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The Threat of Epidemics

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The Ancestral Homeland of Plague and the Black Death's Area of Origin

Ole Y. Benedicton
Professor of History
University of Oslo
Oslo, Norway

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THE ANCESTRAL HOMELAND OF PLAGUE AND THE BLACK DEATH 'S AREA OF ORIGIN

1. The Ancestral Homeland of Plague

The origin of such a mind-boggling epidemic disaster as the Black Death is a question which has fascinated scholars and amateur historians alike. This question of origin comprises really two questions, namely (1) where did plague originate as a disease, where was its ancestral homeland, so to speak, and (2) where was the area of departure of the Black Death.

Plague is a disease that does not leave any mark on the human skeleton, the study of the history of plague is entirely dependent on written information. It is not possible to penetrate deeper into the past than the use of writing permits. And the deeper into the past we venture, the fewer records are preserved and obtainable.

Historically, early records are necessarily associated with the early seats of civilization which covered only tiny parts of the Earth 's surface. Plague is basically a disease circulating among wild rodents, it will in all probability have originated elsewhere and have a long history before contact was made with some early civilization and written information could come into being. Early written records which contain references to epidemic disease are produced by people that do not have or only have peripheral genuine medical knowledge and real diagnostic interest. Epidemic disease will normally be viewed as an expression of God 's or the gods ' wrath and punishment or as unleashed by specific astrological constellations. Medicine will mostly be based on magic and religious rituals. Because of this non-rational causal understanding or interpretation of disease, chroniclers/annalists of that distant past refer normally only vaguely to «pestilences», without providing specific information which allows identification. And when descriptive words are used, their meanings are often difficult to grasp unless they occur many times in different connections.

Fortunately, in the case of plague, written information goes further back in time than could reasonably be expected. The exceptional ferocity of plague epidemics is, of course, one important reason, another important reason is that it is the only epidemic disease that exhibits buboes as a standard diagnostic feature. Blood spitting is also a diagnostic feature which catches people 's imagination and easily will be referred to, and which is a quite characteristic feature of plague as an epidemic disease.

Quite likely, the earliest account of plague is given in the Bible. *I Samuel IV–VI* and the *Septuagint*[1] contain dramatic accounts of war between the Philistines and the Israelites which took place in the twelfth century B.C., more than three thousand years ago. The Philistines won a great victory and captured the Ark of the Covenant from the Israelites. However, terrible epidemics ravaged the cities which the Ark was taken to: «the head of the Lord was against the city [Gath] with a very great destruction; and He smote the men of the city, both small and great, and they had emerods in their secret parts [...] the hand of God was very heavy there». In the *Septuagint*, I Kings V, we read: «And the hand of the Lord was heavy upon Azotus [Ashdod], and he brought evil upon them, and it burst upon them in the ships, and mice sprang up in the midst of their country, and there was great and indiscriminate mortality in the city.» We are also told that «mice» marred the land». In the end, the Philistines were so desperate that they handed the Ark back to the Israelites and, in addition, sent as propitiatory offerings five gold images of the buboes and five gold images of the «mice which ravage the country», one for each of the five Philistine cities and chiefdoms.

There are several problems of translation which must be elucidated in order to reach a more

[1] The *Septuagint* or the Alexandrinian translation of the Old Testament was performed by Greek-speeking Jews in Alexandria around the middle of the third century B.C., and is the oldest extant translation of the Old Testament into Greek. It contains a number of parts (*apocrypha*) that later were excluded from the Old Testament by Palestinian Jews on the ground that they had come about after the time the divine inspiration which governed the making of the Old Testament had ceased.

convincing identification with plague. The word «emerods» is obviously closely related to «haemorrhoids». However, the Hewbrew word which is translated with «emerods» is *ofalim*, which means swelling or bubo, and the choice of word reflects a certain shyness in relation to the sexual connotations associated with the groin. Another expression of this shyness is the strange reference to ships in the *Septuagint*; the Hebrew word *ilfa* = ship has also the meaning «the entire pelvic region», and this word is probably also related to *ofalim*. This double meaning of the word «ship» introduces at least an intriguing element of ambiguity, but, then, of course, the writer could have both possible meanings in mind.[2]

Next, one should note, that, people in the past were no zoologists, they tended to call animals which to them looked alike by the same name. Thus, the Hebrew word *akbar* was used both about mice, voles and rats, exactly in the same way that, in Indo-european languages, the basic word *mus*, in English mouse, meant rat as well as mouse and is often used also about a number of other animals with some likeness to these two animals. One should note that bones of black rats have been excavated at archaeological sites in Palestine which go back to Neolithic times

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[2] It has been asserted by some scholars that the phrase «emerods in their secret parts» refers to piles caused by bacillary dysentery. In his excellent standard work on plague, *The Conquest of Plague*, L.F. Hirst who had served as army physician during the First World War dismisses this view out of hand:

> The present writer worked for two years on military epidemics of bacillary dysentery. He never heard of haemorrhoids as a complication of the acute phase of the disease, and they are very rarely, if ever, seen even as an accompaniment of chronic bacillary dysentery [...] Bacillary dysentery is not a very deadly disease among Oriental communities, except in infancy, whereas plague mortality usually exceeds 80 per cent. If dysentery broke out among Oriental armies, it was unlikely that that it seriously impeded their operations.

McArthur who likewise served as an army physician during the First World War has independently made a statement to the same effect.

> I cannot follow the reasoning which has led to the identification of the Biblical epidemic as dysentery and piles [...] The disease does not cause piles, people do not die of piles and an epidemic of piles in any circumstances is to my mind incredible; rectal prolapse i an occasional complication but it is not common enough to colour the general picture of the disease.

Both these physicians used much of their lives studying and combatting plague, and both think that the Biblical description fits well with their experience. Hirst calls it «the first of all indubitable plague epidemics».

