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THE BLACK DEATH

The plague that killed a quarter of the people of Europe in the years 1348–1350 is still studied to shed light on human behavior under conditions of universal catastrophe

by William L. Langer

In the three years from 1348 through 1350 the pandemic of plague known as the Black Death, or, as the Germans called it, the Great Dying, killed at least a fourth of the population of Europe. It was undoubtedly the worst disaster that has ever befallen mankind. Today we can have no real conception of the terror under which people lived in the shadow of the plague. For more than two centuries plague has not been a serious threat to mankind in the large, although it is still a grisly presence in parts of the Far East and Africa. Scholars continue to study the Great Dying, however, as a historic example of human behavior under the stress of universal catastrophe. In these days when the threat of plague has been replaced by the threat of mass human extermination by even more rapid means, there has been a sharp renewal of interest in the history of the 14th-century calamity. With new perspective, students are investigating its manifold effects: demographic, economic, psychological, moral and religious.

Plague is now recognized as a well-marked disease caused by a specific organism (*Bacillus pestis*). It is known in three forms, all highly fatal: pneumonic (attacking primarily the lungs), bubonic (producing buboes, or swellings, of the lymph glands) and septicemic (killing the victim rapidly by poisoning of the blood). The disease is transmitted to man by fleas, mainly from black rats and certain other rodents, including ground squirrels. It produces high fever, agonizing pain and prostration, and it is usually fatal within five or six days. The Black Death got its name from dark blotches produced by hemorrhages in the skin.

There had been outbreaks of plague in the Roman Empire in the sixth cen-

tury and in North Africa earlier, but for some reason epidemics of the disease in Europe were comparatively rare after that until the 14th century. Some historians have suggested that the black rat was first brought to western Europe during the Crusades by expeditions returning from the Middle East. This seems unlikely: remains of the rat have been found in prehistoric sites in Switzerland, and in all probability the houses of Europe were infested with rats throughout the Middle Ages.

In any event, the 14th-century pandemic clearly began in 1348 in the ports of Italy, apparently brought in by merchant ships from Black Sea ports. It gradually spread through Italy and in the next two years swept across Spain, France, England, central Europe and Scandinavia. It advanced slowly but pitilessly, striking with deadliest effect in the crowded, unsanitary towns. Each year the epidemic rose to a peak in the late summer, when the fleas were most abundant, and subsided during the winter, only to break out anew in the spring.

The pandemic of 1348–1350 was followed by a long series of recurrent outbreaks all over Europe, coming at intervals of 10 years or less. In London there were at least 20 attacks of plague in the 15th century, and in Venice the Black Death struck 23 times between 1348 and 1576. The plague epidemics were frequently accompanied by severe outbreaks of typhus, syphilis and "English sweat"—apparently a deadly form of influenza that repeatedly afflicted not only England but also continental Europe in the first half of the 16th century.

From the 13th to the late 17th century Europe was disease-ridden as never before or since. In England the long affliction came to a climax with an epidemic of bubonic plague in 1665 that

killed nearly a tenth of London's estimated population of 460,000, two-thirds of whom fled the city during the outbreak. Thereafter in western and central Europe the plague rapidly died away as mysteriously as it had come. The theories advanced to explain its subsidence are as unconvincing as those given for its rise. It was long supposed, for instance, that an invasion of Europe early in the 18th century by brown rats, which killed off the smaller black rats, was responsible for the decline of the disease. This can hardly be the reason; the plague had begun to subside decades before, and the brown rat did not by any means exterminate the black rat. More probably the answer must be sought in something that happened to the flea, the bacillus or the living conditions of the human host.

This article, however, is concerned not with the medical but with the social aspects of the Black Death. Let us begin by examining the dimensions of the catastrophe in terms of the death toll.

