (a) Top view of Saqqara complex showing the burial site of Pharaoh, grain storage bins and entrances to the complex. (b) Bottom view of the complex showing the storage pits dug deep into the earth and accessible by underground tunnels. (c) Side view of complex showing the pyramid of Djoser, high boundary walls and the underground storage pits. (d) Eleven grain storage bins and 40 cubicles that lead to the first storage bin. (Prepared by Anjum)
Some Egyptologists think that these little cubicles thus formed were for statues. However, no pedestals were found in the remains, which is an important point, because statues were always erected on pedestals. Review of literature reveals that statues may vanish but pedestals remain.

![Image of cubicles and pedestals]

Figure 10: Hallway leading to the storage area [14]

After exiting these cubicles, comes a series of very large pits which extend very deep into the earth. These are extremely large in size, much larger than any burial chambers found. They are all centrally accessible by a connecting tunnel, which extend to little above ground. One of these pits has a staircase which is extending down to the bottom. For these reasons, we think that they were not built as tombs. If they were, than they would have been constructed underground and they certainly would not have been so incredibly large as other burial sites are not that much large and none of them is of such infrastructure.

The design of the eleven pits is very impressive. Out of eleven of them, only one contains a very elaborate stairway. The pits were filled and the tops were sealed with wooden timbers and stones. After that the entire grain could be accessed from only one entrance and there is one entrance into the pits from outside the wall enclosure of the complex. This second entrance could either be used as an emergency exit or was a later construction or was silent construction by thieves or robbers. Two of the eleven pits were reserved to be later used as seeds, when the famine was over. This is aptly mentioned in the Holy Quran “…except a little which you may preserve” Al-Quran (Surah Yusuf 49). These words of wisdom speak volumes about the superiority of the Holy Quran over other Scriptures.
Figure 11: The staircases that lead to a central exit point for all the grain storage bins. [15]

Last of all, grain was found in the floor of these pits, which has been explained by Egyptologists as having been from foods buried with deceased who were buried there. However, no evidence of burials was ever found in these pits. We conclude that the divine wisdom of Prophet Joseph[9] was so ingenious that the present day discovery by Egyptologist showed food grains still preserved for more than 4600 years.

Figure 12: Graphic view of (a) Nine storage bins designed to be consumed during famine. (b) Storage bin with some grains left at the bottom. (c) Two storage bins with a connecting tunnel. (d) Grain sacks stacked on one another. (Prepared by Anjum)

Storage Bins or Tombs?

The tombs of Pharaohs were underground while these massive structures extended to well above ground level, which indicates that they were not tombs. The ancient Egyptians buried their dead with so many valuables and provisions for their afterlife, plundering of
tombs were always their biggest fear. Therefore, we conclude that these massive pits had another purpose. Also there is a difference in terminology, in all the other ancient cities in the world, whenever large bins such as these were discovered, they were recognized as storage bins, but in Egypt, the scholars tend to term everything they find a “tomb”.

**Grain Gathering Methods**

In the Biblical account, we learn that Prophet Joseph\(^\text{as}\) appointed men throughout the land of Egypt to oversee the gathering and storing of the grain in all the cities. Anything grown on the land of Egypt had to pay a levy of fifth part that belonged to the state. This tax did not even stop even after 2000 years of the famine. Bible says in this regard:

"Let Pharaoh do this, and let him appoint officers over the land, and take up the fifth part of the land of Egypt in the seven plenteous years. And let them gather all the food of those good years that come, and lay up corn under the hand of Pharaoh, and let them keep food in the cities." Genesis 41:34-35 \(^\text{[16]}\)

**Grain Distribution Methods**

Every city had stored grain from its region, but at the complex at Saqqara, we have these massive pits which would have stored an incredible amount of grain, more than a single city would have needed. At the entrance to this complex, as we described earlier, there are forty small cubicles, each just the right size to hold a single person who could administer the receipt of payment from people coming to purchase grain.

![Figure 13: A cubicle for the person to administrator the receipt of payment \(^\text{[15]}\)](image)

There could have been several cashiers of each language group to handle the purchases of those who spoke various languages. A special exchange money “carte” was given to every account holder in the stores. “Carte” was solely used for this purpose. The person was supposed to go the cashier and give him “carte”, which in return would grant him access to the grain equal in amount of one camel load.
Conclusions and Lessons Learnt

In the present atomic era, with the world at the verge of war with other nations, mankind is living in fear of annihilation. As fallout of atomic war, vast areas of the world would suffer from famine and drought.

Under these circumstances, in guidance from the Holy Quran, as exemplified in the story of Prophet Joseph (as), nations should be prepared for the worst. With divine guidance he (as), achieved a miraculous feat of grain storage and distribution.

As Ahmadi Muslims we believe, a well organized plan, implemented on parallel lines, may be adopted in the present hour of need. The lessons thus learnt from the exceptional wisdom of Prophet Joseph (as), will certainly alleviate misery and save innumerable lives.

Acknowledgement

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References

[5] http://4.bp.blogspot.com/_CVanQfF-7vM/S9cy5LmqpeI/AAAAAAAAACUg/-tEFDRN2NdE/s1600/SiloCoy595.jpg