

The Good Word

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LEPROSY PART II: MEDICAL VS. BIBLICAL LEPROSY

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Medical Leprosy (also known as Hansen's Disease)

As we saw in our previous issue, the diagnosis of Biblical leprosy תַּזָּרָא'אֵת/לֵפְרָא (*tzara'at/lepra*) from the *Scriptures* is a bit complicated even for a Jewish priest, a *Kohen*² -- so much so, that several critical diagnostic terms in *Leviticus* chapters 13 had become poorly understood by the 3rd century BC when the Hebrew scriptures were translated into Greek in Alexandria, Egypt as the *Septuagint* (LXX). The translators seized upon the Greek word λέπρα (*lepra*, meaning *rough, scaly*) to render the Hebrew word *tzara'at* (supposedly derived from the verb זָרַץ *tzara(h): to smite or strike suddenly*). As we shall see, that Greek word, in its plural form λέπραι (*leprai*), had been used by the Greek physician Hippocrates of Kos (460-377 BC) for scaly skin afflictions.

For now let us review the medical disease that we call leprosy today and see how it compares with Biblical *tzara'at/λέπρα*:

“[The disease we call leprosy today] is a chronic bacterial infection [caused by *Mycobacterium leprae*] that attacks principally the skin and nerves. It may produce severe deformity in some cases, and may end fatally [*tzara'at* records neither]. The grim destiny that overtakes virtually every untreated leper in the course of ten or twenty years must be kept constantly in mind as we compare it to *tzara'at* the so-called *leprosy* of the Bible ...

“The most conspicuous signs of leprosy are found in the skin, and consist of multiform macules [spots] varying in color from purple or reddish brown to gray, brown, or black, and in size from 2.5 to 10 cm. In Caucasians the lesions are most commonly of a reddish hue, but in the darker races they usually appear brown to black. Lighter macules may occasionally be noted in dark-skinned persons, but these are never of a brilliant or snowy white color [as seen in *tzara'at*]. A constant feature of these macules is altered sensation -- sometimes a temporary hyperaesthesia, but more typically a

permanent reduction in sensitivity to pain and touch, amounting often to total anesthesia [which is not mentioned anywhere with *tzara'at*].

“Although the macules do not change in shape or color, they may in some cases form elevated plaques. Gradually the entire skin surface may thicken, especially over the nose and ears, and the skin of the forehead may be thrown into deep folds. In addition to macules and elevated plaques, sharply circumscribed nodules may be found, which vary in size from 0.5 to 5 cm. Initially these are reddish or bluish-brown, but as the overlying skin becomes taut they assume a yellowish-brown hue and become shiny and transparent [none of which is seen in *tzara'at*]. The eyebrows disappear, but the scalp hair remains intact. Whitening of the hair does not occur [as it does in *tzara'at*].

“The extreme thickening and corrugation of the skin, particularly of the ears, nose, forehead, and lips, combine to produce the characteristic leonine facies (leontiasis) of nodular leprosy. The disease may also involve the nasal and oral mucosa, and invasion of the larynx may result in hoarseness. Not infrequently it also attacks the eyes ultimately causing blindness [none of these are seen in *tzara'at*].

“In some cases, visible changes in the skin are less striking than involvement of the nervous system. The insensitive skin of the hands is subject to blistering. At a later stage, muscular paralysis may lead to contractures of the hands and feet. Finally, the anesthetic portions of the extremities and the face undergo necrosis and sloughing. These mutilations, combined with paralysis of the facial muscles, may create an appearance that is fully as grotesque as the corrugations of nodular leprosy [none of these are seen in *tzara'at*].


“Other organ systems are involved to a relatively minor extent, so that, barring pulmonary complications [not seen in *tzara'at*], the patient may survive for decades, the stigmata of his disease progressing often to an extreme degree.

“A leprologist who reads the Old Testament attentively will not find the slightest indication that its authors had any knowledge whatsoever of true [medical] leprosy.”³

Indeed! Was the medical disease leprosy even present in ancient Israel, Egypt, Assyria, Babylon, Persia, Media, or the Roman Empire? If it was, was it present in Moses' day or during Christ's ministry on earth? These questions have a significant bearing on whether or not Biblical leprosy and medical leprosy are in any way related to one another. What we can confidently say is that the condition Jesus cleansed from the “lepers” in the *New Testament Gospels* was the same as the *Old Testament* “leprosy” as evidenced that after “cleansing them”, Jesus required them to show

1. Steger JW, Barrett TL, *Chapter 14: Leprosy*, in *Textbook of Military Medicine, Part III, Disease and the Environment: Military Dermatology*, Office of the Surgeon General, Walter Reed Army Medical Center, Washington, D.C., 1994, pp. 319-354.
2. כֹּהֵן kohen, pl. כֹּהֲנִים kohanim) is the Hebrew word for priest(s).

3. Unna PG, *An Exemplary Instance of Faulty Scholarship*, *The American Journal of Dermatopathology*, Vol. 5, 1983, pp. 570-571.



themselves to the priests and give them the offering that the Law of Moses required of Israelites for their cleansing (cf. *Lev. 14:2-32*).

