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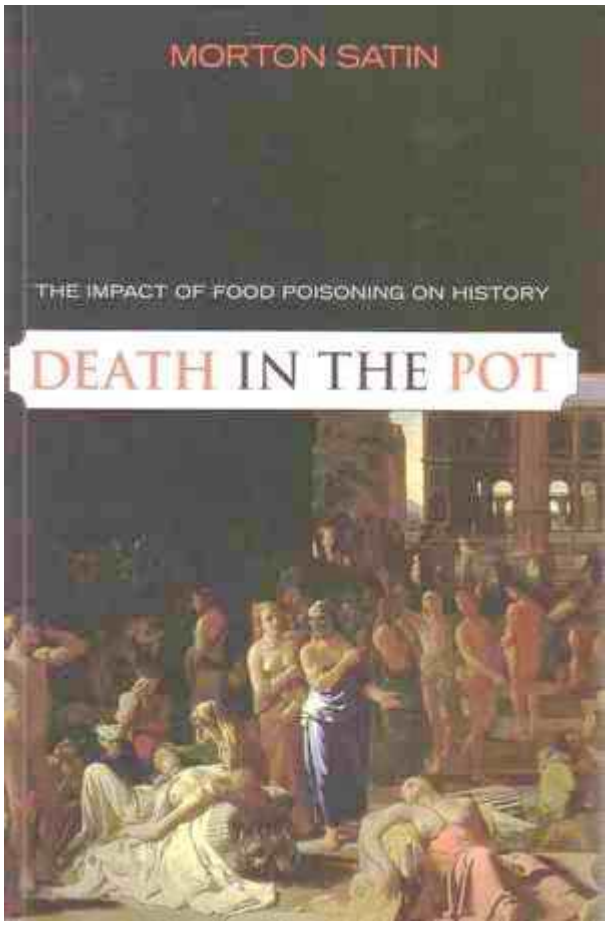
...SWEETLY INTOXICATING! ...an excellently readable book, which would provide you not only with hours of entertainment, but lots of interesting and useful information. Heartily recommended to all...

Death in the Pot: The Impact of Food Poisoning on History *by* Morton Satin. Hardcover, 8.9 x 6.1 x 0.9".
Prometheus Books, 59 John Glenn Drive, Amherst, New York 14228-2197, USA. or . Publication Date August 17, 2007. 262 pages, Category: History, ISBN-10: 1591025141. ISBN-13: 978-1591025146. Price $24.00

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We all know about food poisoning. Most - if not all - of us have had at least one personal experience of this. More often than not, the scenario is something like this: we attend a large marriage party, where a number of tasty food items are being served. Merely because of the fact, that the number of guests was too much, the organizers perhaps didn't care too much about the standards of preparation of food. Next day, most guests fall sick with diarrhea and vomiting. On inspection it is found that there was some carelessness in the preparation of food, and there was some contamination with microorganisms.

Food poisoning is a very loosely defined term. Technically it must encompass all kinds of illnesses which can occur as a result of ingestion of food. This would include (a) poisoning due to bacteria, their toxins, viruses and protozoa (b) Poisoning due to poisons of vegetable origin such as *Lathyrus sativus* (c) Poisoning due to foods of animal origin such as poisonous fish and (d) poisoning due to chemicals added to the food such as coloring agents, preservatives, taste enhancers etc.

However the term food poisoning as most typically used by lay people refers to a situation mentioned earlier, where there is simultaneous attack of many persons at the same time, who partook of the same food and who display the same typical signs and symptoms. This usually happens in marriages and banquets and represents only the bacterial type of food poisoning.

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Not many people may believe this, but even the so-called Chinese restaurant syndrome [Synonyms : Hot dog headache; Glutamate-induced asthma; MSG (monosodium glutamate) syndrome] is a kind of food poisoning. The syndrome was first described in 1968, when reports of a series of reactions to Chinese food were described. It was supposed to be caused by monosodium glutamate.

...In this remarkable book, Satin gives not one or two, but tens of instances, whereby food poisoning has affected or even altered the course of history. We get to read about the great plague of Athens in the fifth century BCE, which was probably caused by contaminated cereals. Well, it did not merely remain as a curious and isolated case of food poisoning; it went on to cause the defeat of the Athenians in the Peloponnesian War. How? Well, read the book to find out. You would love it, as much as I did...

Monosodium glutamate, or MSG (sold in India mostly as *Ajinomoto*) is the sodium salt of glutamic acid and is used to enhance the flavor of foods, especially Chinese foods, such as noodles. The typical history given by the patient is that he took a large amount of Chinese food in a restaurant. Sometime after the ingestion he develops typical symptoms typically comprising of a burning sensation and numbness of face which quickly spreads to neck, shoulders, upper limbs, back, abdomen and occasionally the thighs. Two other typical symptoms are bronchospasm, which could even be life-threatening, and angioedema. Other symptoms are rather non-specific and comprise of nausea, vomiting, headache and chest pain.

