

Texts and Documents

¹ R. R. Trail and F. W. Steer, *The Chichester Papers*, No. 34, 1963.

² *Quart. J. roy. Meterol. Soc.*, 1929, 55, 397, 398 and *Sussex Notes and Queries*, 1928–1929, 2, 248–50.

³ C. C. Booth, William Hillary, *Med. Hist.*, 1963, 7, 297–315.

⁴ See *Dictionary of National Biography*. His success was assured after the publication of his *Account of the Sore Throat attended with Ulcers*. Of Fothergill, a philanthropic member of the Society of Friends, Benjamin Franklin said, 'I can hardly conceive that a better man has ever existed.'

⁵ Published by William Hayley Mason, East Street, Chichester, 1848.

⁶ Although we say that there is an absence of documentary evidence for the sanitary condition of Chichester in Bayly's time, perhaps mention ought to be made of the *minor* references in *Victoria County History, Sussex*, vol. 3 (1935), p. 95, F. W. Steer, ed., *The Memoirs of James Spershott* (Chichester Papers No. 30, 1962) and F. W. Steer, ed., *Minute Book of the Common Council of the City of Chichester, 1783–1826* (Sussex Record Society, vol. 62, 1963).

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News, Notes and Queries

A CONSIDERATION OF THE NATURE OF THE ENGLISH SWEATING SICKNESS

In the early autumn of 1485 there broke out in the south-west of England a strange and formidable malady, which, from the prominence of one of its symptoms, became known as the sweating sickness. Just a few days earlier, Henry, Earl of Richmond, invaded England from France, and defeated Richard III at the battle of Bosworth Field (22 August), and Richard was killed.¹ Cases of the sweating sickness occurred in London in the second part of September; it assumed an epidemic form and spread to other parts of the country. In London it may have continued for about six weeks. There were other similar outbreaks in 1508, 1517, 1528, and 1551; and in 1529 there was an epidemic in north-western Europe. After 1551 it was not seen again.

The principal English account is that written by John Caius² just after the 1551 epidemic, in which he was engaged—there seems to be no earlier description by an English physician. The Continental medical writers gave more copious descriptions of their experiences in 1529; and these, and various records by non-medical observers, make it plain that the five epidemics, and also the European one, were outbreaks of the same disease. The composite picture drawn from the numerous accounts gives a detailed description of the symptoms and course of the illness, and at the same time leaves us to speculate on its remarkable nature.

The following description of the symptoms is slightly shortened from that given by J. F. Payne:

The disease began very suddenly with a sense of apprehension, followed by cold shivers (sometimes violent), giddiness, headache, severe pains in the neck, shoulders, and limbs, with great prostration—in short, the usual symptoms of an acute febrile attack. In some cases the stomach was affected, and there was vomiting. The breathing was deep and rapid; the voice like a moan. After the cold phase, which might last half-an-hour to three hours, there followed the stage of heat and sweating. The characteristic sweat broke out suddenly, and with varying

intensity. Along with, or after the sweat, there came a sense of heat, headache, and delirium, rapid pulse, and intense thirst. Palpitation and pain in the breast were frequent. No eruption on the skin was generally observed. In the later stages there was either general prostration and collapse, or an irresistible tendency to sleep, which was thought to be fatal if the patient was permitted to give way to it. The malady was surprisingly rapid in its course, being sometimes fatal even in two or three hours, and some patients died in less than that time. More commonly it was protracted to a period of twelve to twenty-four hours, beyond which it rarely lasted. Those who survived for twenty-four hours were considered to be out of danger.³

Hirsch says of the severely ill patients:

A grave type was indicated at the outset by severe cerebral symptoms: intense headache, delirium, convulsions, and quickly developing coma, in which it is said that the patients invariably died, unless they were roused. Among other serious symptoms mentioned were colliquative sweating, and extreme breathlessness. Death would then occur with symptoms of dyspnoea and generalized paralysis, sometimes only a few hours from the beginning of the illness.

Hirsch comments also on the frequency of relapses.⁴

Some of the chroniclers, said Caius,⁵ believed that the special liability of Englishmen to the sweating sickness followed them even into foreign parts, so that in Calais, Brabant, and Spain it affected the English only, and not the inhabitants of these places. It was stated also that foreigners in England remained free from it. There was general agreement that, notwithstanding its diffusion in England, it did not cross the Welsh or the Scottish border, or show itself in Ireland.

