CHINESE HYGIENE.

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IF prolonged national life is indicative of sound sanitation, the Chinese are a race worthy of study by all who concern themselves with public health. Even without the returns of a registrar-general it is evident that the birth-rate in China must very considerably exceed the death-rate, and has done so in an average way during the three or four thousand years that the Chinese nation has existed.

Chinese hygiene is the product of an evolution extending more than two thousand years before the Christian era. There are no Chinese sanitary laws like those of the Mosaic code, but the Taoist religion is largely based on health maxims, though lost amongst a mass of superstitious absurdities and spirit lore. In the *Su-wen*, a book which is 2,000 years old, the philosophy of the body and of health is fully developed in the old Chinese way. It defines sanitation as health preservation so as to live to old age. It holds that true sanitation is in conformity with nature's laws. Every one who attends to these can live to be a hundred years old. The Chinese know that in order to live long they must live moderately, and they have two main laws of health which are very comprehensive, namely:

- (1) Restraint of all the appetites.
- (2) Cleanliness in house and person.

Regarding the attitude of the Chinese to modern public health measures it may be noted that their prejudices are strong. The Chinese are a people with a supporting belief in all kinds of drugs, charms, and spells, while their medical methods are empirical and founded mostly on the fancies of the alchemistical religion of Tao. The Chinese drug-shops contain an immense number of drugs and preparations, and are the most elaborately ornamented of all shops; the Chinaman spending a large part of his income on medicines. It is not surprising, therefore, that modern public health measures, which are founded on organised common sense and from which the personal factor of the relation between doctor and patient,

with all its fallacies, is eliminated, do not appeal acutely to the Chinaman. He is attracted by the merest scum only of so-called western civilization, furnished by well-advertised patent medicines and itinerant quacks in the sacred name of trade. As in diseases the least curable, there are the greater number of drugs recommended for their cure, so it is with the Chinese who, though ignorant of the real cause of disease, have a proportionately great desire for a multitude of drugs—the Chinese pharmacopœia is the largest in the world. In China, therefore, considerable breadth of view and treatment is necessary in hygienic measures. With an unsympathetic people like the Chinese, sweeping sanitary measures are difficult of operation, and though hygienic conversion is hard, dragooning is still less effective, and any attempt to hustle the east is poorly rewarded. The processes of social evolution can perhaps be studied on broader lines in China than anywhere, on account of its particularly massive and concrete historical records; and the lesson appears to be that in many respects the methods of some centuries of practical experience are frequently confirmed as good by modern science. And it is by following out these methods in a spirit of scientific sympathy, tempered by an accurate appreciation of Asiatic environment, that the best results may be attained.

FOOD.

On seeing the Chinese housewife washing rice in the nearest puddle, most foreigners exclaim, "What beasts these be!" The observing man, however, discovers that rice is not washed to make it clean, but to free it from the fine particles of starchy matter, which, if left, would cause the rice to boil to a glue-like mass. It is the subsequent boiling that effectually protects the consumer from any disease that might have arisen from washing it in evil waters. The Chinaman eats and drinks little that has not been subjected to the temperature of boiling water or boiling oil, and is therefore largely preserved from typhoid fever, cholera, and other diseases which are caused by infected food. There is no food infection known which will survive the temperature of boiling water.

The Chinaman is not a great fruit eater. He is such an excellent cook that he prefers foods in which nature has been improved by art. He abhors raw things as a rule. Raw oysters, for example, the Chinese will not eat, considering them "too cold for the stomach." Except under great stress, he drinks no cold water, but always tea made with boiled water, and thus avoids water-borne disease. Regarding disease infection therefore, the principles which govern the Chinese dietary are true ones.

