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THE CONNECTION BETWEEN CHINESE MUSIC, WEIGHTS AND MEASURES.

Chinese music can now be heard by all who desire to hear it at the Health Exhibition, and more may be learned on the subject from the pamphlet published by the Commissioners for the Chinese department. A curious account of the common origin of Chinese weights, measures, and musical notes is contained in a paper read some years ago before the German Asiatic Society of Japan by Dr. Wagener. The story is based on native legends, and is also to be found among the Jesuit "Mémoires concernant les Chinois." Dr. Wagener says there is not the slightest doubt that the Chinese system of weights and measures is more than 4,600 years old; and it is a highly remarkable circumstance that, quite irrespective of the fact that it is more scientific and exact, it possesses all the advantages for which the French metrical system is so much praised. In the first place, it starts from a basis supplied by Nature; secondly, the decimal arrangement is almost consistently employed throughout; thirdly, linear and dry measure proceed directly from the same unit as the measure of weight; and lastly, what the metrical system does not do, it regulates in the simplest manner the relations of musical notes, which latter form the starting point for the whole system of weights and measures. The following account of the origin of this system (says Dr. Wagener,) contains fact and fancy mingled, but it is easy to distinguish between them. In the reign of the Emperor Hoang-ti, who ruled over China in the twenty-seventh century before Christ, the scholar Lyng-lun was commissioned to complete the musical system which had been discovered 250 years earlier, and particularly to lay down fixed rules for making musical instruments. Naturally he had to commence with the bamboo, which had already been long used to give the note for other instruments. He therefore betook himself to the province of Siyung in North-Western China, where, on the northern slope of a range of high mountains, a species of bamboo grew, which, on account of its uniformity and its structure, being neither too hard nor too soft, was exceedingly suitable for a wind instrument. He cut one down and tried it. Tradition says that it gave the same note as his own voice when he was excited by no emotion; and the rippling of the sources of the great Hoang-ho, or Yellow River, which were in the vicinity, followed in the same tone. At the same time the fabulous bird Fung-Hiang, accompanied by his mate, flew to the place. Both perched

themselves on a neighbouring branch, and commenced a song, in the course of which each of the birds gave six separate notes. These are the notes which are called the six male and six female tones in the scale discovered by Lyng-lun, and which correspond to the ancient doctrine of the male and female principles in Nature. As a matter of course, the deepest of the male notes was the one already discovered by the philosopher himself. He now endeavoured to reproduce the other notes with the help of bamboo pipes, and succeeded. His task was now to lay down fixed rules as to the length of the pipes, as that thenceforth they could be easily constructed everywhere. For this reason, and also because such a scale of notes depends upon slight differences of length, and there were scarcely at this time instruments to divide great lengths, he necessarily arrived at the notion of passing from the less to the greater, and of laying down an adequately small natural unit for his measurements. That could be nothing else but a grain of seed; and now the point was to get seeds of the greatest possible uniformity. He chose a sort of millet, the *Sorghum rubrum*, the seed of which is of a dark brown colour, and which is said to possess the advantages of greater hardness and uniformity than that of the gray and other kinds. The seed is pointed at the ends, and from one point to the other the length is somewhat than id the direction at right angles. Lyng-Lun now fixes the length of the pipe, which gave the key-note at 81 grains of the seed placed lengthwise in a row. But when the grains were placed breadthwise it took 100 grains to give the same length. Thus the double division of 9 + 9 and 10 + 10 was naturally arrived at. According to the dimension in question, it was called a musical or an ordinary foot, the latter being introduced with the decimal subdivision as a measure of length. The breadth of a grain of seed was 1 *fen* (a line), 10 *fen* = 1 *tsun* (an inch), 10 *tsun* = 1 *che* (a foot), 10 *che* = 1 *chang*, 10 *chang* = 1 *ny*. In subsequent times the line was divided into tenths, hundredths, &c. Lyng-lun also laid down rules for the breadth as well as for the length of the pipe, because although the note is essentially dependent on the length, it is nevertheless necessary for its purity that the pipe should be neither too broad nor too narrow. He therefore fixed the circumference on the inside at 9 grains laid lengthwise. With these dimensions, namely, a length of eighty-one grains, and an internal circumference of nine, the pipe which gives the keynote contains just 1,200 grains, and this volume accordingly was made the unit of dry measure, and was called a *yo*; 2 *yo* = 1 *ko*, 1 *ko* = 1 *cheng*, 10 *cheng* = 1 *ten*, 10 *ten* = 1 *hu*. So far we see how the units of length and dry measure were connected with the musical keynote. The twelve notes of the scale are all derived from the keynote, and are to a certain extent comprehended in it. Hence if the 1200 grains contained in the pipe are divided among the twelve notes it gives to each a hundred, and the weight of these hundred grains was made by Lyng-lun the unit of weight. This was divided and subdivided on the decimal system until a single grain became the lowest weight of all. At a later period even the coinage became connected with this system, for one of the weights,