As reported by chroniclers of the time, the mortality figures were so incredibly high that modern scholars long regarded them with skepticism. Recent detailed and rigorously conducted analyses indicate, however, that many of the reports were substantially correct. It is now generally accepted that at least a quarter of the European population was wiped out in the first epidemic of 1348 through 1350, and that in the next 50 years the total mortality rose to more than a third of the population. The incidence of the disease and the mortality rate varied, of course, from place to place. Florence was reduced in population from 90,000 to 45,000, Siena from 42,000 to 15,000; Hamburg apparently

lost almost two-thirds of its inhabitants. These estimates are borne out by accurate records that were kept in later epidemics. In Venice, for example, the Magistrato della Sanità (board of health) kept a meticulous count of the victims of a severe plague attack in 1576 and 1577; the deaths totaled 46,721 in a total estimated population of about 160,000. In 1720 Marseilles lost 40,000 of a population of 90,000, and in Messina about half of the inhabitants died in 1743.

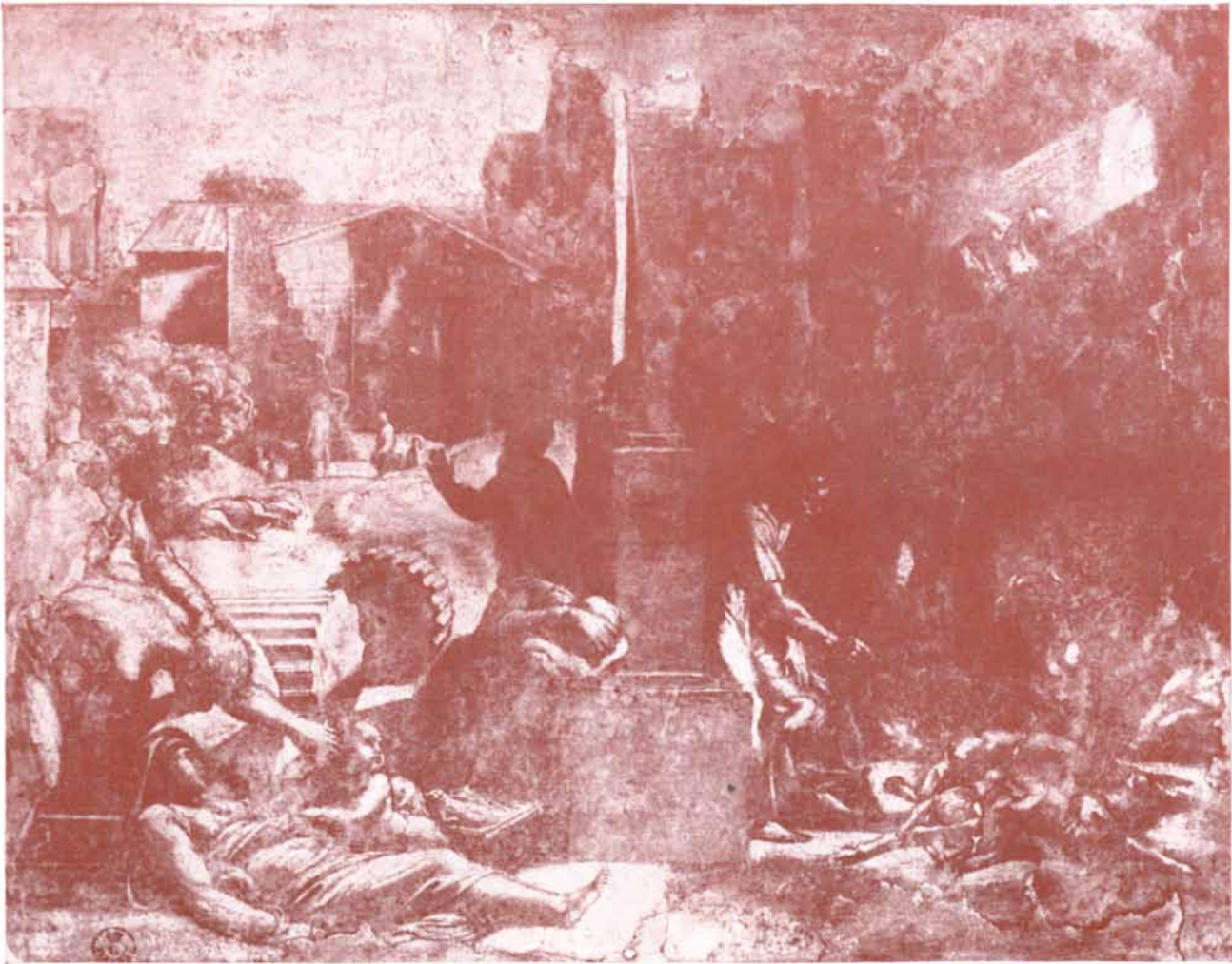
It is now estimated that the total population of England fell from about 3.8 million to 2.1 million in the period from 1348 to 1374. In France, where the loss of life was increased by the Hundred Years' War, the fall in population was even more precipitate. In western and central Europe as a whole the mortality was so great that it took nearly two centuries for the population level of 1348 to be regained.

