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History of syphilis

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The History of Syphilis

H. Ivan Stearns

Senior Thesis

Presented to the College of Medicine,
University of Nebraska, Omaha, 1938.
"Those about to study medicine, and the young physicians, should light their torches at the fires of the ancients."

--Rokitansky.
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Introduction

When anyone is attempting to trace the origin of syphilis, they will sooner or later be confronted with the problem of the relationship of syphilis to yaws. Both diseases have similar spirochetes as the etiologic agent, are ushered in by a primary lesion, which is later followed by an ensuing state of generalized lesions, and in both the Wasserman and Kahn serum reactions are positive. Both diseases respond to arsenicals, mercury, and other heavy metals. Yaws is said to sometimes give an immunity against syphilis, but this statement is controversial and will not be touched upon in this paper. The points of similarity will not be further elaborated upon, and the dissimilarity of the two diseases must also be left to more experienced men.

There are many other articles giving a careful consideration of this question, but these are a few of the articles that have come to my attention.

"Syphilis is a chronic, constitutional, infectious, and contagious disorder, hereditary or acquired, which may attack any organ or tissue of the body, is characterized by symptoms referable to the part attacked, and is produced by Treponema pallidum." (1) It is generally propagated by direct sexual contact and for this reason is classified as one of the venereal diseases.

There is considerable literature dwelling upon the origin of this disease, and there is even a divergence of opinion relative to the origin of the word syphilis. However, it is generally accepted that the word was first used by Hieronymus Fracastor (2), in 1530, in a poem whose principal character was a shepherd, Syphilus, who brought the disease down upon himself and the world at large, as a punishment for having insulted the god Apollo, while attending the flocks of King Alcithous. Fracastor himself attributes the disease to result from the conjunction of Mars and Saturn in the sign of Cancer, which took place in the year 1484.

The scantiness of passages, in ancient and medieval literature, that may be interpreted as referring to syphilis, may be explained, in part at least, on the follow-
ing basis:

Throughout the history of civilization, since mankind raised himself above the level of an animal and began to leave a written account of his accomplishments, there has been a certain inversion of the moral sense which restrained the public from confiding in medical practitioners concerning those diseases, which involve the genitals. To expose these to the eyes of another person was regarded as disgraceful, even at the time when loose living had reached its highest peak in the Greek and Roman Empires.

That this state of affairs exists, in part, to this day any medical student will vouch. Women, in particular, are especially adept at diverting the attention of the doctor (or student) from salient facts in the history which may lead to a diagnosis uncovering some breach in the social conduct of that individual. Visualize, also, the battle that has been necessary to break down the barrier regarding venereal diseases, in order that newspapers, magazines, and radio might bring the public's attention to the necessity of establishing a control over these diseases.

This attitude of false modesty was not only held by the laity, but by ancient and medieval physicians as well. Proof of this is given by Celsus (3) in his "De Medicina": "The next diseases are those that effect the
private parts; the nomenclature of which, among the Greeks is not only tolerable, but now fully sanctioned by practice; for they are freely employed in almost every volume, work, or treatise of the physicians; but with us Romans, these terms are certainly filthy, and never employed by anyone who has a proper regard for modesty in language".
Literature in the Far East

The oldest record that I have been able to find of a disease that might have been syphilis is in the ancient literature of the Chinese. Capt. Dabry (4) compiled a volume of ancient Chinese medical writings, the most ancient of which goes back to Huang-ti, 2698 B.C., gives a description of chancre as a corroding ulcer which is communicable by direct contact, and is found on the genital organs of both male and female. The urethral canal, mouth, nose, throat, and anus are also described as sites for the initial lesion to appear. Dabry further states that the Huang-ti-mi-king (Nei Ching), or medical treatise of Huang-ti, draws fairly accurate clinical pictures of both syphilis and gonorrhea. The Chinese at this time recognized the chancre as appearing at the point of inoculation, and giving rise to a generalized blood stream infection. The contagious and hereditary nature of the disease was fully recognized in these works.

If Dabry's translation and impressions from this treatise were accurate, then we must admit that more than 4,500 years ago the Chinese had a written description of syphilis and used mercury in the treatment of this disease. However, Wong and Wu (5) made a detailed study of Chinese medical history, and they are of the opinion that Dabry is
incorrect in his statements regarding syphilis in China. There is evidence that the Chinese recognized the chancre, but they did not associate the lesion with any of the syphilides. Wong and Wu (6) believe that the first recorded description of a chancre in Chinese literature was during the seventh century A.D. when it was known by the names of 'tu ching' and 'yin shih'. "The Thousand Gold Remedies" (?) a work published in the seventh century, gives a description of chancroid and differentiates it from chancre, by the absence of pain in the latter.

The 'tu ching' lesion is definitely associated with an unclean intercourse, in the Chinese Essence of Surgery (8), written in 1335 A.D.

Mercury, in the form of calomel, is mentioned as a cure for 'tu ching', but fumigation was a more frequent method of administering mercury in the treatment of this disease. Arsenic, myrrh, olibanum and black lead were burned in conjunction with mercury in this form of treatment.

The investigations of Astruc (9), 1684-1766, through the Jesuit fathers, Pequini and Foureau, as to the existance of the disease at an early date in China, would seem to furnish evidence that at least the Chinese believed it had existed for thousands of years under the name of the "heavenly blister" or Canton sore.
Pusey (10), the dean of American dermatologists, cites the researches of Okamura and Susuki for Japan as proving that the introduction of syphilis into China and Japan came only after these countries had contact with Europe. These workers fixed 1498 as the date the disease first appeared in India, after the arrival of Vasco de Gama, who left Portugal in 1497. It appeared in Canton, in 1505, after the visit of Europeans, and was not recognized in Japan until 1569, when its appearance at Nagasaki was attributed to Chinese or Portuguese sailors.

Against these statements, of the late arrival of the disease in Japan, we have the report of Adachi (11) concerning a tibia and fibula said to belong to the stone age. Yamagiwa believes the changes found in these bones could be caused only by syphilis.

