tered. A thorough conviction of God's love and merciful providence in all His dispensations is the only adequate proof of a submissive spirit. And the benefit of disease is to be obtained, not by endeavoring to discover why it has been inflicted, but by meek submission to the Divine will.

It is thus that the Creator, having designed man for a higher sphere, has not only given him the capacity of knowledge and virtue, but has instituted disease as a sentinel on the threshold of his future existence.

TUBERCULOSIS AND LEPROSY IN JAPAN. A STUDY IN ETHNOLOGICAL PATHOLOGY.

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For twelve centuries the Japanese world knew no change. Buddhist traditions and doctrines, imported from India, religious laws and superstitions, held absolute sway. Even so far back as the age of Jimmu Tennô (660-585 B. C.), that fabulous first Mikado, who is said to have descended from the Gods, Japan had a theocratic form of government; the sovereign was not obeyed only, but worshiped. In the sixth century A. D., in the reign of the 26th Mikado, Buddhism made its first appearance in the country. It gradually extended its domain and consolidated its position through succeeding reigns, until, at last, the Empress Suiko (593-628 A. D.), recognized and made it the religion of the state. These populations have ever since been ruled by the doctrine of Buddha, and peculiarly moulded by its spirit. The Buddhist philosophy exposes, in its sacred volumes, a sacerdotal system of medicine for the cure of the body and the soul. From those hoary pages, Japanese medicine has been evolved; but ever since the twelfth century of the Christian Era, it has striven for independence, and by slow steps, reached, at last, a state of comparative freedom. For their speculation was never completely enfranchised.

All scientific teaching in Japan bears unmistakably still the religious stamp; as to statutory or civil law, it has never made even an effort to shake off the Buddhist shackles, wherewith it has been bound time out of mind.

The building up of the mental and moral type of the Nation has been the work of many centuries, and such a structure will not fall down at the trumpet-blast of one generation, nor of several generations. The laws here as elsewhere, have fitted themselves to national and individual requirements, and neither the spiritual nor the material constitution of the people can adapt itself, at least not for a long time, to the wants, feelings and aspirations of nations so profoundly different from itself, as those whom it has taken

now for its models and preceptors. It will be a useful preliminary, to devote a few words to the description of this strange society.

There have ever existed, it seems, three classes or castes in Japan, a hereditary nobility, a great middle class and a despised crowd of "Pariahs" and paupers. The nobility is composed mainly of the descendants of five ancient and illustrious families, the Fujiwara founded in 645-649 A. D., the Taira founded in 782-905 A. D., the Minamots founded in 839-880 A. D., the Hojo, a branch of the Taira, and the Ashikaga, a branch of the Minamots. The first three have married and intermarried constantly, even incestuously (through concubinage at least), during many hundred years, and thus kept all the power and wealth in their possession. From these are descended the court—nobles and daimios of the realm, the remains of feudal supremacy, whose power was overthrown only at the beginning of the Meiji era in 1867. The Mikado, or religious head of the Nation at that time, had abolished the Shogunate, or so called temporal power of the Tycoons, which had existed in a direct line for 264 years, having been founded by such members of the hereditary nobility as professed the greatest influence. Close breeding between families of that order has been the rule, and often, that families might not die out, it had been found necessary to recur to adoption. The same law which sanctioned adoption, sanctioned also the transmission of nobiliary rank by that process.

There are now 470 princes and nobles, and only 3,000 direct descendants of the old nobility. There has been 123 reigning Mikados, with one dynasty. In 662-667 A. D. reigned Tenji Tennô, the 38th Mikado, whose son became the head of the renowned family of Fujiwara (Wistaria field), next to that of the Mikado, the oldest family in Japan. In 898-930 A. D., in the reign of one of the "Puppet" Mikados, important and noble families arose who disputed with the Fujiwara family the control of the Mikado. In 931-946 A. D. reigned a child of the house of Taira. The great rôle of this family falls between the period of power of the Fujiwara and that of the Minamots, in the middle of the 12th century; and when that age of splendor expired, the name of the race continued to live in the five Sekké families. The earlier professors of Tsushima and various other daimio families, claimed descent from the Taira. The Minamoto (Chinese genji, source of the spring) becomes prominent in its turn, and gives to the country its greatest and most celebrated heroes, who claim descent from the 52nd Mikado (806-809 A. D.). The office of Shogun, which was overthrown in 1867, became their exclusive property. Thus this family, through all kinds of vicissitudes, had held temporal sway during seven centuries! From the 62nd to the 74th Mikado (947-1108 A. D.), the in-