The Black Death was a scourge such as man had never known. Eighty per cent or more of those who came down with the plague died within two or three days, usually in agonizing pain. No one knew the cause of or any preventive or cure for the disease. The medical profession was all but helpless, and the desperate measures taken by town authorities proved largely futile. It is difficult to imagine the growing terror with which the people must have watched the inexorable advance of the disease on their community.

They responded in various ways. Almost everyone, in that medieval time, interpreted the plague as a punishment by God for human sins, but there were arguments whether the Deity was sending retribution through the poisoned arrows of evil angels, "venomous molecular" or earthquake-induced or comet-borne miasmas. Many blamed the Jews,

accusing them of poisoning the wells or otherwise acting as agents of Satan. People crowded into the churches, appealing for protection to the Virgin, to St. Sebastian, to St. Roch or to any of 60 other saints believed to have special influence against the disease. In the streets half-naked flagellants, members of the century-old cult of flagellantism, marched in processions whipping each other and warning the people to purge themselves of their sins before the coming day of atonement.

Flight in the face of approaching danger has always been a fundamental human reaction, in modern as well as ancient times. As recently as 1830, 60,000 people fled from Moscow during an epidemic of cholera, and two years later, when the first cases of this disease turned up in New York City, fully a fourth of the population of 220,000 took flight in



