

THE JAPANESE SWORD EXERCISE.—I.

BY G. H. TILDEN.

Until the year 1603 A. D. there was no law existing in Japan with regard to the wearing of swords. Anyone might carry as many as he chose. During the Tokugawa regime, however, a law was promulgated which allowed only the nobles, the fighting men or *samurai*, the artists or painters, and the swordsmiths to carry swords. This law remained in force until 1877, when an edict was issued forbidding anyone to wear swords in public. This naturally created discontent among those whose privilege it was to carry them, whereupon the government proclaimed another edict, allowing anyone to wear as many swords as he pleased. This removed the cherished distinction attached to the wearer of a sword, and no one cared to do what was permitted to all. Although wearing swords has entirely ceased for twenty years in Japan, the old esteem and reverence for the weapon and its use still exists among the gentlemen of the country, and many of the nobility have at their houses regular establishments where fencing is practised. Fencing teachers are attached to the police stations, and every policeman is instructed in fencing with the two-handed sword, as well as in the practice of *jujutsu* or the "gentle art."

The Japanese sword is usually wielded with both hands, and cutting plays a much larger part in their sword play than the thrust and point. They also fence with two swords at once, the long two-handed weapon being held in the right hand, while the left uses the shorter and lighter blade. The accompanying photographs show the position of the fencers, and illustrate the blows and thrust employed. The fencer stands with his right foot forward and his sword held in both hands directly in front of him, its hilt at about the level of his waist, its point being at nearly the level of his opponent's eyes. The illustrations show some of the favorite blows. One favorite blow is a rapidly-delivered cut upon the outside of the right wrist and forearm. This serves to disable the right arm. When the fencer is using a sword in each hand, it is the left foot which is advanced. The long sword in the right hand is held upraised over the head, the point directed backward ready to deliver a cut, while the left hand holding the smaller sword is extended forward *en garde*. The user of two swords has a decided advantage over an adversary who wields but one.

My fencing teacher was originally a policeman, and about twenty years ago was stationed at the Yoshiwara in Tokyo. Everyone who visited this district was obliged to put aside his swords at the entrance, and was not allowed to enter with them. One night five men entered the district wearing their swords. Refusing to give them up, a policeman remonstrated with them, whereupon they killed him. Mr. Hemmi then came up, and engaging the five men, killed three of them, and put the others to flight. The reputation acquired by this feat of arms enabled Mr. Hemmi to set up as a teacher of fencing.

When handling and inspecting a sword, Japanese etiquette requires that the sheath should be held in the left hand, with edge of the blade uppermost. The blade having been gently withdrawn with the right hand, its various points are examined in the

following order: 1, edge; 2, sides; 3, back; 4, point; 5, general shape and aspect. An old-fashioned custom was to put paper between the lips while examining a sword, in order to prevent the breath coming in contact with the blade, such contact being injurious to it. In removing the handle from the part of the blade upon which the maker's name is inscribed, the handle should be held in the left hand, the point of the blade directed upward, and the left wrist struck several sharp blows downward with the right hand. This done after removal of the pin which secures it, loosens the blade in the handle so that it may be removed. When the examination is finished, the blade is gently returned to its sheath with the right hand, and the sword is handed to someone else for his in-



A Blow Upon the Top of the Head and One on the Side of the Body.

spection. In handing a sword to anyone it should be held in the left hand and the back of the blade should be turned toward him, in order to signify that there is no ill will. Touching the blade or feeling its edge with the finger is never indulged in, being considered bad form.

The swordsmiths of Japan are divided into two great classes, those of the "old school" and those of the "new school." All swordsmiths who lived before the beginning of the Tokugawa era, 1603 A. D., belong to the "old school;" while those who lived subsequently to this, are of the "new school." Among the swordsmiths of the old school there are four names which stand pre-eminent. These are, in order of their rank, Yoshimitsu, Masamune, Yoshihiro, and Munechika. Yoshimitsu, Masamune, and Yoshihiro all lived in the thirteenth century, while Munechika flourished in the tenth. Swords made by these men are now very rare. They are in the possession of families who would not part with them for any amount of money. There are in the list of the swordsmiths of the old school four named Yoshimitsu, four named Masamune, two Yoshihiro, and two Munechika. There are numerous forgeries also, and no one should go in for buying swords without having the advice of a trustworthy expert. The skill of some of these ex-