Concerning the quality of Chinese food, a European would generally

say there is no "stamina" in it. Diseases, however, like rickets and gout, which are attributed to disordered metabolism, are conspicuous by their absence among the Chinese. Functional disease of the stomach and alimentary tract is less common than among Europeans, and the teeth of the Chinese are admitted by all to be exceptionally beautiful and good. Look at the clean-limbed, muscular Chinaman of the fields! He is the picture of health and agile strength as he sings through the hottest or coldest day's work. Singing at work, which is practically universal through China, indicates a vital energy in excess of that required for the labour in hand. The weary worker has no song. A Chinaman planting rice-shoots on a summer day, with his bare legs in the mud, sings a pæan of nature exuberant.

Regarding food, therefore, modern hygiene has little to teach the Chinese while he abides by the principle of eating and drinking nothing that has not been thoroughly cooked. He is apt, however, in a foreign environment to consume aerated waters and other unusual things, and suffers thereby.

HOUSES.

In a Chinese house the weight is carried on wooden posts; the framework and roof being first erected, and the walls filled in afterwards. There are usually plenty of windows and other openings, and in the case of shops the front is entirely open, so that the workmen are practically all the day in the open air. The houses are closely aggregated and the streets as narrow as possible, a condition which tends to cosiness and warmth in winter by keeping out the wind, and coolness in the summer by keeping out the sun. This, with their peculiarly warm and at the same time light clothing is possibly the reason that catarrhs, bronchitis, and rheumatisms, which may be attributed to cold, are less common among the Chinese than among Europeans. The Chinese dwelling has plenty of natural ventilation. With regard to sleeping accommodation the Chinese closely resemble most of the rest of the animal creation in getting into a small, close, warm place for sleep. It is probable, however, that impure warm air is less injurious than cold pure air during sleep. And during sleep less air is required than at other times, while the body is more subject to chills. Although bad smells abound near Chinese houses, smell is not a perfect test of unhealthy environment. There is little sewage from a Chinese house, for all excreta are treasured up in water-tight vessels, in which fermentation is allowed to take place, producing manure for the garden and field.

The houses of the Chinese working-classes are, therefore, probably healthier than those of the European working-classes. Modern hygiene would require the proper paving of the site and immediate surroundings of the Chinese house, the provision of a curtilage to each house, and greater width of streets. The greatest sanitary evil in China is undoubtedly overcrowding, everywhere admitted to be the worst of all unhealthy conditions, and one that cannot be counterbalanced by other sanitary measures. It is here that modern sanitation is diametrically opposed to the Chinese method of closely herding together, which is the result of an evolution, influenced by a feudal environment, in which the people collected together, mostly within walls, for the purpose of mutual defence against outside marauders.

DISPOSAL OF REFUSE.

It is in the disposal of refuse that modern hygiene has the least to teach and the most to learn from the Chinaman. The principle of returning ordure and garbage to the soil is the only true and economical one. By this means alone can the energy residing in the soil be conserved. The water carriage of sewage and its most modern treatment in mass by bacteriological methods is a crude imperfection when compared with the Chinese method of returning all refuse to mother earth, which it replenishes and is at the same time purified by the most complete bacteriological processes. The upper layer of the soil is the universal purifier; it is here that the nitrifying and other organisms reside which convert organic refuse into inorganic plant food. Before applying ordure to the soil the Chinaman as a rule allows it to undergo ammoniacal fermentation in pits and kongs. In this process the complex nitrogenous bodies are broken down into simpler ammonia salts, which is a stage nearer to the formation of nitrates by the nitrifying organisms; the latter being the only compounds of nitrogen which are assimilable by plants. These ordure pits and urine kongs are a characteristic feature of the Chinese landscape and give rise to the *bonquet de chine*, which is one of the many sacrifices the Chinaman makes at the altar of agriculture. But besides improving the manurial value, these fermenting pits to a large extent kill any pathogenic organisms that may be present. The fields of China sufficiently demonstrate the great manurial value of human excrement, producing fruit, flowers, and vegetables in the highest perfection.