Captain Gardy (12), in 1863, published a book "Medicine Among the Chinese" which is compilation of Chinese medical works, the oldest of which dates back seventeen centuries before Christ. Capper regards the descriptions in these works, of ulcers of the genital organs in men and women, of lesions of the breast, mouth, nose, and anus as being so nearly perfect that no doubt is left but that they were of syphilitic nature.

The Reference Handbook of Medical Science (13) states that syphilis was present in China during the Chu
dynasty, 1122 B. C. to 314 B. C., and that the disease was carried to Japan by Chinese sailors. And further advances the hypothesis that possibly a 'junk' may have been blown across the Pacific, during a severe storm, thus introducing syphilis to the American Indians.

In the Arguveda of the Hindoos, and also in the Manava-Derma-Sastra (14), we find evidence of a communicable venereal disease, which in its description could have been gonorrhea, chancroid, or syphilis. The Sucrutas (15), the Hippocratic treatise in Indian medicine, was written about 400 A. D., and Lancereau considers certain passages in this that cannot be taken as referring to anything, but syphilis.

The lesion lingarsas, as recorded in the Arguveda (16) is described as a moist wartlike growth appearing about the genitals. This could well be syphilitic condyloma, especially since the lesion was associated with a previous lesion on the genitals.

It is a peculiar circumstance that in Hindoustan (17) syphilis is known as the Persian fire. Indicating that the Asiatic mind was just as anxious to place the blame for this disease on his neighbor and enemy, as was his European brother during the great epidemic of the fifteenth and sixteenth centuries. It is also interesting that the Hindu turns to his religion for an explanation of the origin
of venereal disease. East Indian mythology (18) refers to the god Civa, who had yielded to the allurements of pleasure; as his punishment for his weakness, his genitals were caused to be destroyed by gangrene, which disease thereafter was spread in the world from women to men.

In concluding the evidence for the existence of syphilis in the Far East, in remote times, it might be well to mention that the Siamese have generic names for both syphilis and tobacco (19). Thus, from this fact, we are led to believe that at least two of the products alleged to have originated in the Americas were known to the Siamese at some remote date which probably antedated the discovery of America by several centuries.
Egypt and Her Neighbors

Dr. Christide (20) of Constantinople, who has studied extensively leprosy and syphilis among the Persians, states that there is archeological evidence of the existence of syphilis among the ancient Persians. He dates the existence of syphilis in Persia to at least the period, when Phoenician merchants were the only commercial travelers of the civilized world.

"Kouft" (21), a Persian word the equivalent of "pox" and similar expletives, is used by the modern Persians for syphilis. The origin of the word is lost in antiquity, but apparently had been used in connection with leprosy, which led to similar confusion as that found in medieval Europe between these two diseases.

Persian terra cotta collections confirm the existence of a disease with such symptoms as sore mouth, snuffles, severe headache, and general body eruptions. Some descriptions of leprosy apply to syphilis as well, and as stated above the confusion of the ancient Persian physicians has persisted in the minds of empiric Persian physicians today.

Papyri, such as the Ebers papyrus, and cuneiform inscriptions from Assyria and Babylon indicate that those ancient peoples were aware of the relationship between
local genital diseases, resulting from sexual excess, and general eruptions which appeared on the body at a later time (22).

In one of the Assyrian tablets (14) deciphered about the time of the World War there is a description of a disease which existed in the time of Assur-bani-pal, which according to legend originated in a warrior, Izduban, who insulted the goddess Ashera, by having intercourse with one of the priestess of the goddess.

There has been much controversy over the evidence of syphilis in Egyptian archepathologic findings, but if the validity of the Ebers Papyrus (23) is to be recognized, then it is necessary to admit that there existed in Egypt, many hundreds of years before Christ, a disease known as "uchedu". This disease was a chronic ulcerating affection of the skin, eyes, bones, blood, mouth, and anus. The multitude of remedies used in the treatment of this disease indicates that the Egyptians were not able to bring about a cure and were constantly in search of a remedy that would arrest the progress of the disease. Leprosy is also spoken of in this ancient text and the leprous spots were said to be driven away by rubbing a compound of cooked onions, sea-salt and urine on the local lesion.

Fouquet, Jarricot, Lartet (24), and other investigators in paleopathology have suggested that syphilis
existed in Egypt, and Lartet and Caillard have reported syphilitic lesions in the skull of a young woman (Rhoda Skull) found among Egyptian mummies. The lesions take the form of irregular erosions in the outer table of the frontals and anterior portion of the parietals. However, Elliot Smith (25) is of the opinion that there has been no highly presumptive evidence of syphilis discovered in any of the Egyptian mummies. His reports are consistent with the findings of Sir Marc Ruffner and S. G. Shattuch (26) who reported the presence of aortic aneurysm in some of the Egyptian mummies, but later both men stated that the changes they found were atheromatous and not syphilitic.

In the Eurasian civilizations of antiquity and the middle ages the word leprosy, with its colloquial equivalents, was used in much the same manner as the word plague. Plague indicated any disease which was of an acute and epidemic character. In a similar manner, leprosy was a term used to designate a large group of diseases, usually chronic, whose most characteristic symptoms were reflected in the skin.

The ancient Hebrews, according to the Bible, spent many years in Egypt prior to their liberation from bondage and escape to their Asiatic homeland. It is not surprising, therefore, that the Old Testament should reflect much of the Egyptian medical lore.

The Mosaic Law of the thirteenth chapter of
Liviticus deals with the laws and tokens whereby the priest is to be guided in discerning the leper. Leprosy of the ancient Hebrews not only consisted of lepra as we know it today, but also must have included lupus vulgaris, tinea of various types, psoriasis, leishmaniasis, and probably syphilis.