fluence of the Fujiwara continues. In the time of the 83d Mikado (1188-1198 A.D.), the Taira family power was destroyed, the female members were driven into prostitution, being allowed certain privileges, which have been handed down in that class to the present day. In 1203 A.D. the Hojo family appears, and is represented in the Mikado. This house of Hojo fell in 1333 A.D. In 1338 A.D. the Minamoto are represented in the Mikado. After the fall of the Hojo, the Ashikaga appeared, and for 56 years, there were two dynasties, one ruled by the Ashikaga and the other by the Minamoto. Their wars were called the wars of the Chrysanthemums; (this flower being the symbol of the sun, is emblematical of imperial authority—Nippon, the ancient name of Japan, means origin of the sun). The great Ashikaga died in 1409 A.D., and the power and the influence of the Minamoto, having declined from the time of the 102nd Mikado, gradually died out. In the second half of the 6th century, these families again renewed their supremacy, during the times of Mobunaga (of banished Taira and peasant blood), Hideyoshi (of pure peasant blood, and Iyéyasū (of Minamoto and peasant blood). These three names are the greatest in Japanese history. The Shogunate of Ashikaga ended in 1573 A.D. It remained vacant until 1603 A.D., when the Tokugawa dynasty (a branch of Minamoto) was invested with it through Iyéyasū, and continued till 1867 A.D., when it was forever abolished by the reigning Emperor Mutsuhito (Meek man,) whose mother was of the Fujiwara family through the house of Hujo. This Mikado, the 123rd of his line, has no child of his high born wife. It has therefore become a necessity of State to declare his eldest son by one of his six concubines, a lad now twelve years old, prince and heir to the throne. This ceremony will take place in the coming spring.

The great middle class of the population of Japan comprises the bulk of its people. Hybridity has been the rule with it through various immigration, invasions, wars and the commercial relations. Quatrefages (*Bull. Soc. d'anthrop. de Paris*, 1883, vi, 654) defines the factors of the population as follows:

1. A black element, type negrito, to-day probably quite fused.
2. A yellow element, coming probably from China, and always easily recognizable.
3. A white Olino element, representing the population which occupied the Archipelago, at the time of the conquest.
4. A white Indonesian element, which made that conquest, and which is found sometimes in a state of purity, especially among the members of the old nobility.

He makes Indonesian and Polynesian synonymous terms, which represent the same race,

claiming that the superior ethnological element, which peopled Polynesia came from the Malay Archipelago, in other words from Indonesia. This element M. Maget tells us, is found in the part of the Japanese race, that is given to the traffics habitual to coast dwellers; he thus defines the nature of that ethnical element, to which belong the fishermen of Japan, so different from all other elements in the interior.

This Indonesian element is not autochthon, according to Quatrefages, but is represented by the conquerors, the tradition about Jimmu Tennō leaving no doubt in the matter. He claims that this Simili-Malay race was not a well defined race, but the result of the fusion of diverse, especially yellow and white elements, which were fused under the influence of Islamism. He thinks that the black element in the Japanese hybridity, is clearly negrito, and not Papuan or Polynesian negro, basing his conclusion on the study of the skull made by M. Hamy and himself (*Étude sur les Mincopies*, par M. DeQuatrefages, *Revue d' Anthro. Les Negritos a' Fornié et dans l' Archipel. Malais*, par M. Hamy, *Bull. de la Société d' Anthrop.* vii, *Crania Ethnica*).

Remy (*Bull. Soc. d' Anthrop. de Paris*, 1883, p. 908) observes that a blonde Japanese does not live, and he never heard of an albino. The blue iris is as rare as the blonde hairs; it had probably never been seen in the country previous to the advent of the Dutch, for the latter mention that they were called the "blue eyed Dutch." The black hue of hair, pileus and iris, is constant. This uniformity of hue, is, especially, the common tie of all the mixed hybridized races which form the population of Japan. The great majority of the people have a limited pileus development. The hair grows in abundance, but the beard, the hair of the pubis and of the arm pits, are rare, and the rest of the body is glabrous. This stopping of development of the pileus system, makes the Japanese preserve for a long time the appearance of adolescence. The same author states that there is no unique Japanese race, and that the population is a mixture of divers races.

His division of hybrid types is as follows:

1. Type with long face, eyes black, oblique and bridled, nose prominent and aquiline, hair stiff and abundant, beard rare, body glabrous. It is considered to be that of beauty and distinction, and is especially found among the nobility. Women who possess it are highly prized. (Mongol)?
2. Type with broad face, prominent cheekbones, eyes oblique, bridled, small, at the level of the head, nose flattened at the root, often prognathous superior jaw, black and abundant hair, the rest of the body glabrous or poor in hair. (Chinese).
3. Type differing from the two foregoing, by

its regular and horizontal eyes, without bridles, but preserving the broadness of the cheek-bones, the flattened nose, the yellow tint of the skin and the rarity of the hair. (Malay).

4. Type which approaches the European races by the disposition of the features of the face and the abundance of the pileus system. It is that of the Alinos, ancient possessors of the soil, driven to the wall by conquest, and living now in the northern part of the island of Yezo.

5. Finally, a novel element, the European hybrid, who takes as a rule the character of the occidental people, as to the shape of the eyes and the color of hair and iris.

Maget (*Journal d'Anthrop. de Paris*,) recognizes four hybrid races issuing from a dominant race. The Hamabêto (people of the sea-coast) forming the dominant race. It inhabits almost constantly the sea-coast, and is given to maritime occupations. It is a Polynesian race, red, with arched nose, eyes of small obliquity, short, as is everything belonging to the Japanese medium, whether animal or plant.