The History of Medical Leprosy in Antiquity

India: The earliest evidence of true medical leprosy has recently been discovered in India where the typical pathologic changes of leprosy have been found in the skeletal remains of a single person at an archaeological dig at Balathal in Rajasthan, India. The remains were found in a Chalcolithic [copper age] stone enclosure overlain by an undisturbed layer of sterile, white ashy soil 20–30 cm in thickness. Radiocarbon dating suggests that the skeleton was buried between 2500–2000 BC, i.e., some 4000 to 4500 years ago!⁴

The first medical description anywhere of leprosy is found in the *Sushruta Samhita*⁵ written c. 600 BC, which is remarkable for its detail and insight:

“Under terms *vat-hakta* and *vatasonita* there is characterized hyperesthesia, anesthesia, formication [the feeling of ants crawling on or under the skin], and deformities. Under designation *kushtha*, there were two kinds of skin lesions. In one the prominent symptoms and signs were local anesthesia and deformities [corresponding to leprosy in partially immune persons who are not contagious = *paucibacillary leprosy*]. In the other the features were ulceration, falling off of the fingers, and sinking of the nose [corresponding to leprosy in non-immune persons who are contagious = *multibacillary leprosy*] ...

“*Kushtha* is the worst of all diseases and one who dies due to that is again attacked by it in the future birth. *Kushtha* is also contagious like fever, consumption [tuberculosis], ophthalmia, and the epidemic diseases by constant contact, breathing together, eating together, lying or sitting together, clothes, garlands and ointments. The expansion of *kushtha* from skin to the remaining elements of the body is compared with the gradual expansion of the roots of a tree in the earth.”⁶

Thus, it would appear that leprosy first arose in ancient India where it is still called *kushtha* today.

China: Leprosy has been thought to have been present in China for at least 2,500 years. The “first reported case of *leprosy*” in China is said to have been recorded c. 1100 BC. By 600-700 BC *leprosy* was thought to be a punishment for sins. However, it was not until c. 500 BC, in the *Nei Ching Su Wen*, that we find the first written description of leprosy in China. The author Huang Ti gave this condition the name *lei-*

fon (“severe paralysis”). He described the affliction as having nodules; ulceration; loss of eyebrows; loss of sensation “because of the stagnant movement of the *wei-chi*, the defensive force, numbness results”; and destruction of the nasal structures: “the vital spirits degenerate and turn cloudy causing the bridge of the nose to change color and rot”.^{7,8}

Recently a book from the Ch’in dynasty (221-206 BC), was excavated from the tomb of magistrate Hsi in Yun Meng, Hupeh. In it an individual case of leprosy is well described:

“Cha went to see Bing and said to Bing, ‘I think you have Leprosy (Li).’ Bing replied, ‘At age three I was sick, my eyebrows were swollen and nobody knew what the sickness was. I was directed to see a doctor, Ting. The doctor said, you don’t have eyebrows because they are rootless. Your nostril is destroyed; you cannot sneeze on irritation; your legs are halt because one of them burst, and your hands have no hair.’ He asked Bin to shout and the voice was hoarse. That is leprosy.”⁹

Consequently, leprosy has been in China for a long time, perhaps spreading there from India.

Egypt: Although many scholars have often theorized that leprosy originated in Egypt, there is no evidence to support that idea. Others have believed the source of the spread of leprosy to Egypt was through the Hyksos, a semi-nomadic tribe from of Asia Minor, who invaded Egypt c.1700 BC resulting in a mixing of Egyptians with Asians. Again, there is no evidence to support this claim either.

The so-called *Chons’ swellings* and the *uchedu* referred to in Ebers’ papyrus 874 (c. 1550-1350 BC), once thought to be due to leprosy, are now considered to be due to tuberculosis.¹⁰

The Egyptian historian Manetho (c. 300 BC), has been frequently referenced as reporting that 80,000 Jews were supposedly affected with *λέπρα*, i.e., *leprosy* at the time of the Exodus [c.1445-c.1290 BC]. The most accessible source for Manetho’s history is to be found in *Contra Apionem* written by the Jewish historian Josephus (formerly Yosef ben Matityahu):

“14 ... Manetho was a man who was by birth an Egyptian; yet had he made himself master of the Greek learning: as is very evident. For he wrote the history of his own country in the Greek tongue; by translating it, as he saith himself, out of their sacred records ...

“26. ... [Manetho] promised to interpret the Egyptian

4. (Note: It is customary in Vedic tradition in parts of India to bury lepers alive rather than cremate their bodies, which as diseased, are not considered an appropriate sacrifice to Hindu Gods.) Robbins G, Tripathy VM, Misra VN, et al., *Ancient Skeletal Evidence for Leprosy in India (2000 BC)*, *PLoS One*, Vol. 4, No. 5, 2009, PMC 2682583. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2682583/>

5. Literally *Sushruta’s Compendium*, an ancient Sanskrit text on medicine and surgery.


6. Skinsnes OK., *Notes from the History of Leprosy*, *International Journal of Leprosy*, Vol. 41, No. 2, 1973, p. 221.

7. *Ibid.*

8. Skinsnes OK, Chang PH, *Understanding Leprosy in Ancient China*, *International Journal of Leprosy*, Vol. 53, 1985, p. 291.

