The plague of the Philistines and other pestilences in the Ancient World: exploring relations between the religious-literary tradition, artistic evidences and scientific proofs

La peste dei Filistei e altre pestilenze nell’antichità. Correlazioni tra tradizione religioso-letteraria, evidenze artistiche e prove scientifiche

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“When leaving his surgery on the morning of 16 April, Dr Bernard Rieux felt something soft under his foot. It was a dead rat lying in the middle of the landing.

On the spur of the moment he kicked it to one side and, without giving it further thought, continued on his way downstairs.

Only when he was stepping forth into the street did it occur to him that a dead rat had no business to be on his landing, and he turned back to ask the door-porter of the building to see to its removal. It was not until he noticed old M. Michel’s reaction to the news that he realized the peculiar nature of his discovery.

Personally, he had thought the presence of the dead rat rather odd, no more than that; the door-porter, however, was genuinely outraged”.

“That evening, when Dr Rieux was standing in the entrance, feeling for the latch-key in his pocket before starting up the stairs to his flat, he saw a big rat coming towards him from the dark end of the passage. It moved uncertainly, and its fur was sopping wet.

The animal stopped and seemed to be trying to get its balance, moved forward again towards the doctor, then spun round on itself with a little squeal and fell on its side.

Its mouth was slightly open and blood was spurting from it.”

From “The Plague” by Albert Camus

In the ancient Judaic culture the term pestilence was not only referred to the plague, with the meaning we usually know, this word rather pointed out all contagious diseases causing, in a defined and usually limited space of time, a large death toll [1].

The appearance of epidemic diseases in the ancient Middle East is widely described in several reports. Among the disasters, quoted in the Epic of Gilgamesh, which were more desirable than the Flood, there was the visit of the plague god, in a different Egyptian text nearly contemporaneous (about 2000 B.C.), the Pharaoh’s fear was compared with the fear of the god of diseases in a year of pestilence [2].

In the Ancient World the appearance of epidemics was frequently linked to war and famine and it often followed them; the rising of famine commonly was observed as a result of pestilence outbreaks, if these events had caused a demographic impact, with the consequent difficulties in finding a sufficient number of work-
cases are poor, whereas we have larger details. Unfortunately records and features of clinical and preventing the conquest of Jerusalem. Sennacherib to retire his army from the Judea syrian camp 175000 soldiers", forcing their King of a disease which overnight "killed in the As-
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6The Philistines, having captured the Ark of the Lord from Israelites, experienced an outbreak of "tumours" - this disaster was also present as they moved the Ark from city to city - therefore they stated to send the Ark of the Covenant back to Israel [9].