The hybrids of that race are in order of numbers:

a With the Mandchu-Coreans, more numerous in the regions of Nasa-Kendo, Sanindo and Hokuro-Kudo.

b With the Simili-Malays, more numerous in the island of Kiushiu and in that of Sikok. The race, noble, great (Koua zokou), and small (Chizokou), is usually connected with this type. It is the conquering race, and rules to this hour.

c With the Ainos. This branch, frequent in the Ken Akita and the Nambou, does not seem to pass beyond the banks of the Biwa lake. In the north of the island of Nippon, the hybrid Olino-Polynesians are rarely found apart from the sea-coast.

d With a black population (Negrito Polynesian blacks?) This branch of hybrids, which has only few representants, is distributed with some uniformity among all classes. It is recognizable by the Negroid appearance, the sombre and often blackish hue (the Arab negro hybrid tint of Algiers), the curling of the hair or their repeated undulations, the gracility of the calf which is very developed in the autochthon (?) race, finally the relative smallness of the stature. (Mr. Maget describes and figures patches and points of black pigment which appear pretty frequently in the sclerotica of all the Japanese races. He sees in these spots an atavic trace of an ancient mixture of negro blood.)

These hybrids have not, in the country, any fixed point of concentration.

Pfouendes (Transactions of the Asiatic Society of Japan) says: "The Japanese were never a conquered nation; immigrations peaceably occurred by several different routes (the Malay Archipelago, Corea, Kamschatka and China);

they bore a prominent part as a nation in the wars of the Indian Princes on the Malay peninsula, and thus fell in with the Arabs, who, before the sixth century, had gained a foothold in China. With them they voyaged to India and Africa. He observes also that there are many different types of men in various localities of Japan.

Brinton says: "The population of Japan is distinctly of mixed origin. The Mongolian and perhaps the Negrito, united with the Aino to produce it. And of what affiliation is the Aino? We cannot say. The Negrito or Eta people are, I believe, the primitive inhabitants of Indonesia, the Malays, etc., later arrivals. Whether these blacks reached Japan, or even Formosa, is rather doubtful, though some have argued in favor of it." He further says: "I am persuaded that island life exerts a more rapid influence, both on physical and linguistic traits, than continental life."

Faulds (Nine years in Japan) observes: "Regarding the affinities of the Japanese, we have no certain knowledge. They are 'Mongrels.' Excluding the Ainos, they are a great ethnic fusion to be further studied. They claim to have descended from heaven, and I hope they may all get back there again."

In our third great division of the people, are included the vast hordes of "Pariahs," the paupers, beggars, and lepers of Japan.

Originally, as is supposed, this class consisted of the Eta, the despised negroid element of the Japanese. The Emperor Tennu Tennô (672-686 A.D.), issued an edict against the use of animal food, which had previously been restricted at the first appearance of Buddhism in the country. This edict was probably instigated by the Priests, whose creed especially forbade the taking of life. Hence tanners, curriers and all leather workers, became "Pariahs." The Eta alone, the original "Pariahs," earned their living by working in skins, and converting them into leather. They also gathered lamprey or loach, which they sold on the bridges, about the moats and canals, which pious Buddhists would purchase, and liberate, by throwing them over the parapet into the water. This act of devotion was called Hojoji, and the Eta, in their capacity of beggars, would offer up prayers for the welfare of their extraordinary patrons. The Japanese Encyclopædia (San-Sai-Dzu-Yé) explains that "the Eta were originally 'Etori,' or attendants, who killed animals required for feeding the Imperial falcons. The Buddhist priests interdicted this unfortunate people's sharing fire and shelter with the rest of the population, and thus the Eta came to constitute a separate race," and thus, possibly, they were subsequently refused privileges of intermixture with the various immigrations that contributed to produce national

hybridity. The "Hinins" (not human) were a class of paupers after the commencement of the Tokugawa dynasty (1603 A. D.). They were allowed to squat on waste lands, to build huts, and gained a livelihood by begging. They were employed to carry away dead bodies from the execution grounds. All of these sub-classes, Eta, "Hinins," "Pariah," beggar, have always been the associates of lepers, and are the more utterly despised. As I have stated elsewhere (Leprosy in Japan—Intermediary—host function in its propagation. *Cutaneous and Genito-Urinary Journal*, 1890), when leprosy attacked a member of a family, he at once strayed away, before his neighbors could know of his misfortune, and wandered, in beggar disguise, to some distant part of the Empire, that he might hide himself among the Eta. This was done, that the other members of his family might not become socially ostracised, or be refused marriage and communion by the neighbors, leprosy taint, in bride or groom, being an absolute barrier to union. All beggars, therefore, were outcasts; they could neither eat nor sleep in any man's house, but only under trees, or in abandoned sheds. A dish that was once passed in alms to a beggar, was afterward destroyed, and the vessel from which he had drunk, was not used again. Should he wash himself, perchance, at a well or public watering place, that water became, in public estimation, polluted. Hence the mendicants and despised classes, were forced to make use of streams, rivers and pools; and these were in consequence avoided by the more fortunate.

