

## Syphilis symposium

# “The syphilis enigma”: the riddle resolved?

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### Introduction

A recent Channel 4 television series, *Secrets of the Dead*, had one programme entitled “The Syphilis Enigma.” It presented evidence, summarised in book form,<sup>1</sup> which challenged the accepted view that venereal syphilis came to Europe with the return of Columbus from his first voyage of discovery of the New World.

This new and challenging case is based on a study of over 240 skeletons exhumed at the site of a medieval friary in Hull. It is claimed that some 60% of the skeletons show leg bone changes compatible with a diagnosis of syphilis. Three skeletons show a variety of bone changes indicative of syphilis. Carbon dating of one of these three skeletons states that it was alive more than 100 years before Columbus’s voyage in 1492–3.

### History and theories of the treponematoses

A summary of currently held views on the history of treponemal diseases is presented as an essential basis for an appraisal of this new evidence.

Venereal syphilis and a worldwide scatter of diseases resembling it are caused by microscopically identical organisms each precipitating identical antibodies. These organisms have caused clinical conditions which resemble each other but with clinical variables among themselves as well as between each other. Thus, some authorities talk of one disease, treponematosis, and others talk of treponematoses. Against this background, two views about the origin of venereal syphilis in Europe have evolved.

The unitarian theory, championed by Hudson,<sup>2</sup> sees treponemal diseases as mostly originating from one form, occurring, firstly, in central Africa. It was and is called yaws. It spread east and north from earliest times. Spread was encouraged over the centuries by slave trading according to Hackett<sup>3</sup> and Scott.<sup>4</sup> According to the latter, slaves were imported into Egypt as early as 3000 BC. With the centuries yaws was spread to the Arabian peninsula and the valleys of the Tigris and Euphrates rivers where it was called bejel.<sup>5</sup> Spread of yaws into Europe followed, peaking in the 8th century AD when the Crusades made the slave trade from Africa more popular. During the 17th and 19th centuries, a series of yaws-like diseases were identified in poor, rural, and familial living conditions in countries on the outskirts of the continent of Europe. Included were the spirocolon of Greece, a similar condition in the hills of Bosnia, the pian of Nérac in south west France, the button scurvy of Ireland, the sibbens of Scotland, the radesgye

of Norway, and the dithmarsh evil of Jutland and Schlesweig-Holstein.

All these diseases, like yaws, were seen as diseases of direct and indirect social contact, commonest in children, but affecting all ages and especially common in families. The histories of the button scurvy and the sibbens have been outlined recently.<sup>6,7</sup> All these diseases have been classified as endemic syphilis, or the treponarids, although they are regarded as yaws modified by climatic conditions, clothing customs, and the sharing of drinking utensils. This seems very reasonable especially when it is noted that when yaws was later shipped via slaves from west Africa to the West Indies, it continued to present itself as identical yaws.

With the invention of soap in the 14th century, and its spreading use as people began to recognise the benefits of attention to personal hygiene, the treponemes involved in the treponarids found survival difficult. According to the unitarians, some treponemes did adapt; firstly, by thriving in the moist and warm areas in the body, secondly, by biologically recognised mutation into a more infectious, damaging, and lethal organism to spread by sexual contact and become the syphilis we know today. Such is the unitarian theory.

### Opposing the unitarian view is the Columbian theory

The second half of the 15th century was a time when Berbers and Moors from north and north west Africa were establishing themselves in southern Europe, mostly in Spain. Trade with the Moroccan Empire was then expanding. Furthermore, for more than half a century before Columbus left on his first voyage, Spanish and Portuguese sailors were competing for ever more extensive journeys down the west coast of Africa. They encouraged migration of Africans. In spite of quarantine endeavours, the consequences were similar to those in earlier centuries at the other end of the Mediterranean; yaws spread into the European continent.

The Columbian theory sees the venereal syphilis brought from the New World as joining the several forms of so called endemic syphilis to cause the Europe-wide epidemic of the 16th century. We are indebted to Astruc (1754)<sup>8</sup> who collected and collated the clinical descriptions of early writers. Astruc showed how clinical descriptions over the first 100 years or so of the epidemic could be classified into five stages before descriptions resemble those of the syphilis we know today. In the first 20–25 years of the epidemic, all ages were affected, early oral lesions and bone pains were common; death rates were high. It was not until halfway

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through the 16th century before the “new disease” was regularly associated with gonorrhoea.

