Mesopotamia Foodways

The Traditional Diet

Staple Plants

Mesopotamians ate a barley based diet that included unleavened bread and beer both produced from barley. Barley and other cereals(millet, emmer wheat, rye, and in the 1st millenium BCE, rice) were ground with portable millstones to various grades and mixed with water without any leavening agent (Nemet-Nejat 157). The onion family was basic to the ancient Mesopotamia diet. This included leeks, shallots, and garlic. Lentils and chickpeas were also staples in the diet (Nemet-Nejat 159). Many of the staple foods were combined to form soups. The base of the soups was of a starch or flour from chickpeas, lentils, barley flour, or emmer flour. Onions, lentils, beans, mutton fat/oil, honey, and meat juice may all have been added to make a thick, nourishing soup that was a meal in a bowl (Nemet-Nejat 159). Linseed was the only oily seed cultivated before 6000 BCE. It was used mainly to produce a fine oil that was a staple food of the Mesopotamian diet. Commercialized production of linseed oil was important to palace administration for money in the old Babylonian period. (Nemet-Nejat 247). Date palm had a high nutritional value and could be preserved and stored, making them a staple crop. Every part of the date palm could be used. The palm sprout provided a celery-like vegetable, and an alcoholic beverage was made from the fruit. Dates were sometimes used as a sweetener. The date and pomegranate were the most common fruits.(Nemet-Nejat 247).
A variety of dried fruits were pressed into cakes for preservation. Legumes were dried in the sun. (Nemet-Nejat 160). Barley was used as a means of exchange as well, like silver. Wages mostly were paid in barley. Dates were also used as articles of commerce at times (Nemet-Nejat 245). Vinegar (t.a¯ba¯tum) could be fermented from barley or grapes and was a household staple often grouped together with sauce (sˇiqqum). (Leick 179).

Roots, bulbs, truffle-like fungi, and mushrooms were harvested and eaten. Sesame, linseed, and olive oils were used in cooking (Bottéro 37). They dried grains, legumes (beans and lentils), vegetables, and fruits especially dates, grapes, and figs. They also preserved certain fruits in honey (the wealthy who had access to honey) (Bottéro 39). Fruits commonly grown included apples, pears, grapes, figs, quince, plums, apricots, cherries, mulberries, melons, pomegranates, as well as pistachios (Nemet-Nejat 159). A variety of lettuces, cabbage, summer and winter cucumbers (described as either sweet or bitter), radishes, beets, and a kind of turnip. Fresh vegetables were either eaten raw or boiled in water (al dente) (Nemet-Nejat 159). Spicy and aromatic seeds such as cress, mustard, cumin, and coriander were used in cooking with many others left unidentified (Nemet-Nejat 247). Olive trees grew only in the foothills, and olive oil was manufactured locally (Nemet-Nejat 247).

Many herbs and spices were available, such as salt, coriander, black and white cumin, mustard, fennel, marjoram, thyme, mint, rosemary, fenugreek, watercress, and rue (an acrid, green leafy plant). (Nemet-Nejat 160).

Grain consumption

Porridges and mushes were usually eaten immediately. Otherwise, they were either dried or allowed to ferment. Grains were also consumed in the form of bread. There were around 300 different types of bread that each had a different combination of ingredients. Various flours, spices, fruit fillings, and the addition of oil, milk, beer, and/or sweeteners were used to make the breads. The breads ranged from very large to tiny and were given special shapes such as a heart, a head, a hand, an ear, and even a woman's breast. Grains were also consumed in the form of beer made from malted grains (Jean Bottéro 38).

Specialty breads were made by "beating in" various fats, such as sesame oil, lard, mutton, "butter," and fish oil. The oil was sometimes seasoned or flavored to disguise the rancid taste that the fat would have acquired quickly in the heat of ancient Mesopotamia. Honey, ghee, sesame, milk, fruit juices, cheese, and fruits could be added to the dough (Nemet-Nejat 158).

Grain Preparation

Grinding

Grains were crushed on a grindstone to make various meals and flours and could then be made finer by sifting (Jean Bottéro 38). SEE ABOVE on fermented porridges as well.

Within each household, a mortar and pestle, made of baked clay or stone, were used to pound some cereal foods and legumes, and hand mills, made from imported volcanic rock, were used for grinding barley, sesame seeds, and spices (Nemet-Nejat 126).

Mortars, pestles and querns are frequently discovered at archaeological sites dating from the Upper Paleolithic onwards. Saddle querns seem to be the most common cereal grinding tools through all prehistory and early history of Mesopotamia and the Mediterranean (Sotysiak 2805).

The saddle quern remained the main tool until the 6th or 5th century when the so-called Olynthus mill in Greece was invented. This was followed by the rotary hand mill which was composed of large rotary querns that were moved by donkeys or horses. Watermills were not invented until the 1st century CE. The final product of these later technologies after the saddle quern was believed to be of a finer, less abrasive quality.

New research published in June of 2011, suggests that the shift to these later cereal technologies may have occurred in Mesopotamia before the late Roman period. While there is no direct evidence such as the discovery of a Olynthus mill at an ancient Mesopotamia archeological site, there is evidence of changes in dental microwear patterns that may exhibit a shift to a less abrasive diet that ultimately could be indicative of a shift in flours used from new cereal grinding technologies. The plant species and baking technology did not change, and thus cannot account for the change in dental microwear that has been discovered. This has lead scientists to make the assertion that changes in dental microwear must have been due to a shift in flour preparation technology They theorize that it would have occurred before the Late Roman period that has previously been believed to be the period of such a transition in cereal grinding technology (Sotysiak 2805, 2808).

Bread Making

Unleavened bread was baked as it is today in many parts of the Middle East. A fire was built inside of an upright clay cylinder, resulting in very hot exterior walls, upon which loaves of unleavened bread were placed to bake. The bread baking technique is still commonly used in the Middle East, where even the name “tanntiris” derived from the name used by the ancient Mesopotamians “tinfiru.”

By the third millenium B.C.E., dome ovens were built in order to provide a less intense heat that was retained in the oven walls and floors. The steam produced by the foods being cooked in the dome ovens made a more humid cooking environment. Using this oven, the Mesopotamians were able to prepare fermented doughs and leavened breads with success (Jean Bottéro 39).