Hirst 1953: 9; McArthur

2000–3000 years B.C, thus, there is no doubt about the presence of the black rat.[3] One should also note that, according to these accounts, the gruesome epidemic primarily ravaged the Philistine cities, a fact which makes it more likely that the word *akbar* in this case actually refers to rats. However, zoological studies of Palestine 's animal life in the first decades of this century found that black rats were usual also in the rural districts, and sometimes in amounts that make them «a real pest», which fits nicely with the reference to «mice which ravage the country».[4] The propitiatory offering consisted of five gold buboes and five gold rats (probably). Taken together, this makes a quite good case for assuming that the epidemic that ravaged the Philistine cities was bubonic plague.[5] Votive offerings that represent rats and votive offerings that appear to represent buboes are also known from Roman Antiquity.[6]

Unquestionable references to plague are found in classical and Hellenistic Greek medicine.[7] Plague is mentioned in several places in the so-called *Hippocratic corpus* of medical books and writings.[8] The Greeks themselves ascribed these medical writings to a great physician called Hippocrates alledgely born in Cos I. on the coast of Asia Minor in 460 B.C. Modern philological studies have shown that the various books and writings ascribed to Hippocrates must have been written by a number of different physicians and over a period of several hundred years. In fact, it has not been possible to ascribe any of the books or writings to a specific person by name Hippocrates who must, consequently, be considered a mythical person.

However, like the mythical Hippocrates, the leading Greek physicians of antiquity actually came from Greek colonies along the coasts of Asia Minor, or in the Middle East or North Africa.

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[3] McArthur 1952: 209-212, 464; Bodenheimer 1960: 20–21, 110, 128, 177, 179.
[4] Bodenheim 1935: 96.
[5] McArthur 1952: 210–211; Hirst 1953: 6–9; Blondheim 1955: 337–345.
[6] MacArthur 1952: 209.
[7] In Greek history of the antiquity the classical period runs from 500 to 323 B.C., the Hellenistic period from 323 to 30 B.C.
[8] Sticker 1908: 19–20.

The great medical school of antiquity developed in Alexandria at Egypt 's Mediterranean coast in the Hellenistic Period (323–30 B.C.). Here medicine was taught and developed on the basis of the *Hippocratic corpus*. The famous library of Alexandria was important for the flowering of medicine there. The references to clear cases of plague must be assumed to reflect observations in the areas where Greek physicians were active, and the collection and discussion of these observations in the learned medical circles associated with the medical school.

The presentations of plague in the *Hippocratic corpus* have a peculiar feature, they all refer to episodic occurrence, the odd case, and, thus, appear to reflect endemic plague, not epidemic plague. This means that these Greek physicians related to areas where wild rodents lived in such great density that plague could circulate continuously among them, at least for quite longish periods of time, without reducing their density below the level that can sustain the spread and, thus, becomes extinguished, so-called *plague foci* which function as reservoirs of plague in nature. In such areas, herdsmen, hunters, playing children and others occasionally came across a rodent sick or dead from plague, were attacked by hungry fleas, and contracted the disease. Such areas are also found today in North Africa, and within the areas of modern Iran, Iraq and Syria where small epidemics and episodic human cases of plague still are reported.

However, it is unusual that such plague foci do not occasionally give rise to plague epidemics when plague contagion is passed on to domestic rats, this feature of the references to plague in the *Hippocratic corpus* remains, therefore, intriguing. This point is underscored by the fact that indisputable accounts of serious plague epidemics in the Hellenistic Period are found in other medical writings. Rufus of Ephesus who lived around A.D. 100 renders comments on serious, clearly identified, outbreaks of plague reported by the pupils of Dionysius (the Hunchback) in North Africa and the Middle East around 300 B.C. (in texts which are no longer extant):

> The buboes that are called pestilential, are very acute and very fatal, especially those which one may encounter unexpectedly in Libya, Egypt, and Syria, and which they say were accompanied by high fever, agonizing pain, severe constitutional disturbance, delirium, and the appearance of large, hard buboes that did not suppurate [secrete pus], not only in the usual regions of the body, but also at the back of the knee and in the bend of the elbow, where, as a rule, similar fevers do not cause their formation.

One should note that, in antiquity, the geographical term Libya meant North Africa and that the geographical term Syria comprised also most of present-day Israel, «Palestine» and Jordan. Rufus mentions also subsequent epidemics reported by Posidonius and Dioscorides in Libya, i.e. North Africa, about 50 B.C.[9] Aretaeus of Cappadocia (a northern region in Asia Minor), a Greek physician living in Alexandria, describes around year 100 A.D. epidemic plague in no uncertain terms: «the epidemic buboes in the groin are caused from the liver; they are very malign».[10]

In view of the enormous amounts of grain that from the time of Caesar were shipped from Egypt to Rome[11] to cover the free distribution of grain and flour to the Roman proletariat, it is almost inconceivable that plague should not have been shipped as well. Grain is, as mentioned, the favourite food of the black rat which is an important reason that it is not only the house rat but also the classic ship rat; and this is also the reason that its normal flea species has developed the capacity to live of grain.[12] In a country like Egypt where plague broke out at least

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[9] Dioscorides was a Greek army surgeon in the service of Nero (A.D. 54–68)

[10] Sticker 1908: 21–22. That the growth of malignant buboes in the groin originated in the liver is a usual medical opinion in Hippocratic medicine. It is inferred from its humoral theory of human physiology which is based on a notion to the effect that the human body contained four chief fluids, the so-called *cardinal humours*, namely blood, phlegm, choler and, lastly melancholy or black choler.

[11] More accurately, the grain was shipped to Rome 's seaport town Ostia whence it was transported into Rome.