It has been suggested that the epidemic in its earliest years, popularly called the *morbus gallicus*, was two diseases<sup>7,9</sup>—the newly arrived sexually acquired venereal syphilis and the old, socially acquired, endemic syphilis forms of yaws. The changes in clinical presentation, particularly in the first half of the 16th century, are seen as the result of expanding Renaissance influences, including improved personal hygiene. That these influences reached Europe’s periphery last of all is manifest by the treponeroids of the 17th and 18th centuries (see above).

Others explain the devastating *morbus gallicus* as the relatively benign venereal syphilis of the New World attacking a people with no previous contact with the condition and producing more obvious signs and symptoms. Both views support the Columbian theory.

### The present presentation

The title given to the TV presentation and the relevant chapter in the book—“The Syphilis Enigma”—reveals that the authors of the new claim are aware that they are dealing with a riddle. The book concentrates, like the above introduction, on the historical background. It reveals no apparent awareness of the existence of endemic syphilis in pre-Columbian Europe. It is followed by a summary of the facts of the new challenge. The video is more confrontational.

The site of the Hull “dig,” beginning in 1994, was a one time friary established in 1316–17. It housed 18 Augustinian friars until its dissolution in 1539. Augustinians were mendicants (beggars), serving the local poor, including seamen and prostitutes, both medically and socially. The friars were buried in the friary’s grounds as were the locally rich whose payments in terms of shrouds, prayers, and the number of friars attending funerals augmented income.

The friars are described as literate with a fondness for music and wine. Some made pilgrimages to Spain and Palestine. The findings of flexible hazel tree rods in some coffins suggest that some, if not all of the friars, indulged in flagellation ceremonies concerned with mortification of the flesh as a way to ensure redemption and a place in heaven.

Of the 245 well preserved skeletons found, 207 were relatively complete. Many were buried in wooden coffins. The wood came from Baltic countries. Dendrochronological examination indicated the trees were felled between AD 1340 and 1369.

It is claimed that no less than 60% of the skeletons showed evidence of syphilis most usually changes in bones of the legs. Three skeletons showed more variable and more widespread bony lesions. One of these three, numbered 1216, was that of a male aged between 25 and 35. He showed thickening with areas of localised disease of thigh bones, sabre-like thickening of shin bones, perforation of the palate, and erosion of the skull’s frontal bone, a condition called *caries sicca*. Carbon dating of

the skeleton showed it to have been alive between AD 1300 and 1420—that is, about a century before Columbus’s first voyage in 1492–3.

Three palaeopathologists appear and give their views on skeleton No 1216. Charlotte Roberts of Bradford declares the findings “classic” and “convincing” of syphilis. Bruce Rothschild is more cautious. He is not prepared to draw conclusions from a single sample. George Armalegos, with wide experience of viewing New World, pre-Columbian bones allegedly showing changes due to syphilis, although impressed, wants confirmation in terms of quantity rather than quality.

Extracts from a conference in Texas brings the views of Dawn Orton “an independent arbitrator.” He wants to see children’s skeletons, pre-Columbian from Europe, in the hope that some will show dental changes indicative of congenital syphilis. This is the first and only hint that the changes in skeleton 1216 might be caused by other than venereally acquired syphilis. No mention of endemic syphilis is made.

Support for the existence of venereal syphilis in pre-Columbian Europe comes from elsewhere and is brought by Dr Mattie Hennenberg and his wife. It is based on the examination of 300 Greek skeletons buried in a southern Italian port in 600 BC. It is claimed that many show, like the Hull friary skeletons, the changes indicative of syphilis. In addition, Mrs Hennenberg, a dental specialist, claims that upper central incisor teeth from two skeletons show “grooves” which are “proof” of congenital syphilis.

A second “dig” of old bones from a port near Pompeii offers similar bony findings. No mention is made of dental findings. Reading local Latin medical texts of this pre-Columbian time lead to the declaration by the programme that syphilis was “rampant” in early classical Europe.

The presenters of the TV production go further, even suggesting that venereal syphilis may have spread from the Old World to the New. They back up this view with the old quotation “Civilisation means syphilisation.”

Thus, the presentation leaves us with some questionable and questioning conclusions. Is the evidence for venereal syphilis really convincing? Why is there no mention of endemic syphilis? Are the pre-Columbian bone findings of syphilis convincingly supported by dental evidence of congenital syphilis? Re the East-West spread of venereal syphilis—is it worthy of consideration?

### Discussion

The dating of the Hull skeleton number 1216, coffins and other findings, even without independent confirmation, is accepted.

