

THE
BRITANNICA

10
*ten
year
program*



**BRITANNICA
INSTANT
RESEARCH
SERVICE**



ENCYCLOPÆDIA BRITANNICA, INC.

PUBLISHERS OF ENCYCLOPÆDIA BRITANNICA, GREAT BOOKS OF THE WESTERN WORLD, COMPTON'S ENCYCLOPEDIA

425 NORTH MICHIGAN AVENUE • CHICAGO, ILLINOIS 60611

LIBRARY RESEARCH SERVICE

THE BLACK DEATH

By the end of 1346 . . . it was widely known, at least in the major European seaports, that a plague of unparalleled fury was raging in the East. Fearful rumours were heard of the disease's progress: India was depopulated, Tartary, Mesopotamia, Syria, Armenia were covered with dead bodies; the Kurds fled in vain to the mountains. In Caramania and Caesarea none were left alive . . . But still it does not seem to have occurred to anyone that the plague might one day strike at Europe.

The most circumstantial account of how the disease made this fatal leap comes from Gabriel de Mussis. At one time, indeed, it was thought that the writer had himself visited Asia Minor and had been a passenger on the ship which carried the plague to Europe. A subsequent editor, however, has reluctantly but decisively established that de Mussis, during the critical period, never stirred from his native town of Piacenza.

De Mussis stated that the plague sailed in the Tartar lands of Asia Minor in 1346. According to Vernadsky it left eighty-five thousand dead in the Crimea alone. Whether coincidentally or because they made the conventional medieval assumption that some human agency, preferably in the form of an already unpopular minority group, must be responsible for their sufferings, the Tartars decided to attack the Christian merchants in the vicinity. A street brawl, in which one of the locals was killed, seems to have provided the excuse for what was probably a premeditated campaign. The Tartars set on a Genoese trading station in the city of Tana and chased the merchants to their redoubt at Caffa, now Feodosia, a town on the Crimean coast which the Genoese had built and fortified as a base from which to trade with the Eastern hinterland. The Tartar army settled down outside the walls and prepared to bombard the city into submission.

Their plans were disastrously disturbed by the plague which was soon taking heavy toll of the besiegers. 'Fatigued, stupefied and amazed,' they decided to call off the operation. First, however, they felt it was only fair that the Christians should be given a

taste of the agony which the investing force had been suffering. They used their giant catapults to lob over the walls the corpses of the victims in the hope that this would spread the disease within the city. As fast as the rotting bodies arrived in their midst the Genoese carried them through the town and dropped them in the sea. But few places are so vulnerable to disease as a besieged city and it was not long before the plague was as active within the city as without. Such inhabitants as did not rapidly succumb realised that, even if they survived the plague, they would be far too few to resist a fresh Tartar onslaught. They took to their galleys and fled from the Black Sea towards the Mediterranean. With them travelled the plague.

Though it is certain that this ~~can~~ not have been the only, and probable that it was not even the earliest route by which the plague arrived in Europe there is no reason to doubt that de Mussis's story is true in essentials. One of the main trade routes by which the spices and silks from the East reached the European market was by way of Baghdad and thence along the Tigris and through Armenia to the entrepot stations of the Italian merchants in the Crimea. Nothing is more likely than that the plague should travel with the great caravans and spread itself among the Tartars of the Crimea, the 'hyperborean Scythians' who, in the opinion of the Byzantine Emperor, John Cantacuzenos, were the first victims of the epidemic. . . .

By the spring of 1348 the Black Death had taken a firm grasp in Sicily and on the mainland.

At this point, with the plague poised to strike into the heart of Europe, it seems appropriate to pause and consider what the epidemic really was and how far it was something entirely new. To-day there is little mystery left about the origins and nature of the Black Death; a few points remain to be clarified but all the essential facts are known. But in the Middle Ages the plague was not only all-destroying, it was totally incomprehensible. Medieval man was equipped with no form of defence—social, medical or psychological—against a violent epidemic of this magnitude. . . .