[12] Eskey, Eskey and Haas, Burroughs, Hirst[Estrade 1935: 293–298; Girard 1937: 534–554; 1943: 21–22, 25, 1959: 114–120; Pollitzer 1954, 320-321.]

episodically, plague-infected rats should be expected at least occasionally to enter ships headed for Rome,[13] and grain containing plague-infected fleas would be distributed among the Roman population. In fact, disastrous epidemics are reported in the second half of the second century and in the third century A.D., but the accounts contain no useful diagnostic information that can permit identification of the type of disease. It is clear that these epidemics caused considerable diminution of the Roman population which undermined the tax basis and military manpower basis of the Western Roman Empire, and, consequently, hastened on its decline and fall.

The Black Death was not the first clearly identified great wave of plague epidemics to spread around the Mediterranean and over large parts of Europe, to be followed by a great number of subsequent epidemics over a protracted period of time. As mentioned above (see also Glossary), such series of waves of epidemics are called *pandemics*. The Black Death and subsequent epidemics which are the subject of this book constitute the *second plague pandemic*. The *first plague pandemic* swept into Europe and Asia Minor from Egypt in A.D. 541 and epidemics recurred in Europe until 767, comprising in all fifteen successive waves of epidemics.[14] This first plague pandemic is often called the *Justinian pandemic* after the Eastern Roman emperor at the time of the first ferocius outbreak in Constantinople in 542.

The chroniclers give some interesting information on the geographical origin of the first wave of plague epidemics, the Black Death of the Justinian pandemic so to speak: they either point out Egypt whence it obviously was shipped abroad, but it is also stated that it originated in Ethiopia. Probably, we should understand this as south of Ethiopia, because there is a plague focus of long standing in the southern parts of Africa, particularly in the areas of present-day Uganda, Kenya and Tanzania where plague cases still regularly occur. The reference to Ethiopia

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[13] Or more accurately, for Rome 's seaport Ostia.

[14] Biraben and Le Goff 1969: 1491-1508. Biraben and Le Goff has overlooked that the Justinian pandemic reached as far north as England. Mc Arthur 1949: 169-188; Mc Arthur 1959: 423–439.

should probably be seen in the light of a lack of knowledge about African geography south of Ethiopia. However, it is also suggested that the pandemic started in South-western Arabia, and there is actually a small plague focus in Northern Yemen that probably is of a long standing. There is a quite certain account of a local plague epidemic in Yemen in 1157 that spread on all the way into Egypt.[15] Possibly, therefore, the Justianian plague pandemic could have originated there, have been transported over the Red Sea at its narrow southern end to present-day Djibouti or Eritrea and have travelled with camel caravans northwards through Ethiopia, Sudan and into Egypt eventually to reach the great commercial seaport cities Pelusium and Alexandria.[16] In a medical compendium produced by the Arab physician Ali ibn Rabban in A.D. 850, the origin of plagues are placed in Sudan. In the thirteenth century, the distinguished Arabic Physician Ibn Nafis describes plague buboes and reports that plague often occurred in Ethiopia.[17]

This means that the plague epidemics mentioned in classical antiquity could have been triggered by importation of plague contagion from the large plague focus in Southern and South-eastern Africa or the small plague focus in Yemen. On these occasions, plague contagion could have contaminated populations of wild rodents in North Africa and the Middle East and have given rise to the establishment of temporary local plague foci. These plague foci seem to be unstable because plague epidemics generated within these regions apparently disappeared completely for centuries from North Africa and the Middle East, for instance in the centuries before the Justinian pandemic began in 541, and between 1057 and 1348. In other words, the plague history of these regions appears to have a certain cyclical character. This suggests that the susceptible wild rodents in these regions did not live in sufficient density to constitute bases for permanent plague foci; their numbers and density tended to be depleted by plague disease

[15] Dols 1977: 33.
[16] See also Sticker 1908: 24–35.
[17] Dols 1977: 15.

to the point where they could not sustain the continuous circulation of plague infection. The disappearence of plague would allow the wild rodents to reconstitute their numbers and density, and, thus, their capacity for being reestablished as plague foci at the next incursion of plague.

It is oftened wondered why, from the second half of the seventh century, the waves of epidemics in this first (known) plague pandemic rapidly lost much of their powers of spread because nothing of consequence was really done to stop their spread. The main reasons that this pandemic waned and petered out in Europe are, nonetheless, quite clear. The gradual breakdown of the Roman Empire in the west and the great unrest caused by the migrations of Germanic peoples undermined urban life and commerce. The economy retreated into an almost universal manorial system based on subsistence, that is self-sufficiency with food-stuffs and other products of everyday consumption. These developments ended or reduced greatly travel and transport of goods, and, thus, the mechanisms by which plague contagion could be spread. Another decisive development was the triumphs of Islam in North Africa and the Middle East in the seventh and eigth centuries which broke off almost entirely the exhange of goods and persons over the Mediterranean, and, thus, transportation of plague contagion from these areas to Europe.

Summing up, there can be no doubt that plague had been established for substantial periods both in North Africa and in the Middle East at least 1700 years before the outbreak of the Black Death, and probably for almost 2500 years. It is also clear that there were plague foci of long standing in southern parts of Africa and in present-day Yemen.

However, these findings in the western parts of the Old World do not implicate that plague could not have a long history also in other parts of the Old World. In China, an Imperial encyclopedia was produced and published under orders of Emperor Kang-Hsi in 1726 that contains also a complete list of epidemics registered in Chinese medical works, literature, historiography and documents. The list comprises a time span of 2000 years, beginning in 224

B.C. and ending in A.D. 1718. In this list, outbreak of epidemic plague is mentioned only twice, in the seventh century and in the seventeenth century.

