

Food for the gods

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A few years ago we had our renal-division dinner at Barbetta, a wonderful Piemontese restaurant with a secluded garden full of flowering gardenia trees improbably located in the densely packed Times Square area. The owner, knowing who we were, designed an appropriate menu one of whose components was a tasty *hors d'oeuvre* composed of sautéed calf kidneys in mustard sauce. The response was not ecstatic; in fact the facial features of some spelled disgust at the idea. So much for the prediction that nephrologists would want to experience the kidney in every possible manner!

Disgust, whose study represents a new and exciting field in cognitive psychology, is divided into two types. ‘Core disgust’ is universal and seems to be induced most frequently by the sight or memory of excrement or some insects, such as cockroaches; one test apparently is to ask people whether they would drink from a perfectly clean (even unused) bedpan!¹ These feelings are associated with grimaces that are identical across all cultures and are associated with physiological changes such as a decrease in heart rate and activation of the insular cortex when the brain is imaged as the feelings are induced.² The second type, termed ‘moral disgust,’ is more ‘metaphorical’: certain behaviors, policies, or persons can be held to be disgusting without activation of these physiological responses. Often connected with the idea of contamination, extreme examples of these feelings are associated with obsessive-compulsive disorders. I suspect that those who feel disgust at the thought of eating kidneys are the victims of ‘moral disgust,’ perhaps caused by the thought of contamination with urine. That it is not core disgust is simply shown by the fact that although the kidney is universally known to be the source of urine, most of the world continues to enjoy kidneys as a delicious food, so perhaps what we saw at Barbetta was just a local phenomenon limited to American eating habits and needs to be studied by anthropologists rather than by cognitive psychologists, or gourmets for that matter. Speaking of whom, that greatest arbiter of taste, Brillat-Savarin, noted, in many sections of his celebrated book *The Physiology of Taste*³ (in print since 1825), the pleasure he had in eating kidneys. He wrote, “Thus it was only

yesterday I regaled six friends with a boiled leg of mutton and a kidney à l’pontoise. They indulged in the pleasures of conversation so fully that they forgot that there were richer meats or better cooks.” (I was unable to find a recipe for rognons à l’pontoise anywhere.)

Food preparation is our most human activity, and one can easily make a case that it is what distinguishes humans from other species. The human archeological record probably begins with the discovery of cooking pits surrounded by bones of slaughtered animals. Ancient gastronomy has been blessed with a great champion, Jean Bottéro, a great Assyriologist — and, I am told by my wife, who is a colleague of his, also a great cook. He has combined his two interests in a delightful book of translations and rumination on this ancient subject.⁴ The written record in the form of cuneiform clay tablets abounds with descriptions of feasts as well as lists of food for purchase or barter. Bottéro describes a menu (and attendees) at a probably royal feast recorded in the State Archives of Assyria (volume VII, page 158); kidneys are the first item on the menu (an *hors d'oeuvre* like ours 3,000 years later?). That the kidney was considered a refined delicacy is best seen in its frequent use as a temple offering where food and drink were offered to the gods. In the creation myth of ancient Mesopotamia, the gods were very much like us; they were divided into the upper classes, who did all the governing and enjoying, and a lower caste of immortals forced to perform all the drudgery of manual labor necessary to exploit the natural riches of the world. Chief among these functions, the lesser gods had to prepare the daily food and drink (mostly beer) for the masters of the universe.⁵ One day, feeling exhausted and humiliated, these latter immortals rebelled and went on strike. To mollify them, the wise god Enki (Ea) decided to create a substitute race. He used the clay deposited by the Tigris and Euphrates and kneaded it with the flesh and blood of one lesser god to imbue it with the intelligence necessary for these tasks. Clay rather than some transcendent material was used because, in their wisdom — being environmentally correct — the gods had decreed that humans would have to return to being clay after they had served their purpose. Thus the primary *raison d'être* of

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mankind was to build opulent houses (temples) for the gods, to entertain them with poems and songs, to provide them with luxurious textiles to cover them and precious jewels for their adornment, but especially to feed them every day by providing the richest meats and drink. Hence, in the cult of the gods of ancient Mesopotamia, maintenance of these immortal beings required the gift of a positive offering, food that could then be ingested and drink that could be imbibed by gods who, like us, needed sustenance. (Who ate the temple food after it was offered is not made clear in the written record, but it was probably the priests and temple staff; or perhaps it was sold to sustain temple finances.) When the religions of Mesopotamia changed, the offerings continued but the new God did not need any food nor did He desire anything. Hence the offerings of Noah and Abraham were now “wholly burnt offerings,”⁶ burnt until they lost their essence, and thus gifts whose use mankind denied itself. (Muslims also deny themselves the use of the sacrificial lamb; it has to be given to the poor and needy.)

Invocations to the ancient gods of Mesopotamia were written down extensively, and the food was clearly described. Kidneys (but also hearts) were foremost among these offerings as described in an invocation to the great goddess Ishtar, which reads (in my translation from the French):⁷

A stone for Lum-ha I will establish for you;

A table of offerings I will install for you;

A sacrifice I will offer you;

*A roasted (right) thigh and the kidneys I will present for you
[from a young calf mentioned in a previous stanza];*

*I will pour for you beer of the highest quality,
also wine and milk.*

Temple offerings were all roasted, a process that I am not sure brings out the best in the taste of the kidneys. The field of ancient gastronomy was electrified when Professor Bottéro discovered three undeciphered cuneiform tablets from about 1800 BC in the Yale Babylonian Collection, which describe actual recipes, making these writings mankind’s oldest known cookbook, displacing the previous champion (at least in the West), the Roman *Apicius*, a book of cooking written in the fourth century AD. I was hoping to find recipes for cooking kidneys in a savory sauce, but these tablets only had recipes for birds and fish, which you can find in ref. 4.

So what is the best way to cook kidneys? You may not be aware of this, but we live in the age of Molecular Gastronomy, in which the arts of cooking are being converted into rigorous science.⁸ This being a scientific journal, we therefore need to apply our methods to the problem of the kidney as food. The special problem in the case of the kidney is, of course, urea and salt, which are accumulated in the medulla and papilla. It is thus a good

idea, before preparing the kidney, to remove the papilla and wash the kidney extensively in water to remove these solutes. In addition, the kidney is a major source of NH₃ (also produced by some spontaneous hydrolysis of urea); hence one needs to lower the pH of the washing fluid to trap any extra NH₃ and to convert it to NH₄⁺. NH₃ dissolves in water, forming NH₄OH, which is caustic, but the concentration is so low that no burning sensation results but ‘only’ an unpleasant taste. NH₄⁺, on the other hand, is easily washed and is slightly salty in taste. To lower the pH, I would wash the kidney in 40 mM citric acid, otherwise known as lemon juice (pH 2.6). But it is important to remember that access of the solvents to solutes during the washing needs to be facilitated; the surface capsule has to be removed to increase the permeability, and the kidney has to be chopped into small bite-sized pieces to amplify the surface area available for diffusion. This initial preparation should make the kidney ready for cooking (see recipe).

KIDNEYS IN MUSTARD SAUCE

Cut kidneys in sagittal sections.

Remove capsule and fat and white papilla.

Chop into 1 to 2 cm pieces.

*Soak in cold water, then in lemon juice
(or vinegar if you prefer) for 30 min with many changes.*

Cook butter over high heat and then add kidneys.

Cook for 2–4 min.

Remove to a warm plate.

Scrape the skillet; add chopped shallots and garlic.

Add sherry (or port, Calvados, or red wine).

Stir and add a little mustard.

Combine sauce with kidneys and serve with chopped parsley.

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