ment of contagion was well-known in the Judaic World. Several contagious diseases are quoted in the Talmud, among these a major evidence is ascribed to askara, a term considered to be cor-
responding to diphtheria, a very contagious and dangerous disease for the children [4]. The Book Mishnah, completed in the second century a.D., provides a very interesting definition, concern-
ing the word pestilence (dèver): we are in the presence of a pestilence whenever, in a town with at least 500 citizens, three cases of deaths are observed during three consecutive days. This definition is careful enough, because it clarifies the death rate for time unit and for population at risk, with sex and age accounted as variables [5]. Another very interesting issue emerges from holy texts. Following the out-
break of a lethal epidemic disease among pigs, Rabbi Judah immediately ordered a public fasting, then he was asked whether he thought that the diseases might be spread from the ani-
mals to the humans.
He answered that this situation usually did not occur, but pigs were a special case and that, in accordance with his opinion, the organism of swine is similar to the human body [1]. According to tradition the inhabitants of Israel were frequently struck by scourges and epidemics (magefah), which were considered as divine punish-
ment, for their rebellious behaviour against God. Isaiah (37.36) report the lethal appearance of a disease which overnight “killed in the As-
Syrian camp 175000 soldiers”, forcing their King Sennacherib to retire his army from the Judea and preventing the conquest of Jerusalem.
Unfortunately records and features of clinical cases are poor, whereas we have larger details concerning the number of deaths. However there are two epidemics, where we have more data; they are represented by the plague striking Israel during David’s time and the so called “Pest of the Philistines” [1].
The Divine punishment, smiting Israel during David’s reign, followed royal disobedience; the king ordered a census of the people, not accept-
ed to the God and David, between three possible punishments—seven years of famine, three months of war without success or three days of pestilence—decided for the third chastisement.
Holy texts report that in a very short time 70000 deaths were reported and Flavius Josephus in-
formed that the disease caused, in several cases, a quick death [1, 8]. It was reported that Flavius Josephus, in his narration, was influenced by the description of Thucydides, outlining the outbreak of pestilence, occurred in 429 b.C during the Peloponnesian War (1). The Biblical nar-
rative, ascribing importance to Yersinis pestis as agent responsible of the so called “Pest of the Philistines” is remarkable. When the Philistines decided to give the Ark of the Covenant back to Israel, they provided, as guilt offering, “five gold tumours and five gold rats” [8]. Concerning the interpretation of the mean-
ing of the Jewish word ophal a literary debate, affecting the supposed aetiology of the epidem-
ic disease, developed [10-13].
J.P. Griffin, replying to a previous report, where it was stated that the plague was unknown in classical times, reported that his opinion induced him to think this disease already known in ancient times, when the first version of Holy Bible was performed [13]. In order to support his assumption he quoted some passages of the Old Testament (Book of Samuel), both in the translation named Septuagint and Vulgata, where it was reported how the Philistines was...
punished by Lord. He states that in Vulgata the following phrase is written “... and rats appeared in their land, and death and destruction were throughout the city”. In Septuagint translation, this concept is expanded more clearly: “He afflicted the people, both young and old with an outbreak of tumours”, in addition it was also quoted that the site of the tumours was “in the groin”. For this reason, the Philistines, who captured the Ark of Covenant, by sending back it, admitted their guilt and provided an offering of “five gold tumours and five gold rats according to the number of the Philistine rulers of their cities” (10). In accordance with these biblical references the author of the issue deduced that the plague with its associated buboes was already established in the ancient times and ever since an association with rats was known [10]. Soon after WMS Russel harked with a concise letter and stated that the Grippin’s thesis “was almost certainly erroneous”; on the basis of his knowledge, he suggested that the black rat reached Egypt from India - following the recognition of the monsoon season - only in the first or second century A.D. [11]. In addition he stated that this observation allowed fast sea crosses between Africa and Indian subcontinent and favoured, in this historical period, a wide expansion of trade with the Roman Empire and the Middle East south of Himalayas.

We remember that the word ophalim (swelling), appearing in the description in chapters 5 and 6 of the First Book of Samuel is not reported in the Septuagint Greek translation. Nevertheless this word is quoted elsewhere in the Holy Bible (Deuteronomy 28:37), but with an unclear meaning. In the authorized Bible version (the Masora) it is used the term emerods to translate ophalim, but this word should not be accepted to classify this scrouge as a contagious disease [1]. Appealing to this uncertain translation Russel questioned Gri-ffin’s thesis. With the agreement of other Au-thors he thinks that the best translation of the Hebrew word ophalim is hemorroids and that these had a relationship with the epidemics which hit the Philistines. To be more precise the emerods should be appeared as a complication, following an outbreak of bacillary dysentery; with the aim to support this thesis, he recalls what is reported in the Holy Writings, where, in Psalms 78.66 it is declaimed: “the Lord smote His enemies in the hinder parts”. Recently a paper published on the Journal of Royal Society proposed an interpretation which is, in our opinion, right, suggesting the hypothesis that the plague of Philistines was caused by Yersinia pestis [12]. New archaeological findings gave credit to the presence of this infectious disease in the Ancient Near East. Fossilized remains of plague were found in large number in Tell-Amarna (Egypt) and, since this site was inhabited only for few years, it was possible to date the contact among human beings and plague fleas, accurately to about 1350 B.C., namely before the events reported by Samuel [14]. Further archaeological in the Nile Valley researches confirm that Rattus rattus was already introduced into Egypt in this historical period, probably via ships from India [12]. In addition mouse coprolites were observed in food-stuffs (grain), stored in a burial of the Ancient Kingdom, preserved in the Museum of Turin, these remains were obtained from excavations in the XIX century in the archaeological site at el-Gebelein, lying 30 km to the south of Thebes [15]. In addition it is interesting to consider that rattus was already known by ancient Egyptians as it results from both paintings on the walls of the tombs (Figure 1) and on the sheets of papyrus (Figure 2). With the firm knowledge that in the ancient times the term plague pointed out the calamities and epidemics on the whole, causing a high mortality, there was in the egyptian pantheon Sekmet, the goddess of the diseases and death, she was able to strick the humans with the plague; in addition the papyrus Edwin Smith, dating back to the XV century B.C., includes, in the first paragraph, an invocation to gods against the plague. Unfortunately in this papyrus there is a summary description of the epidemics, so that it is impossi-

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1 We consider a scientific-literary controversy; in particular it was thought that the pestilence was a plague epidemic, because it was observed a sign (defined ophal). Some scholars translated the term ophal as buboes; this opinion was questioned and at the beginning of this diatribe there is a mistake in translation/interpretation of the holy text, the word ophal, in the different translation, means haemorrhoids (“emerods”), which developed following an epidemic of bacillary dysentery.