Biblical leprosy was designated as of two varieties, namely, clean and unclean. The venereal nature of the unclean variety is evident from the admonition of Liviticus (27), "not to approach unto a woman to uncover her nakedness, as long as she is put apart for her uncleanness". Again in the fifth Chapter of Proverbs (28) we find these warnings against sexual promiscuity; 3. "For the lips of a strange woman drop as an honeycomb, and her mouth is smoother than oil: 4. But her end is bitter as wormwood, sharp as a two edged sword. 5. Her feet go down to death; her steps take hold on hell. 8. Remove thy way far from her, and come not nigh the door of her house, 11. Lest thou mourn at last, when thy flesh and thy body are consumed. 18. Let thy fountain be blessed; and rejoice with the wife of thy youth. 19. Let her be as the loving kind and pleasant roe; let her breasts satisfy thee at all times; and be thou ravished always with her love. 20. And why wilt thou, my son, be ravished with a strange woman, and embrace the bosom of a stranger?"
Numbers (29) tells of the plague of Baal Peor, which arose from contact of the Jews with Moabitish women. Just what this disease may have been cannot definitely be said, but we do know that it was a venereal disease, and that it had a high mortality, in as much as, twenty-four thousand are said to have died from it.

The laity, in particular, have interpreted the biblical reference, "visiting the iniquity of the fathers upon the children, unto the third and four generation" (30) as a direct reference to the existence of syphilis among the ancient Hebrews. Although there are reported cases of third generation syphilis (31), they are quite rare, and there are no cases of fourth generation syphilis reported in the recent literature. Ordinarily there are no spirochetes in the blood of the congenital syphilitic person (32), and consequently a congenital syphilitic mother could transfer the disease to the fetus only in those rare instances when showers of spirochetes do appear in the blood stream. Considering the above mentioned circumstances it is not likely that this particular biblical passage is referring to syphilis.

David (33) may have been a victim of syphilis, when he complains of a loathsome disease of his groins, bone pains, blindness, weakness, and 'stinking wounds'. Isaiah (34) warns the daughters of Zion against sexual abuse and
its consequences, of stinking sores and baldness. Reference to maceration of the fetus as a result of the leprosy of that time is found in twelfth chapter of Numbers (35), and corona veneris may be interpreted from the description in Liviticus (36) telling of baldness, and sores which arise in the bald area.

The second book of Samuel (37) relates the affair of David and Bathsheba. Bathsheba had been "unclean", but was "purified" when she was taken by David. In view of what is to follow later we may infer that this purification was merely the so-called latent period of syphilis. Later we find an account of the birth of a child from the illicit love affair of David and Bathsheba (38). This child died shortly after birth. Again in Psalms (39) we have the sorrowful expressions of this same David as he bemoans the "the disease of his bones, the loss of his strength, the cleaving of his tongue to his palate, stinking wounds, the loathsome disease of his loins, unsoundness of his flesh, blindness, and panting of his heart".
Greco-Roman Medicine and Venereal Disease

That the ancient Greeks and Romans recognized venereal diseases is not contested by even the most rabid advocate of the American origin of syphilis. Just what these diseases were we cannot definitely say, but we may obtain some highly presumptive evidence by making a careful perusal of the medical literature of that time. The Roman literature, especially, is conspicuous by the absence of reference to diseases involving the genitals. The Greeks, however, made numerous references to genital diseases and implications to diseases associated with sexual promiscuity.

Hippocrates (40) aphorisms states: "28. Eunuchs do not take gout or become bald. 30. A young man does not take gout until he indulges in coition." Galen (41) enlarges upon this by saying that eunuchs, by virtue of being emasculated, become of a cold temperment, and are less subject to elephantiasis and baldness. He ascribes the origin, of this elephantiasis, to debauchery, intemperance, and an hereditary taint. Archigenes (42) relates that eunuchs seldom contract elephantiasis, and this being noticed, some had themselves castrated as a prophylaxis against this disease.

Celsus (43), the oldest Latin author on medical subjects, devotes an entire chapter to diseases of the
genitals. He describes ulcers that appear on the penis, that are either moist and purulent or clean and dry. His description's might well be taken for that of chancreoid and chancre.

There has never been a satisfactory explanation of the disease described by Herodotus (44), "nousos daleia," which afflicted the Scythians after their sacrilege in destroying the temple of Venus of Ascalon. Even though Hippocrates' explanation is extremely vague we know that it was some form of venereal disease.

The presence of aneurysim in the living subject, is described by Oribasius (45), who draws from the lost works of Antyllus, and by Aetius (46). Aetius warns surgeons not to open an aneurysim appearing in the neck, "because there may be such a flow of blood that the patient will quickly die of the profuse hemorrhage". This warning is repeated in the surgeries of the Arabians and medieval surgeons. Syphilis is by far the commonest etiological factor in mesoaortitis leading to aneurysim (47).

Thucydides, Dion Chrysostom, and others (48), describe the raucous voice, the flattened nose, ulcers on the hands, feet and legs, and falling of the hair. Aretaeus (49), in his work on acute and chronic diseases in eight books, tells of destruction of the uvula extending to involve the bones of the palate and the fauces to the root
of the tongue and epiglottis. Galen (50) and Oribasius describe the "sykos" of the Græks and the "ficus" of the Romans as being a moist ulcerating tubercle, of a round form, foul odor, and whitish in color. Their description might well fit that of a mucous patch of secondary syphilis. Hippocrates (18) apparently described the same lesion and gave it the name kion.

Descriptions of lesions which might be interpreted as tertiary syphilis are still more rare. Plutarch (18) mentions corrosion of the tibia, and Archigenes (51) describes pains of the periosteum, which were so deeply seated that the patient believed the bone itself to be the site of the pain. Marcellus Empiricus (52) also mentions ser-piginous and ulcerating lesions of the tibia. Galen (50) designated these pains as ostokopoi (osteocopic), which by our modern conception is a bone pain, generally associated with syphilis (53).

Aretaeus (54) in his account on gonorrhea mentions that the disease may lead to paralysis, as a result of involvement of the nervous system. He also gives changes in the voice and baldness as complications of this disease.

Aretaeus (55) in telling of elephantiasis describes a disease, which undoubtedly included leprosy, psoriasis, and probably syphilis in it component disease entities as we know them today. The highly contagious character of the disease would certainly indicated that diseases other than
leprosy should be included.

