

which clearly shows the extent of the cavity, and the great thinning of the bone as a result of the growth.

My thanks are due to Dr. Balfour for his courtesy in examining the specimens, and to Mr. Beam, of the Gordon College, to whom I am indebted for the photograph.

Travel.

BATHS AND BATHING IN JAPAN.

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ONE of the things which impresses the visitor to Japan most, is the fact that delicious hot baths can be obtained everywhere—in the great hotels in Tōkyō, or in the most remote mountain hamlet. The Japanese, in their persons and houses, are the cleanest people in the world—as the Chinese are the dirtiest—and every man, woman and child of high or low degree has a daily hot bath. Though most of the items of Japanese civilisation have been, at some time or other, borrowed from China, this does not apply to the universal habit of bathing, which is recorded in the most ancient Japanese literature, and dates back to the days of mythology. The bath is taken at a temperature which is perfectly astonishing to anyone who is only accustomed to what is called a “hot bath” in Europe or America.

Purification of the body is at present associated with the Shintō ritual, the popular form of religion; but bathing, as practised in Japan, has nothing to do with religion, and is indulged in for its own sake and the satisfaction of being clean. Dr. Seaman, in his interesting book, “The Real Triumph of Japan,” writes: “Every man bathed before going into action, and made himself as near surgically clean as possible. While in barracks in Japan, he bathes every night; in transports *en route* to Manchuria he had at least two baths. At the front he bathed at every possible opportunity.” The baths here referred to are hot baths, generally taken at temperatures ranging from 110° F. to 120° F., though at some places this is exceeded. Baths are either public or private, and almost all houses are provided with one, either in or near the house. The

common bath is a large wooden tub, oval in shape, usually with a wooden cover. A copper tube passes through it at one end. The bath is cleaned out and filled with cold water every morning, charcoal is burned in the tube, and the water is thus heated and ready by the evening, or a cauldron and small furnace near the house provide the hot water.

In the towns the baths are in the houses, but in the country they are often several yards away, and the various members of a peasant's family may sometimes be seen in the summer-time trooping out in a state of Nature to take their turns at the evening bath. The public baths are of the same kind as the private, but are generally rectangular in shape and much larger.

It used to be the universal custom in the baths for men and women to bathe together, and the baths were open to the street. At some of the more remote, hot, medicinal springs in the country districts, this arrangement can still be seen. There is no indelicacy connected with this custom, with which the people have been familiar from childhood. It is a matter of course, an ordinary sight, and no one appears to know that he is naked. Cleanliness is more esteemed by the Japanese than our artificial Western prudery. As the Editor of the *Japan Mail* has well said, "the nude is seen in Japan, but is not looked at." Mitford, in his charming book, "Tales of Old Japan," remarks: "Speaking upon the subject once with a Japanese gentleman, I observed that we considered it an act of indecency for men and women to wash together. He shrugged his shoulders as he answered, 'But then Westerns have such prurient minds.'" Of late years, out of deference to this Western prejudice, if we may so call it, "mixed bathing" has been forbidden by the Government, and there is generally a division—though often of the flimsiest nature—between the men's and the women's bath. It is stated to consist sometimes merely of a bamboo laid across the surface of the water. I have myself seen one place where, although there were separate entrances marked for "Men" and "Women," there was only one bath inside.

There are over 1,100 public baths in the city of Tōkyō alone, in which it has been calculated that over 400,000 persons bathe daily. The daily tub is taken after the work of the day is over, and the dress is changed at the same time; but in summer, and among persons with leisure, the bath is sometimes taken three or four times a day. It is only those who are so poor that they cannot afford a bath at home who go to the public bath-houses. In a Japanese family or small inn, one bath does for everybody.