Baking

A cooking pit or open hearth could be used for roasting, broiling, cooking on hot stones and cooking in supported pots. The earliest type of oven used by people in the Ancient Near East was the clay tannur (tinu¯rum): an open-topped, bell-shaped oven with thick walls and an opening near the bottom for fuel. The tannur was fixed into place on the floor – the fitted kitchen has a long history. Via the open top, dough was stuck onto the inside of the pre-heated walls and baked as flat bread.The Akkadian word, tinu¯rum,and the modern Arabic word, tannur, are cognate and people still use this type of oven in the Middle East today. Leavened bread was baked in another type of oven, the dome oven, which had a domed chamber with one opening for fuel and food. Fuel burnt in the chamber heated the oven, the ashes were raked out and food put into the chamber to cook.

Good examples of dome ovens from the Old Babylonian period have been excavated at Ur and Mari. In Ur, a private house contained three mudbrick circular dome ovens with their openings set into two walls of Room and their chambers in two adjacent rooms. Big ovens of this type were probably used for large-scale baking, both directly for people and for offerings made to the gods in temples.

Wholegrains

The simplest method of preparing barley and wheat for eating is by roasting or parching the grains. Archaeological evidence for this is difficult to obtain. The botanical remains indicate only the occurrence of barley or wheat but not what, if any, methods were used to prepare them. Any simple hearth or kitchen range could be used for parching, and such structures are common on excavated sites.

Burghul

Another method of preparing whole grains is the manufacture of burghul. The whole grains are boiled in open vessels with as little water as possible until they are soft. They are then spread out in the sun to dry. Burghul keeps well. When it is required for eating it can be prepared by steaming or boiling; only a small amount of liquid is needed. The burghul can then be eaten with oil, meat or vegetables or it can be added to soup. (Ellison 89). A study of burghul making was carried out by the archaeological team working at Asvan, Turkey, in 1972'). They found that it

was made once a year, over specially constructed hearths. These were often trenches about half a metre wide by 2 metres long and 60 cm deep. The grain was boiled in cauldrons set over the trench which was filled in again the same day after use. This use of a trench recalls the so-called Opferstdtten trenches found at Warka in the Eanna precinct. The purpose usually assigned to them is that of offering places for the gods. However, the fact that the troughs were apparently infrequently used may mean that their purpose was for the production of something which only required periodic preparation-in other words burghul. The width and even the depth of the Warka troughs are similar to those of the burghul-trenches at Asvan.

Cereal Dishes

Words for roast barley, semolina, and a type of groats appear in lists of food provided for the kitchen, for royal meals and as ingredients for beer. One particular dish made from semolina is sasqzi. This was a creamy or soup-like dish, prepared from semolina made from emmer wheat or barley and mixed with water, milk or oil. It could be served plain or mixed with dates (although the latter are mainly confined to ritual occasions). Another preparation pappdsu was probably made from coarsely crushed and malted barley (very occasionally emmer wheat). At Mari both sasqutand pappasu appear to have been side dishes rather than main parts of the king's meals").

Breads and flours

Grain was also ground into flour, mainly for the production of bread. Flours of different fineness can be produced according to the amount and type of grinding and sieving. That different grades and qualities of flour existed is shown by the number of words and phrases used to describe them (e.g. 'coarse barley flour' zi.AE/tappinnu,a flour sometimes issued as rations and zi mirqu probably finely ground flour)7). In present day Iraq, bread is made by fermenting the dough, either by the yeasts in the air, or more usually by the use of a sour (a piece of the previous batch of dough). The dough is flattened by tossing and patting from hand to hand until it is very thin. It is then baked either by placing it on the inside of a tannour-oven, or on an iron plate. The tannour-oven is constructed of clay and curves gently up like a dome. It has an opening at the foot for stoking and clearing out the ashes and a larger opening at the top for the insertion of the flattened dough. A fire of wood and sometimes chaff or dried dung is lit inside the oven and allowed to burn until the structure is heated through. The dough is then placed on the inside wall of the oven through the top opening. The tannour-oven has been found on most archaeological sites in Mesopotamia from the end of the fourth millennium at Tepe Gawra to the first millennium at Nimrud and it seems likely that tannour-bread was the type commonly eaten). Bread was made into various shapes (balls, rings, crescents as well as flat flaps) and representations of different shapes can be seen on cylinder seals and impressions, reliefs or on stone vases. Many of these scenes indicate some of the different ways bread was served at a meal. Flaps of flat bread were often served with fowl or joints of meat or fish set on top. Another shape occasionally referred to in texts is bread shaped like a hand (NINDA SU). It is possible that this is the bread which is represented like a fan or a bunch of bananas on some Assyrian reliefs". (Ellison 90-91).

Cakes
Different types of sweet confections were made. One example is NINDA Ì.DÉ/mersu. This was a preparation of flour and oil to which other items could be added. In lists of ingredients sent to the cooks at Mari, dates, nuts and different spices including cumin and coriander were given for mersu. Many pottery moulds were discovered at the Palace at Mari. These moulds are round or rectangular plates with raised sides and a variety of designs on the internal base. (Ellison 91).

Animal Foods
Animal foods consumed included beef, lamb, pork, deer, fowl (except chicken that came later on), milk, and a kind of butter. Birds provided both meat and eggs. A brief satirical text reveals that the Mesopotamians knew how to fill intestine-casings with a force meat of some kind which could be perceived as a kind of sausage. Salt and freshwater fish were eaten along with turtles and shellfish (Jean Bottéro 37). Lard was used in cooking, often being added to soups and other dishes to provide moisture and adhesiveness (Jean Bottéro 37, 41-42).

Beef, lamb, pork, goat, ducks, and geese were the meats of choice. Fish, turtles, and shellfish were plentiful in the rivers and canals (http://oi.uchicago.edu/OI/MUS/ED/TRC/MESO/life.html). Animal husbandry began in the Neolithic period. This led to a decreased dependence upon wild herd animals such as gazelle, deer, and onagers. Managed species, those which were protected or tamed, included fish raised in ponds, bees, and game (Nemet-Nejat 247-248).

Geese, pigeons, and doves were all used for sacrifice and food (meat and eggs). (Nemet-Nejat 252). Honey was rare and expensive. Bees were used for honey and beeswax probably first began with the hunting for honey in the wild hives of the Paleolithic period and evolved into full apiculture by the 3rd millennium BCE. Beeswax was used in medicines. (Nemet-Nejat 253). Honey may have been imported at times. The texts mention “mountain honey,” “dark honey,” “red honey,” “white honey,” and “date honey” that was not from bees but was the syrup obtained from dates. No sugar was used; only grape and date juice (Nemet-Nejat 160).