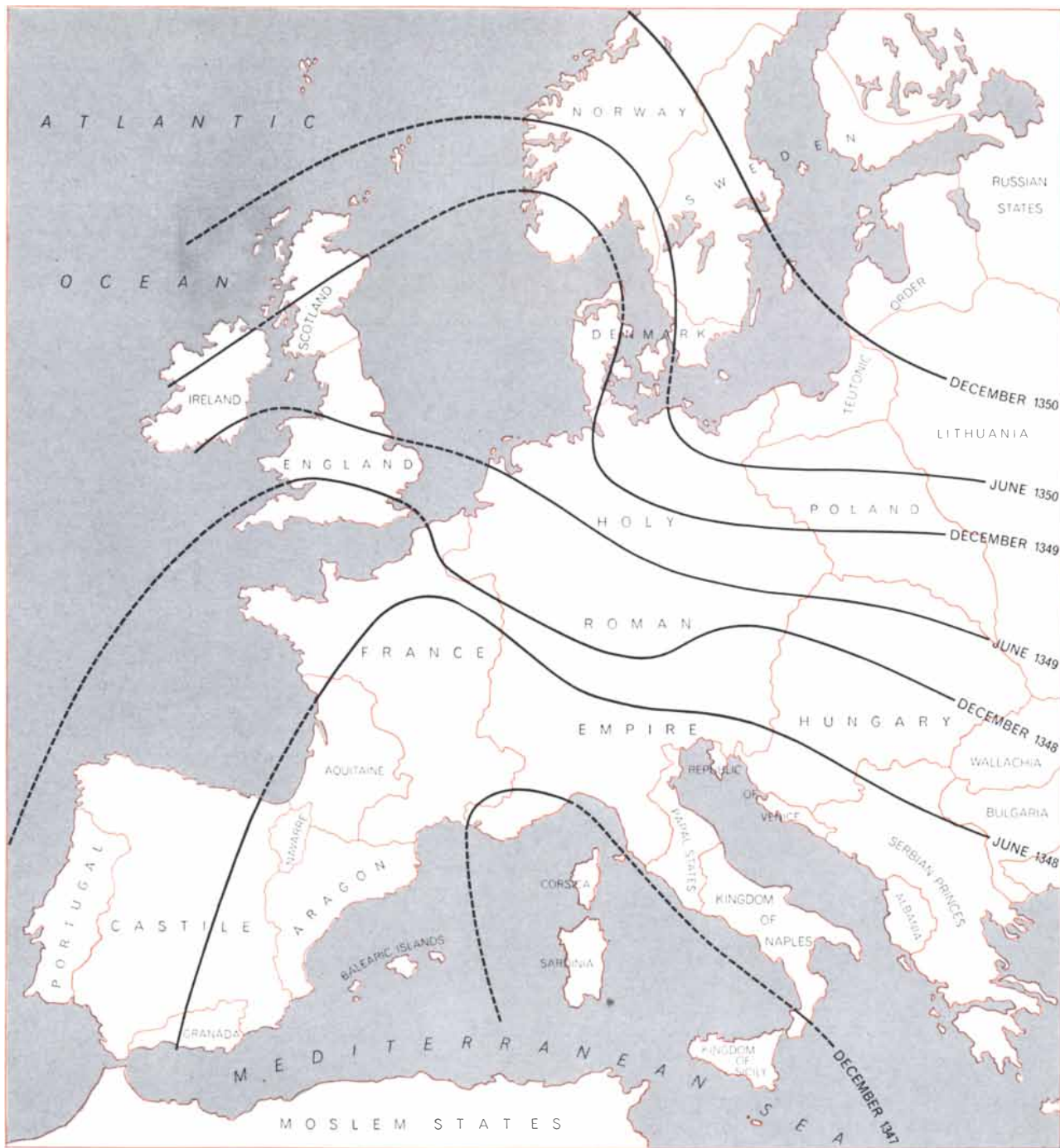
RAPHAEL'S "LA PÈSTE" ("The Plague") reflects the preoccupation of European art with plague and its consequences during the plague-ridden three centuries following the Black Death. This

picture, now worn with time, is divided into two parts: night at right and day at left. Among other plague themes of artists were the dance of death and the terrors of the Last Judgment.

steamboats, stagecoaches, carts and even wheelbarrows. The plague epidemics of the 14th to 16th century of course produced even more frightened mass migrations from the towns. Emperors, kings, princes, the clergy, merchants, lawyers, professors, students, judges and even physicians rushed away, leaving the common people to shift for themselves. All who could get away shut

themselves up in houses in the country. At the same time drastic efforts were made to segregate those who were forced to remain in the towns. In an epidemic in 1563 Queen Elizabeth took refuge in Windsor Castle and had a gallows erected on which to hang anyone who had the temerity to come out to Windsor from plague-ridden London. Often when a town was hit by the

plague a cordon of troops would be thrown around the town to isolate it, allowing no one to leave or enter. In the afflicted cities entire streets were closed off by chains, the sick were quarantined in their houses and gallows were installed in the public squares as a warning against the violation of regulations. The French surgeon Ambroise Paré, writing of a plague epidemic in 1568,



APPROXIMATE CHRONOLOGY of the Black Death's rapid sweep through Europe in the middle of the 14th century is indicated on this map, which shows the political divisions as they existed at

the time. The plague, which was apparently brought from Asia by ships, obtained a European foothold in the Mediterranean in 1347; during the succeeding three years only a few small areas escaped.

