



A BRIEF HISTORY OF GRAIN STORAGE

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The history of grain storage is both older than and interlinked to the history of farming. Cooked and uncooked grains have been recovered from the teeth of our Neanderthal cousins, almost 30,000 years before the Agricultural Revolution.

The first farmers are thought to have been the Natufian people, nomads originally from

Egypt. They practiced seasonal occupation, which included areas of the Levant; and stored their harvest in leather bags or woven baskets. Approximately three weeks of harvesting could feed a family of four for a year.

The Younger Dryas caused massive climate change, particularly across Europe and the Middle East. This reduced the Steppe land of the Levant, causing humans to settle around lakes and water courses. They planted the last of their grain store and cared for the plants to which they had become accustomed.

A more settled lifestyle allowed for the production of non-transportable storage vessels such as pottery as well as grain-processing technologies such as the sickle or the pestle-and-mortar. Grain was stored in grain bins and silos (earliest

discovered dates to circa 11,300 cal BP in Dhra, Jordan Valley).

Cereal grains had transitioned from a high calorie supplement to be the main food source people depended upon. It allowed for population expansion, providing more people to work the fields, a larger surplus, and the discovery of alcohol. Wheat grains naturally start fermenting when they get wet. What may, at first glance, have appeared to be a ruined store of grain transformed into one of humanities favourite drinks- beer.

The grain surplus, in turn, allowed for the development of elites and the social hierarchy we are accustomed to. In a farming society a surplus is needed to feed artists, artisans, chieftains, accountants, traders and all other non-farmers.

The dependence upon a surplus left people vulnerable to famine via environmental degradation. This was partially resolved by storing grain in multiple silos; in this way, if rot occurs in one silo it cannot spread to the whole supply. It is also a lot more time consuming for grain thieves to break into multiple silos rather than just one. Silos are easy to recognise in the archaeological record as they usually have a circular base and there will be many of them lined up neatly in rows.

Wild cats were first domesticated in the Fertile Crescent of Mesopotamia for the purpose of grain-storage-security-guards



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against rodents. Only cats of Asian or African origin were able to be domesticated and many rich chieftains kept tamed cheetahs as power symbols.

Cats were later domesticated in Ancient Egypt (they tamed five varieties of cat), where they gained god-like status. The Ancient

Romans are credited with the spread of cats across Europe, although many Romans preferred the indigenous weasels and polecats as guards as these did not attack their pet birds.

There are many different storage techniques used by people around the world and at different times. The larger the community, the more extensive the storage facility.

The simplest storage technique was the use of bags, sacks or dung-pots; these are for individual or family supply. Some communities, such as on the Gran Canaria Island, north west Africa (from 1000ACE), or along the Iberian Peninsula (circa 12-13th Century ACE), practiced communal granaries where multiple families, and even different communities, stored their bags of grain together, divided into community silos whilst the granary was mutually protected. These granaries were dug into the side of a cliff or built as intercommunity buildings.

Storage pits, also discovered along the Iberian Peninsula (circa 5th millennium BCE), were also effective. The outer layer of

grain germinates creating anaerobic conditions and keeping the rest of the grain safe. These are also very effective against grain thieves as they cannot be detected above ground.

Elaborate storage facilities, such as at the 'palace' buildings of Minoan Crete, were internally designed as labyrinths to confuse and trap thieves.

Much of the grain storage technology was consistent up until the beginning of the 20th Century, where it was influenced by the industrial revolution and following technological advances which continue to this day.

Silos traditionally were built as circular structures with internal levels (favouring aerial storage) so that the grain could be stored above ground—safe from weather, insects and rodents; plus, having multiple silos reduces the risk of environmental degradation.

Storage and trade led to the invention of writing and mathematics for the purpose of accounting.

One of these modern advancements in technology are metal silos. Metal silos have been adopted in Latin America and are starting to be implemented in rural areas of Africa. They have been shown to have a 96 percent reduction in grain loss and can store grains, maize and beans for up to three years.

These silos are built by locals from local materials and have been shown to improve farming and living conditions at family and community levels. So much so, that small farmers have been able to implement many improvements to their farms, allowing for expansion into animal farming. The adoption of these silos allows people to store grain for months longer than those still using traditional storage methods. This gives them the advantage of playing the market to get the best deals for their grain.