Among the many types of river fish that were caught, the most common were carp. As many as fifty different kinds of fish were mentioned in sumerian texts. After the Old Babylonian period fish and fishing were rarely mentioned. In the Neo-Babylonian city of Uruk the word for fisherman took on a new meaning: criminal! (Nemet-Nejat 256).

Meat was considered to be expensive. The gods and the kings received large rations of meat. Cattle allocated for food or sacrifice were fattened, supposedly even to a point they could not stand. Pigs were tended in large herds, their scavenging supplemented with barley feed. Fat meat was prized because it was in short supply. Thus, pork was valued. Because of the shortage of pasture land, there were few cattle. Horseflesh was eaten. Dead asses were fed to the dogs (Nemet-Nejat 159).In southern Mesopotamia, massive barns housed numerous flocks and herds, which were then redistributed for sustenance or cultic needs. The animals were delivered alive and then slaughtered by a butcher. Some animals, however, arrived dead upon

arrival. Both types were considered fit for human consumption. The meat from already dead animals was fed to soldiers, messengers, and cult personnel (Nemet-Nejat 159).
Meat broths were common and were named after the kind of meat used. This included broth of venison, pigeons, francolins (wild hens), gazelle, goat kid, lamb, ram, and even spleen broth. All broths were seasoned with a variety of mineral, plant, and animal products including animal fat, vinegar, aromatic wood, herbs, plants, salt, garlic, and onions (Nemet-Nejat 160).
Gazelles were important as food, especially in the third millennium. In the Ur III period a month was named after this animal at Puzriš Dagan-'the month of eating gazelles'. And in the Old Babylonian period at Chagar Bazar gazelles were fed on barley, probably to fatten them36). The continuation of the importance of gazelles as food is suggested by the provision of 500 for the banquet given by Aššurnaşirpal at Nimrud in the Neo-Assyrian period. (Ellison 93).

Animal Part Consumption
Recipe ingredients include offal, specifically blood (da¯mu), fat (lipûm), (persu) entrails, stomach (karsˇu) and spleen (t.ulı¯mu). The sheep is probably the source of the fat and possibly all the offal. (Leick 180).

The main methods of cooking the joints into which the carcasses were cut were boiling or roasting. A text from the Ur III period refers to goats being roasted in an oven. A series of texts dealing with the cult of Aslur (Neo-Assyrian period) gave instructions for cooking meat. The sacrificial meat might be placed on a hearth-to roast-and cut-off meat was boiled or stewed. Other instructions given to the cook to take the offal and the head, legs, ribs and bones of animals suggest that little of the carcass was wasted. (Ellison 93). Other animal bones found in the Ur graves were large and had been deliberately broken, presumably to extract the marrow. (Ellison 93).

Animal Preparation
Meat and fish were sometimes dried and smoked, but were most generally preserved in salt. “Salt beef,” “salt gazelle,” and “salt fish” may be found in texts. They knew how to put up fish, most likely in oil. (Bottéro 39). Fish was preserved with large amounts of salt and sometimes spices (Nemet-Nejat 256). Meat could be cured, dried, roasted, boiled, and “touched with fire.” Fish was described as “touched by fire” and “placed upon the fire,” possibly referring to glowing coals. Even some breads were cooked on coals (!). (Nemet-Nejat 160).

Fish could be preserved by salting, drying, smoking or making the fermented sauce sˇiqqum, a household staple also made from locusts. (Leick 180).

Given the climate, salt (t.a¯btum) was an important element in the Babylonians’ diet and was collected from salines, briny lakes or marshes, after natural evaporation. Salt was important for preserving meat and fish and this may lie behind the large quantities of kinds of salt coming into the palace in Mari. Salt is an ingredient in 17 of the 35 Yale recipes. (Leick 181).

Dairy

They held some degree of knowledge of lactic fermentation that was needed to make sour milk and cream cheese. The basic cheese may have well been a fresh cream cheese. Their vocabulary includes names for 18 or 20 different kinds of cheeses. This indicates that they had an advanced process for creating different cheeses of different flavors, consistencies, and textures (Bottéro 38-39).

Sumerians also drank milk including cow's milk, goat's milk, and ewe's milk. The milk would sour quickly in the hot climate. Ghee (clarified butter) was less perishable along with the round, chalky cheese that they also made. This cheese could be used to make sour milk by grating it and then adding water. Sheep's milk is not mentioned before the Persian period, when it was made into a form of cottage cheese. Other dairy products included yogurt and butter. Kind of cheeses included a white cheese (for the king), "fresh" cheese, and flavored, sweetened, and sharp cheeses (Nemet-Nejat 158).

A bas-relief from the temple at Al'Ubaid (3 million BCE) depicted the different stages of milk production. Milk was drawn, placed in a large narrow-necked jar, and the rocked by the cowman (used in place of churning). When butter had clotted, milk was poured into another vessel through a strainer to a wide-mouthed jar. Since the milk spoiled quickly in the heat, it was not a popular drink, but was often used in making medicines. (Nemet-Nejat 250).

Fermentation

A fermented date-wine was made from dates, raisins, and dried figs. This drink was sold by wandering vendors in the streets (Bottéro 40). (no info on culture.) There was also date wine made from only the date palm (Nemet-Nejat 159).

A fermented sauce called "šiqqu" was used for both kitchen and table use. It was made from fish, shellfish, and/or grasshoppers. It may be most likened to present day Worcestershire sauce or Vietnam fish sauce "nuoemâm" that is in vogue in the West (Bottéro 39). In the Neolithic time, fermentations were probably initiated by naturally occurring yeasts, and exchanges of yeast between food and fermented beverages were likely. At what period of time human started to consciously add selected yeast in any of these processes is still unknown (Sicard, Delphine; Legras, Jean-Luc 230).

Beer

Beer was first mentioned in the Mesopotamian ''Epic of Gilgamesh'', one of the earliest works of literature. In the poem the ''wild man'', Enkidu is given beer to drink. According to the poem, ''he ate until he was full, drank seven pitchers of beer, his face glowed and he sang out with joy''. The ancient way of brewing can now be partly retrieved from tomb scenes, clay tablets as well as beer remains in pottery vessels. Both emmer wheat (Triticum dicoccum Schübl.) and barley (Hordeum vulgare L.) were used for brewing, either separately or together. Beer was initially thought to have been made from yeasted dough: the dough was lightly baked and the resulting bread was crumbled and strained through a sieve with water. However, the analysis of 1500–1300 BC old beer remains by electronic microscopy now suggests that instead beer was

made from cooked and uncooked malt with water and the mixture was strained free of husk before inoculation with yeast. Beer was either filtered or not, in which case it was drunk with a straw. Whether the yeast came from bread dough, the water of the Nile, or air inoculums remains to be elucidated (D. Sicard, J.-L. Legras 230).