The water is seldom changed more than once or twice a day, except where it comes from natural hot springs, when the change is automatic and continuous, so that from a score to a hundred people might bathe in the same limited amount of water which a large bath will contain. The bath is first used by the men—the lords of creation—then by the women and children, and last of all the servants, at a late hour in the evening, assemble to bathe and discuss the events of the day. A European guest at an inn is generally accorded the honour of bathing first, as the Japanese will always do their best to avoid bathing at the same time as a foreigner. The people of the house and the Japanese guests will, as a rule, endeavour to arrange matters, so that when the stranger is in the bathroom he has it to himself; and although in some places it excites considerable local interest, and all available cracks are used for the peep-show, speaking generally, it is not true that the whole population turns out to see the foreigner bathing. At the same time, the European traveller who has temporarily adopted the Japanese style of living, must not be disconcerted if, in visiting hotels away from the ordinary tourist track, when sitting in his bath one or two ladies should come and sit down beside him. He must not appear surprised or shocked, but take everything he sees for granted, as if he were sitting in the reading-room of a European hotel, or the smoking-room of his club. “An eccentric situation, from our point of view, but not an indecent one from theirs” (J. S. Ransome). If they do not know him they will take no notice of him.

“According to the Japanese standard, any exposure of the person that is merely incidental to health, cleanliness, or convenience in doing necessary work, is perfectly modest and allowable; but an exposure, no matter how slight, that is simply for show is in the highest degree indelicate. It is surprising how quickly foreigners usually adopt the naïve Japanese point of view; in a few weeks one looks on nakedness with the same indifference as the natives, except when a beautiful figure arrests the æsthetic attention. Not only are the Japanese, in their indifference to nudity, more sensible and pure-minded than their censors, but, in the matter of bathing and cleanliness, they are, as a nation, infinitely more civilised than Europeans and Americans. That *Japan has no ‘Great Unwashed,’* is a statement of such wide bearing that the occidental mind can scarce grasp its significance at first hearing.” (Finck’s “Lotos-Time in Japan”).

Each person, according to Japanese custom, first thoroughly

washes himself, or herself, with soap and hot water—wooden ladles being provided—sitting on the wooden floor of the bathroom, before entering the water. Thus each enters the bath *already clean*, and then sits in the hot water immersed quite up to the neck for two or three minutes, often repeating the process several times, according to inclination and the temperature of the water. On leaving the bath finally the washing process is repeated all over again. This constitutes the chief event of the day in a Japanese household, and one that is not hurried over. Very small towels are used, scarcely bigger than large handkerchiefs, and it is the custom in Japanese hotels to present each guest with one bearing the name of the house, on payment of his bills before leaving.

Besides the private and public baths there are what may be termed the semi-public baths at all hotels and tea-houses. The first thing one usually does on arrival at a Japanese hotel is to take off one's clothes and have a bath. At such hotels as are frequently visited by foreigners, there is usually bath accommodation of a sort, where the European can disport himself in privacy. It is not necessary for the guest to have a single item of luggage, everything from night-clothes to tooth-brushes being provided by the house. After the bath, he may if he wishes be shampooed by the blind *amma-san*, as massage has for centuries played a great rôle in Japanese medicine.

There has been much exaggeration about the temperature at which the baths are used. The ordinary hotel bath, though possibly somewhat warmer than our baths, is seldom too hot for a foreigner to use without serious discomfort. A hot bath at home indicates one at a temperature of 100° to 106° F. In Japan everything below 110° F. is thought too cold, and anything above 120° F. unpleasantly hot, as a rule. Temperatures between these two limits are considered agreeable. Personally, I found 114° F. quite hot enough. Women and children generally use the water at a somewhat lower temperature than the men.

As to the effect on the health of the people by the custom of always bathing in very hot water, or, "boiling" themselves, as it is often described, a few remarks are necessary. When first Japan became open to the trade of the world, and the Japanese began to take the advice and study the methods of the Western nations (after 1868), the question of hot baths was not omitted. Western physicians strongly condemned the practice, apparently for no better reason than that it was foreign to European ideas and custom, and therefore must be bad. A regulation was issued

ordering that the water in all public baths was to be only moderately heated. This caused great discontent. Afterwards the subject was investigated by a committee of European and Japanese doctors, with the result that, except in the case of people suffering from cardiac weakness, the national custom was pronounced not only harmless, but beneficial. The high temperature of the water thoroughly opens the pores of the skin, even without the use of soap, and a healthy skin action and cleanliness are secured which it is impossible to get with any amount of washing in cold or so-called "hot baths." The hotter the water the less chance there is of catching cold, while a very hot bath taken just as it is felt that a cold is coming on, is the very best method of aborting it. The invigorating effect of a very hot bath after a tedious day's journey in hot or cold weather is wonderful, and very different from the relaxing effect of a tepid bath: it soothes the nerves, eases the tired muscles, promotes appetite and gives sound sleep. In very cold weather it has the effect of preventing the cold being felt for several hours afterwards, while in hot weather it has a distinctly cooling effect. People who have lived much in the East are in the habit of taking a hot bath in the evening before dinner. It is very refreshing, and free from the danger attending a cold bath, of causing congestion of the abdominal organs, especially the liver. Almost all foreigners resident in Japan adopt hot water bathing, which seems to suit the climate better than cold water, which is apt to cause rheumatism, fever, and a continuance of coughs and colds.