Francis Bacon, in his *History of the Reign of King Henry VII*, which was published in 1622, has a paragraph on the sweating sickness which may represent the popular beliefs about it a century after its occurrence:

This disease [he said] had a swift course, both in the sick body, and in the time and period of the lasting thereof; for they that were taken with it, upon four-and-twenty hours escaping, were thought almost assured. It was a pestilent fever, but, as it seemeth, not seated in the veins or humours, for there followed no carbuncle, no purple or livid spots, or the like, the mass of the body being not tainted; only a malign vapour flew to the heart, and seized the vital spirits; which stirred nature to try to send it forth by an extreme sweat. If the patient were kept in an equal temper, both for clothes, fire, and drink, whereby nature's work were neither irritated by heat, nor turned back by cold, he commonly recovered. But infinite persons died suddenly of it before the manner of the cure and attendance was known. It was conceived not to be a epidemic disease, but to proceed from a malignity in the constitution of the air, gathered by the predisposition of seasons, and the speedy cessation declared as much.⁶

Hecker said of the first epidemic:

The people were seized with alarm when they saw that scarcely one in a hundred escaped. In London it lasted five weeks from 21 September. By the end of the year the disease had spread over the whole of England, visited every place with the same severity as in London. Many persons of rank became its victims, and great was the consternation when, in the month of August, it broke out in Oxford. Professors and students fled in all directions, but death overtook many of them, and this celebrated University was deserted for six weeks.⁷

Three features of the outbreaks are apparent from the various accounts: that commonly the onset was abrupt, the duration short, and the case-mortality often high. This can be illustrated from the Continental accounts of 1529. Hecker says that the

epidemic began, as it did in 1517, without previous indication.⁸ The first place to be affected was Hamburg, where 1,100 coffins were counted in twenty-two days. In Danzig 3,000 died, and the epidemic abated in five days. In Augsburg it lasted six days; there were 1,500 cases and 800 deaths. In Strassburg there were 3,000 cases in a week, but few deaths. In Amsterdam 400–500 died, the mortality ceasing in five days. It reached Denmark towards the end of September, and, on 29 September 400 of the inhabitants died in Copenhagen. ‘The exceedingly short time that the sweating sickness lasted in the different places that it visited was as astonishing as its original appearance . . . thus displaying the same peculiarity as in its previous visitations.’⁹ Creighton says of the 1551 outbreak: ‘The date of its arrival at Oxford on the way to London is not known, but a physician then resident there, Dr. Etheredge, has left it on record that it attacked sixty in Oxford in one night, and next day more than 100 in the villages around. Very few died of it at Oxford.’¹⁰ Hirsch says, with reference to the fatality of the disease: ‘We should be justified in concluding that the type of the disease had been disastrous in some places, and very mild in others.’¹¹ As examples of the latter he cites: 4,000 cases at Stuttgart, and only six deaths; at Marburg, one out of fifty. At places in Alsace, including Strassburg, the death-rate was at a minimum, notwithstanding the enormous diffusion of the malady.

The sweating sickness has been variously regarded by modern writers. Hecker considered it to be an inflammatory rheumatic fever, with great disorder of the nervous system. He refers to the series of uncommonly wet years which had occurred before its appearance in 1485.

. . . It plainly appeared that the English sweating sickness was a spirit of the mist, which hovered amid the dark clouds. Even in ordinary years the atmosphere of England is loaded with these clouds during considerable periods, and in damp seasons they would prove the more injurious, as the English of these times were not accustomed to cleanliness, moderation in their diet, or even comfortable refinements. Gluttony was common among the nobility as well as among the lower classes; all were immoderately addicted to drinking.¹²

Hecker says again:

‘Of all the diseases that can in any way be compared to it, we have principally three to look back upon: the cardiac disease of the ancients (300 B.C.–A.D. 200); the Picardy sweat, and the sweating sickness of Roetingen. . . The Picardy sweat is a decided miliary fever, which often prevailed not only in Picardy, but in other provinces of France for more than 100 years. . . It ran a course of seven days.’¹³

Niemeyer (1867) said:

A large number of authorities, especially the Germans, deny the existence of *sudor Anglicus* as an individual disease. But the fact is well attested that besides typhus, acute articular rheumatism, puerperal fever, and many other febrile complaints, there exists a peculiar sickness characterized by sweating and a miliary eruption, even more profuse than is often observed in any other disease. It is, beyond doubt, an infectious disease.¹⁴

Hirsch says:

A retrospect of the English sweat and of the miliary fever leaves no doubt in my mind of the close relations between the two diseases;¹⁵

and further:

English observers said an epidemic was always preceded by heavy rain. It appeared in spring or summer and did not remain longer than the beginning of winter. Communication of the disease is negated by the most trustworthy observers, and we may set aside the assertion of a few chroniclers that it was carried by ships from England to Hamburg in 1529. Those in the prime of life, and males, suffered most; children and the old, if attacked at all, suffered less severely; and often the poor enjoyed a striking immunity.¹⁶

It was to this reported immunity of the poor that William Heberden the younger¹⁷ referred in 1801 when he said that Caius must probably have been mistaken when he mentioned one circumstance entirely contrary to what has occurred in any plague of which he (Heberden) had yet seen an account. Creighton notes the resemblance of miliary fever to sweating sickness,¹⁸ though it was not the English sweat in all its circumstances. On the contrary, it was only rarely epidemic over a large population, or a large tract of the country. In the individual affected it ran a longer course than the English sweat had done.

Osler, in his textbook (1905), has a chapter on infectious diseases of doubtful nature, and in this a paragraph on miliary fever, of which sweating sickness is given a synonym.¹⁹ He refers to its prevalence in England, with high fatality, in the fifteenth and sixteenth centuries. The dermatologist, H. W. Stelwagon (1915) gives a precise account of miliary fever, and names sweating sickness and *sudor anglicus* as synonyms.²⁰ He says that the malady is fraught with danger, the mortality ranging from 12 per cent to 33 per cent. A. G. Gerster in 1916 wrote an interesting paper entitled 'What was the English Sweating Sickness?'²¹ He answers his own question: 'I finally concluded that the sweating sickness must have been a virulent form of relapsing fever.' (Hamilton Fairley, in his article on relapsing fever in *Price's Medicine* (1946), refers to the occurrence of stupor, delirium, and coma in severe cases of the Asiatic form, and in the tick-borne Central African form, occasional involvement of the central nervous system, with coma and death.²²)

The disease which has most frequently been compared with the sweating sickness, and sometimes equated with it, is the Picardy sweat, or miliary fever. This was first recognized in France in 1717; it continued for about one hundred and fifty years to be an endemic disease, chiefly of the basin of the Seine. Hirsch gives this short account of the symptoms:

The conviction has gained ground . . . that in the *Suette miliaire* we have to deal with an infective disease, an acute fever, mostly epidemic, which is characterized by the sudden outbreak of very profuse perspiration with a penetrating odour, by a feeling of severe constriction at the pit of the stomach, by want of breath, palpitation, gastric symptoms, splenic enlargement, sometimes even by cerebral symptoms, and by the breaking out, in the great majority of cases, if not in every case, of a rash, which is papular and vesicular, and occasionally bullous. This fever runs its course usually under eight days. It has a very mild character in most epidemics, but in some the death-rate has been 20 per cent and upwards of the sick.²³

It might be added that the present generation of physicians have had no opportunity of seeing it in Britain, and it has dropped out of the current handbooks of medicine.

The similarity to sweating sickness would seem to lie mainly in the profuse sweating which occurred in each of them; but too little attention has been given to other, and very unusual features of the former. I should mention as of particular importance

for diagnosis: the simultaneous occurrence of a large number of cases at the outset; the determination of a patient's death or survival within twenty-four hours; and the short duration of many of the epidemics. Some of the anomalous features of the sweating sickness are illustrated in contemporary accounts, especially those quoted by Creighton. Caius said that for its suddenness and unwonted cruelty it passed the pestilence,

for this commonly giveth three, four, seven, nine, eleven, and sometimes fourteen days to whom it vexeth. But that immediately killed some in opening their windows, some playing with children in their street doors; some in one hour, many in two, it destroyed—and at the longest, to them that merrily dined it gave a sorrowful supper. As it found them, so it took them: some in sleep, some in wake, some in mirth, some in care. some fasting and some full, some busy and some idle; and in one house sometimes three, sometimes five, sometimes seven, sometimes eight, sometimes more, sometimes all; of the which, if the half of every town escaped, it was thought great favour. . . . If the name were now to be given, I would of the manner and space of the disease—the same is no sweat only—make the name *Ephemera*, i.e. a fever of one natural day, i.e. of twenty-four hours.²⁴