2 Other archaeological remains, dating to the First Intermediate Period (2181-2055 B.C.) defined which insects were observed in the burials. The presence of beetle Khapra would attest earliest contacts with the Indian subcontinent. Since the beginning of the III Dynasty (2600 B.C.) archaeological and literary evidence exist, concerning the trading with the Sumerian country, with raw materials imports, through the Persian Gulf. Copper and jewels came from Magan (Oman), via Dilmun (Bahrain), lapis-lazuli, gold, silver and tin from Mehuha (Indus Valley) and even from Afghanistan, whereas the woods came from the coast of Persian Gulf (16). On the basis of these data the presence of rats, in the Nile Valley, is hard to be questioned.
ble to clarify what disease or pathologies as a whole the author referred to [17]. Small bronze-sculptures, representing both Shrewmouse and Ichneumon, were detected in several excavations of Egyptian burials (Figure 3). The Shrew and Ichneumon are closely linked in the ancient Egyptian popular mythology, representing two different forms of a solar deity: the former animal was the expression of the god’s blind aspect, the latter, with keen eyesight, was understood his complement. Concerning the scientific evidence, to date definitive paleopathologic remains are need, moreover the evidence of plague was not found in the egyptian mummies, although Ruffer in 1910 found in the liver and in the lung of an Egyptian-ptolemaic mummy of the late period, a bacillus resembling the plague bacterium (18). Nevertheless this mummy was not embalmed carefully, it was not preserved adequately and no buboes...
were detectable at medical examination. It may be thought that during the historical phase, in which the events of the Philistines’ plague are reported in the Book of Samuel, all the vectors able to transmit this infection were present in the Nile Valley. Since the contacts between Egyptian world and Mediterranean Eastern coast and particularly Palestine were numerous, it seems likely enough that the contagion spread from the Nile and its Delta over a few hundreds of kilometres, with the involvement of the tribes populating the country of Philistines and in general the Palestine. In conclusion, the peculiar elements of this pestilence, emerging from the story reported by Samuel, were the rats, causing tumours (swellings). In addition dead rats, killed by the bacillus of the plague causing the same disease contemporaneously also in humans, were observed in the streets of towns infected by the pestilence, whereas enlarged lymph nodes in the groin and axillae are the most common signs of the illness. It has to clarify why the Philistines decided to send small wooden statues, covered with gold, of rats and swelling/tumours (ophalim) to their neighbouring Israelites, whom they were conflicting with and whom they would make peace with. A first interpretation might be that the Philistines would give an implicit warning to the Hebrew people, for the danger hanging over them: “we experienced a pestilence and these are the events you should look out for” [10]. A further hypothesis, certainly less noble, is represented by the hope that the affliction would be transmitted also to their ex-enemies, causing great damage to them, so as not to compromise further political and military balance to advantage of the Hebrew. We remember that the literary tradition reports that soon after the arrival of this accompanying present, sent by Philistines, in Beth-shemesh seventy Israelites died [12]. In this passage the arguments obtained from literary/religious tradition seem to suggest the conclusion that the event was caused by an epidemic outbreak with a high mortality and a quick spreading; the pestilence struck two populations, living in a semi desert land which, as soon as pacified, allowed contacts among the different tribes and peoples. These contacts had been previously hampered by the war. The children of Israel, the people favourite by the God, were for a period of their history, prisoners in Egypt. When the Lord ordered Moses to lead the Israelites out of the Country, He told Moses that His Supremacy and His Power would get over Pharaoh and that, in order to break down the resistance of the king, the Egypt would be punished by His signs [19].

The Holy Bible (The Book of Exodus) reports that the Country of Pharaoh was hit by ten plagues. Without entering upon this subject, we would only recall that the first Egyptian plague was represented by the pollution of the Nile: “the river turned the colour of blood … and the fish died … and the water stank ….” (Ex. 7,17-18); the second plague also is in connection with the Nile waters: “… a swarming of frogs began in the Nile … and they left the water and even invaded the people’s houses ….” (Ex. 7,26-29). The third and fourth plagues present some relationship with the pestilence, moreover a swarm of gnats and flies was observed.