9. *Ibid.*, p. 294.

10. Hartmann A., *Back to the Roots--Dermatology in Ancient Egyptian Medicine*, *Journal of the German Society of Dermatology*, Vol. 14, No. 4, 2016, pp. 389-396. <https://onlinelibrary.wiley.com/doi/full/10.1111/ddg.12947>



History out of their sacred writing; and premised this: that 'Our people [Josephus speaking of the Israelites] had come into Egypt, many ten thousands in number, and subdued its inhabitants ... he further confessed that we went out of that country afterward and settled in that country, which is now called Judea, and there built Jerusalem and its temple.' Now thus far he followed his ancient records. But after this he ... introduces incredible narrations: as if he would have the Egyptian multitude that had the leprosy, and other distempers, to have been mixed with us; as he says they were, and that they were condemned to fly out of Egypt together ...

"When Manetho therefore had acknowledged that our forefathers were gone out of Egypt so many years ago, he introduces his fictitious King Amenophis, and says thus: ... how this namesake of his told him that he might see the gods, if he would clear the whole country of the lepers, and of the other impure people. The King was pleased with this injunction; and collected all that had any defect in their bodies and sent them out of Egypt. Their number was **eighty thousand**, whom he sent to those quarries which are on the east side of the Nile, that they might work in them; and might be separated from the rest of the Egyptians. He says further, that there were some of the learned priests [presumably Egyptians] that were polluted with the leprosy ...

"30. Our nation therefore, according to Manetho, was not derived from Egypt; nor were any of the Egyptians mingled with us [the Israelites were already on the eastern side of the Nile in Goshen where they could raise their flocks and herds, cf. *Genesis 44-50*]. For it is to be supposed, that many of the leprous and distempered people were dead in the mines; since they had been there a long time; and in so ill a condition.

"34. I shall now add to these accounts about Manetho, and Cheremon, somewhat about Lysimachus; who hath taken the same topic of falsehood, with those aforementioned, but hath gone far beyond them in the incredible nature of his forgeries. Which plainly demonstrates that he contrived them out of his virulent hatred of our nation. His words are these: 'The people of the Jews being leprous and scabby, and subject to certain other kinds of distempers, in the days of Bocchoris King of Egypt, they fled to the temples; and got their food there by begging. And as the numbers were very great that were fallen under these diseases, there arose a scarcity in Egypt. Hereupon Bocchoris, the King of Egypt, sent some to consult the oracle of Hammon about this scarcity. The god's answer was this; that he must purge his temples of impure and impious men, by expelling them out of those temples into desert places: but as to the scabby and leprous people, he must drown them, and purge his temples: the sun having an indignation at these men's being suffered to live. And by this means the land will bring forth its fruits. Upon Bocchoris's having received these oracles, he called for their priests, and the attendants upon their altars; and ordered them to make a collection of the impure people; and to deliver them to the soldiers, to carry them away into the desert: but to take the leprous people, and wrap them in sheets of lead, and let them down into the sea. Hereupon the scabby and leprous people were drowned: and the rest were gotten together, and sent into desert places; in order to be exposed to destruction. In this case they assembled themselves together; and took counsel what they should do: and determined, that as the night was coming on, they should kindle fires, and lamps, and keep watch: that they also should fast the next night, and propitiate the gods, in order to obtain deliverance from them. That on


the next day there was one Moses who advised them, that they should venture upon a journey; and go along one road; till they should come to places fit for habitation: ... and then came into that land which is called Judea: and there they built a city, and dwelt therein ... and called the city *Hierosolyma*."¹¹

Manetho is often referenced in medical literature on leprosy for stating that 80,000 of the Israelites in Egypt at the time of the Exodus were afflicted with leprosy. But according to Josephus that is not what Manetho wrote. Rather, there were 80,000 lepers and impure people whom King Amenophis sent out of Egypt to the east of the Nile to work and perish in the quarries and mines separating them from the rest of the Egyptians. The Israelites were already on the eastern side of the Nile in Goshen where Pharaoh had given the patriarch Jacob and his family permission to settle and raise their flocks and herds some 400 years earlier in the time of St. Joseph the All-Comely. This implies that the 80,000 lepers and impure were Egyptians, not Israelites. Another (and otherwise unknown 3rd century BC) Greco-Egyptian writer, Lysimachus, whose reliability is questioned more by Josephus than that of Manetho, states that at a later date, King Bocchoris of Egypt called for the unclean and impious to be gathered together by soldiers and taken out into the desert to perish in the wilderness and called for the leprous and scabby to be wrapped in lead and drowned in the sea. That being accomplished upon them, the following night Moses decided to lead the children of Israel on their journey, their Exodus, to find a new place fit for habitation. Consequently, there should have been no unclean, impious, leprous, or scabby people left among those of the mixed multitude leaving Egypt under Moses' leadership. Moreover, of those original 80,000, which included both those afflicted with "leprosy" (*λέπρα*, *lepra*) and those who were "impure" or "unclean," we have no idea of how many of each category there were. Nor do we know how many survived the quarries and mines only to be led into the desert to die, or be wrapped in lead and drowned in the sea. None of those numbers are reported by either Manetho or Lysimachus. By the same token we cannot determine how many of the original 80,000 might have been Israelites in Egypt outside of Goshen, if any.