Although Chinese sources contain many accounts of severe or disastrous epidemics, chroniclers and other authors mention them usually only in a quite general fashion as «pestilence» without furnishing diagnostic information that allows identification. Even more significantly, also the old Chinese medical classics fail to describe plague, although they clearly describe, for instance, cholera. Wu Lien-Teh points out that he has

> failed to find any mention of the word plague, rendered in Chinese *Shu-yi* (rat pest), in any ancient Chinese medical publication [..] In spite of years of patient search among such books [...] no reference to plague, *shu-yi* or any malady showing any signs or symptoms similar to it could be obtained until we reached the year A.D. 610, when a certain book called *Ping-yuan* or «Sources of Disease» by Ch 'ao Yuan-fan appeared. Here we find mention of E-hê meaning «malignant bubo» which disease is described as «coming on abruptly with high fever together with the appearance of a bundle of nodes beneath the tissues. The size of the nodes ranges from a bean to a plum. The skin and muscles around are dry and painful. The nodes may be felt to move from side to side under the skin. If prompt treatment is not given, the poison will enter the system, cause severe chill and end in death.

Significantly, this source does not refer to epidemic plague, and appears to reflect endemic plague, the sporadic incidence of plague cases contracted by casual contact with diseased wild rodents.

Sun Szu-mo a noted physician who died in A.D. 652 mentions plague in his book *Valuable Prescriptions*. He uses the term «malignant bubo» together with a description of the disease

which is similar to that given by Ch 'ao Yuan-fan. He provides the extra interesting piece of information that plague «was common in Ling-nan (that is, the modern province of Guangdon [the southern coastal province containing Canton and Hong Kong], rarely in interior provinces.» Then, plague is not mentioned again for almost a thousand years, in 1642, when, in a *Treatise on Epidemics* by Wu Yu-k 'e, it is called

> bubo epidemic, which was described as widespread, many persons being attacked at the same time and some dying within a few hours after the onset of symptoms. This disease was characterized by the appearance of «tumours» in various parts of the body, such tumours being movable under the skin.[18]

What about the plague focus in the Yunnan province that was the place of origin of the *third plague pandemic* in second half of the nineteenth century? Conspicuously, it is not mentioned even in Chinese sources before 1792. One may, thus, cautiously take this as an indication that it was established in connection with the plague epidemics in the first half of the seventeenth century.[19] Also conspicuously, plague was not mentioned again in the Guangdong province until 1894 when the pandemic that was on its way from Yunnan arrived. It appears that this area did not have sufficient density of rodents to entertain plague continuously, and that, as in North Africa, the pool of rodents eventually became so depleted that diseased rodents would, on average, infect less than one sound rodent each, the incidence of plague among these rodents would, consequently, peter out and become extinguished. This is the reason that there has not been a permanent plague focus within China that would cause endemic cases and occasional outbreaks

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[18] Wu L-T 1936: 10-13. Essential data from the list of epidemics compiled under orders of Emperor Kang-Hsi is rendered at the end of that chapter.

[19] Wu L-T 1936: 12.

of epidemics which would catch the attention of physicians and be included in medical works (until the focus in the Yunnan province was established much later).

There are, therefore, a number of indications to the effect that plague has not been and old epidemic disease in China, and that there have only been a few incursions of plague throughout this ancient civilization's impressive and relatively well recorded history. Firstly, it is certainly interesting to note that plague is not mentioned in the classic Chinese medical books. Secondly, it is noteworthy that the first mention of plague is so late as the seventh century, a thousand years later than the information on plague provided by Greek physicians in the classical medical literature of antiquity.[20] Thirdly, it is conspicuous that there actually are only two references to plague in the seventh century, and, then, there is no further mention for a thousand years. Is it really likely that this can be the case in this great Chinese civilization with a great literary tradition and enormous respect for knowledge and history if severe and disastrous waves of plague epidemics repeatedly had ravaged it? Although no final conclusions can be drawn on the basis of this material, it certainly indicates that plague has been a rare disease in Chinese history, and it appears not to have affected Chinese society in the seventh century or in the seventeenth century in the profound way that, for instance, European society was affected by the two first plague pandemics (and, perhaps, also the Western Roman Empire). Perhaps, China has been shielded from importation of plague by the Great Wall and the Chinese mandarin leadership's very strong inclination to reject every kind of foreign influence and to shut out foreign merchants and to prohibit trade abroad by Chinese nationals? In short, intensive isolation could have protected China from plague except for rare and temporary incursions which did not lead to the establishment of a permanent plague focus until it was introduced into the remote province of

[20] The much older and probable account of plague in the Bible may be considered a special case, but not necessarily an irrelevant case in this context.

Yunnan at some time, as it seems, in the seventeenth century.

The plague history of that other great Asian civilization, India, resembles the Chinese pattern. Plague is not identified in Indian sources before the eleventh century. According to Arabic chronicles, India was ravaged by plague in 1031. An old sacred Hindu book written in that century, the *Bhagavat Purana,* describes plague both in man and rats, and gives instructions to the Hindus on the precautions to be taken in the event of its appearance. One of these precautions is that people should abandon houses in which dead rats are found.

It is often said that plague epidemics were recorded in India from the eleventh to the end of the seventeenth century when the disease appears to have disappeared completely. However, a closer look at the sources reveals that they are unspecific and refer only to «pestilences», i.e., epidemics which, in principle, could be any serious infectious disease. Although this does not preclude plague, no specific, substantiating evidence can be adduced. It is of special interest in our context that this also means that there is no signficant evidence for the Black Death in India.[21]

This conclusion comprises also a Russian source. Some scholars have used a brief notice in the *Chronicle of Pskov* to argue for an origin in India: «This mortality lasted in Pskov all summer; it started in the spring and held on in the autumn, and did not cease until the winter [...] Some said that this epidemic came from India, from Sun City.» As can be clearly seen, even the chronicler indicates that this is only rumour and hearsay, and the reference to an origin in Sun City in India is clearly pure myth. It is even a confluence of myths: Sun City is a translation of a Greek name of an Egyptian city, namely Heliopolis situated in the north-eastern part of the present-day Egyptian capital of Cairo. The Greek name reflects that one of Alexander the Great 's generals, Ptolemaios, took over Egypt and founded his own dynasty. Actually, it is the

[21] Cf. Dols 1977: 44.

same old Egyptian city that Egyptians many centuries earlier called On. The chronicler cannot provide any concrete testable piece of information, not even hearsay about any outbreak along the long route from India to the Crimea. Obviously, this source is unusable for the question of the territorial origin of the Black Death.[22] It could also be compared to the Arabic writer Ibn al-Ward's assertion that the Black Death had originated in the 'Land of Darkness», where it had raged for fifteen years before it moved on (below).