In a recent paper in Lancet it was suggested that the third plagues was caused by an invasion in Egypt of rove beetles (Paederus spp, Staphylinidae), having a toxic haemolymph called paederin; this toxin induces painful necrotic blisters, when the insect is crushed on the skin [22]. It was suggested that the number of these beetles, following the first two plagues, increased remarkably, in particular in the Nile Delta area, where the most of Egyptians lived. Several days later the eruption of vesicles was observed, and this phenomenon was considered a separate event: the six plague. The Israelites, working as labourers to build two towns, Pithom and Ramses, were not struck by

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1Most scholars doubt the historicity of the Exodus’ tale, although some agree with the traditional interpretation, in the so called “Theory of the late Exodus”, this event is dated back to the second half of the XII century B.C. (about 1250-1200), during the reign either of Ramesses II or of his successor Merenptah I. In the so-called “Theory of the ancient Exodus” a most ancient dating is proposed, referring to two different historical events, including the hypothesis that the Israelites themselves and the Hyksos were the same population and they were driven out of the Egypt by Ahmose (about 1550-1525 B.C.) and the hypothesis that the Israelites went out of the Egypt in a period in which the Volcano in the Island of Thera or Santorini (about 1630 B.C.). A third hypothesis has been proposed: the Israelites emigrated peacefully from the Nile Delta to Palestine.

2It is thought that in this period Egyptian inhabitants were estimated at 2.5 million, about 1 million living in the Delta area, with a mean density corresponding to 90 inhabitants/km2 in cultivated lands. It is thought that the events linked to the so-called “Ten Plagues” date to XIX Egyptian Dynasty, between 1320 (or 1306) and 1200 B.C., nevertheless some scholars antedate them to the previous century [20, 21].
these three plagues because previously they were segregated in a different area in the Nile Delta, named the Land of Goshen\textsuperscript{12} (Figure 4) (23). The fifth plague is represented by the death of the cattle (Es. 9, 1-7). “The Hand of the Lord” this time smites “livestock which is in the field … horses … asses … camels … oxen … and sheep” by means of “a very grievous pestilence” and also here “nothing” is going to run out “concerning what belongs to Israelites”. In the past, among the most probable causes of this event, several Authors suggested the anthrax and the bovine plague\textsuperscript{13} [23]. Giovan Battista Lancisi was in agreement with the second hypothesis, probably because this disease, present in the Egyptian land, was diffused by Asian traders, probably by means of Indian zebu [24]. Modern Authors are in favour of the bovine plague [23]. There is also a thesis suggesting the fifth plague is caused by babesiosis, a tick-borne parasitic disease [25, 26]. In the biblical times the ticks had a wide spreading and the species mentioned in the Exodus are susceptible to Babesia [26]. Babesiosis is a disease that sometimes may affect the human kind; it is possible that, in a wide epidemic context, the people living near to oxen and sheep may be involved by the pestilence rising among animals [25, 26]. Hoite suggested the involvement of Trypanosoma evansi\textsuperscript{14}, trypanosomiasis (surra or debab in Arabic) affects in particular horses, but also sheep and another animals [29, 23]. The sixth plague is characterized by the outbreak of boils and skin sores (Ex. 9,8-12). There are several vague pathogenetic possibilities; different assumptions were considered by Preuss (exanthematic typhus, bubonic plague, smallpox), but the first two diseases have to be discarded because the illness was not fatal, rather it resulted repugnant: (Ex. 9,11) “Pharaoh’s magicians could not stand before Moses, because of ulcers” [30]. A third possibility, proposed by Lutero, suggests that the disease could be a varioloid form, resembling alastrim. A fourth hypothesis considers a pathogenetic relation with the third and fourth plagues; the haematophagous flies (Stomoxys) and the mosquitoes might have caused skin lesions, with bacterial infectious superimposition induced by Staphylococci and Streptococci and subsequent ecthyma, an ulcerated impetigo contagious. The seventh, eighth and the ninth plagues, including a swarm of locusts, a violent hail storm and a darkness blanketing the country, had no medical importance. The tenth plague forced Pharaoh to let the Israelites leave: “the Lord smote each firstborn … both the Pharaoh’s firstborn … and the prisoner’s

\textsuperscript{12} The Land of Ghoshen, near the sea, was very propitious, because the climate was milder and airier in comparison with different areas in the Delta. Therefore in this country the Egyptians would have not been tormented by swarms of flies, which developing in the canals, where the water was putrid, because of fish mortality [23]. Domestic fly was observed in food-stuffs, detected in Egyptian burials and preserved in the collections of the Egyptian Museum of Turin [15].