Secondly, in neither Manetho's nor Lysimachus' histories were the features of the *λέπρα* described. But because Manetho wrote his history a century and a half after the Greek physician Hippocrates (the father of medicine) had used the plural form *λέπραι*¹² in his medical writings to indicate scaly rough skin problems, one might suspect that Manetho used the singular form,

11. Josephus, *Contra Apionem* (*Against Apion*), I.14, 26-33.

12. Hippocrates, *ΑΦΟΡΙΣΜΟΙ, ΤΜΗΜΑ ΤΡΙΤΟΝ*.20.



λέπρα, to designate a particular type of scaly rough and scabby skin disorder. If so, the term λέπρα might have been used by Manetho to describe a rather common scaly and scabby rough skin condition, e.g., psoriasis, which he may have confused with the biblical *tzara'at* with its rites of cleansing and separation from the community as found in *Leviticus 13*.

There is also the theory that Alexander the Great's Macedonian soldiers brought leprosy back from India c.323 BC, especially since, as we have seen, it originated there. The only extant verification for this is found in the writings of the 1st century AD Greek physician Rufus of Ephesus who gave the condition the name *elephantiasis*, i.e., the *elephant disease*:

“The Elephant Disease had reached the Mediterranean basin in the decades after Alexander's conquests. The first physician to mention what Rufus himself called *elephantiasis* was Straton, a student of Erasistratus, the famous physician and anatomist who had practiced medicine and conducted dissections of the human body under King Ptolemy I (305-281 BC). Straton had identified the disease as *kakochymia* (literally, a bad mixture), a name referring to the unbalanced mixture of humors.

“According to Rufus, subsequent medical experts abandoned Straton's terminology. Some physicians began to describe the first stages of Elephant Disease as *leontiasis* because the patient's face took on the appearance of a lion, with sagging cheeks and eyebrows and with thickened lips. The patient also began to give off a bad odor, like a lion. Other doctors identified the second stage of the disease as *satyriasis* because the patient's cheeks reddened, the eyebrows became puffy, and the victim was seized by a desire for sexual gratification. In its more advanced stage the illness produced black protuberances on the legs, face, and body. Some of these tubercles developed oozing ulcers. In severe cases, the fingers and toes fell off. According to Rufus, physicians called this final stage of the disease *elephantiasis*.”¹³

Shortly after Alexander, by the reign of Ptolemy Philadelphus (286-246 BC), the Hellenistic Jews of Alexandria, Egypt understood so little Hebrew that a Greek translation of their Hebrew Bible became a necessity.¹⁴ This translation, described in the *Letter of Aristeus*, is known as the *Septuagint (LXX)*. The High Priest Eleazar of the Temple in Jerusalem sent 6 elders from each of the 12 tribes of Israel to King Ptolemy in Alexandria, Egypt to undertake this task of translation.¹⁵ When they came to the Old Testament passages which included the Hebrew words *tzara'at* (“leprosy”) and *m'zarah* (smitten with “leprosy”) they seized upon the

word λέπρα *lepra*. Perhaps they were influenced by the use of that word by the Egyptian historian Manetho, himself a resident of Alexandria, who, in turn, may have been influenced by Hippocrates' designation of scaly skin afflictions as *leprai*), to choose the Greek word *lepra* to represent the Hebrew word *tzara'at*. Thus, the confusion already existing among the priests and levites in the Jewish community as to the meaning of *tzara'at* was transmitted to this oldest of all Old Testament translations where the word was rendered in Greek by the word λέπρα (*lepra*).¹⁶ By this act, they assigned the name of a disease of the skin to what in the Old Testament had been a mark/sign of “uncleanness.” This particular form of “uncleanness” in *Leviticus* required segregation of those afflicted from the community, disallowed their participation in Temple worship, and mandated their ritual purification by the priests when the “uncleanness” was no longer present. This opened the door for these *Levitical* sanctions to be misapplied to a medical condition.

Notably the earliest skeletal remains found in Egypt with pathological changes suggestive of leprosy date to this same era. These remains were discovered at the Dakhleh Oasis in the great Western Desert of central Egypt, and have been radiocarbon dated to between 400 BC and 250 BC.¹⁷ This oasis in mid-Egypt is roughly 220 miles west of Luxor.