Sea bathing has also in recent years become very fashionable among the Japanese upper classes, following Western habits, and such places as Ōiso and Ushibuse, charmingly situated on the Bay of Suruga, are studded with villas and hotels, much frequented in the summer months by the people of Tōkyō.

The following records of temperature, which I have confirmed, were taken at Kusatsu by Professor W. K. Burton, of the Imperial University of Tōkyō, to whose writings, and also to those of Professor B. H. Chamberlain, of Tōkyō, I am indebted for many of the statements made in this paper.

Temperature of the air, 75°. Temperature of bath 116°.

Temperature of body before bathing, 98·4°. Time in the bath five minutes.

Temperature of body at the end of five minutes in bath 101·5°.

 " " " one minute after leaving bath 102·4°.

 " " " two minutes after leaving bath 102·4°.

Temperature of body three minutes after leaving bath 101·5°.

” ” ” ten minutes after leaving bath 98·6°.

The temperature was taken by a clinical thermometer in the mouth, and the degrees are Fahrenheit.

It has been thought that the habit of public bathing, especially as in many places the water is not very frequently changed, might lead to the communication of infectious diseases. This does not appear to be so, except in an isolated case or two, and the risk is more than compensated for by the general improvement in health which is the result of cleanliness.

As Professor Chamberlain has well said, “a Japanese crowd is the sweetest in the world.” Both Sir Edwin Arnold and Lafcadio Hearn have endorsed this statement, the former, with poetic license, comparing the smell of a Japanese crowd to the scent of the geranium flower! Hearn states: “Your Japanese tramp takes his hot bath daily, if he has a fraction of a cent to pay for it, or his cold bath if he has not. In his little bundle there are combs, tooth-picks, razors and toothbrushes. He never allows himself to become unpleasant. Reaching his destination he can transform himself into a visitor of very nice manners and faultless, though simple, attire.”

An almost national change for the better in diet, clothing, public hygiene and education, has taken place in the last twenty years. The charge for the use of the public baths is so small at present—less than one halfpenny English money—as to place them within the reach of the poorest people, and Japan is a very poor country.

The country is extremely volcanic, and earthquakes are very common, averaging over two a month. At the present time the Japanese count over twenty active and hundreds of dormant volcanoes. It may also be said to be bubbling with hot springs from end to end, some of pure water, many highly impregnated with mineral salts and famous for their geyser-like action. All that are in any way accessible are resorted to by the people for bathing, who have great faith in their medicinal virtues. Sulphur springs may be found in almost every province, and beds of sulphur abound. In Shinano and Echigo the people cook their food by the inflammable gas which issues from the ground and is led through bamboo tubes (W. E. Griffis).

The most noted spas are Kusatsu, Ashinoyu, Yumoto near Nikko, Yumoto near Hakone, Nasu, Shiobara and Unzen (sulphur); Ikao, Arima and Beppo (iron and soda); and Atami and Isobe

(salt). The chief mineral constituents of these springs are sulphur, sulphate of iron, and chloride of sodium. The crater of Shirane-San has a pool which is stated by Dr. Divers, F.R.S., to contain $2\frac{1}{2}$ per cent. of hydrochloric acid. The waters at Miyanoshita, the best known to foreigners, only contain traces of salt and soda; but the hotel is one of the best in Japan and the neighbourhood delightful in fine weather. The majority of these springs are situated in the mountainous districts, which are also the most interesting to the traveller who wishes to see something of the country and the people away from the treaty ports, and who is prepared to "rough it." The mineral springs of Japan are generally used at high temperatures; few are cold, or contain carbonic acid gas. Although the Japanese are said to suffer much from dyspepsia, the springs are seldom used in the treatment of diseases of the stomach, liver, dysentery, &c., as at Vichy, Carlsbad, and other places in Europe.