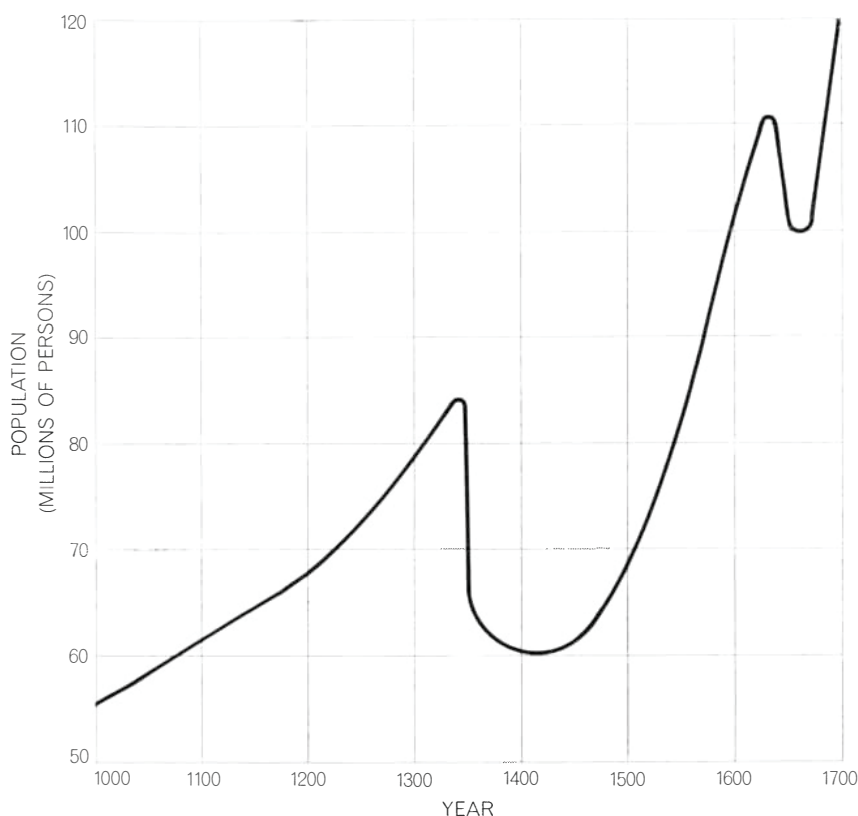
reported that husbands and wives deserted each other, that parents sometimes even abandoned their children and that people went mad with terror and committed suicide.

Victims of the disease often died in the streets, as is shown in Raphael's "La Peste," now in the Uffizi Gallery in Florence. Gravediggers were understandably scarce. For the most part those hired for the job, at fantastic wages, were criminals and tramps—men who could not be expected to draw fine distinctions between the dying and the dead. The corpses and the near corpses were thrown into carts and dumped indiscriminately into huge pits outside the town walls.

The sufferings and reactions of humanity when the plague came have been depicted vividly by writers such as Boccaccio, Daniel Defoe, Alessandro Manzoni and the late Albert Camus (in his novel *The Plague*) and by artists from Raphael and Holbein to Delacroix. Boccaccio's *Decameron*, an account of a group of well-to-do cavaliers and maidens who shut themselves up in a country house during the Black Death in Florence and sought to distract themselves with revelry and spicy stories, illustrates one of the characteristic responses of mankind to fear and impending disaster. It was most simply described by Thucydides in his report of the "Plague of Athens" in 430 B.C.:

"Men resolved to get out of life the pleasures which could be had speedily and would satisfy their lusts, regarding their bodies and their wealth alike as transitory.... No fear of gods or law of men restrained them; for, on the one hand, seeing that all men were perishing alike, they judged that piety or impiety came to the same thing, and, on the other hand, no one expected that he would live to be called to account and pay the penalty for his misdeeds. On the contrary, they believed that the penalty already decreed against them and now hanging over their heads was a far heavier one, and that before it fell it was only reasonable to get some enjoyment out of life."

From this philosophy one might also develop the rationalization that hilarity and the liberal use of liquor could ward off the plague. In any event, many people of all classes gave themselves up to carousing and ribaldry. The Reformation theologian John Wycliffe, who survived the Black Death of the 14th century, wrote with dismay of the lawlessness and depravity of the time. Everywhere, wrote chroniclers of the



IMPACT ON POPULATION from recurrent plagues in Europe is indicated. For more than 300 years after 1347 the plagues checked the normal rise in population; sometimes, as in the 14th and 17th centuries, they resulted in sharp reductions. The figures shown on this chart derive from estimates by students of population; actual data for the period are scarce.

epidemics in London then and later, there was "drinking, roaring and surfeiting.... In one house you might hear them roaring under the pangs of death, in the next tippling, whoring and belching out blasphemies against God." Even the sober Samuel Pepys admitted to his diary that he had made merry in the shadow of death, indulging himself and his wife in a "great store of dancings." The university town of Oxford, like London, also was the scene of much "lewd and dissolute behavior."