Specific evidence of plague in India is not provided again until 1615 when the disease broke out in the Punjab and, in the following years, spread also to other parts of India. Recurrent plague epidemics occurred until the end of the century, when plague appears to have disappeared completely. In the years 1812–1821, there were local plague epidemics in a small area in the Gujarat province in North-western India, and also in the conterminous province Sindh in present-day Pakistan. Then, plague disappeared completely for some years until, in the years 1836–1838, there was a small outbreak some 300 kilometres (200 miles) northeast of the centre of the outbreak in Gujarat.[23] It should be noted that these outbreaks were believed by some to be due to importation of infection from Persia. This may have been the occasion when a plague focus was established on the southern slopes of the Himalayas.[24] However, this development could conceivably have taken place in the previous plague period, and the local outbreaks in the first half of the nineteenth century could therefore possibly have originated there. The quite strong objection is that a plague focus in this area ought to have manifested itself in episodic cases and outbreaks which at least occasionally should have been recorded in some way.

Then, the plague disappeared from India again, at least nothing is heard of it, and it did not reappear until it was introduced from abroad, namely by ship from Hong Kong in 1896 as part

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[22] *Pskovskaya Letopis'* 1837: 31. The same meaning is briefly mentioned in *The Chronicle of Nikon*, see Vasil'yev and Segal 1960.

[23] Simpson 1905: 41–47.

[24] Wu Lien-Teh 1936: 5.

of the third plague pandemic that originated in the Yunnan province in China.[25]

Summing up, we must emphasize the fact that the earliest references to plague in India are almost 1500 years younger than in the West. This must primarily reflect that there was no plague focus within India which could sustain plague continuously, not until plague obtained a permanent foothold on the southern slopes of the Himalayas at the beginning of the nineteenth century, or just possibly some centuries earlier. There is no evidence for the Black Death.

Also in the case of India, therefore, it is possible to discern a pattern which indicates that the presence of plague is considerably later than in Africa and the Middle East. It also appears likely that there was no plague focus within the Indian territory until the first decades of the nineteenth century. Like China, India was invaded by plague in the seventeenth century. This may, then, refer to a common origin in a wave of plague spreading out of, perhaps, the Central Asian plague focus. Importantly, neither in the case of India is there any evidence for plague epidemics in the first half of the fourteenth century, which, in our context, is the crucial period if the Black Death should have originated in this part of Asia.

Summing up this outline of our knowledge on the history of plague before the Black Death a number of important points and interesting suggestions can be made. Firstly, by far the oldest information on plague comes from the Middle East and North Africa, whilst the historical information on plague in the great Asian civilizations, in India and China, suggests that plague made its presence felt much later and seemingly was almost without power to spread into their territories and establish permanent plague foci. Plague epidemics are not reported before the seventh century in China and the eleventh century in India, and, for these two great civilizations with such rich literary traditions it must considered highly significant that there is no new concrete evidence on epidemic plague before the first half of the seventeenth century, i.e., 1000

[25] See, e.g., Simpson 1905: 48–54.

years and 600 years respectively after the first mentioning. Apparently, plague foci were established as late as in the seventeenth century in China and in the nineteenth century in India, and then on their territorial fringes. The plague focus that was established in the Yunnan province was to be the area of departure of the third pandemic, spreading slowly out of this remote and relatively isolated area from about the mid-1850s.

In the Middle East and North Africa, wild rodents appear not to have lived in sufficient density to constitute permanent plague foci. Plague tends to reduce their numbers and their density below the necessary level to sustain the continuous circulation of plague infection, and, consequently, after some time these plague foci disappear. This allows the wild rodent populations to reconstitute their numbers, and the plague foci can be reactivated when the next incursion of plague into these areas occurs.

Quite likely, therefore, the early plague activity in the Middle East and in North Africa was linked to the ancient plague focus in southern parts of Africa which, consequently, stands out as the likely candidate for the doubtful honour of being the ancestral homeland of plague. However, the small plague focus in Yemen must also be considered in this context. It must be underscored that this conclusion with respect to the question of the ancestral homeland of plague does not exclude other possible areas of origin, only that it can be relatively better substantiated by presently available evidence than any alternative.

2. Where did the Black Death come from?

In 1347, the Black Death was shipped from the Crimean seaport Kaffa (today called Feodosiya) on the Black Sea to Constantinople and to seaports along the coasts of the Mediterranean with

Italian merchant ships. This was the event which unleashed the Black Death 's disastrous spread throughout Asia Minor, the Middle East, North Africa and Europe. Of course, the Black Death could have originated far away, have started to move out of its plague focus many years earlier, and have performed a long trek over thousands of kilometres before it reached Kaffa. Where was the Black Death 's area of origin? When and why did the Black Death break out of its plague focus? Along which route and by what means of transport did it reach Kaffa?

The conlusion reached in the previous chapter on the probable ancestral homeland of plague has great significance for a discussion of the geographical origin of the Black Death. The history of plague in Northern Africa and the Middle East is much older than any other historical information on plague from any other region of the Old World. It is at least 1700 years older than the Black Death, and quite likely almost 2500 years older. On the basis of contagion picked up in south-eastern parts of Africa or in Northern Yemen plague was present in these regions both in the form of plague foci of considerable duration and more episodically as plague epidemics. This means that plague probably spread eastwards throughout the Old World from Northern Africa and the Middle East: modern research has discovered a string of plague foci stretching almost continuously from the Middle East and the Caucasus to Manchuria[26] in the east.