There are in Japan, according to estimate, 3,000,000 Eta, all, more or less, destitute. They officiate at executions of criminals, burials of dead bodies, and Buddhist cremation ceremonies. Griffis (The Mikado's Empire) very graphically refers to them, in his relation of a visit to the Crematorium at Fukui: "On the other side I saw a great heap of skulls, bones, clothes, bowls, utensils and other relics of the dead. It was the monument of a famine, which ravaged Echizen some forty years ago, and during which the poor and the beggars died in such numbers, that they could not be consumed or inhumed in the usual manner, that is, singly, but were cremated by scores, on heaps of brush wood. Near the house was a mound, containing many thousand cubic feet of ashes and calcined bones, the refuse, incineration of the furnaces during many generations. It was "ashes to ashes" instead of "dust to dust."

As for the living "beggars" to be met with in Japan, he says: "We cannot understand their chabu, komarimasu tempo, danna-san, dozo (please, sir, a penny, we are in great need of food), but we comprehend the object of their importunity. They are loathsome, dirty, ragged, sore. Now I wish I were a physician, to heal such

vileness and suffering. Who would care to do an artist's or a poet's work when the noblest of healing needs to be practiced? The children run after us. The old beggars live in straw-kennels, by the road-side, some are naked, except dirty mats bound around them. The law of Japan does not recognize them as human, they are beasts! The man who kills them will be neither punished nor prosecuted. There lies one dead in the road. No! can it be? Yes, there is a dead beggar! and he will lie unburied, perhaps for days, if the dogs do not save the work from the coroner (?). 'And the beggar died;' will he be carried to Abraham's bosom?" These three classes have, during many centuries, lived very much apart from each other. Yet their alimentation was not so different as such a state of things would lead us to suppose; indeed, it has almost been nearly identical through the whole of Japanese society. The climatic influence was the same for all. They have been exactly in the same degree exempt from certain European diseases: puerperal fever, scarlet fever, diphtheria, endemic measles, etc. (in Japan measles occurs epidemically and at long intervals. I saw none. In 1876 and in 1882 separate epidemics occurred). It seems strange, therefore, the conditions being so equal, that the two great diseases, tuberculosis and leprosy, should be almost monopolies of special classes. Tuberculosis is the scourge of the aristocracy, the closely in-bred race of Japan.

Not that it spares the rest of the nation by any means; but it is to the lower classes singularly more merciful. In the high and inbred race the tubercular disposition, tainting and modifying every other disease, is really destructive, so much so that many strains of noble blood would have been extinguished long ago, but for the laws providing for the substitution of heirs. And this tainted tubercular race is a standing menace to the nation's blood, constantly inoculating it through concubinage. In strong contrast with this aristocratic pestilence, leprosy is the disease of our third class, the great crowd of pariahs and paupers. Between these two orders of Japanese society, afflicted each with its own peculiar malady, is situated the great middle class, a hybrid multitude, with no customs of close intermarriage, with active avocations; they are between the drones of high and low life, the workers of Japan. The privileged position of the upper class in regard to leprosy, I am disposed to consider as a fact, partly from personal observation, partly from information derived from native colleagues. In this conclusion I am corroborated by the testimony of foreigners also. Baelz (*Beiträge zur Lehre von der Lepra*, Tokio, Japan, 1885), treating of the matter, says: "A leper belonging to the upper classes I have never seen; one meets, however, as Dr. Miyake assures me, sometimes very rich lepers. For, in deference to hoary Jap-

anese tradition, marriage with members of leprosy families is discountenanced, while the lepers intermarry unrestrainedly among themselves. As they are loath to be seen, they retire among their own people, and try, by the acquisition of wealth, to obtain at least such comforts of life as can be got for money. However, these are rare exceptions; most lepers are in wretched circumstances, and many of them subsist miserably on the proceeds of mendicancy upon the high roads or around the outskirts of popular places of pilgrimage. If we believe some Japanese data, the much despised and severely shunned class of the Eta suffers much more frequently from leprosy than the rest of the population." The same writer further observes: "That a manner of living, at variance with the laws of health, favors the eruption of the disease, is admitted unhesitatingly by all observers. The more wretchedly men live in the leprosy countries, the more readily they fall a prey to the scourge. We have mentioned before the frequency of leprosy among the Japanese pariahs, the Eta, who, up to quite recent times, used to live in isolated hamlets, and with whom no man held any intercourse—a vessel they had used, anything that had been touched by them, was polluted. Nothing positive is known as to the origin of the Eta and the motive of their isolation. I think it probable that they are the descendants of leper colonies. A circumstance which points very decidedly in that direction, is that the idea of uncleanness, as the Hindoos conceive it, in regard to the lower classes, is quite foreign to Japanese conceptions."

Wernich (*Ueber die Ätiologie, das Erlöschen und die hygienische Bekämpfung des Aussatzes*, Tokio, Japan, 1879) says: "If we turn to the conditions to which a hereditarily disposed individual, born in a climate which influences unfavorably the activities of the skin, is further subject, we cannot omit to cast a glance, in the first instance, on *race and nationality*. There could, of course, be no objection to our treating of the relations of races also, in the section where we speak of the heredity of leprosy. However, it will appear that the conditions of development contained in the race type, are less important for the production of leprosy, than those which touch immediately the vital relations. The disease, as well in Africa as in the Western hemisphere, is much more frequent among the colored races than among the white. In the East Indies, where the European residents fall very seldom a prey to it, all indigenous colored races are equally threatened by it; especially the Eurasians (the Anglo-Indian hybrids) furnish their very considerable contingent. In Southern Africa, the Hottentots are most involved, the Negroes follow, the whites are the most leniently treated. However, the supposable immunity of the European ceases, as soon as he lives in countries where the disease is at