perts is little short of magical. I was told by a German gentleman living in Tokyo that he gave eleven sword blades to an expert for examination, and if my memory serves me, the expert correctly named the makers of ten out of the eleven blades without looking at the names engraved upon the hilts. Besides the four swordsmiths already named, there is another deserving of attention. This is Muramasa, who was a pupil of the great Masamune. He was widely known, and undoubtedly made swords which were excellent weapons, but his standing is very low in the rank of swordsmiths. He was a man of violent temper, and his swords acquired a bad reputation. It was supposed that once withdrawn from their sheath, they always shed blood before being returned. They were regarded as being particularly unlucky, so far as the Tokugawa family was concerned. The father and grandfather of Iyeyasu, the first shogun of the family, were both attacked by men carrying Muramasa swords. Iyeyasu therefore issued an edict forbidding anyone to carry them. It was in this way that they acquired their bad reputation. The relations between Muramasa and his master, the great Masamune, were amusing. Masamune did not have a very high opinion of Muramasa's work. One day Muramasa challenged him to a competitive trial of their respective swords. Masamune consented, and the sword blades were placed in a running stream of water, with their edges turned against the current. All the leaves, twigs, and rubbish which flowed down stream ran into Muramasa's sword and were severed, while they carefully avoided coming into contact with Masamune's blade. "Ah," said Masamune, "that demonstrates very well the difference between our swords; yours is bloodthirsty, and cuts everything which comes near it, while mine avoids doing unnecessary damage."

Muramasa left Masamune prematurely, went away into the country, set up a forge, and began to make swords on his own account. One night Masamune happened to arrive at the very village where Muramasa had established himself, and put up at the inn, entirely unaware of Muramasa's presence in the place. Muramasa's forge happened to be near this inn, and he worked in his forge during the night. Masamune heard him pounding away, and recognizing the work that was going on, he began to pound with his clenched fist upon the floor and walls of the room. In the morning, the landlord said to him, "Are you crazy? Why did you pound all night, and make such a racket?" Masamune replied, "I am not crazy, but by occupation I am a swordsmith, and hearing someone at work making a sword last night, I kept time with him by pounding with my fist, and I have come to the conclusion that he does not pound enough; he would make a better sword if he pounded more."

Masamune afterward met Muramasa, and said to him, "Ah, it was you that I heard last night; and let me tell you that you have got to pound more if you wish to make a really good sword. You ought to come back to me, and study seven more years before you can be called a good swordsmith." Muramasa consented to renew his study, but Masamune died before the seven years were up. I think that Masamune was regarded by my instructor as a better swordsmith than Yoshimitsu, who stood first on my list. While Masa-



Correct Position in Japanese Fencing.



Blow Upon the Side of the Head and Thrust at the Throat.

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muné was second. One certainly heard more of Masamune than of any other of the old swordsmiths of Japan. He died at the age of eighty years at Kamakura, to which place he had come from Kyoto when seventy-one years of age.

My interest in the sword brought me into contact with a class of Japanese little seen by foreigners. I mean the genuine old-fashioned type; and from contact with these men, and knowledge acquired thereby, I think that one of the finest types of humanity was the medieval Japanese. They were possessed with a sense of honor, a devotion to duty regardless of consequences, unsurpassed elsewhere. Their point of view, of course, was different from ours, and may seem grotesque to us in many ways, but their sincerity and fidelity are not to be questioned.

THE CAHOKIA AND SURROUNDING MOUND GROUPS.*

BY D. I. BUSHNELL, JR.

THE LARGEST MOUND IN UNITED STATES, WHICH COVERS MORE SPACE THAN ANY EGYPTIAN PYRAMID.

Below the mouth of the Missouri, for a distance of some 60 or 70 miles, the Mississippi is bordered on the east by the rich alluvial plain to which the name American Bottom is generally applied.

The plain rises gradually as it leaves the river, until it reaches the line of bluffs which forms its eastern boundary. In width it varies from 2 to 10 miles. At 38 deg. 40 min. N. L.—the location of the Cahokia group—the bluff line is 8 miles from the river. The country west of the Mississippi, unlike the lowland opposite, is high and rolling, and formerly, before the city of St. Louis occupied the site, a limestone cliff rose abruptly from the river.

Near the center of the American Bottom is the largest artificial earth work in the United States, the great Cahokia Mound, which rises in four terraces to a height of 100 feet above the original surface. Its greatest dimension is from north to south, 1,080 feet; its width from east to west is 710 feet; while the area of the base is 14 acres.

Cahokia is surrounded by a group of more than seventy lesser mounds, any one of which, if not overshadowed by that great truncated pyramid, would itself be considered great.