Map showing the Eurasian and African plague foci in Centers for Disease Control and Prevention. Prevention of Plague: Recommendations of the Advisory Committee on Immunization Practices (CIP). MMWR [Morbidity and Mortality Weekly Report]. Vol. 45, No. RR-14, 1996: p. 2. Enclosed with Manuscript.

Some of these plague foci can be easily ruled out as the Black Death 's area of origin. There are small plague foci on the southern slopes of the Himalayas, and in the Chinese provinces

[26] Manchuria is today the easternmost province of China but used to be the land of the Manchurian Mongols.

Yunnan and Guangdon and in Viet Nam which probably are of quite recent origin. Starting to the west of Baku, the capitol of Azerbaijan, one plague focus runs south-westwards along the south-western shores of the Caspian Sea and further on through Northern Iran all the way into Southern Iraq where it suddenly turns northwestwards and eventually ends up in Syria. It is known that the Black Death spread southwards into the Caucasus (see below), the Caucasian-Middle-East plague focus cannot, therefore, have been the area of departure of the Black Death.

However, the remaining plague foci must be taken into account as possible areas of origin of the Black Death: (1) a plague focus runs from the north-western Kazakh and Russian shores of the Caspian Sea into Southern Russia in the direction of the Crimea; (2) a huge plague focus spreads out from the eastern shores of the Caspian Sea, covering much of the steppes of Central Asia (Kazakhstan, Uzbekistan, Turkmenistan), and sending a long tongue eastwards up to the eastern shores of L. Balkhash in Eastern Kazakhstan; a probable extension of this focus is located along the conterminous border areas of China and the three Central-Asian republics Kazakhstan, Kirgizstan and Tadzhikistan; (3) a vast plague focus comprises parts of the Russian Siberian border areas on the Republic of Mongolia, most of Mongolia itself, and northern parts of the present-day Chinese provinces Outer Mongolia and Manchuria.

However, were all three plague foci in operation in the fourteenth century, and, therefore, possible areas of origin of the Black Death? We know that plague was present in Northern Africa and the Middle East at least 1700 years before the Black Death and probably 2500 years earlier, and that plague probably spread eastwards from these areas throughout the Eurasian continent. Thus, in order to penetrate further into the problem of the geographical origin of the Black Death, it is necessary to acquire some concrete notion of the continental pace of spread of plague in wild rodent populations with more or less assistance from human activities. This will provide an indication as to which of the three plague foci that reasonably can be assumed to have been

in function at the time of the Black Death.

Let us take as the point of departure for discussion and clarification of this question a similar event, that plague entered a new continent, namely North America, in San Fransisco in June 1899. Now, what was plague 's subsequent pace of spread eastwards over the North-American continent among wild rodent populations consisting mainly of ground and rock squirrels, prairie dogs, chipmunks and deer mice? Seventy-five years later, plague had penetrated into 12 states[27] and had crossed the middle of the U.S.A. at 100° longitude, a distance of more than 2000 km (1250 miles) from its point of departure, and had also invaded Canada in the north and Mexico in the south.[28] In the words of McNeill: «Such a vast area of infection, in fact, is equivalent to any of the long-standing plague foci of the Old World».[29] This also means that the average pace of spread eastwards over the continent had been of the order of magnitude of 25 kilometres (16 miles) a year. This pace of spread was mainly due to natural processes of spread caused by animal behaviour: contact between diseased and healthy rodents, sick rodents being caught by birds or beasts of prey and carried at a distance to nests or lairs, perhaps being lost on the way, bloody remnants infecting scavenging rodents by infective droplets, and so on.[30] Clearly, human beings also played a part, they transported plague-infected rodents or their infected fleas at a distance into

Map showing plague in the U.S. in Morbidity and Mortality Weekly Report, December 13, 1996, Vol. 45, No. RR-14, p.2. Pubished by U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, Atlanta, Georgia 30333.

[27] Washington, Idaho, Montana, Oregon, Wyoming, California, Nevada, Utah, Colorado, Arizona, New Mexico, Texas.

[28] WHO Expert Committee on Plague 1970: 6; Barnes, Quan and Poland 1984: 9SS–14SS.

[29] McNeill 1979: 145.

[30] Pollitzer and Meyer 1961: 458; Poland 1983: 1230. Cf. McNeill 1979: 145, who states that the rodent system «allows for the propagation of infection from one rodent community to another across as much as ten to twenty miles per annum.

new areas, causing metastatic spread and giving rise to new effective centres of spread. Nonetheless, McNeill who discusses this problem witht great insight and presicion concludes that «the geographic spread of plague infection in North America occurred naturally» in the sense that it was basically passed on between colonies of ground-burrowing rodents, and that «the spread of plague in North America, while affected by such [human] acts, did not depend on human intervention».[31]

At a similar pace of spread, plague would have moved the roughly 7000 kms from the Middle East to Manchuria in about 300 years. The assumptions with respect to pace that underlies this estimate can be quite inaccurate without affecting the validity of the point that is being made: that plague could easily, or rather would inevitably, have spread from an ancestral homeland in South-east Africa or the South-western Arabian Peninsula via the Middle East and Western Asia and all the way across Central Asia to Manchuria within the established time horizon. Because the basic dynamics of the process of spread is derived from the natural behaviour of rodents and fleas, it is not really important that huge areas of the Eurasian land masses that should be covered, were very sparsely inhabited by men, mostly by nomadic groups travelling about with their herds of cattle and horses, or by simple peasants living intensely localized lives in widely dispersed villages.