So much for food poisoning. But have there been instances of food poisoning in history, which have changed the course of history? Well, this is an interesting and challenging question which Satin attempts to tackle in this excellent new book that has most recently been published by Prometheus.

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...Eating of these diseased grains, which many poor peasants were forced to do in the Middle Ages, caused a strange sickness called ergotism or 'St. Anthony's fire'. The victims suffered from acute pain in the limbs and sometimes convulsions. The victims' limbs felt as if they were on fire. Eventually, in most cases, the limbs turned black like charcoal and even fell off. Many a helpless peasant became a victim and suffered a loss of all the four limbs. A pilgrimage to the shrine of St. Anthony was believed to bring relief and hence the name 'St. Anthony's fire'...

In the prescientific Middle Ages, illnesses resulting from contaminated food were often attributed to the wrath of God or malevolent spirits. An excellent story on this theme, which finds mention in this book, involves the common grain rye, which gets contaminated by a fungus known as Claviceps purpurea. This fungus is very commonly seen in the grain-fields, especially during the moist, warm weather. Though the fungus affects all cereals, rye is most commonly affected.

The spores of this fungus are carried by the wind or by insects to the young ovaries of the rye. Within the ovary, the spores germinate secreting a ferment which decomposes the grain, leading to the formation of a yellow, viscid substance called honeydew. This attracts insects which in turn spread the fungus to other spikes of rye. Eventually the grain is replaced by a hardened, curved purple body called the sclerotium or ergot of rye. The name ergot comes from the old French argot meaning 'a cock's spur'. These curved grains resemble the cock's spur and hence the name. An old name for ergot was 'spurred rye'.

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It is now been discovered that this disease was caused by the presence of toxic chemicals in the ergot known as ergotamine and ergotoxin. These chemicals caused the smooth muscles of the body to contract violently. Since blood vessels contain smooth muscles in their walls, they contract, diminishing the blood supply to the various organs. As we all know if the blood supply to the limbs is cut off, the cells in the limbs would die, tendering the limb black. This effect is technically known as gangrene. In ancient times, of course, it was thought that the blackening was due to an invisible fire ('St. Anthony's fire'). The Church interpreted this condition as retribution by God on heretics!

Similarly, in seventeenth-century America the hallucinogenic symptoms of moldy grain were thought by Puritans to be signs of witchcraft. Satin argues that even the madness of King George III, which played a role in the American Revolution, may have been induced by accidental arsenic poisoning. It is also successfully argued that it was food poisoning, which played a role in the Salem witch trials, leading to the hanging of nineteen men and women.

...I was curious to see if Satin has included modern cases of food poisoning or not, and I was happy he did not fail me. We find the bizarre case of the food poisoning of Russian ex-KGB agent Viktor Litvinenko....these are just a few instances of food poisoning which Satin mentions in this book. In the book you would find tens of other similar incidents, which are not only plain fun to read, but give us interesting and valuable insights in history and disease and their complex interrelationship...

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Satin does not stop at mentioning merely historical incidents. He goes on to recount the efforts of modern industrial societies to make food safer. In some cases these efforts were heroic. For example, in the early days of the Food and Drug Administration a "Poison Squad" was formed, consisting of young scientists who willingly acted as guinea pigs to test the toxic effects of chemical additives. Today, the government has focused on the hazards of food bioterrorism. Satin concludes by describing measures taken to protect the public from intentional and unintentional poisoning, as well as recounting recent poisoning incidents.

To conclude, an excellently readable book, which would provide you not only with hours of entertainment, but lots of interesting and useful information. Heartily recommended to all.

Excerpts from the book:

After going through this excellent book, the editorial board decided that a simple review - however excellent - may not be able to do full justice with the book, and the reader must be provided with at least one sample of the "sweet" nuggets it contains. We zeroed in on mad honey poisoning, which

Satin describes on pages 71-73. For the uninitiated, a little primer on "mad honey poisoning" may be in order.