Beer is noted in the earliest written sources from Mesopotamia. Over the centuries an elaborate vocabulary developed to describe the various aspects of the brewing process and the kinds of beers which resulted. As a consequence, many of the terms found in Sumerian and Akkadian texts are still poorly understood. Mesopotamian beer-making utilized those cereal grains which were extensively cultivated, especially barley. The basic process used to brew beer began by allowing barley grains to sprout, then crushing the sprouted grains. Often flavorings were mixed in at this stage and the mixture baked into lumps or cakes. The malted barley was then mixed with water and introduced into a special fermenting vat where it was kept for a period of time until transferred to a clarifying vat to allow the grain dregs to settle out. While the precise ways in which Mesopotamian brewers controlled the rate and extent of fermentation are not clear, it is apparent from textual evidence that many variations in brewing practice existed, leading to a wide assortment of beer flavors and strengths (Bottéro 40-41).

The barley beer had no hops. Sumerians at Ur enjoyed dark beer, clear beer, freshly brewed beer, well-aged beer, sweet beer, and bitter beer. Women brewed beer and the craft was protected by female gods (Nemet-Nejat 158). In taverns, beer was drunk from a common vat and had to be strained. The ends of the drinking tubes were perforated by small holes to act as a filter (Nemet-Nejat 158).

Barley was moistened, allowed to sprout and dried, thereby forming malt (buqlum). The malt was ground and mixed with another malted product called bappirum, probably a powder rather than a bread. The resulting dry mixture (isimma$\bar{}$num) was, in effect, powdered beer and travellers carried it as part of their provisions. Beer was brewed by adding water and letting the liquid mash ferment. This resulted in dense beers that needed straining or filtering, long straws being one solution. Herbs, spices and sweet date syrup were among possible additions during brewing. Sumerian types of beer included golden beer, dark beer and ruby beer and people blended different beers. (Leick 182). The mixture was heated and left standing for fermentation. It could be taken as a sweet non- alcoholic drink before fermentation. (Ellison 92).

Wine

Wine was only produced in North and Northwest Mesopotamia (Jean Bottéro 38). This was the region where there was adequate rainfall for growing grapes. Grapes were being domesticated between the Black Sea and Iran during 7000-4000 BC. Wine making evidence from the presence of tartaric acid in a jar that dated from 5400 - 5000 BC at the Neolithic site of Tepe in Mesopotamia. Remains for grape juice extraction from 5000 BC in the Neolithic site of Dikili Tash in Greece (Sicard, Delphine; Legras, Jean-Luc 230).

When wine was made from wild or cultivated grape remains to be elucidated but archaeological records suggest that wine was made as follows: grapes were hand picked and placed in a vat for traditional grape-treading, or in special wine presses. The resultant juice was captured in open jars, where the fermentation process took place. When ready, these jars were sealed and marked with the date, name of the vineyard and the person in charge of the wine. After aging, they had to be broken when it was time to decant the wine, and then poured into another jar. When the wine was ready to be served, it was poured into shallow vessels with a short stem. Wine was mainly drunk and offered to gods during religious ceremonies or was used in medicine while beer was a popular drink (Sicard, Delphine; Legras, Jean-Luc 230).

Wine was also popular, though probably more expensive than beer since grapevines could be grown only in the norther regions of Mesopotamia. Compared to beer-making, little is known of the Mesopotamian vintner's craft. Wine is mentioned in cuneiform sources under a number of titles which relate to its color, strength, quality, and origin. The well-stocked Mesopotamian wine-cellar might boast "redwine," "clear (or white) wine," "sweet wine," and "sweet clear (or white) wine." Also available were "strong" wines and "early" wines. The king enjoyed "good quality wine," while some of his subjects made do with "second quality wine." "Badwine" is also noted in some sources. Wine was a standard gift for nobles and other royalty, and was often a base into which herbs and other ingredients were mixed for medicinal purposes (Bottéro 41). With the grapes, they also made grape juice, wine vinegar, and raisins (Nemet-Nejat 158).

For wine yeasts, 95% of strains isolated around the world belong to the same cluster, suggesting a unique origin of wine yeasts, followed by expansion of populations through human activities. The initial domestication event may have been located in Mesopotamia. From this area, at least two yeast migration routes can be drawn in Europe. First, from an area close to Lebanon, migration may have occurred through the Mediterranean Sea, towards Italy, Spain and France, and in France along the Rhone Valley towards Burgundy, then Alsace and from the estuary of the Loire river. This transfer of yeast strains may have been related at least partly to the transfer of the grape varieties: Ugni blanc, which originated from Italy, is now the main grape variety used in Cognac, and the Muscadet grape variety (Muscadet wine) is known to have been imported from Burgundy to Nantes during the 15th Century AD. Second, a migration route along the Danube Valley can be assessed. This could also have happened via a co-migration of vine and yeast as the Traminer grape variety is found all along the Danube river valley (Sicard, Delphine; Legras, Jean-Luc 232).

Gene changes associated with the human exploitation of yeast (pay attention to BOLD)
For wine yeasts, specific alleles of two genes involved in essential functions in wine making have been selected for. The first example of adaptation directly related to wine- making technology has been described by Perez Ortin and colleagues about the resistance to sulfite. This antiseptic was used to clean wine containers, first by the Egyptians, later by the Greeks and Romans, and became widely used starting the Middle Ages until today. These authors have characterized a translocation between chromosome VIII and XVI in the promoter region of the SSU1 gene which encodes a plasma membrane sulfite pump involved in sulfite metabolism and

detoxification. This mutation provokes the induction of the SSU1 transporter and increases the ability of yeast cells to expulse sulfite from the cytoplasm and provides them for a better resistance (Fig. 4). This mutation can be detected in 50% of the wine strains [50] whereas it has not been detected among wild strains (Sicard, Delphine; Legras, Jean-Luc 234).

Delicacies
Pickled grasshoppers (Jean Bottéro 37). Locust swarms caused problems by destroying crops, but they were also skewered, roasted, and enjoyed as a tasty delicacy! (http://oi.uchicago.edu/OI/MUS/ED/TRC/MESO/life.html).

