

REPRINTED ARTICLE

HISTORICAL APPROACH TO THE TERMINOLOGY OF SYPHILIS^{1, 2}

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THE LEPROSY COMPLEX

Medical historians generally agree that equatorial Africa was probably the ancestral home of both leprosy and treponematosi (i.e., yaws).^(25, 28, 29) A corollary of this assumption is the idea that both diseases were probably carried out of Africa to the other continents by paleolithic migration.⁽¹³⁾ It is certain that Central Africa at present constitutes the densest native reservoir of leprosy and yaws. Both diseases flourish in heat and humidity and are more easily propagated under the social and environmental conditions of primitive tribal life. Maps⁽³⁾ showing the distribution and density of leprosy and of yaws in Africa have a remarkable similarity.

Hansen's disease and treponematosi are also alike in their propensity toward rough or discolored lesions in early stages and toward erosive and mutilating effects in late stages; both display extreme chronicity, often persisting for many years. As late as 1839 Maxwell⁽²⁶⁾ was notably confused between leprosy and various syndromes of treponematosi, and in 1868 Huillett⁽²⁰⁾ expressed the belief that a syphilitic patient might become leprosy. Although the two diseases are thoroughly differentiated today, both as to etiology and pathology, the clinical diagnosis between leprosy and syphilis in an individual patient is still sometimes difficult. If this is true in spite of modern scientific knowledge and diagnostic tests, we can only imagine how completely the neolithic people would confuse these two infections that had come hand in hand out of Africa.

This confusion persisted during the evolution of civilization through the age of the city-states⁽¹⁸⁾, the time of the empires that followed, and throughout the historical era up to the end of the 15th century. In earliest recorded history there was a medical concept in the Middle East called "leprosy" that comprised some elements of each disease.⁽³⁰⁾ For example, one of the signs of the "leprosy" complex was roughness of the skin, such a common sign that the disease was called elephantiasis from its resemblance to the elephant's skin. In Europe, elephantiasis and "Arabian leprosy" were used synonymously.⁽⁹⁾ Undoubtedly psoriasis and various fungus infections contributed to the rough skin of Arabian "leprosy," but the major part must have

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been due to contributions either by leprosy or by treponematosi; of these two, eruptions disturbing the smoothness of the skin are much commoner and more polymorphic in the various syphilides.

As to disturbances of skin pigment, treponematosi in its variety of forms, such as yaws, pinta, and endemic syphilis, is notorious for producing spectacular changes. Leprosy does indeed produce plaques or macules, typically dry and often a little rough, in which the color may be reduced, but the residual surface is a flush rather than the colorless pallor of similarly located treponemal patches. Actual depigmentation never occurs in leprosy.⁽²⁾ Further, in leprosy such plaques disappear as the infection grows more chronic, whereas in treponemal infection depigmentation grows more intense and extensive with chronicity. Examples are to be found not only in pinta⁽¹⁷⁾ (Central America), but in yaws⁽¹⁾ (Guam) and in endemic syphilis⁽¹⁹⁾ (Syria). Isidore⁽²¹⁾ (c. 630) said lepra could be recognized on a man's body "if in various ways among the healthy parts of the skin there appears a changed color or if it spreads itself out so universally that it makes it all of one completely unnatural color." Such, for example, is the "Kabyle leprosy" produced by the endemic syphilis of North Africa.⁽²²⁾

Hyperpigmentation is also characteristic of treponematosi. In the Middle Ages it was believed that a man could be "made up" to resemble a leper. Indeed, a 14th century book of medicine tells how to stain the skin for this purpose. Ulrich von Lichtenstein, an Austrian knight of great distinction, who lived between 1200 and 1275, was devoted to an inaccessible lady, and sat with a crowd of beggars and lepers outside her castle gate, having, in order to resemble his leprous companions, colored his hair grey and used a herb "which, if a man take in his mouth, will make him swell forthwith and change the fashion of his countenance."⁽⁷⁾

Another kind of skin lesion particularly characteristic of treponemal infections is the serpiginous. Albucasis⁽¹⁵⁾ (fl. 10th C.) said there were four kinds of leprosy, of which one was the serpentine. When Ruy de Isla finished the writing of his book in 1530, he titled the manuscript *The Malady of the Island Hispaniola . . . the disease commonly called Bubas*. But when the book was finally authorized and published (1539) it bore the title *Treatise concerning the Serpentine Disease, which in Spain is commonly called Bubas*.⁽¹⁵⁾ It is not easy to deny the identity of "serpentine leprosy" with de Isla's "serpentine disease," especially as he himself said they were the same. He had probably noted in the early skin lesions of *bubas* the arcs and circles, the semilunar and circinate configurations so common to the early stages of all forms of treponematosi, particularly conspicuous in well-pigmented skins.