He gives an account of a disease with an insidious onset from a simple lesion, which is concealed within the body, and suddenly breaks out on the surface. "It afterwards blazes forth on the surface, for the most part, on the face, but in certain cases may appear on the elbow, knee, and knuckles of the hands and feet." He further enumerates symptoms, that may appear before the body eruption, that are similar to the symptoms given by Ormsby (1) and Cecil (47), as general symptoms of the second incubation period of syphilis. Alopecia, blindness, tumors which break down and ulcerate, and fanatsies (insanity) are described as complications of this disease.

Adams (56) who has probably translated and studied as many of the ancient medical manuscripts as any one is of the opinion that the vitium, lichen, and mentagra of Marcellus Empiricus are identical with the sibbens of western Scotland and the radesyge of the Norweigans. Cooper (57) holds that these diseases are syphilis which has undergone a mutation as the result of environment.
The Rise and Fall of the Medley of Leprosy

The period in European history dating from the rise of the Frankish Empire, in the eighth century, to the fall of Constantinople to the Ottoman Turks, in 1453, is known as the Middle Ages. During this period feudalism reached its highest peak, with the culture of the Roman Empire concentrated in Constantinople. This culture remained isolated from the rest of Europe until it was disseminated by the Turkish wars, and absorbed by western powers.

During this period civilization was setback centuries, and remained at a stand still until the discovery of movable printing type, about 1440. With the spread of Byzantine culture, start of the Renaissance, and education of the common people, the ancient classics and records in monasteries were divulged, and to this day printing has steadily advanced civilization, by recording permanently the accomplishments, ideas, and efforts of one generation to aid the next.

The so called leprosy of the Middle Ages was a pot-pourri of diseases, whose initial symptom was described as a skin eruption, but unlike modern leprosy it was highly contagious and carried an hereditary taint. Theodoric (58) described rose spots (gutta rosea) as the first sign of
leprosy. Other early writers of this period describe pustulis, impetigo, formica, esseere, aspahi, albaras, and morphea as the initial sign of leprosy. The Arabians called leprosy a cancer of the entire body, and Theodoric introduced the ancient Sarracen ointment of mercury to combat the disease. This confusion of nomenclature persisted until 1497, when Leonicensus (59) devoted 48 pages of his 56 page tract to a severe criticism of the nomenclature of that period. It is in this work that the first reference to morbum gallicum is found, and was the term given, by Leonicensus, to a severe epidemic raging at that time. The confused state of the nomenclature had been recognized as early as 1296, when Lanfranc (60) called attention to it in his chapter on morphea, but nothing was to be done about it for another two hundred years. Henri de Mondeville (61) in his chapter on impetigo did the same thing.

The symptoms of this medieval leprosy were many, but Holcomb (41) states that the late symptoms, especially, are the same as those which develop today in neglected and untreated syphilis. Guy de Chauliac (58) enumerates twenty-two symptoms and divides these into sixteen equivoca and six univoca. The six univoca symptoms refer chiefly to the face; 1. Rotundity of eyes and ears. 2. Thickening and tuberosity of the eyebrows, and falling off of hair. 3. Dilatation and disfigurement of the nostrils externally, and stricture internally, 4. Voice raucous and nasal. 5. Foe-
tidy of the breath and whole body. 6. Fixed and horrible styr-like aspect. From this we can see that there is a close relationship between medieval leprosy and the elephantiasis of Aretaeus. Guy de Chauliac was not alone in describing these symptoms of leprosy, as de Isla and many others gave a similar account.

One of the late symptoms of leprosy was an ulcerative lesion of the leg, malum mortum. It was with this particular phase of the disease that Theodoric (58) had used mercury with good results, and Villalobas (62) in 1499, described malum mortum, as a symptom of morbum gallicum. John de Viga (63) similarly described this lesion, in 1514, as a symptom of morbum gallicum. In general, the symptoms of leprosy were transferred to the new disease, which was called morbum gallicum, epidemic pustulae, and many other names, either indicating the nature of the early symptoms or the source from which the disease was supposed to have arisen.

The origin of leprosy in Europe is disputed nearly as much as the origin of syphilis. Neuman (64) has traced its beginning to the pilgrims at the shrines in Jerusalem, in 366 A. D. Other authors (65, 66, 67) state that the disease was introduced into Europe by the return of the first Crusaders at the close of the eleventh century. This latter theory has fallen into disrepute, but serves
to indicate the confusion relative to the origin of diseases in general.

The earliest account of European leprosy that I have been able to find dates back to 549 A. D., when the Gallic churches placed lepers in the care of the bishops. Many decrees and councils of the church further regulated the care of the leper and out of this arose the provisions of segregation (41).

That the disease was widespread over Europe at an early date is indicated by the dates at which leper or lazar houses were established, and decrees promulgated which prohibited the marriage of lepers. Rothar (68), King of the Lombards, was apparently the first to recognize the dangers of marriage with a leprous person, and to prohibit such marriages. This happened in the seventh century, and was followed by Pipin in 757, Charlemagne in 789, for the Frankish Empire (69), and in England (70) in the year 950. Lanfrance (71), Bishop of Canterbury, died in 1089, after having founded two "leper ospitales". Hoel Dha (70), a Welsh King, who reigned in the tenth century, allowed leprosy as one of the grounds for divorce.

The majority of leper houses were established in the eleventh and twelfth centuries, but there are records of the founding of leper asylums as early as the eighth century when they appeared in the Empire of the
Franks (72). According to Belcher (73), a leper house was founded at Innisfallen, Ireland, in 869. Houses were established in Spain at Malaga (74), in 1007, and Valencia (75), in 1067, and in Italy (76) and England (64), in the eleventh century. Further investigation shows that houses were in existence in the Netherlands (77), at Ghent, in 1147, at Palerma, Sicily (78), about the same time, Bergen, Norway (79), in 1266, and Zurich, Switzerland (180), in the thirteenth century.