\textsuperscript{13} It has to be noted that the animals of Israelites were not smitten. It might be occurred either because the livestock fed in the higher lands, not flooded [24], or because the persistence of waters, overflowed in the Uadi Tumilat depression, had delayed their employment in the agricultural works [23].

\textsuperscript{14} T. evansi is transmitted by a fly (Stomoxys calcitrans), this transmission chain would link the fourth to the fifth plague [29].
firstborn” (Ex. 12, 29). A medical and infectious interpretation of this event suggests that typhoid fever, on account of high infantile mortality, could be considered the cause of the tenth plague [23].

It is very difficult to understand how much the biblical tale has objective elements or how much the readers are requested to be believers; biblical narration has not obviously a “scientific” target, rather it has the aim to induce the acceptance of faith in God; His intervention is considered the cause of Israelites’ liberation. In several passages of the Old Testament leprosy, Hebrew sara’at, is quoted. The understanding whether the disease depicted in the Holy Bible is really leprosy represents a remarkable problem, unfortunately the close examination of the ancient literature is not able to support us and, such as an Author argues, “about this topic a lot of books have been written and whole libraries” [28].

The most scholars think that leprosy was not present in the Middle-Near East, at the time that the biblical texts were written [30, 31]. Bearing in mind that Mycobacterium leprae infection provides unequivocal osteo-pathologic and archaeological proofs, some researches were performed in Palestine on Jewish bone remains and on a low number of people, buried in previous-ages, but they resulted, as the whole, negative [32, 33]. Nevertheless it was suggested that the excavation sites could not correspond to the areas, where the patients were kept in seclusion.

To date in Holy Land the most ancient human remains with paleo-pathologic signs suggesting leprosy are rather recent, going back to VII-X century A.D. [34].

In Egypt the proof of the most ancient disease was observed on buried human remains, coming from the oasis of Dakleh dating to the II century b.C. (35). Since this skeleton was found in a closed off oasis, it was suggested that this man had been isolated; moreover, in the same oasis new remains, going back to IV century A.D., have been observed. It could be that these places were used as isolation areas, where leprosy-sick people were deported [35]. Nevertheless, in addition to paleo-pathologic data another detail has to be considered: in the biblical text a disease resembling leprosy is described and the recovery from it may be obtained, in particular both the case concerning Maria, the Moses’sister, and the case regarding Moses himself may be quoted [31].

Probably the Jewish word sara’at includes either one or several diseases involving derma, but to date no hypothesis was confirmed. Mirko Gremek reports that Manetone, the author of an History of Egypt dating back to III century b.C., asserts that leprosy was well-known to Israelites before the exodus and maybe before their departure from Chaldea [36].

The hypothesis that leprosy was already known in the biblical times would come both from some texts, several clay tablets from Ugarit containing ancient religious and mythological poems-fragments of a Canaanite Bible and from an ancient Canaanite jar with a head on it, resembling strongly the “leonine face” of leprosy. This archaeologic find is known as “Beth-Shan

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15It may be thought that the appearance of leprosy in the Middle East dates back to 300 b.C. only, probably following Alexander the Great’s armies, returning from India in 323 b.C. and in consequence of the settlement of some veteran soldiers and their families in Palestine. The presence of leprosy in India is already reported in the great medical Sanskrit treatises from the beginning of the first millennium b.C. [36].