Creighton quotes from some contemporary accounts. The first of the writers was Thomas Forrestier, a French physician, who was in London at the time of the first outbreak. Forrestier speaks of the suddenness of death, unheard of in any infection:

We saw two priests standing together and speaking together, and we saw both of them die suddenly. Also, we saw the wife of a tailor taken, and suddenly died. Another young man, walking by the street, fell down suddenly. Also, another gentleman, riding out of the city, died. Also many others we have known, died suddenly. Gentlemen and gentlewomen, priests, righteous men, merchants, rich and poor, were among the victims of this sudden death.²⁵

Creighton cites two writers from the time of the 1517 epidemic.²⁶ The papal nuncio wrote that a disease had broken out, which caused death within six hours, called the sweating sickness, and an immense number died of it. The attack lasts twenty-four hours, more or less. Burials were occurring on every side; there had been many deaths in the king's household, and in that of Cardinal Wolsey. On 6 August the Venetian ambassador wrote to the Doge about the new malady in much the same terms.²⁷ He remarked on the suddenness of the onset, the rapidity of the issue when it was fatal, and the cessation of the sweat within twenty-four hours. Wolsey had had it three times within a few days, and many of his people were dead of it.

For the next outbreak, which occurred in 1528, Creighton quotes from an account given by du Bellay, the French ambassador.²⁸ It is heard of first on 5 June. Du Bellay said it was eleven years since there had been such a visitation, and on that occasion there died 10,000 persons in ten or twelve days. On 30 June he wrote that more than 40,000 had been attacked in London, of whom 2,000 had died. By 21 July it was diminishing in London, and increasing elsewhere. He adds: 'The day I sweated at my Lord of Canterbury's, there died eighteen persons in four hours, and hardly any one escaped but myself.'

With our knowledge of the close relation between toxæmia, pyrexia, and sweating, we can, I think, find ground for speculation on how the symptoms of the sweating sickness may have arisen. We are familiar with fevers which begin abruptly with a shiver and a rapid rise of temperature, and end with a rapid fall, which is accompanied by sweating. We regard this sequence as evidence of a period of pyrexia, of which the beginning and the end are well defined. The pyrexia may last for a few

days, as in lobar pneumonia, or the fall of temperature may begin as soon as the rise has ceased, as in the paroxysm of benign tertian malaria. In the former case the duration of the fever may be seven days; in the latter eight to twelve hours. We are, I think, justified in concluding that the sweating sickness was characterized by a sharp brief pyrexia. Such an ague-like attack is produced artificially when a dose of killed typhoid bacilli is injected intravenously to arouse the so-called protein shock reaction. We know that in this case a single dose of toxin is put into the circulation; and we presume that in the malarial paroxysm there is a similar quick setting free of toxin in the body. Can we resist the conclusion that in the sweating sickness also there is the sudden action of a quantity of poisonous material? If this is so, it would account for the short duration of the illness, and for the patient's recovery within twenty-four hours, if he has survived the onslaught. His falling asleep, which was thought to be perilous, would, in fact, mark his having passed into the unconsciousness of the terminal coma.

If we try to fit some of the characteristic features of the sweating sickness into the framework of an infectious disease, our difficulties are insuperable. These do not exist with miliary fever, which runs a course of seven days, and which we find an entirely credible disease. I can think of no alternative to the conception of the sweating sickness as some form of poisoning, which would mean food-poisoning. Some of the symptoms could easily be explained on this hypothesis: one of them, the simultaneous affection of a large number of people. If nowadays we were to read one morning that a 100 people had suddenly turned ill in a certain place, we should not be surprised to see that the paragraph was headed 'Outbreak of food poisoning'. Great variation in the case-mortality in different places in the same outbreak could be explained as having been caused by different dosage with the poison; and the relapses would be new attacks from further eating of the original food. It could account for outbreaks which, though severe, lasted no more than a few days. We may not be familiar with food-poisoning on this immense scale, but to every diagnosis which has been proposed there are objections not less formidable.