One of the minor mysteries which does still persist over the Black Death is the genesis of its name. The traditional belief is that it was so called because the putrefying flesh of the victims blackened in the final hours before death supervened. The trouble about this otherwise plausible theory is that no such phenomenon occurred. It is true that, in cases of septicæmic plague, small black or purple blotches formed on the bodies of the sick and this symptom must have made a vivid impression on beholders. But if the name of the epidemic had been derived primarily from the appearance of its victims, one would have expected it to have been used at the time. Of this there is no evidence. Indeed, it seems that such a title was not generally heard until the eighteenth century, though similar expressions had often been applied to other epidemics in the past. The first recorded use of the term for the epidemic of 1348 is in a reference to the *swarta döden* in Sweden in 1555. About fifty years later it emerged in Denmark as the *sorte død*. Cardinal

Gasquet believed that, in England at least, the name began to be used sometime after 1665 to distinguish the fourteenth-century epidemic from the 'Great Plague' which ravaged Carolean London.

The fact that the title 'Black Death' was not used by contemporaries similarly makes it hard to credit those other explanations which attributed the name to a black comet seen before the arrival of the epidemic, to the number of people who were thrown into mourning as a result of the high mortality or to the popular images of the plague as a man on a black horse or as a black giant striding across the countryside.

The most likely explanation seems to be that it originally stemmed from an over-literal translation into the Scandinavian or the English of the Latin *pestis atra* or *atra mors*. Even in the fourteenth century the word 'atra' could connote 'dreadful' or 'terrible' as well as 'black.' But once the mistranslation had been established then all the other reasons for associating 'Black' with 'Death' must have contributed to give it general currency. In France it was once called the *morte bleue*. The superior dreadfulness of the accepted phrase is obvious and to-day no other style would be acceptable.

Contemporary records are remarkably consistent in their descriptions of the physical appearance of the disease. The most commonly noted symptom is, of course, also the most dramatic: the buboes or boils, sometimes also described as knobs, kernels, biles, blaines, blisters, pimples or wheals, which are the invariable concomitants of bubonic plague. Boccaccio's description will do for all the rest:

'... in men and women alike it first betrayed itself by the emergence of certain tumours in the groin or the armpits, some of which grew as large as a common apple, others as an egg, some more, some less, which the common folk called gavocciolo. From the two said parts of the body this deadly gavocciolo soon began to propagate and spread itself in all directions indifferently; after which the form of the malady began to change, black spots or livid making their appearance in many cases on the arm or the thigh or elsewhere, now few and large, now minute and numerous. And as the gavocciolo had been and still was an infallible token of approaching death, such also were these spots on whomsoever they shewed themselves ...'

Medically the only questionable detail in this account is the reference to the bubo as an 'infallible token of approaching death.' Other contemporary records as well as observation of subsequent epidemics show that it was by no means unheard of for the buboes to discharge and the patient recover. But certainly this happened in a very small minority of cases. To most of its victims the bubo meant inevitable death and it would not be surprising if Boccaccio had never heard of an instance to the contrary.

It was Gui de Chauviac, physician to the Papal Court at Avignon, who saw most clearly that these buboes were by no means an invariable symptom and that a distinct, still more violent variant of the plague existed. 'The mortality ... lasted seven months,' he wrote. 'It was of two types. The first lasted two months, with continuous fever and spitting of blood, and from this one died in three days. The second lasted for the rest of the

period, also with continuous fever but with apostumes and carbuncles on the external parts, principally on the armpits and groin. From this one died in five days.'

The first form, de Chauliac had no doubt, was the more deadly. Even those doctors who failed to perceive the significance of the different symptoms, associated the coughing of blood with certain death: '... men suffer in their lungs and breathing and whoever have these corrupted, or even slightly attacked, cannot by any means escape nor live beyond two days.' . . .

All these phenomena were observed with horrified accuracy by contemporary writers and reported with care and objectivity. Little or no effort was made, however, to explain them logically or to work them into a coherent pattern; the background of knowledge against which such an attempt could have been made was woefully inadequate and the will to try rarely present. One subject which proved something of an exception was the problem of how the disease passed from man to man and country to country. To this much thought was given and many esoteric theories were put forward. Fundamentally there were two, by no means mutually exclusive schools of thought: those who believed in person-to-person infection and those who pinned their faith in the existence of a 'miasma' or poison cloud. . . .