A type of mouse (usˇummum) was a great delicacy. (Leick 179-180).

Food Patterns
The Sumerians ate two meals a day. They bragged about their highly developed cuisines and compared it to that of desert nomads, whom they believed had no idea of the ways of civilized life. They described nomads as eating raw food and not having any idea of how to make a cake with flour, eggs, and honey. (Nemet-Nejat 160).

Social Structure

Division of Labor
Most women stayed at home to prepare meals, manage the household, and train their daughters to become wives and mothers. Women also worked as weavers, potters, and jewelry makers. Men controlled nearly every aspect of life. They wore kilt-like garments and worked as soldiers, traders, farmers, and craftsmen (Landauro 13). Women ran wine shops (ca. 1800 BCE) which certain priestesses were prohibited from entering upon penalty of death (Nemet-Nejat 158).

The Mesopotamian woman's role was strictly defined. She was the daughter of her father or the wife of her husband. Women rarely acted as individuals outside the context of their families. Those who did so were usually royalty or the wives of men who had power and status.
Most girls were trained from childhood for the traditional roles of wife, mother, and housekeeper. They learned how to grind grain, how to cook and make beverages, especially beer, and how to spin and weave cloth for clothing. If a woman worked outside of her home, her job usually grew out of her household tasks. She might sell the beer she brewed, or even become a tavern keeper (http://oi.uchicago.edu/OI/MUS/ED/TRC/MESO/women.html).

Neo-Babylonian dowries included equipment for brewing date beer (Nemet-Nejat 126).
Women played almost no role in royal kitchens. Female servants were employed only to mold barley (Nemet-Nejat 161). The domestic cooks were women and the men were in charge of the haute cuisine (Bottéro 46).

Bone Changes & Division of Labor Changes

Molleson (1994) in her study on Neolithic inhabitants of Tel Abu Hureyra found changes in the upper vertebrae among adolescents caused by carrying heavy loads(game, grain, and building material). These were accompanied by collapsed vertebrae and grossly arthritic big toes and were associated with developed musculature of the arms and legs indicating intensive physical activity. Eshed et al. (2004b) found similar evidence for an increase in physical stress among Neolithic populations from the southern Levant, indicating that the lifestyle of agricultural populations was possibly more physically demanding than during the preceding Natufian period. They proposed that the ‘‘agricultural revolution" brought about a new division of labor in which Neolithic females took over a greater proportion of the subsistence activities. Therefore, the bony changes are not necessarily evidence of an increase/decrease in the overall labor intensity but rather reflect changes in gender-based division of labor (Larsen, 1995; Eshed et al., 2004a,b). (Eshed et. 2).

There is no evidence for a global universal trend of an increase in trauma following the advance of agriculture. It rather appears that in some parts of the world the rates of trauma increased while in other they decreased (Eshed et. 2).

The analysis of musculoskeletal stress markers (MSM) in these populations (Eshed et al., 2004b) indicates that the Neolithic new way of life brought about a new division of labor. Males and females have engaged in differ- ent daily tasks transporting to strenuous activities which are associated with village life and an economic basis which predominantly relies on storage of grain and legumes and less on hunting and gathering. The range of activities was probably more varied than during the Natufin period. These included grinding and processing of cereals and legumes, felling trees, preparation of lime plaster, and the construction of large scale structures. The analysis of MSM (Eshed et al., 2004b) mirrors this trend as it documented a wider range of differential daily life tasks among Neolithic populations. However the change in the range of activities did not result in an overall increase in degenerative joint disease. (Eshed et. 10).

Socio-Economic Classes and Food

Even though unleavened bread was a staple for any economic class, pieces of unleavened bread were found at the Royal Cemetery at Ur in the tomb of Queen Puabi. It may be of interest that the flour was finely ground, which would have been considered higher quality (Nemet-Nejat 157). High-quality bread and cakes were for royalty. One text lists the ingredients to make cakes that “have gone to the palace”: 1 sila of butter, 1/3 sila of white cheese; 3 sila of first quality dates; 1/3 sila of Smyrna raisins, to which “excellent” flour was added (Nemet-Nejat 158).

Palace employees were rationed one quart to one gallon of beer each day, depending upon the rank of the recipient (Nemet-Nejat 158).

Gardens were a status symbol to Assyrian kings. They had olive trees called “the oil tree” planted in their parks (Nemet-Nejat 255).

Temple slaves were commonly orphans, children of the poor, and children of insolvent debtors. They were often treated harshly and were branded with the symbol of the god in which they were dedicated to. They received a permanent allowance of barley in the form of grain, flour, dates, and vegetable oil. Some received beer, salt, and occasionally meat. In times of famine, widows gave children to be temple slaves to save them from starvation. (Nemet-Nejat 193-194).

Fungi
Most of our information comes from Mari where the highly prized seasonal truffles (kam'a$\bar{}$tum or kam'u$\bar{}$) and the similar gib'u$\bar{}$grew after rain and were sent to the palace by regional officials. (Leick 180).

Lower Class Food Consumption
Poorer families were deprived of meat, whereas wealthier families ate it regularly (http://oi.uchicago.edu/OI/MUS/ED/TRC/MESO/life.html). Small plots of land were allotted to city poor, nomads, and shepherds to cultivate cereal crops and date palms, both diet staples. (Nemet-Nejat 256). A Sumerian proverb stated that slave-girls were to be given lean ham---pork was too good for them! (Nemet-Nejat 159). Fish was served to the king, but ordinary citizens also ate salt and fresh water fish. They preferred fish bred in "fish ponds" or reservoirs (Nemet-Nejat 160). The meat from already dead animals was fed to soldiers, messengers, and cult personnel (Nemet-Nejat 159).

The Babylonian diet was plant based and animal products were a relative luxury. In general, wealthier people had a more varied diet and greater access to highly perishable foodstuffs such as fresh meat. (Leick 173).

Ingestion

Teeth
It is amusing to record that, according to an old Sumerian story, the world's first sufferer from toothache was the Earth god, Enki,who, on being asked at some early time by his sister, 'My brother, what hurts you?', replied: zui-mu ma-gig, 'My teeth hurt me'.