Movement of goods and people across these enormous distances did take place from an early time. However, only luxury goods could cover the extreme costs of transport over such distances on pack horses or camels. Such goods would tend to be poorly suited for transport of rodents or their fleas, and the very long duration of transport would leave such sources of infection very small chances of survival. An additional factor is that the caravan routes ran through large areas of desert or semi-desert with a climate that would rapidly kill fleas in goods or luggage by

[31] McNeill 1979: 145–146.

dessication (sea transport of fleas is an entirely different matter). The most important vehicles of transport of plague-infected fleas were undoubtedly camels, because camels are susceptible to plague infection. Camels can, therefore, function as vehicles of spread and represent some risk of infection both to man and other susceptible animals.[32]

Of course, the modern American data on the pace of territorial spread of plague in wild rodent populations cannot be used for inference to similar events in the distant past without strong reservations. However, *wherever plague 's ancestral homeland was*, 1700–2500 years should be ample time for plague to spread all the way over the Eurasian continent on the basis of natural processes of spread and the occasional contributions of human transport, long before the time of the Black Death.

Now, did the Black Death start in the Far East or in a plague focus nearer Europe and the Middle East? This question has been discussed by several scholars. In the complete list of epidemics mentioned in Chinese historical and medical sources and registered in the great Chinese encyclopedia of 1726, it is not possible to identify a plague epidemic before the 1640s. It is true that plague was first mentioned in the seventh century but, then, in terms of a diagnostic description without any reference to an epidemic of plague; it could refer to endemic plague contracted casually by contact with diseased wild rodents and observed on the outskirts of Chinese settlement and culture. Nonetheless, the theory of a Chinese origin of the Black Death has long fascinated scholars, and not only western scholars. Although Wu Lien-Teh underscored that plague was almost not mentioned at all in Chinese sources, he was, nonetheless, fully convinced that the Black Death originated in China. In a translation of the complete list of historical epidemics published in the Chinese encyclopedia of 1726, he actually interpolated, i.e.,

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[32] Fyodorov 1960: 275–281; Christie, Chen and Elberg 1980: 724–726.

inserted, a note to the effect that the Black Death started in China in 1346.[33]

In this discussion, a report by Daniel Chwolsen, the Russian archaeologist, has played a confusing part. In 1885, he studied two large Nestorian cemeteries[34] which had been discovered near Issyk-kul in present-day Northern Kirghizstan (close to China 's western border). 330 headstones contained the names of more than 650 persons who had been interred in the period 1186–1349. 106 of these persons are specifically said to have died in the years 1338–1339, and it is stated about ten of them, according to Chwolsen, that they had died of «plague». Several scholars have taken this piece of information as good evidence showing that a plague epidemic had occurred at Issyk-kul and that this epidemic would have to be the Black Death on its westwards march from China.[35] This ruled out Wu Lien-Teh 's interpolated statement in the historical list of epidemics in the great Chinese encyclopedia of 1726 to the effect that the Black Death started in China in 1346. Whatsmore, it has been shown that the word Chwolsen translated with «plague» in reality only has the general mening of «pestilence», i.e, «epidemic».[36] This means that there is no historical information indicating in any specific way any outbreak of plague in the Far East for hundreds of years before and after the Black Death. The theory of a Chinese origin of the Black Death must (for the time being) be given up as unsubstantiated by historical data.

There is also an important independent line of argument which relates to the political situation along the caravan routes. The importance of the caravane routes from China to the Crimea had really been established as a consequence of the Mongol conquests that took place in the first

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[33] Wu Lien-Teh 1936: 47.

[34] The Nestorians were a Chistian sect holding that Christ had both distinct human and distinct divine persons and hence that the Virgin Mary shold not be called «Mother of God». This theological view was condemned by the Councils of Ephesus (431) and Chalcedon (451), and disappeared from the Greek Church, but lived on in Persia, Syria, Mesopotamia and some other areas.

[35] Pollitzer 1954: 14; McNeill 1979: 155.

[36] Norris 1977: 10.

decades of the thirteench century under the leadership of Jenghiz Khan, and, next, by his grandson who in 1236–1240 conquered Southern Russia. The Mongol conquests united China, Central Asia, Persia and Southern Russia (including the Crimea) into a giant empire which allowed the establishment of overland routes and the safe passage of goods and merchants all the way along the caravan routes between China and towns on the Black Sea and Sea of Azov. This is the political background of the floorishing of trade between China and Europe in the second half of the thirteenth century. In 1266, the Mongol leaders of the Golden Horde ceded land to the Genoese at Kaffa in the Crimea, and later to both the Genoese and the Venetians in Tana on the Sea of Azov, with permission to build a consulate and warehouses and, thus, to establish trading stations (factories). The Italians soon fortified the towns to make goods and profits more secure.[37]

However, the political and religious developments in the Mongol empire in the decades preceding the Black Death were very disruptive for trade and travel. There was a comprehensive conversion to Islam and the empire broke up into a number of of warring Muslim states. This process comprised also increased religious fervour and fulminant anti-Christian attitudes, the presence of Christian merchants was considered increasingly intolerable.

This was also the case with the Kipchak Khanate of the Golden Horde, the Mongols who ruled over the vast steppes of Southern Russia, the land of ancient Scythia, and had reduced the Russian principalities to subjugated tribute-paying dependencies. In 1313, the Kipchak Khanate converted to Islam. In the end, in 1343, Janibeg, the Kipchak Khan over the Golden Horde, took military action to throw the Italians out of their trading stations in Kaffa and Tana in order to put a definite end to trade with Christians in the lands of the Golden Horde, and, at the same time, severed the trade link between China and Europe along the caravane routes.[38] The Italians

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[37] Dols 1977: 48–52.
[38] See, e.g., Norris 1977: 13.

were driven out of Tana in 1343, and were besieged in their fortified town of Kaffa in the same year, and again in the years 1345–1346. It was, indeed, during the second siege of Kaffa, that plague broke out in the Mongol army and in some manner was passed on to the besieged Italians.