Through the efforts of the military order of the Knights of St. John, Knights Templars, Order of St. Lazarus, and similar organizations the establishment of leper houses progressed rapidly, until Europe was staggered by the terrible ravages of the "Black Death", in 1349. With the onset of this epidemic the founding of leper asylums met a sudden check. Of approximately two hundred leper hospitals in England (81) only twenty-two were founded in the period 1350 to 1540. The tremendous impetus given to the foundation of these institutions, prior to 1349, is seen in the code of laws given by Charles III, (82) in 1226, for the regulation of French leper houses, which numbered about two thousand at that time. Phillip II (83) had previously done the same thing in France during the twelfth century, but there is no record of the number of these houses in existence at that time. Matthew Paris (84), the English monk, who died about 1259, notes the existence of nineteen thousand leper houses throughout Europe.
The "Black Death" probably had no great effect in bringing leprosy to an end in Europe, but leper asylums, as well as other charitable institutions, shared in the general financial and social decay that followed it. This was not the end of leprosy, the leper was simply turned out to go into hiding or take to the highway, as an outcast wanderer.

Theodoric, the celebrated physician of 1290, is cited by Astruc (85) as recognizing the venereal nature of leprosy, and Paris (84) in describing the Leper house of St. Julian, at St. Albans, tells of a law prohibiting women to the inmates. John of Gaddesden (86), in his work "Rosa Anglica", referred to the infection of leprosy from coitus and gave prophylactic measures to prevent the infection. He also states that the symptoms always made their first appearance at the point of inoculation, and later the sufferer was afflicted with scabs and ulcers breaking out over the entire body. Numerous remedies were used by Gaddesden, but none were of value unless combined with mercury.

Bartholomew Glanville (87), 1360, described typical tertiary syphilitic symptoms in a leprous person. He attributed leprosy to "fleshly lying with a woman after that a leprous man hathe laye by her; also it comes of fader or moder; so this contagyon passyth into the chyle. And also
when a chylde is feed wyth mylke of a leprouse nourryce".

In England an account of a law (88) supposed to have been in force in 1430, is as follows: "That no stewholder keep noo woman wythin his house that hath any sycknesse of brenning, but that she been putte out, upon the payne of make it a fyne unto the Lord of a hundred shylyinn". (Brenning, according to John Arden, Surgeon to Richard II, is "a certain heat and excoriation of the urethra"). "If there were any of his lygnage that he knew to be lazares, and especially their faders and moders, for by any other of their kynred they aught not to be lazares, then aught ye to enquire if he hath had the company of any leprous woman, and if any lazar hath meddled with her afore him; and lately, because of the infected matter and contagious filth that she had received of hym. Also his nosthrills be wide outward, narrow within, and gnawn. Also if his lips and gums are foul, styinking, and coroded. Also if his voice be hoarse, and as he speketh in the nose".

Bernard Gordon (89), a professor in the University of Montpellier about 1300, refers to a disease contracted by lying with a woman whose uterus is "unclean and full of putrid sanies and virulence". He cites a particular case (90), in which, "a certain countess, who had lepra, came to Montpellier, and I was called to treat her for it. A bachelor of medicine, whom I appointed to attend upon
her, was unfortunate enough to share her bed; she became pregnant and he leprous).

Medieval leprosy had been treated by the surgeons, but the diagnosis of leprosy was considered to be in the particular province of the church and the church formulated the laws dealing with the segregation of the infected. The control of the lepers and leper-hospitals gradually slipped away from the church, until in 1477, the increasing incidence of leprosy in Madrid caused the Catholic sovereigns to take control from the church and give it to the protomedicos. Similar action was taken at Real de la Vega, 1491, and Alcola, 1496, and in 1490 Pope Innocent VIII, suppressed by Bull the Order of St. Lazarus, which had been the great benefactor of the leper, since its origin in the twelfth century (41).

This period, from 1490 to 1550, and events leading up to it marks the decline of leprosy and the rise of syphilis. In Paris an edict of 1488 had been directed against les lepereux, but after the Papal Bull of 1490, subsequent edicts were directed against the new disease, la grosse verole, as it was known to the French. An edict of the Parisian Parliament, in 1496, declared that la grosse verole had been in existence in that city for two years,(41). The discrepancy in dates and contents of the numerous edicts issued over Europe about this time indicates the uncertainty existing at that time relative to the first appearance of the disease.
A Parisian edict on March 25, 1493, which was ten days after Columbus arrived at Palos upon the return of his first voyage, called attention to the wide spread incident of the disease and ordered all suffers from it to leave the city on pain of being drowned in the river (41). The "Edictum in Blasphemos" (24), published at Worms, Germany, on August 7, 1495, was directed against a new disease which had arisen as a result of the ill conduct and blasphemy of the people. Sudhoff (91) intrepted this edict as a direct reference to syphilis.

Lancereaux (18) cites a letter from Pierre Martyr to Arias Barbosa, which he alleges shows a perfect analogy between the French disease and elephantiasis: "You write me, that you are afflicted with a particular disease called bubas by the Spaniards, galico by the Italians, elephantiasis by some physicians, and in various ways by others. You describe with incomparable elegance your evil, your losses, the uneasiness of your joints, the weakness of your ligaments, the excruciating pains in your articulations, and lastly, the ulcers and fetor of your breath, etc."

Sir John Froissart (64), who is alleged to have visited Scotland during the reign of Robert II, remarked at the similarity of Scottish leprosy to the disease then known in France as la grosse maladie. Robert II, of Scotland, ascended the throne in 1371 and died in 1390 (92),
therefore, if the above statement is true it would indicate that the French, more than a hundred years before the discovery of America, were discarding the medley of leprosy, in favor of a more specific nomenclature.

The word buba (93), used by the Spanish to designate the new disease which swept over Europe at the end of fifteenth century, was a noun, probably of Arabic origin, and was already in use in Europe at the time of the discovery of America. It was used to designate a scab or a little tumor of matter. Saliceto (94), in 1270, mentions a disease called buba, which he recognized as being blood borne, and as "having a predilection for those places in the body which are weak and empty". This disease was also called dragoncelli or impostume of the groin, and although its venereal nature was recognized this aspect did not receive emphasis. Another mention of buba, prior to 1493, is found in the works of Petrus de Argelata, (95) where he describes a disease contracted through intercourse with an unclean woman, which gives, rise to a buba in the groin. He used the word gumma to indicate the invasion of bone by the disease (96). Ricord (97) states that Guillaume de Plaisance, in 1343, described the venereal buba, and according to the "System of Medicine" by Ettmuller (98) Guilielmus Palezeto, in 1470, gave an accurate description of lues venerea.
Brand (99) says that in Shetland scurvy sometimes degenerates into leprosy, and that "it is then discerned by ulcers in the mouth, the nose falling in, and hairs falling from the eyebrows and head. When the people discovered these lepers, they drive them out of the city, and build huts and little houses for them in the fields".
Columbus' Influence on the Origin of Syphilis

The close chronological coincidence of a severe epidemic in Europe in the last of the fifteenth century and the sixteenth century, with the discovery of America by Columbus, led many to the conclusion that Columbus and his sailors acquired the disease, from the natives of this new land, and took it back to Europe.