In the therapeutic texts two Tablets are devoted to dental problems, there being many references to toothache and its treatment, to weak or loose teeth, and to the ravages of the 'tooth-worm', in fact a somewhat international figure in early dentistry. But so far at least as Egypt is concerned the main problem was not decay. It was the rapid and intense wear of the teeth, causing exposure of the pulp and allowing infection to pass down through the roots with the subsequent forming of abscesses and the eventual destruction of the attachment of the teeth. That Mesopotamia suffered also from this or related trouble is indicated by the following incantation. It begins: The flesh being a 'door', the bone(beneath) its 'bar', (TheWorm) has 'entered' [the flesh], has 'lifted up' the bone; (Yea), she has bitten through the flesh, has dug into the bone....This interesting quatrain-which is indeed poetry (of a sort)--evidently confronts a quite serious dental problem. The fact that it was the subject of an incantation may also suggest

that the condition lay beyond the reach of other treatment. As to the reason why the teeth should have become so worn down in the first place there is now some agreement that, for Egypt, this will have been mainly due to the presence in foods of fine silicate dust, arising either from the use of millstones and flour grinders, or wind-blown from the desert.The same explanation may serve forBabylon. (Kinnier 138).

The study of changes in the prevalence of dental disease following the transition from hunting and gathering to a food-producing economy in the southern Levant indicates a higher rate of dental attrition and periodontal disease among the Natufian people compared to Neolithic people and a higher rate of calculus among Neolithic people (Eshed et al., 2006).Both populations manifested low and similar rates of caries, periapical lesions, and ante-mortem tooth loss. Wear pattern of molar teeth in the Neolithic, is different than in the Natufian (Eshed et al., 2006). This study showed that dental disease pattern obtained from the two populations is multifactorial in nature and not exclusively of dietary origin. Changes in food prepara- tion techniques, the use of teeth as a tool, and changes in diet (i.e., greater consumption of fibrous plants), explain some of the variations in teeth condition in prefarming vs. agricultural populations (Eshed et al., 2006) (Eshed et. 2).

Pattern of dental diseases following the transition from hunting and gathering to a food-producing economy in the southern Levant changed and is multifactorial in nature. Pattern were influenced by changes in dietary, food preparation techniques, use of teeth as a ‘‘third hand,’’ these can explain some of variations in teeth con- dition in pre-agricultural and agricultural populations (Eshed et al., 2006). A recent study on these Levantine populations (Pinhasi et al., 2008) demonstrated a pronounced dental reduction trend (which mainly affected the buccolingual dimensions of the lower and upper jaws and the ramus breadth and anterior height dimensions of the mandible). (Eshed et. 10).

Bones

We report a significant increase in the number of individuals with inflammatory bone-induced lesions following the transition from the Natufian to the Neolithic (4.6% vs. 1.0%, significant at 0.033). We propose that this is the outcome of two aspects:

a) a dramatic increase in environmental risk factors, and b) a higher resistance of the Neolithic population to inflammatory diseases.

Overall Health

Inflammatory Diseases

The former relates to drastic changes in subsistence and lifestyle:
a. Neolithic people were more sedentary than the Natufian (although the latter used large base camps which were utilized all year round.
b. Population density increased considerably from the PPNA (Pre-Pottery Paleolithic A) onward. Additionally, settlement pattern analysis indicates an increase in population size during the

Middle PPNB (Pre-Pottery Paleolithic B). These two aspects are the key to the spread of infectious disease.
c. The introduction of storage facilities such as silos during the Pre-Pottery Neolithic (Kuijt, 2008) is associated with the emergence of commensal species such as the house mice (mus musculus domesticus) in various PPNA sites in the northern and southern Levant. While the epidemiological impact of such species on the health of human societies is currently unknown, it is likely that they were not only pests but also vectors of macro and micro-parasitic pathogens.
d. Animal domestication (during the Late PPNB) have changed the transmission ecology of pre-existing human pathogens, increased the success of pre-existing pathogen vectors, and acted as secondary transmission sources of pathogens maintained in wildlife reservoirs.
e. Farming creates changes in diet that could increase the risks to human health. We cannot detect direct evidence for change in disease resistance. However, without such change we would have expected to detect an increase in mortality and decrease in life expectancy following the shift to agriculture and yet this was not the case (Eshed et al., 2004a). It seems that the rich and varied environments exploited by the Neolithic people and the better control over food resources may have improved human health in the Neolithic population, henceforth improving resistance to infectious diseases. At the end of the PPNA an increased exploitation of cereal together with culling of less cost-effective low-ranked animal resources resulted in increase energy consumption for smaller returns. The high consumption of cereals during this period, and their cooking (as evident in the archaeological record from the presence of mortars,pestles, querns, and other implements, i.e., Molleson, 1994;Eshed et al., 2004b; Smith and Kolska-Horwitz, 2007) is associated with an abrasive, high-carbohydrate diet, and is follow by increase frequencies enamel hypoplasia (Smith and Kolska-Horwitz, 2007), periodontal diseases, and high attrition level (Smith et al., 1984; Eshed et al., 2006; Smith and Kolska-Horwitz, 2007). The improvement in the overall health of southern Levantine populations is evident during the MPPNB(Middle Pre-Pottery Neolithic) following the onset of a fully agricultural economy and a subsistence system which comprised of domestic sheep and goats, domestic cereals and legumes and possibly milk products (Smith and Kolska-Horwitz, 2007). This diet was more balanced and protein-rich than in the case of New World communities which often predominantly relied on a single crop (e.g., maize). The prevalence of anemia rose sharply with the advent of agriculture in the Americas: Illinois (Cook,1984), Kentucky (Cassidy, 1984), Ohio (Pezigian et al., 1984), and Ecuador (Ubelaker, 1984), China (Pechenkina et al., 2007), Greece (Angel, 1984), and Israel (Smith et al., 1984). The phenomenon was related to a reduction in diversity of food supply, especially a reliance on maize in the diet and in communities relying on cereals that had a low protein (meat) diet (Gilbert, 1975). (Eshed et 8-9).

Locomotion

The Natufians (13,100–9650 calibrated BC) were semi sedentary/sedentary hunter-gatherers whose subsistence spectrum was largely based on hunting (mainly gazelles) and gathering (mainly wild cereals). Natufian sites include relatively large base camps (up to 0.2 ha), sedentary or semi-sedentary sites, and ephemeral task-specific sites, small in area. Base

camps contain rounded stone structures and usually yield on-site human burials. Most burials are primary and of a single individual, although secondary and multiple burials are also observed. Burial offerings are sometimes found above or adjacent to the interred individuals (Eshed et al., 2004a). At the onset of the Holocene the Natufian culture was succeeded by early Pre-Pottery Neolithic (PPN) culture which is dated to calibrated 9650–6300 BC and is divided into three major phases: PPNA-the earliest (9650–8550 BC), PPNB (8550–6750 BC), and the PPNC (6750–6300 BC) (cf., Kuijt and Goring-Morris, 2002). Pre-Pottery Neolithic economy has yielded the world's earliest evidence for plant domestication (8th Millennium BC). While domesticated animals appear in the southern Levant about a millennium later (7th Millennium BC), the subsistence spectrum continues to rely on hunting and trapping of large and small game throughout the PPN period. Pre-Pottery Neolithic sites are found all over the southern and northern Levant in a variety of environments. (Eshed et 1).