During the spring of 1906 I paid a visit of several days to Kusatsu, in the province of Kotsuke, the most celebrated of all these spas, a short description of which I think may be interesting. It is situated on a plateau, surrounded by lofty mountains, in North Central Japan, at an elevation of 3,800 feet above the sea, and amidst scenery which recalls parts of Switzerland. The springs, which have had a reputation since the latter part of the seventeenth century, probably stand alone in the world on account of their double character, consisting as they do of cold corrosively acid water, and nearly boiling sulphur water. The cures which are reported to be produced yearly by the combined effects of temperature, mineral acids, sulphur, arsenic, iron and alum, assisted, no doubt, by the pure, bracing mountain air, in cases of leprosy, syphilis, rheumatism, gout and chronic skin affections, are little short of miraculous. The repute in which the waters are held is indicated by the old Japanese proverb, which states that "love is the only grave distemper against which Kusatsu can effect nothing." One educated European, the manager of an hotel in Yokohama, who had undergone the cure, suffering with renal symptoms, told me that it made him feel at least ten years younger.

Kusatsu may be comfortably reached by walking in two days from Ikao, in the province of Joshu, which is close to the railway from Tōkyō, taking the road by Lake Haruna, and along the valley of the Agatsuma river, and breaking the journey at the hot springs of Kawara-yu, or from Karuizawa, also on the railway, the distance in both cases being about 30 miles. Given fine weather, the

march is delightful, across moors and through park-like scenery. By the latter route the road passes close to Asama-yama (8,130 feet), the largest active volcano in Japan, which well repays the tedious climb to the top to view the crater. Kusatsu is the coolest of Japan's summer resorts, the average shade temperature being below 80° F. The village consists of a large square, the centre being occupied with hot sulphur springs at a temperature of 160° F., the water being first led into wooden troughs to collect the sulphur. Clouds of sulphurous vapour are continually rising, the smell of which pervades the whole atmosphere of the place. This is more marked in damp and cold weather, during which our visit was made.

The springs are of various temperatures and are powerfully medicinal, although the chemical constituents are not the same in all. There are numerous public and private bath-houses, and a new hotel, with accommodation and food for foreigners, was being built. In winter the place is almost deserted, and covered in snow; but in the summer season the tea-houses and hotels are full of visitors, who come from all parts of Japan to take the cure, which lasts about six weeks, and consists in 120 baths. The baths are the property of the town, and are not under any regular medical supervision, although two Japanese doctors of the old school were resident in the town.

TEMPERATURE AND CHEMICAL ANALYSIS (GRAMS PER LITRE) OF FIVE OF THE CHIEF SPRINGS AT KUSATSU,

Kindly obtained for me from the Central Sanitary Bureau, Home Department, Tōkyō, by Dr. F. Rutherford Harris, and translated by Dr. Ajioka, of the Japanese Legation Guard, Peking.

	Taki-no-moto-yu	Netsu-no-yu	Washi-no-yu	Dizō-no-yu	Goza-no-yu
Temperature	148° F.	144° F.	140° F.	141° F.	147° F.
	Gram.	Gram.	Gram.	Gram.	Gram.
Sulphuric acid	1·7201	1·3392	1·8674	1·7578	2·1384
Hydrochloric acid	0·8742	0·8532	0·7461	0·8875	0·8485
Silicic acid	1·1988	0·2550	0·6389	0·6149	0·7383
Calcium sulphate	0·3564				
Sodium sulphate	0·1458	0·4200	0·2400	0·2050	0·4860
Potassium sulphate	0·0551				
Magnesium sulphate	0·1800	0·2990	0·2331	0·2187	0·0150
Aluminium sulphate	1·6270	1·1800	0·0215	0·7199	0·3051
Ferric sulphate	0·8946	—	—	—	—
Sulphuretted hydrogen (H ₂ S)	0·0041	—	—	—	—
Phosphoric acid	A trace	—	0·0723	0·0450	0·0132
Ferrous sulphate	—	0·2280	0·2688	0·2689	0·1663
Monocalcium phosphate	—	Undecided	Undecided	—	—
Organic substances	Trace	Trace	Trace	Trace	Trace
Total solids	5·5561	4·5744	4·0886	4·7176	4·7108

We were taken round by a Japanese gentleman who had been many years in America, and was himself undergoing the treatment, and were initiated into the mysteries of the place. A small charge is levied on all visitors using the baths, whether public or private, which assists in keeping them in repair. No special diet is laid down. Japanese food being sufficiently unstimulating, no other medicinal treatment is prescribed, and exercise, as will be explained, is usually out of the question. The whole brunt of the cure depends on the waters, none of which are taken internally.