Two to three centuries later the great Roman poet Lucretius (c.99-c.55 BC) wrote of an “elephant disease” (*elephas morbus*) occurring in mid-Egypt:

“There is the elephant disease, whose origin is in mid-Egypt by the streams of Nile, and nowhere else. 'Tis the feet [that] are attacked.”¹⁸

A couple of centuries after Lucretius, the renowned philosopher-physician Galen (130-210 AD) of Pergamon (in Asia Minor) identified Alexandria, Egypt as the place where Elephant Disease had claimed the greatest number of lives. He believed that large numbers of Alexandrians suffered from this malady because of the hot climate and their diet which consisted of gruel, lentils, snails, salt-preserved foods, and donkey meat -- all of which in his philosophical thinking produced black bile, a thick, melancholic humor that entered the blood and eventually made its way to the skin. Consequently, he recommended bloodletting and

13. Miller TS and Nesbitt JW, *Walking Corpses: Leprosy in Byzantium and the Medieval West*, Cornell University Press, Ithaca, N, 2014, pp. 11-12.


14. Unna PG, p. 572.

15. *The Letter of Aristeus*, lines 41-50, <https://www.ccel.org/c/charles/otpseudepig/aristeas.htm>

16. Unna PG, p. 572.

17. Molto JE. *Leprosy in Roman Period Burials from Kellis 2: Dakhleh Oasis, Egypt*. In: Roberts C, Lewis M, Manchester K, editors. *The Past and Present of Leprosy: Archaeological, Historical, and Clinical Approaches*. Oxford: Archaeopress, 2002. pp. 186-196.

18. Titus Lucretius Carus, *The Nature of Things*, Book 6, verses 1112-1113, in perhaps the greatest work of Latin poetry.



purgatives as therapy.¹⁹ Throughout his works Galen used the terms *lepra* and *elephantia* interchangeably. Considered the most authoritative physician for well over a millennium, his influence was immense and no doubt contributed to the growing confusion between biblical leprosy and medical leprosy in the Eastern Roman Empire from the second to the 6th centuries.²⁰

So leprosy possibly came to Egypt from India via Alexander's soldiers in the late fourth or early third century BC. It established a solid foothold in mid-Egypt in the first century before Christ. By the second century AD it had a strong presence in Alexandria.

Persia: Concerning Persia in the 6th century BC, the Greek historian Herodotus (c. 484 - c. 425 BC) wrote:

§138. Whoever of the citizenry has "*leprosy*" or the "*white sickness*", he comes not into the city nor joins company with other Persians. Now they say that those that have these illnesses are so afflicted from having sinned against the sun. Every foreigner who takes such a sickness they drive out of their country, as they also banish the white doves, on the same charge.²¹

However, it is speculative to call this "*white sickness*" either the "*leprosy*" of the Bible or the leprosy known to modern medicine. It possibly referred to vitiligo (an acquired autoimmune disease that causes a progressive loss of pigment) or the genetic disease albinism, both of which would have skin as white as a dove. Both of these conditions predispose those afflicted to severe sun burns which may account for Herodotus' comment of "having sinned against the sun" and consequently being punished by it with severe repetitive sunburns.

Although presumed by many historians and academics to be the cause of the spreading of leprosy from Asia to Europe, the conquests of the Persian Kings Darius I (521-488 BC) and Xerxes I (486-465 BC) are not known to have spread leprosy to the western parts of Asia minor, the Grecian Islands, or Greece proper, even though both Darius' and Xerxes' warriors and their trains of logistic support troops numbered over 1 million and spent many months on their respective campaigns. So it is unlikely that leprosy was significantly present in Persia before the 5th century BC.²²

Although the Greek writer Ctesias (5th century BC) of Asia Minor in his history *Persica* (Persia) makes

mention of "*dull-white leprosy*" which is curable with special cold sweet spring water in India, it is impossible to know exactly what he was referring to.²³

Thus, there is no trustworthy evidence for medical leprosy in ancient Persia.

Greece: Writing in Greek, Hippocrates (460-377 BC) of the island of Kos, near Asia Minor, used the term *λέπρα* "*leprai*" to describe an itchy condition that caused the skin to fall off in small flakes. Prior to Hippocrates' time true leprosy was essentially unknown in the Greek-speaking world. Some scholars believe that Aristotle (384-322 BC) described true leprosy under the name *satyriasis* -- and later that term was used for one of the presentations of true leprosy, but we just don't have enough information in Aristotle's writings to conclude that what he was describing was true leprosy:

"Similar to this is also the disease known as *satyriasis*, in which the face appears like that of some other creature -- a *satyr*- owing to a quantity of unconcocted humour being diverted into parts of the face."²⁴

The earliest definitive description of a disease in Greek that suggested true leprosy was reported by Aretaios the Cappadocian c. AD 150. He called the condition by several names: *elephantiasis*, *leo* on account of the appearance of the eyebrows like a lion's brow, and *satyriasis* from the redness of the cheeks following Rufus' terminology. Much of his lengthy account is full of fanciful descriptions, archaic causes, and useless minutia, but the following excerpt is extraordinarily on target for advanced lepromatous leprosy:

"Sometimes at this point, some of the members of the patient -- the nose, the feet, the genitals, and all parts of the hands -- begin to die to the point of falling off. The malady does not kill a person to release the patient thereafter from a disgraceful life and horrible sufferings, but rather his limbs are severed by the disease ... There is great difficulty in breathing, and choking as though from strangulation. Thus, some end their lives sleeping a deep sleep into death. Who would not flee people with such ailments or who would not be repelled even if the victim should be a son or a father, or a brother. There is fear of the contagion of the disease. As a result, many have placed their dearest relatives in the desert or have brought them into the mountains. Some relatives help the sick for a time in their hunger, but others do not assist them at all because they wish that these people would perish."²⁵

Notably, Aretaios believed that *elephantiasis* was

19. Galen, *Ad Glauconum*, 2.12, pp. 139-44, as quoted in Miller TS and Nesbitt JW, p. 13.

20. Demaitre L, *Leprosy in Premodern Medicine, A Malady of the Whole Body*, the Johns Hopkins University Press, Baltimore, MD, 2007, p. 36.


21. Herodotus, *The History*, Bk. I, § 138, University of Chicago Press, Chicago, IL, 1987, pp. 97-98.

22. Klingmüller V., *Die Lepra, III. Geschichte (History)*, p. 6, in Jadassohn J, *Handbuch Der Haut- und Geschlechtskrankheiten, Band 10, Teil 2*, Verlag von Julius Springer, Berlin, Germany, 1930.

23. Nichols A, *The Complete Fragments of Ctesias of Cnidus: Translation and Commentary with an Introduction*, Ph.D. Thesis, University of Florida, 2008, pp. 115-116. http://etd.fcla.edu/UFL/UF0022521/nichols_a.pdf

24. Aristotle, *de generat. Animal*, IV, 3, *The Complete Works of Aristotle*, Princeton University Press, Princeton, NJ, 1995, p. 768b.

25. Aretaios of Cappadocia, *On Acute and Chronic Diseases*, Bks. IV.13, VIII.13, in Miller TS and Nesbitt JW, pp. 168-169.



contagious. He theorized that when a healthy person came too close to a leper, he would breathe in the leper's exhaled polluted air which then entered his lungs and circulated to the rest of his body through the arteries. From a modern leprologist's point of view, his theory is partially correct. However, his major diagnostic oversight was his failure to note numbness/anesthesia of the skin as a characteristic finding.

Italy: According to the Greek writer Plutarch (AD 46?-120?) the Greek physician Philon stated that none of the ancient Greek physicians had any knowledge about *elephantiasis*. But during the time of the Greek physician Asklepiades (120-40 BC), a contemporary of General Pompey the Great, leprosy first made its appearance in Italy, c. 60 BC.²⁶

At a later time, Cajus Plinius Secundus (AD 23-79, aka Pliny the Elder), in *Natural History* XXVI.5 and XX.14, confirmed Plutarch's statement above: "We have already said the *elephantiasis* had not arrived in Italy before the time of Pompey the Great (c. 60 BC)." He continued: [and] "is native to Egypt." He observed that the disease initially manifested itself on the patient's face, but this stage was followed by an outbreak of scabrous encrustations of diverse sizes and colors on various parts of the body. In time the sores turned black, and the toes began to swell. Pliny alluded to the spread of *elephantiasis* in Italy, but he steadfastly maintained that the contagion had been unknown there before the time of Pompey the Great (died 48 BC). Pliny added that the disease did not remain a problem for long in Italy and vanished from the peninsula.²⁷

Thus, *elephantiasis* appeared only rarely in the 1st century BC in Rome. But it was at this time that the nomenclature became clear: what one called *lepra* in Greek in the Hippocratic sense was a scaly skin disease, and what one called *elephantiasis* in Greek was true leprosy in today's medical sense.

Celsus (c.25 BC - c.AD 50) affirms that *elephantiasis*, i.e., true leprosy, was frequently seen in other countries but not in Italy:

"Totally unknown in Italy, but very frequent in a few other lands is the disease which the Greeks call *elephantiasis*. It is heard to be chronic. The whole body is so afflicted with it that even the bones are afflicted. The surface of the body shows many spots and ulcers/abscesses which are close to red in color, but progressively assume a black color. The skin is thick in many places, in other areas it is thin, in a few hard, in a few soft, and somewhat rough from scaling, thereby the body appearing emaciated, while, on the contrary, the face, the lower extremities and the feet are swollen. Where the disease has been present for a long time, there is a disappearance of the fingers of the hands and the toes of the

feet in the swelling, and a slight fever occurs all of which causes great sorrow."²⁸

Evidently, the disease made very little headway in Italy, for Oribasius (AD 320-403), personal physician to the Roman Emperor Julian (the Apostate), observed that leprosy was still uncommon in Italy, but he noted, "this sickness is especially well-known to the Egyptians."²⁹