It is well-known that honey from the Black Sea region of Turkey contains grayanotoxin and causes poisoning. Grayanotoxin, incidentally, is named after the American botanist Asa Gray (1810-1888) who is supposed to have first described the toxin, or at least the species which contains this poison. In the eastern part of the Black Sea region it is known as "mad honey". Local people can distinguish this poisonous honey from other varieties. It causes a sharp burning sensation in the throat and is thus also sometimes referred to as bitter honey. Furthermore, honey produced in springtime is more toxic and sometimes contains higher concentrations of grayanotoxin than that produced in other seasons. Mad honey is used in the Black Sea region as an alternative medicine for the treatment of a variety of disroders including, gastric pains, bowel disorders, hypertension and sexual disorders; it is used for the management of diabetes mellitus in east Anatolia, Turkey. People believe that it decreases the blood glucose, and so they recommend the use of this honey for diabetic subjects. Because of its widespread use in alternative medicine, there has been no decrease in grayanotoxin intoxication cases in spite of this awareness of mad honey. Mad honey has the potential to cause death if untreated, but since the medical definition of mad honey poisoning in 1983, no fatal cases have been reported in the literature. Recently, a number of "mad honey poisoning" cases have been reported from Turkey.

So far, so good. But has "mad honey poisnoing" influenced history. Well, read these pages from Satin's book and you will know!

BEWARE OF GREEKS BEARING HONEY (pages 71-73)

In his chronicle *The Anabasis*, the Greek historian and general Xenophon provided the Western world's first eyewitness account of a great military campaign. He describes how, in 401 BCE, a band of ten thousand undisciplined Greek mercenaries first traveled east to fight for Cyrus the Younger in the Persian prince's attempt to usurp the throne from his brother. The campaign ended in a disastrous retreat characterized by the murder, rape, robbery, and enslavement of countless innocent villagers in the lands through which the Greek mercenary army passed.

On their trek back to Greece, the disheartened soldiers looted whatever they could from the local inhabitants. This included food; honey in particular was high on the list of sought-after commodities. In the territory of Colchis, by the Black Sea, Xenophon's men raided the local supply of beehives. After gorging themselves on the honey, they became intoxicated and were seized with fits of vomiting and nausea. They became totally disoriented and ran about like madmen. Xenophon was very lucky because the pursuing Colchian army did not attack the men who were completely incapable of defending themselves. It took some days to recover, and the ragtag mercenaries moved westward as quickly as possible to get to more hospitable territory.

History so often repeats itself, and in 67 BCE, Rome, perceiving a threat to its territories, sent out the great General Pompey to conquer King Mithridates IV of Pontus. Over the course of several battles, Mithridates gradually retreated until his army was forced to face off with the Romans near the city of Trabzon on the Black Sea coast of Turkey. Pompey, who was certain that Mithridates retreat was chaotic and illogical, was unaware that it had been carefully planned by the king's chief adviser.

Pompey's troops were in honey country, and it didn't take them long before they plundered the region's hives. In a carbon copy of the antics of Xenophon's army, Pompey's men gorged themselves on honeycombs and became intoxicated. This time Mithridates took advantage of the situation and massacred three squadrons of Pompey's troops while they were still under the influence of the honey's toxins.

Despite this setback, Rome eventually gained full control of the area around the Black Sea, but had never before come so close to a "sweet surrender."

It's hard for most people to believe that a food as historically significant and universally trusted as natural honey can, under certain circumstances, be quite toxic. However, that is the case, because when bees collect their nectar from rhododendrons or laurel, both members of the botanical family Ericaceae, they also bring along grayanotoxin, the poison these plants contain.

When the bees carry out their marvelous transformation of nectar to honey, they concentrate the level of grayanotoxin in the final product to a degree that it becomes toxic to consumers. Grayanotoxin binds to the sodium channels in cell membranes and prevents the inactivation of excitable nerve and muscle cells, which are then maintained in a state of depolarization. The central nervous system and the skeletal and heart muscles are in a highly agitated state, which causes the sort of madness described in the historical events.

Honey madness is not a condition restricted to the Mediterranean region. In the year 946, Prince Igor's widow, Olga, together with her son, took their revenge upon their enemies, the Derevlians. She sent word to the Derevlians that she was coming to mourn at her husband's grave. When she arrived at Prince Igor's tomb, she wept bitterly and bade her followers prepare a great funeral feast. When the Derevlians sat down to drink, they were offered mead made from mad honey. When the Derevlians were drunk, Olga and her followers massacred all five thousand of them. Sweet!

Mad honey was also found in the New World. The eastern half of North America has been recording episodes of honey intoxication for centuries. A review of honey poisoning in North America was first read to the American Philosophical Society as early as 1794, although it was not published until 1802.

Shortly thereafter, Abraham Lincoln-destined to become the sixteenth president of the United States-was born. Among the many quotations attributed to him is one fitting to the role of honey in history: "When the conduct of men is designed to be influenced, persuasion, kind unassuming persuasion, should ever be adopted. It is an old and true maxim that a drop of honey catches more flies than a gallon of gall."

The book is full of stories like these. I am sure our readers would enjoy the book as much as we at the journal office did.

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