It is curious that, though every doctor paid lip-service to the teachings of Galen, the relatively prosaic explanation of the corruption of the atmosphere which he had advanced several hundred years before was almost ignored by commentators of the Black Death. Infection, he propounded, arose mainly from 'Inspiration of air infected with a putrid exhalation. The beginning of the putrescence may be a multitude of unburned corpses, as may happen in war; or the exhalations of marshes and ponds in the summer . . .' Perhaps the monstrous dimensions of the disaster which overtook Europe in the fourteenth century forced its victims to seek some proportionately monstrous explanation.

But the idea that the disease might be passed directly from man to man was not ruled out by belief in a corrupted atmosphere. A few, mainly among the Arabs, rejected the possibility of infection on religious grounds but for most people the evidence of their own eyes was too strong. Some effort was made to establish a link between the two theories, as by those who argued that a victim of the plague might radiate infection in his immediate vicinity by generating a form of personal and highly localised miasma which he carried, like a halo, around his head. But such refinements of logic were not much considered and, in general, people were content to note that the disease could pass from victim to victim with terrifying speed and did not worry too much about the philosophical or scientific basis for such a phenomenon. The evidence was overwhelming. It is noteworthy that it was an Arab, Ibn al Khatib, who defied his religion's teaching and stated flatly: 'The existence of infection is firmly established by experience, research, mental perception, autopsy and authentic knowledge of fact . . .'

It does indeed appear that, to the medieval mind, the speed with which the Black Death passed from man to man was its most alarming feature. 'The contagious nature of the disease,' wrote one chronicler, 'is indeed the most terrible of all the terrors, for

when anyone who is infected by it dies, all who see him in his sickness, or visit him, or do any business with him, or even carry him to the grave, quickly follow him thither, and there is no known means of protection.' . . .

It was quickly realised that there was no need to touch a sick man to be infected. Most people believed that the disease passed by breath but other theories existed. Looks, according to a physician from Montpellier, could kill. 'Instantaneous death occurs when the aerial spirit escaping from the eyes of the sick man strikes the eyes of a healthy person standing near and looking at the sick, especially when the latter are in agony; for then the poisonous nature of that member passes from one to the other, killing the other.' But swift and terrible though the infection might be, it was also evident that it varied in its dreadfulness from place to place and time to time. On one occasion a whole community would be obliterated, on another there would only be one or two victims and the rest would survive unscathed; here a family would die within twenty-four hours, there the father would die one day, a child three weeks later, another child after a month and then there would be no further victim. In general this was accepted apathetically as yet another of those inexplicable phenomena of which the Black Death was composed. A few doctors noted that the infection seemed more virulent where there was spitting of blood. Only Gui de Chauliac went on to deduce that, of the two forms of the disease which were apparent, one was notably more infectious than the other.

Enjoying as we do the immense superiority of a generation which has devised means of mass destruction more effective even than those inflicted by nature on our ancestors, it is easy and tempting to deride their inability to understand the calamity which had overtaken them. It would, perhaps, be more fitting to wonder at the courage and wisdom of men like Gui de Chauliac who saw their civilisation apparently doomed by a hideous and inexplicable calamity and could still observe its development with scientific objectivity, draw reasonable deductions about its habits and likely course and do their best to curb its ravages. It is also sobering to reflect that only within the last century have we learned enough to detect the origins and plot the course of the epidemics and that, even to-day, quick and expensive action is necessary if they are to be checked before they do great damage. It is much less than a hundred years since the sophisticated and immensely learned Dr Creighton concluded positively that the source of the Black Death lay in the mounds of dead left unburied by the successive disasters which had overtaken China. He invoked cadaveric poisoning as the reason for the high death rate among priests and monks: priests tended to live near the village churchyard while: 'Within the monastery walls were buried not only generations of monks, but often the bodies of princes, of notables of the surrounding country, and of great ecclesiastics.' To-day we smile politely at Dr Creighton's blunders; it is reasonable to wonder whether a hundred years from now the theories of to-day may not seem equally ridiculous. On the whole it is unlikely that they will. Undoubtedly further discoveries will be made, dark corners illuminated, concepts amended or refined.

But the techniques of scientific investigation are now sufficiently evolved to have established as a fact the main elements of the Black Death and to explain authoritatively the cycle of its activity.