The outbreak of an epidemic of plague was almost invariably the signal for a wave of crime and violence. As Boccaccio wrote, "the reverend authority of the laws, both human and divine, was all in a manner dissolved and fallen into decay, for lack of the ministers and executors thereof." In the midst of death, looting and robbery flourished. Burial gangs looted the houses of the dead and stripped the corpses of anything of value before throwing them into the pits. On occasion they even murdered the sick.

Just as desperation drove some to a complete abandonment of morality, it drove others, perhaps the majority, to

pathetic extravagances of religiosity or superstition. The poet George Wither noted this contrast in the London epidemic of 1625:

*Some streets had Churches full
of people, weeping;
Some others, Tavernes had, rude-revell
keeping;
Within some houses Psalmes
and Hymnes were sung;
With raylings and loud scouldings
others rung.*

Many people threw themselves on God's mercy, showered the church with gifts and made extravagant vows for the future. Others hunted down Jews and witches as the originators of the plague. The Black Death generated a startling spread of belief in witchcraft. Even as learned a scholar and theologian as John Calvin was convinced that a group of male and female witches, acting as agents of Satan, had brought the plague to Geneva. In the cult of Satanism, as in that of flagellantism, there was a strong strain of sexuality. It was believed that the women accused of being witches had intercourse with the

Devil and could strike men with sexual impotence. From the psychoanalytic point of view this belief may have stemmed from an unconscious reaction to the tremendous shrinkage of the population.

Jews and witches were not the only victims of the general panic. The wrath of the people also fell on physicians. They were accused of encouraging or helping the spread of the plague instead of checking it. Paré tells us that some of them were stoned in the streets in France. (In the 19th century physicians were similarly made scapegoats during epidemics of cholera. Some people accused them of poisoning public water supplies, at the behest of the rich, in order to kill off the excessive numbers of the poor.)

Although we have fairly accurate knowledge of the immediate effects of the great plagues in Europe—they were fully and circumstantially chronicled by many contemporary writers—it is not so