Columbus had started his first voyage of exploration from Palos, Spain, on Friday, August 3, 1492 (100). After seventy-one days he sighted land on October 12, this first island was probably the island of Guanahani. After touching on Cuba on October 28, he continued to Haiti, where he landed in December. In Haiti Columbus established a fort and garrisoned it with part of his crew. These men were never seen again, for when Columbus returned on his second voyage the fort was destroyed and its garrison gone.

Columbus returned to Spain on March 15, 1493 with eighty-two of his original crew and nine Haitian natives. These men are supposed to have been the first European syphilitics, and the next in command, Pinzon, the first white man to die from the new disease.

In a letter (101) written by Columbus and dated February 1493, on Board the Nina, there is no mention or suggestion of a new disease noted among his men or in the
natives of the islands. The physician of the fleet, Alonzo de Moger, would undoubtedly have noted some of the symptoms of such a severe epidemic as that described by Fracastor (2). The physician on Columbus second voyage had been ordered to join the expedition, by King Ferdinand, for the express purpose of reporting the new and unknown plants and animals in the Indies. In his report the latter part of 1493 he fails to note the presence of any new disease and Columbus' letter of January 1494 likewise makes no mention of any new disease noted among the natives or members of his crew (101).

Various sources were cited as giving rise to the great epidemic of syphilis following Columbus return from the Indies. Paracelsus thought of it as a hybrid disease arising from coition between a person with venereal bubos and a leper. Hensler advanced the theory that syphilis resulted from a degeneration of leprosy, and Sprengel later partially adopted this view. Sodomy, intercourse with animals, an occult pernicious essence in the air, intercourse with a menstruating woman, astrologic conjunction of Mars and Saturn, and a punishment sent down by God are a few of the theories presented as the cause and origin of the disease. Others held that Columbus alone was responsible for introducing the disease into Europe.

The so called new disease first gained general
wide spread publicity, as the French disease or morbus gallicum of Leonicensus, when Charles VIII's army marched into Naples in 1495. The retreat of this army from Naples is alleged to have disseminated syphilis over Europe. The disease being, at this time, in the form of an acute epidemic, with a very high mortality, varied in character, and spreading rapidly over Europe.

The advent of printing, and the great influence it exerted on fifteenth and sixteenth century physicians, is alleged by some of those upholding the ancient existence of syphilis to have created an artificial epidemic from a disease that was already wide spread in Europe. The epidemic being in reality an awakening of the medical practitioners to a disease, which they had not previously recognized, but with which they had constantly been in contact. Others, notably Sudhoff (91), hold that while a disease of epidemic proportions did exist, it was not syphilis, but one of the acute, contagious exanthemata that we know today, perhaps typhoid, typhus, or small pox.

A result of the influence of printing prior to 1495 may be inferred from the description, by Fulgose, of a new disease which attached Europe in 1492. Pomarus tells of a new disease which appeared in Saxony in 1493, and Sprengel claims the disease of morbus gallicus already existed in Auvergne and Lombardy in the summer of 1493.
Lancereaux (18) believes that the above accounts of a new disease refer to syphilis and that there are records of the disease being present in Mark Brandenburg, Brunswick, Halle, and Mecklenburg in 1493. By 1494 the disease was reported in Westphalia, by Sciphovert, and in Bavaria, Suabia, and Franconia by Linturius.

There is a manuscript (102) in the Army Medical Library, in Washington, printed in Latin on fifteenth century paper, which recites a prayer for relief from the disease of St. Job. This prayer was supposed to have originated in a monastery during the eleventh century, but from its characteristics and other evidence apparently was written in Germany of Austria, about 1496. This prayer was alleged to have been rediscovered in the ruins of the monastery where it originated, and that its use would bring relief to one suffering from the malefrantzos evil. The prayer and monastery are fictitious, but serve to indicate the presence of the French disease and theories regarding it which were in existence at that time. Catholic prayer books, at this time, also had special prayers inserted which would combat the disease.

Leonicensus (103) insisted that syphilis was an ancient disease, known to Hippocrates and other early medical observers. He calls attention to the controversy over the origin of lickers in the Roman Empire during the
reign of Claudius, and points out that the disease was present in Rome before Claudius came to the throne. With the spread of the Greek arts and medicine to Rome the disease was soon named. He continues: "Likewise in a measure this happens in our time, for now a disease of an unusual nature has invaded Italy and other regions. Beginning pustules are on private parts, soon on the whole body and frequently located on the face itself besides causing great hideousness, as well as a great deal of pain. Moreover, to this disease the physicians of our time do not yet give a name, but is called by the common name French disease, as if this contagion were imported from France into Italy, or because Italy was invaded at the same time both by the disease and the French Armies".

Ruy Diaz de Isla (104), one of the foremost proponents of the American origin of syphilis, tells of Columbus introducing the disease into Spain after his first voyage. He further tells how Charles VIII's invasion of Italy served to spread the disease, and alleges that the disease became established in the French army through Spanish mercenary troops employed by Charles. The force of de Isla origin of syphilis is lost, when he later describes syphilis as a species of leprosy (105). He further identifies it with the mentagra of Pliny (106), then known in Spain as empegnés.
Dr. Montejo y Robledo (107) has made an extensive study of early Spanish authors, who wrote on the disease of bubas, as it was then known to the Spaniards. His work in connection with the origin of syphilis is our most reliable source of information relative to the opinions on syphilis prevalent in sixteenth century Spain.