The Middle East and Judea (1-50 AD): The earliest presence of leprosy bacillus DNA in Israel has been recently discovered in the bony remains of a shrouded man lying within a plaster-sealed tomb. That tomb, now referred to as the "Tomb of the Shroud", is located in the lower Hinnom Valley in the 1st century AD Jewish cemetery known as *Akeldama* (*Acts 1:19*) -- the *Field of Blood* purchased by the Jews with the 30 pieces of silver that Judas Iscariot threw down at the feet of the Sanhedrin before he hanged himself. Those remains have been radiocarbon dated to 1-50 AD which fits well with the date of c. 30 AD for the establishment of the cemetery itself by the Jewish Sanhedrin. Moreover, the Tomb of the Shroud is located next to the tomb of the High Priest Annas (served 6-15 AD), the father-in-law of Caiaphas the high priest (served 18-36/37 AD), the Caiaphas *which gave counsel to the Jews, that it was expedient that one man should die for the people* (St. John 18:14) and before whom Jesus was interrogated before being sent to Pontius Pilate.

The location and size of the tomb, the unusual textile used as shroud wrappings, and the clean state of a clump of human hair found there all suggest that the shrouded person was a fairly affluent member of society in Jerusalem -- either a priest or a member of the aristocracy. What is particularly unusual about this tomb is that quite clearly this man did not receive the common practice of a second burial wherein the bones of the deceased are removed after a year (when the flesh has rotted away) and then placed inside an ossuary [a stone bone burial box]. Secondly, the entrance to this niche of the tomb had been completely sealed-off with plaster. Archaeologists believe that the man had suffered from and perhaps died from tuberculosis based on the bony changes in his remains and in those of two others found near him. The molecular identification of tuberculosis in the remains is a significant contribution to the archaeological interpretation of this site, i.e., the remains were walled off from the rest of the Jewish community to prevent further contagion. However, in checking for the presence of *Mycobacterium*

28. Autus Cornelius Celsus, *On Medicine* Bk. III.25.

29. Snellgrove HS, *Leprosy in Ancient and Early Medieval Times: with Special Reference to the Franks*, *The Mississippi Quarterly*, Vol. 7, No. 4, 1954, p. 2. https://www.jstor.org/stable/26473473?read-now=1&refreqid=excelsior%3A22a76c27707ae0a3cf3b530d88ba243d&seq=2#page_scan_tab_contents

26. Klingmüller V, p. 8.

27. Miller TS and Nesbitt JW, p. 12.

tuberculosis DNA by polymerase chain reaction methods, they also detected evidence of *Mycobacterium leprae* DNA in the bone sample despite no characteristic bony changes of leprosy being present in the remains. So this person contracted the leprosy bacillus, but whether or not he had clinical signs of disease cannot be determined from the extant remains. These two bacteria have been not infrequently found together in more recent remains as well as in living persons. The co-infection of leprosy with tuberculosis often causes the death of the leper because *M. leprae* infection, especially in the multibacillary form (lepromatous), compromises the immune system, making the sufferer much more vulnerable to a subsequent life threatening *M. tuberculosis* infection. Indeed, in times past leprosy patients were often reported to have died due to a more aggressive super-infection with *M. tuberculosis*. This co-infection is now thought to be one of the reasons leprosy died out in the Medieval world, i.e., tuberculosis caused a premature death in such patients, thereby slowly decreasing the prevalence of infectious leprosy in the European populations. To date this case is the earliest case of leprosy anywhere in which *M. leprae* DNA has been detected.³⁰ So true leprosy was just beginning to make its appearance in Judea at the time of Christ's ministry. So, although Moses taught the priests the signs of *tzara-at*, they would have had to wait another thousand years to be taught to recognize the signs of medical leprosy!

Analysis of Medical Leprosy vs. Biblical Leprosy:

For hundreds of years, the popular translation of *tzara'at* (צָרַע) / *lepra* (λεπροα) has been "leprosy", and it was commonly accepted that the reason for the quarantine of a suspected leper and for the exclusion from the camp of one confirmed to have been smitten with the malady, was to prevent the spread of the disease. However, both of these notions are completely erroneous. The symptoms of "tzara-at", as outlined in *Leviticus 13*, as we have seen, are quite different than those of the disease of leprosy. Furthermore, if the reason for the biblical "leper's" confinement was to prevent contagion, then several of the Mosaic laws would be ludicrous. For example, if the one smitten with the malady is declared *tamei*³¹ (*unclean*), but later if the "leprosy" spreads and covers the victim's entire body (*Lev. 13:13*), he is no longer *unclean* but is pronounced *clean*. It would, of course, be preposterous