An article by S. S. Bampton (1962), entitled 'Toxins and Fungi',²⁹ has a certain relevance in showing how widespread and numerous poisonous weeds and vegetable parasites may be. He says:

One estimate puts the total number of species of microscopic fungi, or moulds, at about 200,000. . . . Staggering quantities of food are lost each year through spoilage by moulds. . . . The list of common moulds to which poisoning of live-stock has been attributed is surprisingly high. . . . In addition, smuts, bunts, and rusts of cereal crops have been incriminated. These three diseases of cereal crops, due to *Ustilago* species, *Tilletia* species, and *Puccinia* species respectively, are widespread throughout the world, and the entire spring wheat area of the American prairies fell to the last one alone in 1950. . . . The genus *Fusarium* produces substances toxic to animals, and in man the effect on the central nervous system, after the eating of bread made from infected barley, has given rise to the name "drunken bread".²⁹

In 1808 the suggestion was thrown out by Robert Willan,³⁰ in his book *On Cutaneous Diseases*, that some apparently infectious diseases, and among them the sweating sickness, were in reality forms of food-poisoning. In his chapter on erysipelas he describes the variety he calls *Erysipelas gangraenosum*, and says:

Sauvages has arranged under *Erysipelas* the fatal epidemic disease, termed by the French historian Mezeray, and others, *Feu sacré*, *Feu St. Antoine*, *Mal des Ardens*. I need not enter minutely into the history of this singular and most dreadful distemper, which is now known to

originate from ergoted rye, used as food.

At this point he added a long footnote

The Morbus Hungaricus [typhus], and some other diseases reputed pestilential, might be added to the list of epidemics occasioned by the Ergot, or by a similar degeneration in other grains. The Sweating-sickness, which occurred more than once in England at the beginning of the sixteenth century, was perhaps owing to some disease or depravation in wheat, or to some noxious vegetable growing with it in particular situations. This disease extended chiefly over the northern counties, but neither affected the inhabitants of Wales nor of Scotland, who did not, at the period mentioned, eat wheaten bread. . . . It is observed by Schiller that birds at that time fell dead from the trees "passim", with small abscesses under their wings. This he refers to a poisonous quality of the air; but was not the effect, more probably, produced by damaged grain taken as food, according to the result of Abbé Tessier's experiments? Galen³¹ has remarked that the seeds of *Lolium temulentum*, mixed with wheat, or the degenerated grain, called black-wheat, will produce fever, head-ach [*sic*], delirium, and gangrenous ulcers. This subject is not closely connected with my present undertaking, but it appears so interesting, that I hope some physician of abilities will find leisure and inclination, to prosecute the research.

This idea of Willan's was quickly noted, and later in the same year, an anonymous writer, using the name 'Inquirer',³² published an article entitled 'What was the Nature of the Sweating-Sickness?' Dr. Willan had suggested that the sweating sickness may have been caused by some disease in wheat, or some noxious vegetable growing with it. 'I must confess,' he goes on, 'that I have no sort of reliance upon the hypothesis of damaged corn being the cause of sweating sickness', and he states his objections under six heads.

Inquirer's response was prompt—it was this paper which directed me to Willan; but in my reading I have come across no later mention of Willan's idea.

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WILLIAM HUNTER ON WILLIAM HARVEY*

'Harvey was a man of Infinite Talents, a Lover of the Sciences in General.'†

William Hunter proclaimed his interest in William Harvey in several ways. He bought a well-known portrait and he acquired some of his books, which he read closely and admired. Recently there has come to light a manuscript of twenty-six pages, the first eighteen of which are in William Hunter's own hand, and the last eight in that of Dr. David Pitcairn of St. Bartholomew's Hospital, who made some notes for Hunter.

* Paper read to the Harveian Society of London at its meeting in Padua, June 1963.

† MS. note by one of his students written at a lecture given by William Hunter in 1775. Now in Royal College of Surgeons, (42. c. 31, p. 87). Quoted by kind permission of the Librarian.