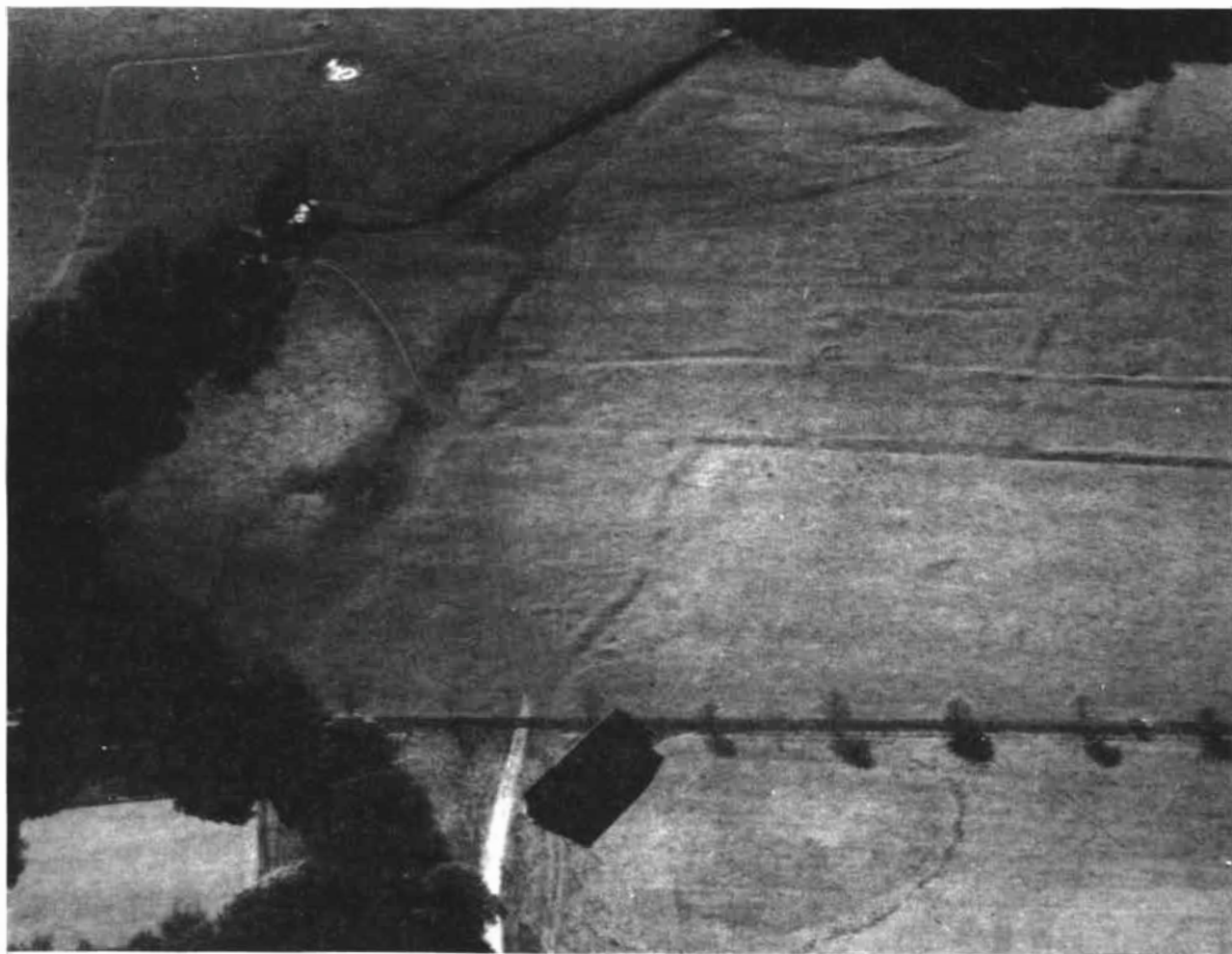
easy to specify the long-term effects of the plagues. Many other factors entered into the shaping of Europe's history during and after the period of the plague epidemics. Nevertheless, there can be no doubt that the Great Dying had a profound and lasting influence on that history.

In its economic life Europe suffered a sudden and drastic change. Before the Black Death of 1348–1350 the Continent had enjoyed a period of rather rapid population growth, territorial expansion and general prosperity. After the pandemic Europe sank into a long depression: a century or more of economic stagnation and decline. The most serious disruption took place in agriculture.

For a short time the towns and cities experienced a flush of apparent prosperity. Many survivors of the epidemic had suddenly inherited substantial amounts of property and money from

the wholesale departure of their relatives. They built elegant houses and went on a buying spree that made work (and high prices) for the manufacturing artisans. The churches and other public institutions, sharing in the wealth of the new rich, also built imposing and expensive structures.

The rural areas, on the other hand, virtually collapsed. With fewer people to feed in the towns and cities, the farmers lost a large part of the market for their crops. Grain prices fell precipitately. So did the farm population. Already sadly depleted by the ravages of the plague, it was now further reduced by a movement to the towns, which offered the impoverished farmers work as artisans. In spite of strenuous efforts by landlords and lords of the manor to keep the peasants on the land by law and sometimes by force, the rural population fled to the cities en masse. Thousands of farms and villages were deserted. In central Germany some 70



DESERTED ENGLISH VILLAGE, typical of many medieval communities made ghost towns by the Black Death and succeeding plagues, occupied the site shown in this aerial photograph. This

site is Tusmore in Oxfordshire; most of the lines are earthworks that bounded farm enclosures behind cottages. Aerial photography has been used to locate many abandoned medieval villages.



