NOTES AND QUERIES.

NOTES.

CHAIN PUMP DRIVEN BY WIND.—I lately saw in the *neighbourhood of* Hsing-hua *Hsien* (興化縣) *in North* Keangsu, when travelling along the creeks in the interior in a boat, numerous circles of mat sails turning aimlessly round and round, and apparently driven by the wind.

Taking the first opportunity to land and *make a close inspection, I found these* revolving mats were part of a species of wind mill used to drive the ordinary Chinese water-wheel 水龍 or chain pump in common use in the rice fields throughout China.

Each mill had nine or ten sails made of matting, manufactured out of the cat tail rush (Typha 蒲草). These mat sails (風篷) are lug-shaped, and about twenty feet long by six feet broad. Each sail is attached to a mast, as sails are on the ordinary *boats plying on the Yang-tze*, and each mast is *stepped, or fixed, along* a circular bar of wood at regular intervals, this bar forming the outer rind of the lowest portion of the framework. The bar is attached by spokes, running at right angles from the end of each mast to the socket of a central pole, and the masts and sails are *further fixed and kept firm by cords to the* pole. The central pole is fixed in a socket (機心) which is cogged on the sides, and *moves in an iron cup. Fitting into the* cogs of the central socket is another cog-wheel, which is itself again the end of a long pole of wood, resting on wooden brackets placed on the ground, to allow the pole to turn. The other end of this pole (水杆) is also furnished with another cog-wheel, which fits into the cog-wheel of the ordinary Chinese chain water pump, and pumps up the water. Thus the wind fills the mat sails, they turn round with the central pole, the cogged socket turns the pole placed on the ground, and the ground pole, in its turn, moves the water chain pump wheel on the bank of the creek. This simple and ingenious contrivance *effects a great saving of labour. In*stead of the seven or eight men, women, and boys, who spend the livelong day gossiping, singing, and chattering whilst walking the tread-mill of the ordinary water pump, only one man is here required to watch the sails, in case a storm or change of wind may occur. Curiously the apparatus is only used in the neighbourhood of Hsing-hua Hsien, 興化縣 and of Tai-chow, 泰州 because the ground is there sufficiently flat to allow free action to the wind. Along the grand canal, however, where the country is equally flat, none of these wind-wheels are visible; and there probably exists some historical reason for their confinement to the two places above mentioned. I have seen 'the canny waggons light driven by wind and sail' on the plains of S. Chihli and Ho-nan, but never during a long residence in China these wind wheels; nor did I know till now that also 'Chinese bring, with sails and wind the water on

their fields.' The local name for these wind pumps is 'Feng ché,' 風車 and I was told the contrivance dates back to a remote antiquity. Chain water pumps are not, I believe, mentioned in the classics, nor do I know the exact date when the pump was introduced into China; but it may be safely asserted the chain pump was first invented and then the sails used to assist. Possibly some of your readers can throw light on these points, and the imperfect description given above may throw light on obscure passages in Chinese history or elsewhere.

E. L. Oxenham.

The First Commentator on Lau tsze.—The first editor of Lau tsze's Book on Reason and Virtue was 河上公 Ho Shang Kung according to the Shi chi of Sï ma C'hien. This author was called Ho Shang Jen 丈人 and was thoroughly acquainted with Lau tsze's system. He resigned his position as a Tauist teacher to Kai Kung who was teacher to Ts'an ts'au, prime minister to the king of Ts'i 齊. Assuming that this account is correct—and it is given on the authority of Chau Kung wu 晁公武 —the first editor of Lau tsze was of the Chan kwo period and Mencius would be living at much the same time.

But Ko Hung of the third century after Christ says of Ho Shang Kung that he was a person whose very name was unknown and that he was believed to have lived on the banks of the Yellow River in the time of Han Wen Ti. If so, he would belong to the second century before Christ, and he was probably a different personality altogether from the Tauist of whom Si ma C'hien speaks.* The reason for holding that there were two Tauists known as "teacher of the river bank," is that in the catalogue of books in the Sui history the Tau te king is mentioned as having been commented on by Ho Shang Kung in the time of the emperor Han Wen Ti. The same list adds that in the Liang dynasty there existed a comment on the Tau te ching by Ho Shang Chang Jen of the Chan kwo period, which was afterwards lost. On this the Chien lung critic* remarks that, as the Chan kwo comment on Lau tsz was already lost in the time of the Sui catalogue, that is at the beginning of the 7th century, what we now have is the comment of the second Ho Shang Kung B.C. 180.

But the Chien lung critic does not allow the matter to rest here. He proceeds to examine the claims of this comment to be viewed as genuine. When in the Ming dynasty Chu Tung kwang engraved an edition of the comment, he said in the preface that Kai, the Tauist of the Ts'in dynasty who was supposed to have received the comment and transmitted it, was a personage beyond the reach of research, but that it would seem that the emperor Wen Ti received the book on the occasion when he visited the banks of the Yellow River. In this case, says the 18th century critic, it is strange that Lieu Hiang does not mention the comment although he speaks of three. Neither Lieu Tsze yuen nor Lu Te ming in the 7th century seems to have trusted this comment. They preferred that of Wang Pi. As they were both great scholars, they must have had good reasons for this doubt about the genuineness of Ho Shang Kung's commentary. The style too, it is added, is not like that of the Han period. It is probably an invention of later authors of the Tauist school. Such is the decision.

We are driven therefore to fall back upon the authors who quote Lau tsze as the oldest witnesses to the genuineness of the Tau te ching and of other sayings attributed to the same philosopher. They are Lie tsze, Chwang tsze, Han Fei tsze, Si ma C'hien, Hwai nan tsze, all of whom lived before B. C. 100. But Lu Te ming, while he follows Wang Pi's edition of Lau tsze, regards the work itself as ancient and genuine enough

* 樂毅列傳 in 史記.

* 四庫全書總目.