The mounds of this group are of two classes—conical and truncated, and rectangular pyramidal. The larger mounds belong to the latter class, and were erected with their sides toward the cardinal points.

One and six-tenths miles west of Cahokia is a group of five mounds, the largest of which is one of the most perfect in the American Bottom. Extending in a southwesterly direction from this group is a chain of mounds which terminated at a group of fifteen smaller mounds, near the Mississippi, all of which have been destroyed. Across the river from this point a group of twenty-six mounds formerly existed on the summit of the bluff. These were destroyed many years ago, when the area was cleared and buildings erected, forming a part of St. Louis. A large isolated mound was located about 600 yards north of the main group. It was removed during the winter of 1869, and was found to contain a cavity or chamber in which were discovered many human remains and quantities of shell beads.

About 7½ miles northwest of Cahokia, and some 3 miles east of the Mississippi, is a group of eleven large mounds on the north side of Long Lake. These mounds, with the exception of one, have never been explored. Some years ago the largest was destroyed by the construction of railroad grades. At that time many interesting objects of bone, stone, and copper were discovered. The slope of the bluff eastward from the Cahokia group appears to have been one extensive burial ground. The great quantities of human bones which have been exposed by the plow and by the washing and wearing away of the surface prove that a great population, all traces of which are rapidly vanish-

ing, once occupied that fertile region. Northeast of Cahokia, on the bluff, are two large conical mounds, perfect examples of that type. From the summit of these mounds a magnificent panoramic view of the American Bottom is obtainable. The great Cahokia group is clearly defined, surrounded by the homes and fields of the present owners of the land, while to the westward may be seen the waters of the Mississippi.

The name Cahokia applied to the mound group perpetuates the name of an Illinois tribe, which, together with the Tamoons, formerly lived in that part of the valley.

Few of the many mounds which formerly existed on either side of the river now remain in their original condition. Two entire groups have been destroyed to make room for buildings, while others, especially the Cahokia group, are being slowly but surely destroyed by the plow. Either the National government or the State of Illinois should act at once, and make the area occupied by the Great Cahokia and surrounding mounds a park, that these monuments of an unknown race may be preserved for future generations. The questions when, by whom, and for what purpose these mounds were erected cannot be answered.

THE FOREST PARK GROUPS.

There were formerly two groups of small mounds located near the center of the western half of Forest Park, in St. Louis, which area is now known as the World's Fair site.

When, during the autumn of 1901, it became necessary to grade that part of the park preparatory to the erection of certain buildings of the exposition, I was enabled to explore the mounds.

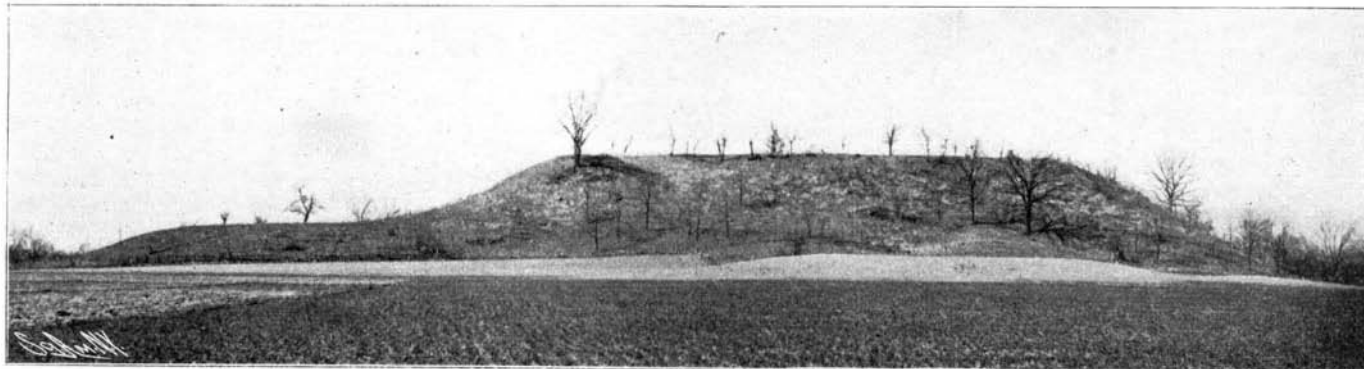
The two groups were distinctly separate, the smaller group of seven being located on the summit of the ridge



One of the Lesser Mounds of the Cahokia Group.



Another Lesser Mound.