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per cent of all the farm settlements were abandoned in the period following the Black Death. (Many of these "lost" farms and villages, long overgrown, have recently been located by aerial photography.)

Farms became wilderness or pasture. Rents and land values disappeared. The minor land-owning gentry sank into poverty. In the words of the 14th-century poet Petrarch, "a vast and dreadful solitude" settled over the land. And of course in the long run the depression of agriculture engulfed the cities in depression as well.

Some authorities believe that Europe had begun to fall into a period of economic decay before the Black Death and that the epidemics only accentuated this trend. The question is certainly a complicated one. Wars and other economic forces no doubt played their part in Europe's long recession. It seems probable, however, that the decisive factor was the repeated onslaught of epidemics that depleted and weakened the population. The present consensus on the subject is that population change is a main cause of economic change rather than vice versa. Surely it must be considered significant that Europe's economic revival in the 17th and 18th centuries coincided with the disappearance of the plague and a burst of rapid population growth [see "Population," by Kingsley Davis; *SCIENTIFIC AMERICAN*, September, 1963].

The psychological effects of the ordeal of the plague are at least as impressive as the economic ones. For a long time it held all of Europe in an apocalyptic mood, which the Dutch historian Johan Huizinga analyzed brilliantly a generation ago in his study *The Waning of the Middle Ages*. As Arturo Castiglioni, the eminent Yale University historian of medicine, has written: "Fear was the sovereign ruler of this epoch." Men lived and worked in constant dread of disease and imminent death. "No thought is born in me that has not 'Death' engraved upon it," wrote Michelangelo.

Much of the art of the time reflected a macabre interest in graves and an almost pathological predilection for the manifestations of disease and putrefaction. Countless painters treated with almost loving detail the sufferings of Christ, the terrors of the Last Judgment and the tortures of Hell. Woodcuts and paintings depicting the dance of death, inspired directly by the Black Death, enjoyed a morbid popularity. With pitiless realism these paintings portrayed Death as a horribly grinning skeleton

that seized, without warning, the prince and the peasant, the young and the old, the lovely maiden and the hardened villain, the innocent babe and the decrepit dotard.

Along with the mood of despair there was a marked tendency toward wild defiance—loose living and immoralities that were no doubt a desperate kind of reassertion of life in the presence of death. Yet the dominant feature of the time was not its licentiousness but its overpowering feelings of guilt, which arose from the conviction that God had visited the plague on man as retribution for his sins. Boccaccio, a few years after writing his *Decameron*, was overcome by repentance and a sense of guilt verging on panic. Martin Luther suffered acutely from guilt and fear of death, and Calvin, terror-stricken by the plague, fled from each epidemic. Indeed, entire communities were afflicted with what Freud called the primordial sense of guilt, and they engaged in penitential processions, pilgrimages and passionate mass preaching.

Some 70 years ago the English Catholic prelate and historian (later cardinal) Francis Gasquet, in a study entitled *The Great Pestilence*, tried to demonstrate that the Black Death set the stage for the Protestant Reformation by killing off the clergy and upsetting the entire religious life of Europe. This no doubt is too simple a theory. On the other hand, it is hard to deny that the catastrophic epidemics at the close of the Middle Ages must have been a powerful force for religious revolution. The failure of the Church and of prayer to ward off the pandemic, the flight of priests who deserted their parishes in the face of danger and the shortage of religious leaders after the Great Dying left the people eager for new kinds of leadership. And it is worth noting that most if not all of the Reformation leaders—Wycliffe, Zwingli, Luther, Calvin and others—were men who sought a more intimate relation of man to God because they were deeply affected by mankind's unprecedented ordeal by disease.

This is not to say that the epidemics of the late Middle Ages suffice to explain the Reformation but simply that the profound disturbance of men's minds by the universal, chronic grief and by the immediacy of death brought fundamental and long-lasting changes in religious outlook. In the moral and religious life of Europe, as well as in the economic sphere, the forces that make for change were undoubtedly strengthened and given added impetus by the Black Death.

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