Life Expectancy

Furthermore, the increase in male mean age-at-death during the Neolithic (Eshed et al., 2004a) may reflect a lower rate of violence among Neolithic males. There is also evidence of a decline in food resources during the Late and Final Natufian which is associated with the onset of the Younger Dryas cold and dry climatic phase (Belfer-Cohen, 1991; Bar Yosef, 1998, 2001).
The Neolithic transition also differentially affected the demographic profiles of males and females as male life expectancy at birth increased while female life expectancy declined (in comparison to the Natufian). It involved an increase in fertility and a subsequent increase in mortality risk during pregnancy and especially during birth for Neolithic women (Eshed et al., 2004a; Bocquet-Appel and Bar-Yosef, 2008). In contrast, the male's life expect- ancy increased following the transition; with a higher prevalence of older Neolithic males (over 50 years) in comparison to Neolithic females and to Natufian males (Eshed et al., 2004a). However, as demonstrated in this study, other risk factors for the Neolithic males were being introduced (e.g., infection diseases). Natufian males may have died at an earlier age due to mortality risks during hunting activities and possibly due to social conflict (Eshed et al., 2004a). It is possible that social conflicts under conditions of growing stress (environmental, economic) could have promoted intra- and intergroup violence (Eshed et al., 2004a), which might explain the higher rates of skull trauma among Natufian males, females, and subadults. (Eshed et. 2).

Religion

Beliefs

Sumerians believed that a personal god was assigned to each man. (Women were not deemed important enough for the gods.) The men prayed to these gods for long and prosperous lives (Landauro 13). The Sumerians had 100s of gods, each with their own name and sphere of activity (cities, professions, realms of the universe). Examples include Anu who was the father of the gods and the god of the sky, Enlil- the god of air, Nanna-the moon god, Enki-god of fresh water, lord of wisdom, and magic, Utu-the sun god, Ninhursag-god of the earth (http://oi.uchicago.edu/OI/MUS/ED/TRC/MESO/religion.html). As you can see, all of these gods would be especially important in ensuring a good crop.

They believed that the universe was controlled by gods and goddesses who had to be obeyed and worshipped with prayers and offerings. It was believe that the god/dess lived in temples. Feasts and festivals were dedicated to them (http://www.britishmuseum.org/PDF/Visit_Mesopotamia_KS2.pdf p.6). They discovered that by observing the movements of celestial bodies they could measure time, which was key for planting crops and for holding religious festivals (http://oi.uchicago.edu/OI/MUS/ED/TRC/MESO/science.html).

Animals meant for temple sacrifice had to be blemish- and disease-free, and sometimes white for purity. All the domesticated animal species could be used for offerings to gods, but the sheep played an additional role in the magico-religious sphere. One of the most common ways of obtaining an omen was to present a question to the god, and then kill a sheep and examine its liver.Sheep were more important for their milk products and their wool than for their meat, which was used for offerings, taking omens, gifts for weddings, and presents for access to the king. A specialist called the “animal fattener” gradually increased the rations of sheep, mostly males, to improve the flavor or fat content of the meat. Sheep adapted well to any agricultural environment. Shepherds and shepherd boys to watch the herds. They were compensated with dairy products and a fixed amount of wool from the owner. (Nemet-Nejat 249).
The Babylonians believed that the gods disclosed their intentions to humans by signs in natural phenomena and world events. (Nemet-Nejat 198). Diviners were specialists who solicited omens from the gods and interpreted the signs. (Nemet-Nejat 199). Diviners known as liver diviners or haruspex used hepatoscopy, the type of divination in which the liver of a sacrificed animal was examined, as the main way of consulting the will of the gods. Any and every conceivable deformation, mark, discoloration could be used to consult the will of the gods or foretell the future. Extispicy, the form of divination based on examination of the intestines of slaughtered animals, was used to foretell future events. Extispicy involved at least one animal for each inquiry, so private citizens probably resorted to this technique only in extraordinary circumstances. Cheaper methods could be performed but were considered to be less precise (Nemet-Nejat 200-201).

Mesopotamians believed in ghosts. It was believed that ghosts of the dead returned to haunt the living if they had not received proper burial rites or their share of the funerary offerings. In order to put a stop to their roaming on earth and to their perpetrating acts of vengeance, the ghosts were appeased with offerings, the same as those regularly given to the dead. Offerings usually consisted of various types of water, vinegar, watered beer, ashes, and breads or flour made from roasted grain (Nemet-Nejat 205).

The statues depicting the gods at the temples were believed to be the real gods. Mesopotamian gods (their statues) were usually fashioned to look like men and participated in most human activities such as eating, drinking, making love, losing their tempers, sulking, weeping, and sleeping. These images (statues) underwent various rituals to sanctify them.

Included in these rituals was a mouth-washing ceremony and a ritual of consecration to endow the gods with “life” by opening their eyes and mouths to see and eat.

According to a detailed text from the Seleucid period, the divine statues in the temple of Uruk were served two meals daily. The first meal when the temple first opened in the morning and another at night, before the temples doors closed. Each meal consisted of a first and a second course. The meal began with a table being placed before the image. Water for washing was offered in a bowl for the gods to wash up in before eating. Then a variety of beverages, special cuts of meat, and fruits were brought to the table. Linen curtains were drawn around the statue and table to give gods privacy from humans and priests. Music was played as well. The meal was scaled to feed the temple staff and their families. The food from the divine meal was sent to the king to eat perhaps daily or on special occasions. (Nemet-Nejat 186-187).

The greatest religious festival of all year was celebrated on New Year’s. The fertility drama called “The Sacred Marriage” took place in select cities each year. Date-growers in Uruk celebrated “The Sacred Marriage” as the power in the date palm to grow and bear fruit. The herders, dependent upon pasture and breeding, believed the consummation resulted in fertility in nature. The ruler (priest-king or king) represented the god and his sexual union with the goddess Inanna (played by a queen or high-priestess) resulted in all of nature being fertilized. (Nemet-Nejat 196).Dairy products formed part of offerings for many rituals and they are included in lists of food items from third to first millennia emphasizing their continuous use as food. (Ellison 94).