CAHOKIA MOUND: A TRUNCATED PYRAMID COVERING 14 ACRES, OR MORE THAN IS COVERED BY THE LARGEST EGYPTIAN PYRAMID.

or elevated ground to the south of the River des Peres, while the second group was in the lowland on the immediate bank of the stream. The average dimensions of the mounds of the smaller group were: diameter, 48 feet; elevation, 3 feet. In all were discovered pieces of chert, potsherds, and charcoal scattered over the original surface. The mounds of the lower group were somewhat higher and several feet less in diameter. They were likewise explored, but nothing indicating the handiwork of man was discovered.

The question has often been asked, For what purpose were these mounds, so numerous throughout the Mississippi Valley, erected? In the case of the seven mounds on the elevated ground, the finding of potsherds, pieces of chipped chert, and the indication of fire, all on what appeared to have been the original surface, would point strongly to their having been the remains or ruins of earth-covered lodges. The early explorers mention such lodges in different parts of the valley, and, until the last quarter century, large villages of such habitations were to be found in the upper Missouri Valley. But in the other mounds these indications did not occur. Clearly they were erected as they existed at the time of their destruction.

The Death of John S. King.

Mr. John S. King, for many years business manager of the Iron Age, the Metal Worker, and Carpentry and Building, died at his home on March 4, at the age of sixty-three. After having served with distinction during the entire civil war, Mr. King came to New York city, in 1868, and almost from the very beginning, identified himself with the business management of the various publications of the David Williams Company.

Brief Notes Concerning Patents.

A railroad tie of concrete and metal has been invented by G. M. Burbank, general manager of the Hecla Belt Line, Bay City, Mich. The tie consists of a cement form molded around a stiffening framework of twisted tiebar and an upwardly-bowed stiffening plate supported at either end by wooden blocks. The blocks extend above the surface of the tie, and form a resilient support for the rails. The wooden blocks are covered by broad plates with holes provided so that the tracks may be spiked to them; and as the plates comprise part of the tiebar referred to above, the whole forms a very solid construction. The under surface of the cement body is arched upward to decrease the size and weight. These ties have been in experimental service for some time under the tracks of the Hecla Belt Line, and have proven very serviceable.

On September 1 there died at Watertown, N. Y., Daniel Minthorn, who had passed his ninetieth year and who was well known as a geologist and inventor, and whose long career was an active and unique one. While a portion of his life was spent in New York city, the greater part of it was passed at Watertown or the vicinity, where he did most of his scientific work and developed a number of important ideas in inventions. It was here that he, with George Paddock, built a mill at Natural Dam, and inaugurated the process of grinding iron ore into paint, which was then done for the first time. The paint mill was changed into a talc mill, and again Daniel Minthorn was the pioneer of another new industry, for no one before him had ever ground talc. He was also one of the first to engage in the business of making daguerreotypes, the lens used by him having been made by himself from an old pair of spectacles. Like many a genius before him, his

inventive faculties were developed at the expense of his business acumen; and while others made money from his inventions, he remained poor. His literary work was principally in the line of geology.

What is said to be the first commercial use for the X-rays has been discovered by a dentist of Cincinnati, Ohio, Dr. J. V. Cavans, who has found the rays available for the tanning of leather. Before making any announcement of the new process, the doctor says he has thoroughly satisfied himself of its

success in every particular. Samples of the new leather have been tested by experts, and it is said they have universally been pronounced equal to that tanned in the old way in every respect. The old method of tanning leather has been in use from time immemorial, and the treatment has extended over a period of over five months. The greater part of this time is consumed in the tanning liquor, and the capacity of the tannery is often limited to the space to be had for the necessary vats. Because of the great amount of room demanded, the erection of a building for this purpose is necessarily expensive. With the new process, however, this is all changed, for no vats are required for storage of skins in soak, and a great number of skins may be treated in a small establishment. In following Dr. Cavans' method, the skins are soaked, as at present, in lime for the separation of the fibers and the removal of the hair. This usually requires about four days, after which the skins are soaked for about two hours in a solution which is part of the doctor's process, and then they are exposed to the X-rays for fifteen or twenty minutes, when they are said to be as completely tanned as a hide which has been four months in the vats. By using X-ray lamps of the most recent construction, it is said to be possible to treat a number of the skins at one time, thus bringing the cost of the application down to a minimum. This method reduces the process from one of four months to four days, and cuts down the cost by about 75 per cent. Furthermore, a tannery by the X-ray method can be erected for one-quarter the cost of one like those in use at present. Dr. Cavans' method dispenses with much of the skilled labor which is now required.

* Abstract of Paper being published by the Peabody Museum, Harvard University.