From earliest times the "leprosy" complex was feared as an intensely contagious disease. This characteristic must have been derived

from its treponemal component, for infection with Hansen's Mycobacterium results only after prolonged and intimate contact. Moreover, incubation in treponematosiis is measured in weeks, whereas the incubation period of true leprosy extends for months or even years. It is amazing—and also significant—that the idea of isolating and segregating infectious people was first developed in connection with leprosy⁽³⁰⁾, for true leprosy is the least easily transmitted of all the communicable diseases. It was in Mesopotamia that the concepts of contagion and quarantine first arose⁽⁴⁾, and as long as 3,500 years ago the Babylonians protected themselves thus against "leprosy."

In the course of time "lepers" were bidden to live separately, carry warning signs or wooden clappers and cry "Unclean, Unclean!" (Leviticus XIII, 45). Biblical references to leprosy in both Old and New Testaments are monotonous in allusion to "uncleanness"; those that recovered were not said to be healed, but cleansed. Along the Euphrates today, endemic syphilis is called *al luváth*, the unclean disease, and its victims call themselves *mutalowwatheen*, the contaminated, soiled, or unclean people.

Another colloquial word for endemic syphilis in the Arab world is *nájiss*; the root is *najisa*, to be dirty, unclean, impure. *Nejiss* describes any filthy thing, and is used specifically for endemic syphilis, particularly in the hinterland villages of Oman.⁽³³⁾ The Arabic dictionary gives as one of the meanings of the word, "an incurable disease."⁽²⁴⁾

Iraq today provides additional etymological evidence of the confusion between syphilis and leprosy. Whereas the Arabs of the rivers in villages use the word *bejel* or soften it to the "unclean disease," the natives of an isolated village on the edge of the Syrian Desert call their endemic syphilis *juthám*, which is a classical word for leprosy, from *jathama*, to cut off, or mutilate. The Arabic word for leprosy in common use, and the word found in the Arabic Bible, is *baras*.

In Europe the Council of Lyons in 583 limited the movements of "lepers," and the Edict of Rotharus (644) decreed isolation. They could not walk barefoot on public highways, or touch articles for sale. They had to blow a horn or shake a rattle, and stand facing the wind. They had to wear warning signs on their garments, had to enter church by a special door if at all, were condemned to civil death, and buried in special plots.⁽³⁰⁾

In order to reconcile this picture of an acute contagious disease with true present-day leprosy, various ingenious explanations have been advanced, including a mutation of the Mycobacterium and complete revision of the natural history of leprosy. This is unnecessary. The endemic syphilis of the Dark and Middle Ages, comprising the syphiloids of later years, accounts for the acute contagiousness of the early stages of "leprosy," and the late mutilating lesions of these syphiloids—which were notorious for tissue destruction—largely ac-

count for the repulsive end-results of "leprosy." Undoubtedly the atavistic and irrational terror of that word in modern time springs from the popular feelings then engendered by such sights.

The syphilis of Europe was at that time a family disease, the endemic form that has been described recently in the villages of Russia⁽¹²⁾, Bosnia⁽¹¹⁾, and elsewhere. It was usually acquired by children from other children, sometimes transmitted from children to parents, and seldom transmitted in the context of venereal intercourse. The connection between the acute early eruption—lost in the confusion of childhood exanthematous disease—and the chronic late lesions was often missed, and consequently the deep ulcers of the bones and the erosions of the face and pharynx that appeared years later were attributed to "leprosy." Syphilitic skulls and other bones have been found in "leper cemeteries"^(5, 23), and doubtless many a European "leper" lost his nose and his voice, or was covered with purulent crusts, as a result of treponemal infection.

As the centuries passed, and with improvement of the standard of living, endemic syphilis, the family disease, gradually retreated into the more remote and backward regions of Europe, such as Scandinavia, the Balkans, and elsewhere, to be referred to later as the "syphiloids."⁽¹⁹⁾ The chain of child-to-child or family-to-family propagation was being broken, and with the growth of wealth and sophistication more and more cases of "leprosy" were being acquired sexually. Hence there arose in the 13th and 14th centuries the concept of "venereal leprosy"⁽¹⁰⁾, and not long afterward the concept of "hereditary leprosy," or in modern terms, congenital.⁽¹⁶⁾ Thus syphilis contributed two more elements to the "leprosy" picture then current; for Hansen's disease is never propagated sexually nor transmitted congenitally.

John of Gaddesden (1320) wrote a paragraph "concerning infection resulting from intercourse with a leprous man or woman" [De infectione ex concubitu cum leproso vel leprosa⁽⁵⁾]. Valesius of Tarentum (1400) wrote, "Ulcers and pustules may appear on the penis. These befall young men more frequently, because they sometimes have relations with a woman who has an ulcer of the womb. They infect the penis with their contagion and produce an ulcer on it" [Ulcera et pustulae fiunt virga. Juvenibus frequentius accidit, quod aliquando coeunt cum femina habente ulcus in matrici; cum sua contagiostate inficiunt virgam, et in ea fit ulcus⁽⁵⁾]. Peter of Argeletus (1470) wrote "concerning the pustules that appear on the penis as a consequence of intercourse with a diseased woman" [De pustulis quae adventiunt virgae, propter conversationem cum foeda muliere⁽⁵⁾].