The most famous bath is the Netsu-no-yu, or "fever-bath," measuring 45 by 35 feet, and accommodated in a wooden building. The water is brought from the main spring in wooden pipes, and gets considerably cooled in transit. This bath is divided into three compartments, with varying temperatures, the coolest being about 114°, and the hottest about 125° F. The chief active substances are free H_2SO_4 and HCl to the extent of about $\frac{1}{4}$ per cent. of the whole volume. The water, of which I was unable to obtain an analysis, as it issues from the ground, is said by Dr. Divers to contain about three volumes of H_2S per 1,000, and one part of arsenic sulphide in 1,000,000 parts. Professor E. Baelz, M.D., late of the Imperial University of Tōkyō, attributes the curative action of the waters to the acids, the effect being analogous to blistering on a large scale. The beneficial result in skin diseases is, no doubt, principally due to the sulphur and arsenic. After about ten days of the treatment, which is commenced in the cooler divisions, blisters are produced about the scrotum, in the axillæ, &c., which result in the characteristic "Kusatsu walk," the patient moving slowly along with the legs wide apart, and the arms raised from the side, often using sticks. The pain of bathing when the body has got into this condition is considerable, and the itching produced after leaving the water is even worse. No ointments or other oily dressings are used to allay this, but the sore parts are swathed in cotton wool, which is provided, before entering the water.

From fifty to a hundred persons bathe at a time, or as many as the bath will accommodate. This system is known as the Jikan-yu or "time bath," because the hours and the duration are fixed. Five baths are taken daily, three in the morning and two in the afternoon, and the same routine is followed each time. In order, it is stated, to keep up their courage, the bathers in the two hottest baths submit to a semi-military discipline, and all enter and leave the water together at the word of command of the bath-master, who works by a clock which is hung up in a conspicuous

position in all the bath-houses. The patients are summoned to the baths from their adjacent inns by the blast of a trumpet, or the sound of a drum, about half an hour before bathing time, and come hobbling across the square in white cotton jackets and drawers covered by a kimono. The first exercise, which lasts about fifteen or twenty minutes, is performed by the bathers taking their places round the bath and churning up the water with broad boards about 5 feet long, singing in chorus (fig. 1). This mixes and cools the water,

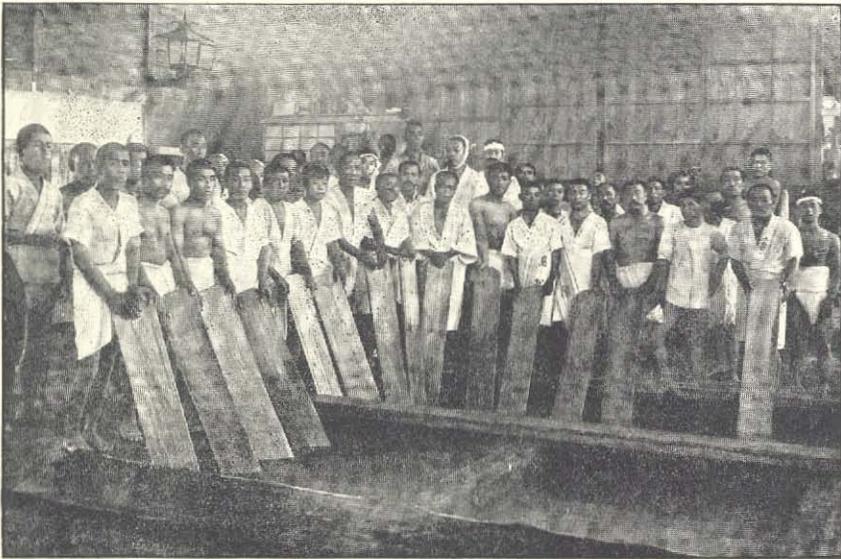


FIG. 1.—Bathers prepared to churn up the water with wooden boards.