Montejo also gives the results of his examination of sixteenth and seventeenth century Indian dictionaries of South American, Yucatan, and Mexican tribes. He arrives at the conclusion that many of these tribes had their own words for bubas and its derivatives. Williams and his co-workers find this part of Montejo work the least convincing, because of the possible confusion of syphilis with yaws. The name bubas is often applied to yaws in certain South American countries today (108). Strong, Shattuck, and Wheeler (109), in 1926, reported that in Brazil, bouba is the term applied to yaws, and that it is also used as a general term for other forms of ulceration.

Oveido (110) alleges that, when Columbus returned from his first voyage, he (Oveido) was present when Columbus was received in court by the King of Spain, and therefore his accounts are not heresay, but actual observation. He (111) further elaborates by saying that the first settlers in the Indies were afflicted "with the chigoes, very cruel pains, and torments from the disease of bubas, (for the Indies are the place of their origin), and I do well to say
the Indies both for the country where this affliction is so characteristic and for the Indian women of these parts, by communication with whom, this plague was transmitted to some Spaniards, that came with the admiral to discover these regions. Now Oveido was born in 1478 and would therefore have been only fifteen years old when Columbus was presented at the court of the Spanish monarchs, in 1493 (112). His observations, as recorded, would be quite remarkable for a youth of fifteen. Oveido later mentions that those afflicted with this disease often turn into lepers.

Las Casas (113) in his history of the Indies writes as follows:

"Two there were and are in this island that were very grievous for the Spaniards in the beginning: One the disease of the bubas, that in Italy is called the French disease; this let it be known in truth, was taken from this island, either when the first Indians left at the time when Admiral D. Cristobal Colom returned with the news of the discovery of these Indies, which men I myself saw soon afterwards in Seville, and these were in position to communicate it to Spain, by infecting the air, or in other ways; or when some Spaniards having already contracted the disease went on the first return voyage to Castile, and this could have happened between the years 1494 to 1496; because at this time King Charles of France, whom they call the big head, passed with a great army into Italy, to take Naples,
and that contagious malady was in that army — for this reason the Italians thought they had caught it from them, and from then on they called it the French disease. I myself sometimes endeavored to inquire of the Indians of this island if this malady were very ancient on it, and they answered, yes, before the Christians came to it, without having memory of its origin, and of this none ought to doubt; and good appears in it also since divine Providence provided for its proper medicine, that is as stated above in Chapter 14, the guaiac tree." Las Casas by mentioning it indicates that his statements have cause for doubt, and in addition, the proper medicine which he mentions (guaiac tree) as coming from the Indies, is of no value in the treatment of syphilis.

De Sahagun (114) in his "Diseases of Mexico and the Aztecs" gives an elaborate account of the Aztec remedies for bubas. He describes two varieties of the bubas, and the specific remedy for each one. He goes on to say that the bubas "give rise to great pains, and cripple the hands and feet, and are embedded in the bones". He also gives a fairly accurate description of Heberden's nodes, which may indicate that the disease in question might have been hypertrophic arthritis. Francisco Hernandez (115) likewise gives an account of benefits to be derived from various Indian medicines in the treatment of bubas, and
gives the New World as the origin of the disease. His remedies are far from specific, being recommended for snake bite and melancholia, as well as bubas.

Francisco Lopez de Villalobas, (116) another early Spanish author on bubas, did not subscribe to the statements of de Isla, Oveido, de Sahagun, et. al., that the disease originated in the Indies. Instead he emphasized the astrologio cause, but he did recognize its venereal character and prescribed mercury ointment as the proper treatment.

Astruc (85) gave Peru, New Spain, Florida, Central Africa below the equator, Java, Molucca, and China as regions where the disease was endemic, but held that the disease was not introduced in Europe until Columbus returned in 1493. He holds with de Isla that the disease was carried to the French army by mercenary troops from Spain. He also attributes diet, immoderate promiscuous intercourse, and the virulent nature of the menstrual flux as being etiologic factors in producing the disease.

Other authors attributed the introduction of syphilis into the French army to Spanish troops via the Neopolitan army. However, Sanchez (117), in his works published in 1752, attacked the statements of Astruc and de Isla relative to the disease beginning carriedto the French army by the Spanish, either as mercenaries with Charles or
with the Neopolitans. He cites conclusive proof that Spanish mercenaries were not present in Charles' army, and that the Spaniards at Naples did not contact the French.

It is apparent that Rabelais (118) did not believe that syphilis was introduced into Europe by Columbus, when he states that Master Thubal Holofernes, Gargentuas first teacher, died of the French Pox in 1420. Michael Angelus Blondus (119), a famous surgeon, of the sixteenth century, claimed that the disease then known as morbum gallicum and leprosy were the same thing. Jacques de Bethencourt (120) vigorously opposed the term French disease, as he held the disease to be the result of illicit love and should therefore be called the malady of Venus or venereal disease.

The hereditary or prenatal aspect of the new disease was recognized very early. The idea that a child could contract the disease in its passage through the birth canal was held by Torella, 1498, Vella, 1508, and Cataneus, 1516 (32). These men also recognized that the child could contract the disease from infected milk, and Fallopius, who gave the first description of a syphilitic fetus, 1504, noted that wet nurses were infected from syphilitic children. Paracelsus, in 1529, in mentioning hereditary syphilis stated that in some cases syphilitic parents did not pass the disease on to the child. These observations can be considered original only in connection with the new disease
of *morbum gallicum* as Theodoric, Bartholomew Glanville, John of Gaddesden, and Mathew Paris had described the same observations in medieval leprosy.
If syphilis did exist in America in pre-Columbian times then it must have been in sharply localized areas. Otherwise, it would be difficult to explain why Leif Ericson, about 1000 A.D., did not take the disease back to Europe, after his explorations of the American mainland. The Norsemen certainly were not above intimate contact with the natives, and would have carried the disease back to Scandinavia, and then spread the disease over Europe in the wake of their harrying raids on coastal towns during the eleventh century. In view of the Indian practice of raiding neighboring tribes to secure wives it would be equally difficult to explain localized areas of the disease.