home. These circumstances suggest, for this point too, a taking into account of the skin system. That the latter is more disposed to disturbances of nutrition, more vulnerable, in colored races, is already made probable by the pigmental element, and it is approximately proved by the immense frequency and variety of the skin diseases to which all colored races are liable. But the acquired disposition of the European, which we have mentioned, finds also on this ground its most natural explanation. The violent alterations to which the skin of the European is exposed through profuse sudoral excretion, through the heat-rashes, through melasmata and general discoloration of the complexion, can, after a long time and accumulation, very well be designated as directly destroying influences. True, they display special vigor only then, when the European has to do without the preservatives which his *a priori* privileged position in foreign parts secures for him—when he must, as regards his social position, his life comforts, the care of his health, un-Europeanize himself. The troubles and injuries which present themselves to view in this connection, are, for the etiology of leprosy, of different value. *Much the greatest part of the leprosy cases belong undoubtedly to the lowest and poorest layers of society.* If against this it is asserted that there is in Europe, in every country of it, an unleprosy proletariat, exposed to all the injuries which hurt the body, and the skin especially, some grounds for the belief in the amendment of the general conditions of the lower classes will be found, nevertheless, when we shall examine the extinction of leprosy. High prelates, princes, crowned heads, were attacked with leprosy in former centuries; certainly those did not suffer most of the evils under which the lower classes are laboring. To the description of squalid misery, prevailing in some regions in Italy, Portugal, Spain, etc., has been opposed the fact, that some neighboring leprosy-free villages and communities present nearly the same wretched conditions of life. But these objections lose much of their weight, if we keep in mind that the eruption of leprosy results surely from a concurrence of various causes, that a life passed in ease is probably not sufficient to obviate the consequences of a decided hereditary tendency in all cases. The majority of the cases of the high-placed rich lepers become preëminently clear, by a certain *modus* of acquiring the disease. While giving due weight to the objections made, we retain here the fact, *that the habits of life of the richer classes are generally a protection against leprosy, while the habits of life of the lower classes provoke the disease.*"

The portion of the lower class which bears the largest burden of leprosy—which is, so to speak, a vast human sewer, cleansing the upper regions of the nation, is scattered over the whole Japanese world. While the noblesse has been stag-

nating for ages, the lower set have been indefatigable wanderers upon the face of the Empire; friendless, lawless, starving, without shelter. In this social solitude, separated from all those offices of kindness and legislation which society affords to the other classes, they were reached by the Buddhist religion, comforted, fed, controlled and administered by it. Under the influence of that creed arose the whole system of customs and traditions governing leprosy. The all-pervading salutary rule of the Buddhist religion is illustrated in the following legend: Chiba-Ken, in the south of the Empire, is a sort of Mecca for the lepers. In many of the story-books we find related that, over a thousand years ago, there lived in that place a youth, twenty-one years old, who was stricken with the popular disease. He was loathsome to behold, and his physical condition repelled all his friends. In this sad plight, he dragged himself to the Temple of Naruba-Fudo, asking to be relieved from his horrible distress; and, to show his good faith, said that he would abstain from food for twenty-one days. After the expiration of twenty days, and in the middle of the twenty-first, Fudo appeared in the flesh to him, and graciously kissed the poison from his sores. Thus was the young man's health restored. The relief was so overpowering, that the quondam leper thought that he must be on the threshold of Nirvana; his rapture was so great, the feeling of gratitude so strong, that he resolved to do nothing but good henceforth. So he became a Buddhist anchorite, and eventually a shining light in the church. Fudo is said to be a double being, a combination of God and Buddha, and is represented, in many temples, with three faces and a body standing, phoenix-like, in the middle of a blazing fire (showing him to be the representant of a divine element of purification, for fire is to them the emblem of purity).

In the province of Sanuki, situated on a peninsula about 700 miles south of Yedo, we find a great multitude of these pariahs and lepers, the Japanese generally believing that the lepers who betake themselves to the immediate protection of Kon-pira, whose shrine is there, will be cured through his tender mercy. This superior being is at the same time God and Buddha. The climate of Sanuki is remarkable by its mildness and amenity, the province being nearly encircled by the sea. Almost all the lepers in the Empire, at some time of their lives, gravitate toward that holy region, and make there a stay of more or less duration. It was a medical teaching of the Buddhists, that a leper should not remain stationary in the place in which the disease had originated. Hence the roamings and disappearances of lepers. Most of the leper laws of Japan are Buddhist traditions, as unchangeable as the laws of the Medes and Persians. The Japanese firmly believe in Kon-pira's power to cure lepro-

sy, and to this popular belief, as well as to some others of Buddhist origin, is due the segregation, and, to some slight extent, isolation, of this wretched multitude. He is, in the Roman Catholic sense, the patron of lepers; he takes care of them in every way. If a leper is robbed in Sanuki, he will compel the thief to restore his booty.