16This thesis is also confirmed by some fragments of two later alexandrine writers, Cheromon and Lysimachus; all these texts are only quoted by Flavius Josephus in the I century A.D. and were considered again by Tacitus, Iustinus and Diodorus Siculus [36].
anthropomorphic jar” (Figure 5), dating back to about 1300 B.C. [36]. This clay jar was found among holy worship objects—clay snakes and doves—in a place of Amenophis III’s temple, in a Canaanite sanctuary (1411-1314 B.C.). The jar was used, very probably, for either libations or grain and meal offerings and other worship objects were found in its close proximity. The jar was utilized during ancient Canaanite religious ceremonies, dedicated to Baal-tamuz and Ashtoreh. Authoritative historical physicians such as M. Grmek and D. Gourevitch, do not confirm this interpretation and suggest that it is difficult and dangerous to consider the features of the archaeological remains as referable to leprosy18. In conclusion, on the ground of these considerations, we suggest that biblical text could be ahead of modern scientific evidences, that is the civilizations, flourishing on the Eastern Mediterranean banks around the second millennium B.C., had to face plague and several epidemic outbreaks. Nevertheless to date it is not possible to clarify the aetiology of these diseases. The paintings on the walls of buildings and the pictography on the papyri, confirming the presence of the mouse in this geographic area and in particular in the Nile Delta, are very interesting. On the other hand, just now, we cannot confirm the presence of leprosy in that country in the aforesaid period, there is the doubt that the appearance of leprosy may be occurred later; the classic paleo-pathologic data, supporting this diagnosis on bone remains, had been observed only in the Dakleh Oasis (Egypt), dating back to II century A.D. It seems to us that, with the aim to develop the historical-medical research, the attempt to connect the religious-literary biblical tradition with the modern scientific evidences and in addition, when it is possible, to consider the original artistic manifestations, is very interesting. As Mirko Grmek and Danielle Gourevgitch suggested, during the analysis of the artistic and archaeological evidences caution is an indispensable condition, whenever the aim is to confirm the presence of pathologic clinical evidences [37].

We think that the Egyptian artistic evidences unequivocally bears witness to presence of the mouse in the Nile Valley and in the next Middle-East area (Palestine), on the basis of data obtained from Holy Texts its role was determining, so that the epidemic outbreak of the so called Plague of Philistines, reported in the Book of Samuel, spread.

Key words: Ancient World, Philistines, plague, leprosy.

SUMMARY

In ancient times the term pestilence referred not only to infectious disease caused by *Yersinia pestis*, but also to several different epidemics. We explore the relations between references in the Bible and recent scientific evidence concerning some infectious diseases, especially the so-called Plague of the Philistines and leprosy. In addition, some considerations regarding possible connections among likely infectious epidemic diseases and the Ten Plagues of Egypt are reported. Evidence suggesting the presence of the rat in the Nile Valley in the II millennium BC is shown; a possible role of the rat in the plague spreading already in this historical period should be confirmed by these data. While the biblical tale in the Book of Samuel may well report an epidemic event resembling the plague, as to date this infectious disease remains unknown, it is not conceivable to confirm the presence of leprosy in the same age, because the little palaeopathologic evidence of the latter disease, in the geographic area corresponding to Egypt and Palestine, is late, dating back only to the II century AD.

Mirko Grmek in his book “the Diseases of the Ancient Art” [35], written with Danielle Gourevitch, does not confirm this interpretation and suggests that signs referable to leprosy in the archaeological remains are hard and dangerous to observe.

According to these two authors the most ancient and realistic representations of leprosy is a sculptured head, to date in the decoration of the St. Mary Church at Melton Mowbray (Lancastershire, Great Britain). This sculpture would adorn an old leper hospital and would be rather recent, dating back to the beginning of XIV century [37].
RIASSUNTO

In passato, il termine pestilenza non indicava unicamente la malattia infettiva determinata da Yersinia pestis ma anche diverse altre epidemie. Gli autori analizzano la relazione tra quanto riportato nella Sacra Bibbia e le evidenze scientifiche, ottenute negli ultimi anni, relative ad alcune malattie infettive. In particolare, gli autori prendono in esame la cosiddetta Peste dei Filistei e la lebbra. Inoltre, nel corso dell’articolo, si riportano talune considerazioni inerenti alle possibili connessioni tra probabili malattie infettive epidemiche e le “Dieci piaghe d’Egitto”. Sono riportate due evidenze in campo artistico che suggeriscono la presenza di ratti nella Valle del Nilo nel II millennio a.C.; tali dati potrebbero confermare il possibile ruolo dei ratti nella diffusione della peste già in questo periodo storico. Se da un lato è possibile ipotizzare che il racconto biblico riportato nel Libro di Samuele si riferisca ad un evento epidemico simile alla peste, non è invece possibile confermare la presenza della lebbra nello stesso periodo storico in quanto i rari reperti paleopathologici di tale malattia, nell’area geografica corrispondente all'Egitto e alla Palestina, sono successivi e datati solo al II secolo a.D.

BIBLIOGRAFIA