Furthermore, if syphilis was an ancient disease among the Indians, they would surely have developed a partial immunity to it. There is an abundance of evidence, from Indian bones of post-Columbian times and from observations of medical men among the Indians, that would indicate the Indian and Esquimo were especially susceptible to the diseases of the white man, including syphilis (121). Contrary to the works of Oveido, de Isla, las Casas, and other early Spanish authors, the Indians did not have any treatment for the disease, and were helpless when they did become infected. This is very significant in view of the
syphilitic) in any one bone which is certainly pre-Columbian. That there was no immunity to the disease is shown by the fearful havoc worked by it among Indians in post-Columbian times. One Indian cemetery (probably early 18th Century) in Kentucky had over 70 per cent of the skeletons severely damaged by undoubted syphilis. Moreover, the Indians (who have remedies for all their own diseases and an intimate knowledge of their symptoms) have no remedy for syphilis and are terrified by it in their impotence to deal with it."

Within the past forty years there has been a vast quantity of skeletal material pass through the hands of qualified anthropologists and paleopathologists. These men are not all in accord relative to the evidence of syphilis in the bones of pre-Columbian Indians. Few men will state that they have studied bones which were definitely pre-Columbian and showed irrefutable evidence of syphilis. Most of those who support the American theory of the origin of syphilis state that they have found presumptive evidence of this disease, but will not commit themselves to a definite statement. This is not surprising when we realize that even after the white man came, a large portion of the Indian population still was living in a stone age culture. This condition existed for several hundred years after Columbus first voyage of exploration, and it is therefore easy to understand the difficulty encountered in trying
fact that they had remedies for all of their own diseases, but the remedies said by Oveido and others to be useful in treating the disease were valueless.

In the Antilles where Colombus and his men were supposed to have contracted the disease there have never been any skeletal remains recovered which would suggest syphilis (121). The warm damp climate undoubtedly has destroyed a large portion of the skeletons, but it seems reasonable to believe that some evidence of so wide spread disease would be evident in those bones which have been found.

Professor Elliot Smith, a noted paleopathologist of Egypt, who has studied the disputed Rhoda skull of Lortet and Gaillard, and Nubian bones of Michaelis draws a comparison between the evidences of syphilis in American and Egyptian bones. In a letter to Dr. Norman Moore (25), in 1912, he says: "Since I last saw you I have seen Dr. Ales Hrdlicka, anthropologist to the Smithsonian Institute in Washington, and its delegate to the Americanist Congress in London. His evidence concerning syphilis in America is so nearly similar to my experience in Egypt that I send you notes upon his statements, which he gives full permission for you to use as you think fit. Many thousands of skeletons from all parts of North and South America have passed through his hands, but he has not seen a single case of syphilis (or lesion which competent pathologists will admit to be
to set a pre-Columbian date to many of the Indian burial grounds, especially when overlying strata were indefinite or entirely absent.

Wakefield, Dellinger, and Camp (122) have recently reported the results of their work with skeletons from the graves of Mound Builders in Eastern Arkansas. There is no reason to doubt that these skeletons antedate the Columbian era. The text of this first report is based on the findings in six skeletons, each of which shows more than one suggestive sign of syphilis. The particular bones subjected to intensive study were the tibiae, fibulae, ulnae, radii, humeri and crania.

This report gives the gross and roentgenologic appearance of the foregoing specimen as being in agreement with the changes caused by syphilis, but also brings out the difficulty attendant upon the diagnosis of a syphilitic lesion in skeletal material, in as much as typhoid and other chronic inflammatory processes in bone may bring about similar changes. This report is in accord with the findings of Williams (123) in his study of a large number of bones of both American and European origin. In his opinion the Pueblo area of southwestern United States furnishes the best proof of the existence of pre-Columbian syphilis in America.

Dr. Alex Hrdlicka, (121) anthropologist to the Smithsonian Institution of the United States National Mus-
eum, is of the opinion that the American continents, before the advent of the white man, were the most healthful of all the continents. His opinion is based on the relative richness of population in all parts of these continents, and the scarcity of evidence of pathology in the remains of those people who lived here prior to the Columbian period. He has found evidence of arthritis deformans, pneumonia, osseous tumors, infectious verruca, and symmetrical osteoporosis to be quite common in the pre-Columbian Indian, but he has not found any evidence whatever to indicate that these people were afflicted with rachitis, tuberculosis, typhus, plague (Bubonic), measles, hydrocephaly, small pox, cholera, lepra, or syphilis. Dr. Hrdlicka (124) and Dr. T. D. Stewart (125), reporting independently, verify these statements, made in 1932, as holding true to this day.

In the absence of human remains in America which are of unequivocal pre-Columbian date and which show uncontestable evidence of syphilis the question of the American origin of syphilis can never be finally settled on the basis of bones.

It might be well to mention at this time that there are several spirochetal diseases in various parts of the world which are endemic in those regions and which differ only in minor clinical details from syphilis. The
sibbens of Scotland, radesyge of Scandinavia, morbus venereus dithmarsensis of Holstein, Amboyna pimple of the island by that name, St. Paul disease in Canada, falcadina of Tyrol, scherievo of Dalmatia and Crotia, and the Crimean lepra of Southern Russia are some of these diseases (126). It remains for the bacteriologist to identify these spirochetes. Rosenbaum (14), in 1845, advanced the theory that the severe epidemic of syphilis in 1494 was due to influences exerted on the spirochete, by environment, which resulted in a mutation to a more virulent spirochete than that which had existed previously. He also mentions the diminished vitality of the people as a factor in the virulent nature of the epidemic and calls this accumulation of circumstances a "genus epidemicus".

Dr. Mason (127) gives an account of a highly virulent form of syphilis contracted by Europeans in Siam during the early part of the present century. To the Siamese the disease was relatively mild and seldom if ever showed central nervous system involvement, but the Europeans, who contracted the disease from the, were seized with a fulminating disease which often resulted fatally in the course of one or two years. These observations were made prior to the introduction of arsenicals into the orient and have not existed since the introduction of modern therapeutic standards.
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