Under these circumstances, it must be considered highly unlikely that plague could have been passed on by trade and travel from China to the Italians in the Crimea. No merchants in their senses would risk precious goods and expensive and dangerous transport over thousands of kilometres to the Christian Italian merchants through Muslim states that were intensely hostile to trade and contact with Christians. The rulers of the Muslim states along the caravane routes would seize the goods with glee as meant for illegal trade with Christians. And, at the end of the caravane route, the ruler actually had went to war to force the Christian merchants away and besieged the towns of destination.[39]

The Black Death has made such a profound impression on the scholars who have studied it, that discussion of the origin has, as it seems, appealed to their sense of the extraordinary and exotic. Usually, scholars would approach the problem of origin on the basis of the principle of proximate origin, because the shorter the distance to be covered the fewer obstacles to dissemination: accordingly, the proximate plague focus would be preferred for the intial working hypothesis on origin. According to the principle of proximate origin, the plague focus closest to the area from where the Black Death was shipped to Europe, i.e., Kaffa in the Crimea, should be considered the most likely area of origin.[40] It is therefore very significant that Russian chroniclers state in no uncertain terms that, in 1346, plague broke out in the areas containing the plague focus which stretches from the North-western shores of the Caspian Sea into Southern

[39] Norris 1977 and 1978.
[40] Fyodorov 1960b.

Russia in the direction of the Crimea and the Sea of Azov, i.e., where the seaports that contained the Italian trading stations were situated. The most informative chronicle gives this account:

> In the same year [1346] God's punishment struck the people in the eastern lands, in the town Ornach [at the estuary of the R. Don], and in Khastorokan, and in Sarai, and in Bezdezh [at an arm of R. Volga], and in other towns in those lands; the mortality was great among the Bessermens, and among the Tartars, and among the Armenians and the Abkhazians, and among the Jews, and among the «fryazy»[41] [foreign Europeans = Italians], and among the Circassians, and among all who lived there, so that they could not bury them [sic].[42] **[MAP]**

Importantly, the quite detailed information provided in this chronicle is credible and compatible with other information on the Black Death in this region, and it constitutes a meaningful history of origin in a known plague focus. It provides also a geographical outline which contains a logical progression of spread from this plague focus into the surrounding lands of the Golden Horde, next, to move on southwards into the Caucasus and westwards into the Crimea. Along the western route, the Black Death reached the Crimea and the Mongol-led army that beleaguered the Italians in Kaffa, and, along the southern route it ravaged the lands of the Circassians, the Abkhazians and the Armenians on its march along the eastern shores of the Black Sea and through the Caucasian region, eventually gaining the ground that would allow it to spread further into Asia Minor, the Middle East and Persia [Iran]. Obviously, the author has had good

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[41] Original meaning of this word is «the French», but it is here used in the usual general meaning of foreign, meaning in this case the Genoese and the Venetians.

[42] Vasilyev and Segal 1960: 28. My translation from Russian. The Abkhazians and Circassians are peoples living along the eastern coasts of the Black Sea and adjacent areas. The Bessermens are a small people living in North-eastern Russia and do not fit into the pattern. However, there is great ethnic diversity in the Caucasian region, and the author may have had in mind som other people.

informants. There is no satisfactory evidence to the effect that this terrible disease started far away and caused havoc anywhere along the thousands of kilometres of the caravan route.[43] The outbreak is narrowly and unambiguously associated with the area of the plague focus which stretches from the North-western shores of the Caspian Sea into Southern Russia.

Several scholars have formerly suspected and suggested that the Black Death originated in this area, but did not know the Russian sources that provide important support for this view.[44]

Also other contemporary sources state that the Black Death originated in this area. Nicephoros Gregoras, the Greek historian who lived in Constantinople and witnessed the ravages of the Black Death there in 1347, wrote that, in the spring of 1346, plague came from «Scythia and Maeotis and the mouth of the Tanais [R. Don]». Scythia is the ancient, classical name of the area which at the time was ruled by the Golden Horde. Also the Byzantine Emperor John VI who abdicated in 1355 in order to write a history of the Byzantine Empire maintained that the Black Death started in Scythia (among the «Hyperborean Scythians»).[45] This is a very likely season for the start of a plague epizootic among rodents that will translate into an epidemic among human populations.

The Arabic writer Ibn al-Wardi collected information on the early phase of the Black Death from Muslim merchants returning to Syria from the Crimea. Firstly, he makes the more or less mythical statement that the plague started in the «Land of Darkness», and that it had been raging there for fifteen years before it moved on. No specific geographical indication of cities or areas ravaged by the disease in these years is provided, and nothing can therefore be learned from it. However, the merchants also told Ibn al-Wardi that the epidemic raged in the land of the Uzbeks, at the time a name for the territory of Golden Horde, in October–November 1346, that it emptied

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[43] As for the mythical reference in *The Chronicle of Pskov*, see above under the discussion of plague in India.

[44] See, e.g., Burnet and White 1972: 226; Norris 1977 and 1978.

[45] Bartsocas 1966: 395–396.

the villages and towns of their inhabitants, and that it, next, spread to the Crimea and to Byzantium.[46] Although, Ibn al-Wardi 's account is not unambiguous in regard to the question of the origin of the Black Death, the concrete information that he provides, agrees completely with an origin in the land of the Golden Horde, i.e., in present-day Southern Russia and Western Kazakhstan. It also agrees with the Russian sources that the Black Death spread from the central parts of the Golden Horde that contain the local plague focus and westwards to the Crimea. The time perspective of the peidemic events in his account that the outbreak around Kaffa occurred probably in early 1347.

[46] Dols 1977: 41, 51–52.

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