era, corresponds to Sunday, the 16th July, A.D. 1458, which was entirely occupied by the 6th *tithi* of the bright half.

Göttingen.

F. KIELHORN.

THE YOJANA AND THE LI.

Pending the issue of a full article on the values and use of the Indian *yōjana* and the Chinese *li* as measures of itinerary distance, I give the following brief statement of what I shall establish.

There were in ancient times two specific *yōjanas*: a general Indian *yōjana* of 32,000 *hasta*, cubits; and a *yōjana*, called the Māgadha *yōjana*, of 16,000 *hasta*. The use of the latter, however, was not confined to actually the Magadha country; and this *yōjana* might perhaps be called the Buddhist *yōjana*, as being the *yōjana* which was generally, but not always, cited in the Buddhist books for distances in India.

For present purposes, I take the value of the ancient *hasta* or Indian cubit as 18 inches. It may be possible hereafter to make a small refinement in this detail. But this much is certain. Of the measure of 4 *hasta*, = 96 *añgula*, 'finger-breadths,' which came to be called *dhanus*, 'the bow,' *daṇḍa*, 'the staff,' or *dhanurdaṇḍa*, 'the bow-staff,' the earlier name was *nṛi*, *purusha*, etc., 'the man;,' and this measure was the accepted standard height of a normal man.¹ Consequently, the value of the ancient Indian cubit cannot have been appreciably in excess of 18 inches; and, on the other side, it is very improbable that it should have been less than 17·75 inches. With units of 17·75 and 18·25 inches against one of 18 inches, we have to lay out a distance of as much as 72 miles, before we arrive at a difference of one in the number of the miles. And it is, therefore, here at least, sufficient to take the ancient Indian cubit at 18 inches.

¹ This measure, occasionally perhaps called also *paurusha*, is not to be confused with a measure, called properly *paurusha* but sometimes *purusha*, which was the measure of a man standing up with his arms and hands stretched up over his head. The accepted length of the *paurusha* was 5 *hasta* = 120 *añgula*.

With this value of the cubit, we have—

$$\begin{aligned} 1 \text{ } y\ddot{o}jana \text{ of } 32,000 \text{ hasta} &= 16,000 \text{ yards} \\ &= 9\frac{1}{11} \text{ or } 9\cdot09 \text{ miles.} \end{aligned}$$

$$\begin{aligned} 1 \text{ } y\ddot{o}jana \text{ of } 16,000 \text{ hasta} &= 8,000 \text{ yards} \\ &= 4\frac{6}{11} \text{ or } 4\cdot54 \text{ miles.} \end{aligned}$$

In addition to these two specific *yōjanas*, there was a third *yōjana*, in respect of which we gather from Hiuen Tsiang—(and I see no reason for doubting his statement on this point, though his general account of the Indian measures has come to us in a somewhat corrupt form)—that the value of it was $1\frac{1}{3}$ of the *yōjana* of 32,000 *hasta* = 16,000 yards.¹ This third *yōjana*, we can easily see, was the original *yōjana* in the true sense of the word as meaning the “yoking” distance, the “inspanning” distance, the distance along which a pair of bullocks could draw a fully laden cart, and for which it was worth while to take the trouble of placing a full load in the cart and of properly adjusting the components of it; in short, the standard distance of a day’s journey for consignments of trader’s goods, for travellers moving with baggage, and for all such purposes. And thus, since $16,000 + \frac{16,000}{3} = 21,333\cdot3$, we have—

$$\begin{aligned} \text{the Indian day’s journey} &= 21,333\cdot3 \text{ yards} \\ &= 12\frac{4}{33} \text{ or } 12\cdot12 \text{ miles.} \end{aligned}$$

While, however, the standard day’s journey in India was thus 12·12 miles, the actual day’s journey was, of course, determined in each case by such considerations as the nature of the country traversed, and the distances between villages, rest-houses, and other convenient halting-places. And so the actual day’s journey might easily in ordinary circumstances be anything from 10 to 14 miles; and, in exceptional cases, it might have even a wider range in either direction.

As regards the *li*, there is ample evidence that, by the

¹ Putting the case reversely, we see that the *yōjana* of 32,000 *hasta* was obtained by taking $\frac{3}{4}$ of this other *yōjana*. For that there was a good reason, in ancient custom, which will be explained in due course.

term 100 *li*, Fa-hian, Hiuen Tsiang, and other Chinese pilgrims denoted either the actual length of a day's journey, or the time occupied in making such a journey. That means, for their movements in India, the distance at which we have arrived above. And so we have—

$$\begin{aligned} 100 \text{ li for India ordinarily} &= 21,333\cdot3 \text{ yards} \\ &= 12\frac{4}{3} \text{ or } 12\cdot1\bar{2} \text{ miles.} \end{aligned}$$

This was the standard value of 100 *li* for travelling in the limits of India, and outside India itself wherever Indian customs and measures prevailed. But the actual value varied, of course, just as the length of the particular day's journey varied, under conditions indicated above.

It was in that manner, at any rate for the quantity of 100 *li*, for multiples of that quantity, and for divisions of it into tenths, that the *li* was used by Fa-hian and Hiuen Tsiang, in whose movements we are chiefly interested. The *yōjana* cited by them cannot be either a *yōjana* invented by them, or a *yōjana* laid out in modern times, partly from interpreting too strictly distances stated by them broadly in round-numbers, partly from supposed identifications, of which some are now known to be wrong and others are to say the least extremely doubtful, of places and memorials visited by them; it can only be one or other of the ancient indigenous Indian measures, according to the particular locality or source of information. And a practical testing of their statements on the lines which I indicate,— though it will not immediately remove all difficulties, and enable us to identify off-hand every place that they visited,— will be found to throw a new and satisfactory light upon various details, which, by other asserted values for the *yōjana* and the *li*, have unnecessarily been made obscure.

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