The main problem of sanitation is to cleanse the dwelling day by day, and if this can be done at a profit so much the better. The Chinese solved the question of economic sanitation long ago. While the ultra-

civilized European elaborates destructors for burning garbage at a financial loss and turns sewage into the sea, and also frequently into the water he drinks, the Chinaman converts each into a source of profit by using them for manure. He wastes nothing while the sacred duty of agriculture is uppermost in his mind. And in reality recent bacteriological work has shown that faecal matter and house refuse are best destroyed by returning them to clean soil where natural purification takes place. On the other hand, the typhoid bacillus, and, to a less extent, the cholera bacillus can live and even multiply in polluted soil, that is, in soil holding a larger quantity of organic matter than it can elaborate into plant food; while both cholera and typhoid fever can infect vegetables if infected ordure is directly applied to them. In China these two diseases are less frequently water-borne than derived from infected vegetable food. And in this connection it may be noted that typhoid fever is much more common among Europeans resident in China than among those in the home lands. This greater prevalence of typhoid fever in China would appear at first sight a strong argument against the principle of returning refuse to the soil, but it is more probable that the fault lies with imperfect details. The native doctor does not disinfect the stools of typhoid fever cases.

Inasmuch as ordure is disposed of by natural principles, there is little real sewage in China, so that there is no need for a costly and elaborate system of drainage. The numerous waterways and the aggregation of the non-agricultural population near them render artificial sewers to a great extent unnecessary. In the great cities near the mouth of rivers and on the deltas the numerous tide-flushed creeks perform the function of the sewer. These willow-grown creeks, which form so pleasing a feature of the landscape of the Yangtza Delta, when kept clear and deep, so as to be flushed twice daily by the most economical and effective of all flushing apparatus, the tide, are excellent sewers and save much expense of artificial drainage. If maintained clean and clear the creek is a perfectly legitimate and sanitary method of drainage, especially where there is little excremental sewage. And in the construction of these creeks the Chinese are masters of the art of irrigation. The motto of Li Ping the great Szechuan engineer, inscribed twenty-one centuries ago in the temples among the hills above the Cheng-tu plains, "Dig deep the bed, keep the banks low," is as applicable to the whole of China as it was to the great irrigation works of the Cheng-tu plain.

It is in the construction of house drains and street sewers in the cities that modern hygiene can be of use. Down the centre of many streets in Chinese cities runs a trough of brick or mud covered with flag-stones.

Through the many places where the covering is imperfect can be seen a black fermenting mass, whose only chance of removal is afforded by a heavy fall of rain. The street sewers discharge into ditches, which become the most noisome of septic tanks through blocking with garbage. In the cities, also, where agriculture is not the chief occupation of the inhabitants, garbage is allowed to accumulate. When divorced from agriculture, the principle of returning all refuse to mother earth does not flourish so happily. Self-interest is the mainspring of good works, and in the cities it does not always pay to remove garbage to the agricultural districts; ordure, however, always commands a good price and a ready sale, and its exploitation in most Chinese cities is a lucrative business.

PREVENTION OF INFECTIOUS DISEASE.

The prevention of infectious disease is the chief function of modern hygiene. Notwithstanding the great mass of recent pathological research, which has been the only real advance that medicine has made since the days of Hippocrates, Jennerian vaccination remains the type of all that is best in preventive medicine. The Chinese, however, anticipated Jenner, for they inoculated with small-pox as a protection against severe small-pox when our ancestors were painting themselves with woad. The Chinese were intellectual giants by comparison in those days. The Chinese have seen most of the great nations of antiquity in and out, and still remain a great people. Why has not China gone the way of the rest? The methods of living of the people must be essentially good.

The Chinese do not practise isolation of infectious disease. They have, however, been known to evacuate villages stricken with plague, and they frequently burn the clothing and bedding of persons dead of small-pox and cholera. The methods of modern hygiene, born of the true knowledge of the cause of infectious disease—notification, isolation, and disinfection—will come into play when the Chinese medical man ceases to be a mere drug-vendor and is received into the lap of science. This will take a long time. The Chinese are platonic rather than aristotelian in their methods of reasoning, deductive rather than inductive, and have not that aspect of mentality which assimilates the natural sciences readily.