The next stage is for all the bathers, on a given signal, to provide themselves with wooden ladles, to bend down and pour 250 dippers over the back of the head and neck, taking care not to let the water enter the eyes, where it causes severe smarting. This is done to prevent syncope occurring on entering the water, a not uncommon thing, as the head is not subsequently wet. This stage occupies about ten minutes, after which there is a short rest, during which the blistered parts of the body are protected by cotton wool and bandages. At the end of this interval the signal is given by the bath-master to enter the water, and very slowly the bathers lower themselves, taking about thirty seconds before they are completely immersed up to the neck, as shown in fig. 2. Then begins the most curious proceeding in the whole ceremony. It is a sort of chant by the bath-master, answered by all the bathers in chorus, on getting into

and while in the water. This is intended to help them to bear the pain of the three minutes' immersion in the water. The following is a very free translation into English, which I borrow from an article by Professor W. K. Burton, published in America in 1892 :—

“If you are all ready enter the water,
There are three minutes.
There are only two minutes more.
Persevere a little longer.
There is only one minute more.
Persevere only a little while longer.
Get out of the water *slowly*.”



FIG. 2.—Men bathing for three minutes in the Netsu-no-yu Bath, at Kusatsu, in Japan. Bath-master in white. Wooden partitions placed across bath to separate the bathers. Wooden dippers shown.

The hoarse shout, or wail, of the bathers can be heard all over the town and produces a most uncanny impression on the recently-arrived visitor, who might easily imagine that each bath-house was a torture chamber. Still, from my own observation, and, as will be seen in fig. 2, the faces of the bathers, as a rule, do not show that they are suffering pain, and they converse all the time. The order to get out of the water is obeyed with great alacrity. They rise as one man, which compares strangely with their slow and gradual entry. Towels are supplied by the attendants—generally women—and the bathers enter the dressing-room to cool down

before returning to their houses. The bath-house is thoroughly washed out before the next batch of bathers enters.

After completing the course at Kusatsu many of the invalids go to the baths of Sawakari and Shibu, about 10 miles distant, where they undergo the "after-cure." The waters of these springs are much milder, and the sores produced at Kusatsu quickly heal and all irritation disappears.

In the lower part of the town is situated the lepers' quarters. There are many lepers in Japan, but these unfortunates are not treated as outcasts and made to crowd together in settlements. For many years they have voluntarily congregated at certain places where the treatment is supposed to cure or alleviate their sufferings. Kusatsu is one of the chief of these places, and the lepers have a bath of their own (Goza-no-yu). Dr. E. Baelz, a resident for many years in Japan, and a well-known authority, has stated that the Kusatsu treatment of leprosy actually results in the cure of some cases, if taken at an early stage. This treatment consists of bathing, as already described, combined with the very free use of the "Moxa." Moxa is one of the few Japanese words which have found their way into the English language (Chamberlain). It is properly *Mogusa*, that is, "burning herb." A small cone is made of the cottony fibres of the *Artemisia chinensis* (Mugwort), which is applied to the part affected and lighted. In the old Chinese and Japanese system of medicine, burning with the Moxa was considered a panacea for almost every human ill, and, together with acupuncture and scarification, is the only surgical treatment used by the Chinese doctors to-day.

In conclusion, to quote again from Professor Chamberlain's "Things Japanese," "the whole life at Kusatsu is so strange that he whose stomach is not easily upset by nasty sights, would do well to go and inspect it. To squeamish persons we say most emphatically, stay away!"

REFERENCES.

- EDITOR, *Japan Mail*. Quoted by Professor B. H. Chamberlain, p. 55.
 SEAMAN. "The Real Triumph of Japan."
 J. S. RANSOME. "Japan in Transition."
 Professor W. K. BURTON. "Hot and Medicinal Baths in Japan," &c.
 Professor BASIL HALL CHAMBERLAIN. "Things Japanese," "Murray's Handbook for Japan," &c.
 LAFRADIO HEARN. "Kokoro," "Glimpses of Unfamiliar Japan," &c.
 Dr. DIVERS, F.R.S., quoted by Chamberlain. "Things Japanese," p. 281.
 Dr. E. BAELZ. "Asiatic Transactions of Japan," quoted by Burton.
 W. E. GRIFFIS. "The Mikado's Empire."
 Sir EDWIN ARNOLD, quoted by Hearn in "Kokoro," p. 31.