It is estimated that there are in Japan over a hundred thousand lepers and suspected lepers, mostly in the southern part of the empire, but distributed in various proportions over the whole country. There is no belief whatever in its contagiousness, nor in its sexual infection. Whence it came and how it originated no one pretends to know, although it is so common in the southern provinces, where syphilis also is rampant, and the temperament of the population lascivious in the extreme; yet the medical mind of Japan—that is, her physicians and priests—has not been led by this simultaneous presence to admit a congenial nature of the two diseases; on the contrary, they deny it most decidedly, and the proportions in which both diseases affect the different classes bear out their conclusion, for syphilis is more frequent in the middle classes than tuberculosis or leprosy.

The leper class of Japan is not the product of heredity, as their traditional class segregation of outcasts would have operated to destroy the taint; for it is generally recognized, at least in Japan, that the disease exhausts itself after five generations.

Let us pass now from the disease which squalid misery fosters among the poorest of the nation to its aristocratic rival, which the inbreeding of the upper classes favors in a different, though little less disastrous manner.

Remy, in *Arch. Gen. de Médecine*, makes the following statement: "Tuberculosis is not rare in Tokio (Yedo) and Yokohama; as usual, it is more frequent in the city than in the country, and, among the denizens of cities, it affects especially certain classes—*people who have no muscular exercise—the nobility*, the merchants, all who are given to study or have a sedentary profession. There exists between the inhabitants of the country and those of the city a difference similar to that which exists in our own countries. The former owe to the labors of agriculture a more complete muscular development. They are broader, more massively built. In Japan the tilling of the soil is entirely done by man's hand; the beast of burden is little used. It is man who breaks the glebe, carries the burdens, drags the loads. It is the same in the city with laborers. They are strong and muscular; but some of them have begun to indulge in drunkenness, and to get intoxicated with the rice brandy, the saké.

The city man is of weak constitution, and has attenuated limbs. He often lacks every bodily

exercise. Gymnastics, games, equitation, are not valued. The nobles have given up their practice of arms. The merchant, in his wide, open shop, the student in his chamber, remain motionless for hours. Nutrition, in consequence, is badly performed, and in winter the heating of the apartments is quite insufficient. A few coals in the middle of a vessel filled with ashes, the 'hibatchi,' or brasers, is the only system known. Insufficient in a space enclosed to the extent of two-thirds of its periphery by slight wooden frames, which are covered with translucent paper, this 'hibatchi' is perfectly useless in a shop, constantly open in all the breadth of its façade. The poor merchants crouching over their 'hibatchi,' their hands extended over the coals, offer a spectacle truly pitiful. Their clothing itself is little calculated to protect them against the cold. It consists, for both sexes, of dresses open in front and tightened around the waist by a girdle. The shirt is used by those who have come in contact with Europeans, and even by them seldom. A simple piece of stuff goes around the loins and extends to the middle of the thigh. Buttons are unknown; so that the dress, simply crossed and kept in place by the girdle, leaves uncovered the upper part of the chest, and leaves bare the legs also at every motion. The men wear sometimes cotton drawers, or tight breeches of blue linen. In the country, women wear a similar kind of inexpressibles, which makes them look like men; but in the cities, the legs of women remain uncovered. A simple, small linen sock covers the foot up to the ankle. Moreover, the air penetrates to the skin through the large orifices of the sleeves. To this inadequacy of defensive armor against the cold must be attributed the frequency of the pulmonary affections, bronchitis, pleurisy, catarrh. However, in Tokio, pneumonia is comparatively infrequent, even among laborers. As to tuberculosis, it must be referred to as complexity of causes: the insufficiency of bodily exercise, of the heating, a diet often too scanty, often excess in pleasures, to which the Japanese are uncommonly prone; finally, scrofula (?) and hereditary disposition. However, I am of opinion that there exists among the adults a good deal of acquired phthisis. The tuberculosis potatorum is almost unknown. There is only one alcoholic beverage in general use, the saké, or rice brandy; it induces intoxication rapidly, but as its daily use is not common, there are but few drunkards.

Tuberculosis, then, is either hereditary or acquired. It affects every age, children, adolescents, mature men. I have often seen it start with the left side of the lungs, as it is observed to do in the tuberculosis incident on sedentary avocations. Here are some particulars: it begins sometimes with exudatory peritonitis, whose products are resorbed, as in pleurisy. It is less

frequently accompanied by digestive disturbances. The ingestion of the saké causes almost always abundant hæmoptysis."

Wernich (*Infectious Krankheiten der Japanesen*, Tokio, Japan, 1878) speaks of the enormous frequency of tuberculosis in the Japanese islands. "The most important atmospheric element for its favorable course," he says, "is the low degree of atmospheric humidity. Next to dryness, uniformity of temperature must be considered as the most important element to secure rarity and a relatively better course of the diseased phenomena. A uniformly low temperature is, in this respect, to be preferred to a uniformly high one. After comparing these conditions with the element represented by the Japanese climate, it will not seem strange that in our about 2,200 cases, tuberculosis alone was represented by one-seventh, 325."

In speaking of the course of the disease, as exhibited to him in these cases, he points out the frequency and abundance of the blood effusions in them, *exceeding all limits known to him*. "In the freshly observed cases appeared the very remarkable symptom of a dark red coloration of the sputa, enduring for weeks, sometimes amounting to a regular hæmoptysis, *without any bad results ensuing*."