Traditional Recipes

Women’s dealings with food and drink were not, however, limited to the home. In an Old Babylonian letter from an unknown site, a woman called Hˇuza¯latum who lives in a village writes to a woman called Be¯ltani:
They brought me 100 litres of coarse barley flour (tappinnum), 50 litres of dates (suluppu¯) and 1 1⁄2 litres of sesame oil (sˇamnum) with the earlier caravan; 10 litres of sesame (sˇamasˇsˇammu¯) and 10 litres of dates this time. I have sent you 20 litres of good quality flour (isqu¯qum), 35 litres of fine barley flour (zì.gu), 2 combs and 1 litre of sauce (sˇiqqum). In order to supply her provisions and as her food ration give her 10 litres of barley (ûm) and 10 litres of coarse barley flour. There are no‘spiny’ fishes (ziqtu¯) here. Send me ‘spiny’ fishes, so I can put up sauce for fermenting for you and they can bring it to you. (Leick 173-174).

Tablet B (no. 26) contains seven complex, detailed recipes for cooking birds, involving a wide range of ingredients and cooking techniques. For example, the elaborate first recipe for a dish of small birds (is.s.u¯ru¯s.ehˇ ru¯tum) in a case of dough(lı¯sˇum) can be summarized
Birds in broth: Precook the butchered and washed birds, their gizzards (sˇisu¯rrum) and entrails (esru¯) in a cauldron (ruqqum). Wash, wipe and sprinkle with salt (t.a¯btum). Bring to the boil in a pot (diqa¯ru) of water and milk (sˇizbum) with animal fat (lipûm), pieces of wood (is. s.u¯) and

rue (?) (sibburatum). Add onion (sˇusikillu), samı¯du-plant, leek (karsˇum), garlic (hˇazannum) and water. After cooking, add mashed leek, garlic and edible crocus bulb (?) (andahˇsˇu).

Dough: Soak washed, fine-grade flour (saskûm) in milk. Knead with fish-sauce(siqqum) and add samı¯du-plant, leek, garlic, milk and pot fat (sˇamnum sˇa diqa¯ri). Use half the dough to bake sebetu-breads in the tannur. Let the other half rise and line a shallow dish (ma¯kaltum) sprinkled with nı¯nû-plant (?) to make a crust to cover the birds. Knead more fine-grade flour soaked in milk and add oil (?),leek, garlic and samı¯du-plant. Using this dough as a base for the cooked birds, line another shallow dish letting the dough protrude above the rim. Bake the base and crust on two supports on top of the tannur. Remove the crust from the shallow dish and rub it with oil (sˇamnum).

Presentation: Lay the birds on the base and scatter them with the entrails, gizzards and sebetu-breads, setting aside the broth and pot fat. Cover with the crust. Serve at table immediately. (Leick 175).

Preferred Meals

Remains of food-dishes were found on saucers as part of a foundation offering in a grave at Ur in the mid-third millennium. Here the bones of sheep/goat, date stones, dried apple rings, and the remains of what was possibly flat bread suggest that a mixed diet of meat, fruit and bread was preferred. Rations issued to 'messengers' in the Ur III period usually included beer, bread, onions and oil, with the occasional addition of fish. The king's meals at Mari show a wide variety of cereal and vegetable based dishes, with fruit, honey, oils, fish and meat. In accounts listing food given for a marriage ceremony in the Old Babylonian period at Ur, sheep, bread and beer, together with ghee and linseed oil were issued to the groom, his mother and members of the wedding party60). At Nimrud in the first millennium what may be the remains of a cooked meal included barley, possibly cracked, grapes, perhaps dried, and green vegetables. Texts from the same period and the list of provisions for Ahlurnasirpal's feast show that a wide variety of foodstuffs was favored and that both cereal and vegetable dishes and meat were used. A text from Warka in the Neo-Babylonian period gives what may be a recipe and throws some light on the tastes of the people at that time. The recipe says that plenty of roasted spices, including mustard, cress and cumin, should be boiled in water, into which 2 shekels of cucumber were added the mixture was to be cooked until it was 1 SILÀ (a reduction of about a half). It was then strained and stuffed (?) (ta-nam-di(!) you pour) into raw meat. This suggests that highly spiced dishes were eaten and that dishes of meat stuffed with vegetables were prepared. (Ellison 95).

Micronutrient, Mineral, Other Intake

The statement began with a discussion of deficiency diseases in ancient Mesopotamia. These included day- and night blindness and xerophthalmia: the case for both of these has recently been restated, even re-discovered. Scurvy was seen as one meaning of the term bu'sanu,lit.,'the evil- smelling disease';it is classified in the therapeutic texts with disorders of the teeth. (Kinnier 138).

Mineral products such as salt and ashes were added to flavor foods as well as various herbs (types listed above). (Jean Bottéro 37).

Honey and tree sap were used as sweeteners (Jean Bottéro 37). The main sweetening agents in Mesopotamia must have been syrups made from fruit, especially from dates, and honey. LAL/dilpu is usually translated as honey but this has been challenged on the grounds (a) that bees were not brought into Mesopotamia until the Neo-Assyrian period when the Governor of Suhi and Mari boasts of bringing bees from the north. (Ellison 94).

Mesopotamians brought into general practice and refined the art of cooking in liquid. They would cook in water as well as in various fats and oils. Two cooking vessels were invented in order to make cooking in liquid more viable. They used a covered pot made of fired clay for boiling in deep water. An open bronze kettle was used to slow-simmer in a smaller amount of liquid (Jean Bottéro 39). Many dishes were cooked in water, with fat added (Nemet-Nejat 161).

Recipes accounted for hygiene that stressed frequent washing of food. Garnishes and side dishes were also included in the recipes (Nemet-Nejat 161).

Ancient Mesopotamia was a place of food uncertainty due to blight, locusts, or lack of rain or flooding. Parts received very little rainfall. Fields had to be irrigated in order to grow staple cereal crops (Nemet-Nejat 246). Barley was able to withstand greater salinity and aridity than wheat, thereby ensuring that it became a basic part of the basic staple diet (Nemet-Nejat 247).

Ice was brought from the highlands and stored in ice houses for cooling beverages (Nemet-Nejat 160).

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