That the Black Death, in its original form, was bubonic plague has been commonly accepted for many years. Bubonic plague is endemic to certain remote areas of the world; those which have been identified with reasonable certainty are Uganda, Western Arabia, Kurdistan, Northern India and the Gobi Desert. From time to time it erupts there in the form of minor, localised epidemics. Far more rarely it breaks its bounds and surges forth as one of the great pandemics. Unlike influenza, bubonic plague in such a mood moves slowly, taking ten years or more to run its course across the world. When it comes, it comes to stay. The high mortality of its initial impact is followed by a long period in which it lies endemic, a period interspersed with occasional epidemics which gradually die away in frequency and violence. Finally, perhaps several hundred years after the original outbreak, the plague vanishes.

Three such pandemics have been recorded. The first, beginning in Arabia, reached Egypt in the year 542. It ravaged and perhaps even fatally weakened the Roman Empire of Justinian and moved on across Europe to England, where it was known as the Plague of Cadwalader's Time, and Ireland, which it laid waste in 664. The second pandemic was that of the Black Death. One of its parting flourishes was the Great Plague of London in 1665; it seems to have died out in the seventeenth century. Finally came the pandemic which started in 1892 in Yunnan and reached Bombay in 1896. In India alone it is believed to have killed some six million people. It made a brief and mercifully unsuccessful foray into Suffolk in 1910, finding only a handful of victims. Quite recently it has made itself felt in the Azores and parts of South America. In many parts of the world it has still to run its course.

Though on present evidence it is impossible to be categorical about the origins of the medieval pandemic, recent investigations by the Russian archaeologist Chwolson near Lake Issyk-Koul in the district of Semiritchensk in Central Asia show that there was an abnormally high death rate in 1338 and 1339. Nestorian memorial stones attribute the deaths to plague. Given the later course of the disease and the fact that this area is in the heart of one of the zones in which bubonic plague lies endemic, Dr Pollitzer, probably the leading authority on the subject, has concluded that this was almost certainly the cradle of the Black Death. From thence it spread out, eastwards into China, south to India and west to reach the Crimea some eight years later.

In this remote fastness, since recorded history, the bacillus *Pasteurella Pestis* has lingered on, finding its home either in the bloodstream of an animal or the stomach of a flea. The flea normally favoured is *Xenopsylla Cheopsis*, familiarly *X. Cheopsis*, an insect which, in its turn, chooses ideally to reside in the hair of some rodent. One can only guess which rodent was most readily to be found near Lake Issyk-Koul in 1338 but the experience of later epidemics points to the tarbagan or Manchurian marmot, a beguiling squirrel-like creature much hunted for its skin. The jerboa and the suslik probably also played their part and, of course, the rat too, though the latter's main role was not to come

till the disease was on the move.

To disturb the tranquil and largely harmless existence of *Pasteurella Pestis* something had to happen to make the rodents leave their homes. With them, inevitably, would travel their attendant fleas and, within the fleas, a cargo of deadly parasites. We are unlikely ever to know exactly what it was which caused this particular rodent migration. Such evidence as survives suggests that they were driven away by floods but, on other occasions, prolonged droughts have provided the necessary incentive or it could simply have been that an increase in the rodent population put too great a strain on the available supplies of food. At all events a massive exodus took place and it was above all *rattus rattus*, the tough, nimble, by nature vagabond, black rat which made the move.

Without disputing the importance of the rat as a carrier of plague, Professor Jorge has suggested that its role, except in the earliest stages of an epidemic, is inessential, and that the lack of references to it in contemporary accounts of the Black Death indicates that the infection was mainly dependent on other means of transport. He believed that *pulex irritans*, the flea which preys above all on human beings, was perfectly capable of carrying the plague direct from man to man without the intervention of an infected rat. Medically this is doubtful. There is no need to eliminate *pulex irritans* altogether as an extra factor but its capacity to drink in sufficient plague bacilli from one person so as to be able to implant a fatal dose in the next has been much questioned. Colonel MacArthur has recorded that, in blood cultures made from fatal cases of bubonic plague, he found 'bacilli so sparse that theoretically one could have fed twenty thousand fleas on such a case and yet have infected none.'

There is certainly no doubt that the rapid spread of bubonic plague was greatly helped by the presence of infected rats. Nor was there any shortage of rats. By the middle of the fourteenth century they abounded in Europe, probably having been imported originally in the boats of the returning Crusaders. Their role was unobtrusive and, since there is no particular reason why contemporaries should have commented on their activities, their absence from the chronicles casts no doubt on their existence. Dead rats no doubt littered the streets and houses but this would hardly have seemed worthy of attention at a time when dead human beings were so much more conspicuous. . . .