Herein Wernich evidently counts his cases of distoma pulmonale (Ringeri) with consumption. His percentage of ordinary middle class tuberculous cases would be otherwise excessive.

Baelz (loc. cit.) says: "The analogy between leprosy and tuberculosis, which we have repeatedly pointed out, is important enough to warrant a little more consideration. The bacilli of both diseases are distinguished by quite a number of common peculiarities, which differentiate them from other bacilli. Both diseases are probably contagious, but in a very feeble degree. In both the danger of infection diminishes in good hygienic conditions. Leprosy has a great deal of similarity with skin tuberculosis. Leprosy and ulcerous tuberculosis of the lungs affect seldom children previous to puberty.

At any rate, the two diseases must be considered as congeners, and it would not be without interest to examine whether there does not exist between them such a relation, *that in countries or in classes, where the one is frequent, the other is proportionally scarce*. As far as my knowledge of the literature enables me to judge, tuberculosis hardly appears to have played formerly the same part which unfortunately it does in our day."

He further remarks: "It is with tuberculosis that leprosy has the greatest analogies. Although every physician will concede now-a-days that tuberculosis is transmissible, experience shows, on the other hand, that for a large majority of mankind such a danger does not exist, in spite of most intimate intercourse. In order that a

man be affected with tuberculosis, the presence, and even the reception, of the bacilli is not sufficient, otherwise every physician and every nurse would be tuberculous. The point is, that the bacilli find a *proper soil for their nutrition*; and *this favorable soil consists in a mostly hereditary weakness of the tissues*. In a strong man, the cell devours the bacillus; in a weak subject, the bacillus devours the cell.

In this sense, *heredity is still of the greatest influence in the origination of consumption.*"

I came myself for the first time in contact with Japanese tuberculosis in 1873. I was then called from Philadelphia to attend Prince Adzuma, a brother of the Mikado, who, under an assumed name, had been studying at the United States Naval Academy, at Annapolis. He had been seized with a hæmorrhage of the lungs, and was removed to Wormley's Hotel, Washington. Dr. N. P. Lincoln, in consultation, after the incipency of tubercle had been determined, advised the transfer of the patient to New York, for examination by the elder Flint, who directed his removal to his native country. I afterward saw him at his home in Yedo, and found that the disease had steadily progressed. He died in the following year. It has been my experience among the Japanese to find this disease most active among those people who take the least exercise—the higher classes, the nobles, the rich, the studious, and those given to the vices of high life. That, as we ascend the social scale of Japan, the general weakness of the constitution increases will be made evident, I think, by the well established fact that the court nobles and daimios do not produce much offspring. While, in the middle classes, four children to one mother is the average, in the daimios' class, one is the rule. This scarceness of progeny cannot, by any means, be ascribed to a want of sexual appetite. The Japanese are an amative race, and the Yoshiwara or prostitute system had to be instituted to restrain the passions of the Shizoku, or military nobility (the order next in rank to the hereditary nobility). Neither Shintoïsm nor Buddhism had proved adequate to the task of keeping them in bounds. Hence, public morality had to make concessions, and society gave its countenance and approval to the marital union between the representants of society and those of that same Yoshiwara. It came thus to pass quite naturally that mothers sold their daughters to the brothels in order to give them a chance in life! Their sexual perversities are many. Pederasty and other unnatural vices are as common as in any country of Asia. In the northern portion of Nippon, Mutsu, composed of several noted provinces, and in famous Satsuma, in the south, there especially the "Millstone of Orientalism" hangs around the neck of Japan. The love of "bichonen" (fine boys) is a part of the aristocratic tra-

dition. The last great insurrection in Japan was notoriously complicated by the jealousies of two statesmen about a beautiful youth. These vices have helped to weaken the race.

MacLay (Budget of Japanese notes), speaking of the daimio of Hirosaki Castle, says: "During the hot summer months, when the exhalations from the moat render the immediate vicinity unhealthy, he will journey off to his mountain villa, where he can spend a month or two in composing Chinese poetry in honor of the moon or his favorite concubine. About three or four times in season he will exert himself sufficiently to visit some hot mineral springs in the mountains, to soak out the licentious impurities of a past winter." And, speaking of the Samourai, or military nobility, not included in the hereditary nobility, but who are attendants on it, he says: "The truth is, about Perry's time, political affairs in Japan had become thoroughly run down. These Samourai were rapidly degenerating into a herd of voluptuous imbeciles. Licentiousness abounded in private life."

We can clearly see now, how this excessive inbreeding of an originally finely bred race, through so many generations, added to a luxurious life, in which every wish was gratified, and vice fostered in an unusual degree, the existence of a pampered aristocracy, obeyed and corrupted by that servile military order, always cringingly at its beck and call, until it had almost sunk into imbecility—how these conditions worked together to bring about the disposition to the disease, the tubercular soil. The whole order has thus become eminently susceptible to this special disease.