DISPOSAL OF THE DEAD.

The Chinese method of burial compares to advantage with that of Europe. In China the burial rites assume much importance. The coffin is of very thick wood, mortised together and varnished, so as to be practically air and water tight. Prior to placing the body in it the coffin is

half-filled with lime. The coffin is rarely buried at once, but awaits prolonged funeral rites in the mortuary chapel, or in the residence of the deceased. In the mortuaries the coffins can be seen in rows of hundreds, and the freedom from disagreeable odour indicates the goodness of the coffining. The coffins are finally buried under a mound of earth, or in a brick tomb, above the level of the surrounding land. These are scattered through the landscape and, surrounded as they frequently are by trees and shrubs, usually form a pleasing feature.

The absence of cremation among the Chinese is notable, considering its popularity in other Buddhist countries, such as India and Japan.

CLOTHING.

The materials used for clothing by the Chinese are mainly cotton and silk. In hot weather the men do not wear hats and the workers little more than cotton drawers. The dress of Chinese women is perhaps the most modest in the world, the lines of the figure are rarely shown, though a well dressed Chinese woman is a model of neatness. In the cold weather they increase the number of garments and wear an outer garment padded thickly with cotton wool, which is very warm and at the same time light. The children appear twice the size in winter and rarely suffer from cold. The cold weather clothing is considerably lighter, warmer, and cheaper than European clothing, and enables them to a large extent to do without artificial heat. Chinese clothing is more hygienic than that of Europeans, excepting the shoes of the women with small feet.

HABITS.

In Europe alcoholism is the greatest obstacle to sanitary reform, and the death-rate is more increased by this and its attendant misery in the course of one year than in ten by all the infectious diseases. Drunkenness is practically non-existent in China. Opium smoking is perhaps the equivalent in China of alcoholism; the sedative effects of opium being more in keeping with the Chinese character than the temporary mental and muscular excitement produced by alcohol, which is desired by Europeans. But in comparison with alcohol, the evil wrought by opium is trivial. The opium habit is perhaps more nearly equivalent to tea-drinking or tobacco-smoking. While alcohol causes disease of most of the organs of the body and is one of the chief causes of insanity, opium produces scarcely any changes that can be recognized post mortem.

The polygamous marriage system of China is good in so far as unmarried females are rendered few and consequently prostitution with its evil train

of disease comparatively rare. Concubinage under a strict system must be admitted to be preferable to the flaunting prostitution of Europe.

CONCLUSIONS.

Though the Chinaman is sometimes spoken of as the most unsanitary of individuals, he would be a poor observer who would hold that Chinese sanitation is not better than that of mediæval Europe. Were China imbued with the true scientific spirit she would become perhaps a model of sanitation, because the methods of living of the people are essentially good. The prolonged national life of the Chinese and their great population is an unanswerable argument indicating sound sanitation; pestilence rather than war being the cause of the disappearance of the nations of antiquity, whose origin was synchronous with the Chinese. At the present day the thrifty millions of China overflow their own country and compete so successfully with the British and Americans that laws have been made in America and Australia forbidding the immigration of Chinese.

From a hygienic aspect many of the modes of living of the Chinese are better than those of modern Europe; for example, in the matter of food, disposal of refuse for the benefit of agriculture, clothing, and in the comparative absence of alcoholism and prostitution.

The two ancient Chinese sanitary principles, restraint of the appetites and cleanliness in house and person, are the shortest and most comprehensive summary possible of modern public health rules, including as they do most of what is essential in modern hygiene.

Antiquity in national life is good because it allows evolution to have full development. In social etiquette, for example, ceremonials have been gradually perfected through long periods of time, so that their modes of social intercourse are the most punctilious and refined. In general life it is admitted, by those who have frequent intercourse, that the Chinese gentleman is the most polite in the world. In a somewhat similar manner it is conceivable that the modes of living for the promotion of health have undergone evolution.