The symptoms of bubonic plague as known to-day coincide precisely with those described by the medieval chroniclers. The 'swollen and dropsical mass of inflamed lymphatic glands' known as the bubo is the classic sign. Sometimes this is the size of an almond, sometimes of an orange; usually it is found in the groin but it may also grow in the armpit or, occasionally, on the neck. Equally familiar are the dusky stains or blotches caused by subcutaneous haemorrhages and the intoxication of the nervous system: 'In Provence a man climbed on to the roof of his house and threw down the tiles into the street. Another executed a mad, grotesque dance on the roof . . .' Modern medical experience suggests that, if the bubo breaks down and suppurates within a week, the victim will probably survive; few medieval doctors would have expected their patient to endure more than four or

five days of the agonising pain which accompanies the boil. But otherwise the cases observed by Boccaccio or Simon of Covino could be found in half a dozen plague centres to-day.

But though bubonic plague was the first and most conspicuous form taken by the Black Death, a variant known as primary pneumonic or pulmonary plague was more lethal. In the epidemics of the late nineteenth century, when methods of treatment were remarkably little more sophisticated than in the Middle Ages, between sixty and ninety percent of those who caught bubonic plague could expect to die. In the case of pneumonic plague recovery was virtually unknown. Bubonic plague would generally take between four days and a week to kill; in the Manchurian epidemic of 1921 the expectation of life of the victims of pneumonic plague was a mere 1.8 days. Finally, bubonic plague is one of the less infectious epidemic diseases; the breath is not affected and the patient usually dead or recovered before enough bacilli have accumulated in the blood to make it a source of infective material for the flea. Pneumonic plague is perhaps the most infectious; it attacks the lungs so that there is coughing of blood and the plague bacilli are sprayed out into the air every time that the patient exhales.

Hirst has remarked that, if it were not known that they had a common origin and were linked by intermediate types, true pneumonic and uncomplicated bubonic plague would seem to be different diseases. The link between the two is to be found in an attack of bubonic plague during which the victim also develops pneumonia. This compound, though extremely dangerous to the victim, is not usually infectious. Yet, in certain cases, it may become so. The main outstanding problem of the Black Death, or indeed of the plague in any era, is what the factors are which make this happen, what it is which provokes an epidemic of the air-borne pneumonic variant of the disease.

'Where the fourteenth-century plague is said to differ from later experience is that in its quite slow extension across Europe it seemed to change as the season of the year changed from pneumonic to bubonic, and then from bubonic to pneumonic without discontinuity.' The medieval doctor can hardly be blamed for finding the process incomprehensible. But if he had understood it he would even then not have mastered the full story. For there would still have remained unexplained those cases, already mentioned, in which a man would die within a few hours or go to bed in the best of health and never wake in the morning.

There seems no doubt that a third element in the Black Death, septicaemic plague, was here at work. This, like bubonic plague, is insect borne. The distinction is that the brunt of the infection falls on the bloodstream which, within an hour or two, is swarming with plague bacilli. The victim is dead long before buboes have had time to form. It is in this form of plague that *pulex irritans*, the man-borne flea, has a chance to operate. So rich in bacilli is the blood of a sick man that the flea can easily infect itself and carry on the disease to a new prey without the need of a rat to provide fresh sources of infection. Septicaemic plague must have been the rarest of the three interwoven diseases which composed the Black Death but it was certainly as lethal as its pneumonic cousin and it introduced yet another means by which the

plague could settle itself in a new area and spread hungrily among the inhabitants. . . ."

--Eiegler, Philip. The Black Death.
New York: John Day Company, 1969.
pages 15-29.

SUPPLEMENTARY READING

Bowsky, W. Black Death: A Turning Point In History. New York: Holt, Rinehart and Winston, 1971.

Bridbury, A. R. "Black Death," Economic History Review, November 1973, pages 577-592.

Cowie, Leonard W. The Black Death and the Peasants' Revolt. New York: G. P. Putnam's Sons, 1973.

Deaux, George. Black Death. New York: Weybright and Talley, Inc., 1969.

Marks, Geoffrey. Medieval Plague: The Black Death of the Middle Ages. Garden City, New York: Doubleday and Company, Inc., 1971.