Holmes (origin of the Infectious Diseases, Jour. Am. Med. Assoc. 1890), says, regarding the bacillus of tuberculosis: It appears that it is unable to grow on any accidental or artificial media, under any presumptuous natural conditions of temperature and external surroundings. It is able to multiply in man and in some other mammals, and in a few related vertebrates. Therefore, we may presume that, should it be deprived of a living host, even a day beyond the few months during which its spores might retain vitality, the species would become wholly extinct, and the world be free ever afterwards from the ravages of this dreadful scourge. The bacillus of tuberculosis is then an obligate parasite of the warm blooded animals. When we consider what specific difference means, and how perfectly the bacillus of tuberculosis manifests this difference, and when we see how great is its geographical distribution, we are compelled to go back far into the present geological epoch, and probably beyond it, for its origin."

He further says: "Looking upon these obligate parasites of man, as of such ancient association, going back beyond the present geological epoch

for the beginning of *syphilis*, *tuberculosis*, *leprosy*, etc., how is it possible that man has been able to withstand the attacks of so many enemies, for so long a time?

The very fact that he has survived, and that these parasites are unable to exist in any other media, than his living body, is conclusive proof that they are not essentially destructive parasites; for with destruction of the host species, occurs the destruction of the obligate parasite. Such a proposition appears to be axiomatic, but axioms occasionally need to be formulated. Given abundant opportunity of contagion, a destructive obligate parasite is inconceivable. It is possible only when its destructiveness does not interfere with the reproduction of the host species, as after the reproductive act has been performed."

And further: "While we are accustomed to look upon *syphilis*, *tuberculosis* and *leprosy*, as excessively destructive diseases, a moment's consideration is enough to clear our minds of this traditional notion. Syphilis, in the strong and healthy Caucasian, frequently runs the first and the second stages of its course, without recognition, and does not, therefore, interfere with procreation. When the infirmities of age confine the patient to unfavorable surroundings and habits of life, the tertiary symptoms come on with the reduced vitality and nutrition. Fatal or destructive syphilis, in the otherwise well and healthy, is rare. In children and in poorly nourished young people, and in those suffering from chronic diseases, it frequently appears as a terminal affection."

"Tuberculosis in the lymph glands of the neck, in the bones and joints, in the ear, and even in the peritoneum, is not very destructive. It is frequently followed by recovery. Even in the lungs, tuberculosis may run a chronic and rather harmless course, and interfere very little with the reproduction of the species. It is only after pyogenic infection of the tubercular tissues of the lungs, or other areas, that sepsis and symptoms of "hectic" appear. This sepsis is then the destructive factor, as it is in wound infection."

"Leprosy is the closest obligate parasite of man, so far observed. The *bacillus of leprosy* bears a remarkable morphological relation and staining reaction to the prime factors of *tuberculosis* and *syphilis*. It is almost never a destructive disease, and it appears only in those who could have already accomplished the reproductive act; therefore it does not interfere with the perpetuation of the species. It is conveyed by contact, but only with difficulty, and there is evidence that it is not necessarily hereditary; that is to say, healthy children may be born of those who are suffering from leprosy. The attendants on persons suffering from leprosy are not often affected with the disease, but often enough to demonstrate its contagiousness(?)."

Finally he remarks: "*Leprosy* conveys no immunity, for the disease rarely terminates in recovery, but the infection is accomplished with the greatest difficulty, and the spread of the disease is slow. *Syphilis* is not very destructive, it has a difficult but certain method of infection, and one attack does not so surely protect against subsequent recurrence. Instances of this kind could easily be multiplied, bringing in other factors, which act in producing immunity, or protection, or physiological resistance. *All brought about by the obvious necessities of the law of the survival of the fittest, and that of heredity.*"

His conclusions are:

1. All obligate parasites are without exception, examples of *very ancient parasitism*, and what is of more practical moment, they are necessarily non-destructive to the host species.

2. *The destructive action of the obligate parasites is only manifested toward the weaker individuals of the race, and therefore they are a factor in the evolution of a strong and wise and morally temperate nation.*

3. The great field of expectant medicine lies in the treatment of diseases, due to obligate parasites, while the great field of preventive medicine is to be found in providing against infection with facultative parasites.

It is strange that these three obligate parasites of man, dating back probably to a mythical age, should have thus occupied each its own almost exclusive domain in the Japanese nation.

It seems as if the division of this nation, with its varying conditions of conjugality, has exercised a strong influence upon the development of these three diseases, which have so many congenial features.

Whether there is any value in the points which I have here endeavored to elucidate, whether they are of a nature to throw some light upon the portions of ethnical pathology to which they refer, I leave it for the decision of those who are in a position to speak with superior authority on these subjects.

The most important conclusions, I think, to draw from the facts exposed in these pages, are:

1. The close in-breeding of an exclusive class tends to its destruction, through the development of a tubercular soil, or through sterility.

2. Hybridity, as shown by a negative proof in the highest class of Japan, is a requisite for the formation of a healthy race, (with but one exception, represented by negroid element, as in the Eta of Japan); the mixture of races is therefore greatly to be approved of; it is one of the great elements of strength in our American nation.

3. As nature tends to eliminate, by her own occult operation, tubercular and leprosy elements, from the healthy mass of the people, our only rational course is to assist her, by *isolating our tubercular patients*, as lepers are isolated in other countries.