When the book reviews the history of yaws and its spread, it limits this last to “Arab children.” Some would consider this, like failure to deal with the history of the treponeroids, as reflecting a limited historical perspective.

The friary’s ambience is described as a “shadowy medical mix of morality and sex” when perhaps more dominating is the aura of

### Key messages

- A television programme, summarised in book form, has challenged the widely accepted view that venereal syphilis came to Europe with the return of Christopher Columbus from his voyage to the New World in 1493.
- The details of the challenge are each dealt with and found to make a questionable case.
- The history of venereal syphilis and other treponemal diseases, both before and after 1493, even with a few doubts, both counter the challenge and reinforce the generally accepted view.
- Readers are left free to decide if the riddle is resolved.

poverty, overcrowding, and hence unhealthy social conditions. Therefore, local standards of personal hygiene are questionable and where drinking vessels, probably shared, and flagellation ceremonies add a potential for indirect spread of oral and skin infection.

That 60% of the 245 skeletons showed bony changes regarded as syphilis is remarkable. Such a high rate of bone infection is unknown in heterosexuals or homosexuals even when acquired and congenital cases are added together. That two out of three in a household could suffer from yaws or endemic syphilis is more readily acceptable.

The friary was operational for some 220 years. If each of its regular staff of 18 served an average of 20 years and had priority in terms of allocation of burial sites within the compound then the great majority of skeletons were those of friars. How did they acquire their alleged syphilis? Was it acquired heterosexually or homosexually? There is nothing on offer to support either, except that Hull is a busy port and that such places abound with sailors and prostitutes.

The percentage of people with yaws, endemic syphilis, and venereal syphilis, both acquired and congenital, who manifest bony lesions varies between these diseases and even within individual diseases. Laird (1955)<sup>10</sup> was the first to diagnose yaws in West Indian immigrants to the United Kingdom. In Sheffield in 1961, Daly and Morton,<sup>11</sup> found bony manifestations of yaws in 10 West Indians out of 226 (4.4%). In the same year, of 141 West Indian females tested antenatally, 13 (9.2%) were diagnosed as having yaws. Ten of the 13 had been seen and diagnosed in previous pregnancies. Bony lesions—mostly sabre tibiae—were less frequent in females. Other bones occasionally affected in both sexes were forearm bones, the clavicle, hard palate, and outer table of the skull. The same article describes two cases of late active yaws in bones. Histories suggested that early infectious yaws was most common before the age of 14 years.

This contrasts with endemic syphilis where the infectious stage is more evenly spread between the ages within families. Early oral lesions are commoner than they are in yaws or acquired syphilis. They may be associated with involvement of the bony palate and/or nasal bones as well as others.

In 1966 two cases of bejel were diagnosed in Sheffield.<sup>12</sup> The two men were immigrants from the British Protectorate of Aden. Both

had sabre tibiae and gave a history of painful bones at the age of 14. Both men were born and bred in villages in the adjacent Yemen.

Experience in the late 1940s, the 1950s, and 1960s suggested that bone changes in syphilis were commoner in congenital than in acquired syphilis. In acquired syphilis they usually appeared later in the disease and more frequently as gummata of bones with a tendency to ulcerate.

The bone findings in the two “digs” reported by the Hennenbergs are similar to those of the Hull friary—with one addition. That is the claim that the teeth of two skeletons manifest traces of congenital syphilis. According to Stokes *et al* (1945)<sup>13</sup> the dystrophies (“grooves”), described have no special connection with syphilis and may be associated with “any nutritional disease or febrile illness.”

The absence of any skeletons from all three digs with fully formed Hutchinson’s teeth or Moon’s molars must be regarded as significant.

### Conclusions

The authors of this new presentation are right to entitle it “The Syphilis Enigma.” It is indeed a riddle.

As clinicians with an eye to social influences as determinants, we would suggest a more likely explanation for the Hull and the associated findings is that we are dealing with a socially spread disease within a confined poor “family,” a type of situation where social spread of infection was probably more often indirect, than direct.

Thus one of the endemic syphilis forms, which later became recognised as the spirocholon of Greece, would account for findings of the two digs reported by the Hennenbergs. By the same token, the Hull findings can be seen as describing a condition akin to those later described as button scurvy of Ireland<sup>6</sup> and the sibbens of Scotland.<sup>7</sup>

We present our case as a more likely solution to the riddle.

*Contributors:* RSM, longstanding interest in history of syphilis activated recently by former postgraduate trainee; SR made the first draft from homemade video.

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