to suppose that a contagious disease suddenly becomes *clean* -- that is, that the risk of its transmission disappears once it has spread over the entire body. But it would be just as preposterous to suggest that if his skin begins to return to normal anywhere, he would then become *unclean* (*Lev. 13:15*). Secondly, if someone is suspected of having *tzara'at* but it is not a clear-cut case, the priest quarantines him for a week then rechecks. If still inconclusive, the priest quarantines him for a second week and rechecks. That would be meaningless in medical leprosy since the disease progresses slowly over months and years, not in days. So such a sort period of observation makes no sense for the disease of leprosy. Thirdly, in the case of a house that is afflicted (*Lev. 14:26*), the *Torah* prescribes that before the house is pronounced *unclean*, all its contents should be removed, because they too, would become *unclean* if they were to be inside at the time of the pronouncement. But if there were a real danger of contagion, it would be irrational for the afflicted household items to be excluded from the quarantine! In perhaps the most telling example, the Jewish sages in the *Mishnah* (c. 200 AD), reflecting the long standing oral traditions of the rabbinic schools, teach that if the symptoms of *tzara'at* appear on a newlywed or during a festival season, the *Kohen* is not to examine the afflicted or to declare him to be *unclean*, in order not to interfere with the celebration.³² But if the purpose of these laws were to prevent the spread of disease, it would be absolutely imperative to enforce the laws at times of great overcrowding and mingling!

Consequently, we can confidently state that Biblical leprosy *tzara'at* / *lepra* was not what we call leprosy today.^{33,34,35} The instructions to the priest in *Leviticus Chapter 13* make that abundantly clear. They list the specific diagnostic criteria even if they are ill-defined in modern dermatologic terms. Importantly, the most characteristic signs and symptoms of medical leprosy are absent from *Leviticus*. No reference is made to the grotesque deformities, the profound loss of feeling in the skin, the destructive changes in the nose, fingers and toes, nor the blindness, hoarseness, paresis, or death of the afflicted one. Nor is there any evidence that the Bible considered *tzara'at/lepra* contagious. *Tzara'at/lepra* is not a disease that can be diagnosed medically, but rather a characteristic mark on the skin signaling

30. Matheson CD, Vernon KK, Lahti A, Fratpietra R, et al., *Molecular Exploration of the First-Century Tomb of the Shroud in Akeldama, Jerusalem*, *PLoSOne*, Vol. 4, No. 12 (Dec. 16), 2009. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2789407/>

31. The Hebrew adjective *tamei* (טָמֵא) means *impure, unclean*.

32. *Mishnot, Seder Taharos, Tractate Nega'im*, 3.2, in *Socino Talmud*, (DVD, Version 1.3), Judaic Classics Library, Davka Corporation, Brooklyn, NY, 2007.

33. Unna PG, pp. 569-574.

34. McEwen EL, *The Leprosy of the Bible In Its Medical Aspect*, *The Biblical World*, 38:3, Sep 3, 1911, pp. 194-202.

35. Lewis G, *A Lesson From Leviticus: Leprosy*, *Man*, Vol. 22, No. 4, (New Series), 1987, pp. 593-612.

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God's displeasure and chastisement of a person for violating certain of God's commandments. Since there were so few cases of *tzara'at* mentioned in the Bible we literally have no idea of how frequent it was. However, being a form of "uncleanness", it prohibited that person from interacting with the community, thus isolating them from the camp of Israel -- a form of "social distancing" not for medical reasons, but for spiritual reasons because "uncleanness" was transmittable! Touching unclean things or people or dead bodies would make one unclean for a day, a week, or even cut one off from the congregation of Israel (*cf. Lev. 22*).

With regard to medical leprosy, formerly called *elephantiasis*, medical lepers would be considered unclean by the Jewish Law because of their "issue", their oozing sores (*cf. Lev. 15*). Consequently, there would be a good reason for avoiding them and their environment, but because of uncleanness, not because of contagion in the modern infectious disease sense. In the ancient medical world Galen and his school with their underlying belief of an imbalance in the internal humors of the body being the cause of *elephantiasis*, thought it non-contagious, but due to environmental factors. In contrast those of the pneumatist school of physicians,³⁶ Archigenes and Aretaios, considered it dangerously contagious through inhaling "corrupted" air exhaled by the afflicted. These competing systems

36. Physicians and medical philosophers who emphasized the importance of the *pneuma*, or the *Vital Force*, which is derived from the air through the breath, is important for health or disease.

of thinking battled over *elephantiasis* for centuries, both half-right/half-wrong -- reflecting the bipolar nature of leprosy: non-contagious among patients with paucibacillary (tuberculoid) leprosy because of their better immunity, and contagious among patients with multibacillary (lepromatous) leprosy being highly susceptible to it by their lack of resistance.

Following Galen, but before the 4th century AD, there was also a shift in usage in the Greek speaking non-medical world in which the term *lepra* began to be considered synonymous with *elephantiasis*:

"In his funeral oration for his friend [St.] Basil of Caesarea, given in 379, [St.] Gregory of Nazianzos called Elephant disease '*lepra*' in one passage, although he referred to it in the rest of his speech as the '*Holy Disease*'" ... From the fourth century on, religious writers began to equate the term *lepra* with the term *elephantiasis* ... Among medical writers [with the exception of Galen], on the other hand, *lepra* was never confused with *elephantiasis*, true *Elephant Disease*.³⁷"



[Next issue: **Leprosy Part III: THE RESPONSE OF THE CHURCH**]



37. Miller TS and Nesbitt JW, pp. 17-22.