Finally, although mercury has no effect on Hansen's disease, it was significantly recognized as a specific remedy for "leprosy." The use of mercury in medicine came from the East, probably from China, and was based originally on the observation that a mineral (cinnabar, mercuric sulfide) disintegrates when heated, releasing mercury vapor.

Mercury can thus be inhaled—and deposited in fine globules in the lungs—or it can be precipitated on a cold vessel and then mixed with lard or tallow to make a rubbing ointment. This knowledge did not come out of Africa with treponematosis. The primitive Africans have never used inhalations and mercury rubs for their yaws except as Arab traders and immigrants have introduced such practice. Among the Arabs, on the other hand, inhalations have a long history, and their incorporation of mercury in a fatty base to cure “leprosy” with rubs was current many centuries before this so-called Saracen ointment became known in Europe about the time of the Crusades, in the 12th and 13th centuries.

At that time Theodoric (1205-1296) taught that *scabies grossa* and the *mort mal* (the deadly sickness) also were forms of “leprosy” that were equally well cured with mercury. It must be remembered that scabies was so named not because it itched—that connotation came much later—but because it was crusted, scabby. The old English word was “scabbe,” plural scabbes, scabbys. Both scabies and *mort mal* were severe conditions in which the body was covered with crusted sores pouring pus. The fact that they were healed with mercury shows that they belonged to the treponemal moiety of the “leprosy” complex.

It has been argued that *scabies grossa* was at that time just what it would be in modern times—a bad case of the itch—and that the success of mercury was due to its lethal action on the itch mite.⁽¹⁴⁾ But the traditional ritual was to apply Saracen ointment to the *sound* skin, only on certain parts at a time, rotating the site and measuring success by the amount of salivation. The argument has also been advanced that the success of mercury in the treatment of “leprosy” was due to an alterative effect, because mercury “suppresses tissue reaction.”⁽¹⁴⁾ However, the specific action of mercury on the treponeme is too dramatic and too well established to permit cures of the scabby disease to be attributed merely to the death of *Sarcoptes*, or to dismiss the cure of “leprosy”—a contagious disease transmitted venereally and congenitally—to the suppression of tissue reaction. As late as 1742 a clinician wrote, “In the Pox . . . you find both Head and Face . . . spread with dry Scabs, and Scabby Ulcers, which is called a Venereal Scabies.”⁽²⁷⁾

One of the most striking features in this chapter in the history of medicine was the smooth transition from the “leprosy” to the “pockes” era. By the end of the 15th century the terms *mort mal* and *scabies grossa* had faded from use, and “leprosy” itself was fading. The common people of Europe had begun calling treponematosis the French disease, the peasants of the Piedmont were still calling it *brosulas*, and Villalobos was giving it the old Spanish name *las buvas*. The books that were being written about the “new” disease were filled with material formerly used for “leprosy.”

Perhaps most significant was the smooth continuity in the use of

mercure before and after the last decade of the 15th century and the unanimity of opinion in favor of its use in the "new" disease. Ambroise Paré (1509-1592) noted this fact and said it was because they were so much alike. "For new diseases . . . are to be treated . . . like those diseases to which they have an agreement of symptoms and lesions; and this is what our ancestors did in dealing with the French pockes at the first beginning, assimilating its treatment to that of leprosy because of the affinity between them."⁽³⁶⁾

John of Vigo⁽³⁵⁾ (1517) said the French pockes was the same as Theodoric's "deadly disease" and "big scabbe" and agreed that mercury, with which that authority had treated his two diseases, was the only and proper treatment for the pockes also. Fracastor⁽⁹⁾ (1539) traced mercury to the East and recommended rubs on the sound skin; Sydenham⁽³²⁾ (1697) gave first place to sweats, rubs and salivations; inhalations of vaporized cinnabar by the patient under a canopy—as among the Bedouins today—were in use as late as Turner⁽³⁴⁾ (1732) in London, Swediaur⁽³¹⁾ (1787) in Edinburgh, Dancer⁽⁸⁾ (1809) in Jamaica, and Carmichael⁽⁶⁾ (1817) in Dublin.

Thus true leprosy and some form of treponematosi, most likely what is now known as endemic syphilis, probably came out of Africa with human migration some millenia before historical times, and together constituted the complex that came to be known as "leprosy." The two diseases were destined not to be differentiated for thousands of years.

Hansen's disease contributed to the complex some roughness of early skin lesions, some color changes (but not those later described as typical of "leprosy"), and terminal loss of tissues, such as the phalanges. Strangely enough, loss of sensation in the skin plaques, a pathognomonic sign which would have been of immense value in this diagnosis, is not mentioned in early descriptions of the "leprosy" complex.

The contributions of syphilis to this complex make a long list: (1) many varieties of skin roughness, (2) many forms of hyper- as well as depigmentation (some of the early descriptions are unmistakable), (3) serpiginous lesions accounting for a "serpentine disease," and (4) late lesions such as gummata, deep erosive ulcers of bones and skin, and the mutilating lesions of nose and throat that end in gangosa. In addition, the treponemal infection contributed the features of acute contagion, short incubation period, congenital transmission, linkage with sexual activity, and the therapeutic use of mercury.

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