

## LENGTH OF THE CUBIT.

In the *Quarterly Statement* for October, 1879 (p. 181), Mr. S. Beswick raises this interesting question, and advocates a length of 17·7 inches, which is very close to the length 17·4 inches proposed in an article on Jerusalem in the *Edinburgh Review*, 1873. The paper is, however, open to some objections, which may be briefly stated.

*The Tyropæon Bridge.*—The existing arch is 50 feet broad, and measures 38 feet 9 inches from the south-west corner of the Haram. The accord between this and the dimensions of the Royal Cloister of Herod's Temple is striking, but Mr. Beswick omits all consideration of the thickness of the Haram wall, which is at least 8 feet when measured at the north-west corner, and assumes that Josephus was thinking of 17·7-inch cubits, and translated them into feet. As regards the diameter of the pillars of the Royal Cloister, they may, no doubt, be assumed at about 6 feet, which is about the diameter of the existing monolith at the Double Gate. The measurements of the Cloister will then be—

*Josephus's Measurement.*

Wall (thickness) ... ..	8 feet	} 38 feet.
South Walk of Cloister ... ..	30 feet	
Pillar (diameter) ... ..	6 feet	} 52 feet.
Central Cloister ... ..	45 feet	
Pillar (diameter) ... ..	6 feet	
Total ... ..	90 feet.	

*Actual Measurement.*

From south-west corner to south side of	
Bridge ... ..	38 feet 9 inches.
Breadth of Bridge ... ..	50 feet.
Total ... ..	88 feet 9 inches.

This is as near as we can go without actually knowing the diameter of the pillars, which could hardly be spanned by three men (Ant. xv. 11. 5). If we reduce the diameter to 5 feet 6 inches, the result will agree with actual measurement within 3 inches. This question has, however, no bearing on the length of the cubit.

*Length and Width of El Aksa.*—The attempt to deduce the length of the cubit from the fifteenth century Arabic MS. is unfortunately based on a very grave error. The word which the translator renders "cubit" is the Arabic *dhr'a*, a very well known measure, equal to the Turkish pic, and as nearly as possible 2 feet 3 inches in length. The measurements given are those of the *Masjid el Aksa*, which, as is well known, was the old Arab name for the whole enclosure now called *Haram esh Sherif*. The Arab writer gives the breadth along the north wall as 455 *dhr'a*, which is just the length of the north wall of the Haram,

1,042 feet. The length, 784 *dhr'a*, which he gives, is equally close to the length of the west Haram wall, 1,601 feet.

The measurements of the Masjid given in the same century by Mejr ed Din (Hist. Jerusalem, chap. xx.) are equally exact. He makes the length of the east wall from *Bab el Asbat* to the *Mihrab Dâûd* (south-east corner) to be 669 common architectural *dhr'a*, which agrees with the length of the present east wall, 1,530 feet. The width he gives is a mean measure from the outside of the wall at the *Bab er Rahmeh* (Golden Gate) to the opposite cloisters. This he states at 406 *dhr'a*, agreeing very closely with the actual measurement of 970 feet.

Mejr ed Din adds, "Should any one else find it one or two *dhr'a* more or less, it must be put down to the difficulty of measuring. I measured it twice myself before I obtained the true measure" (chap. xx. sec. 20).

Mejr ed Din also gives the size of the *Jami'a el Aksa*, or mosque, on the south Haram wall. He makes it 100 *dhr'a* long by 77 *dhr'a* wide. The measurements are exact, without including the porch outside on the north, the *dhr'a* being 2·3 feet.

These measurements are of value as showing that the area of the Haram was the same in the fifteenth century as it now is, and that Mejr ed Din, who took the mean width, was aware that the area was not rectangular. Mr. Beswick, however, misled by the very loose translation "cubit," has endeavoured to apply the measure to a 17·7-inch cubit. This question also has, therefore, no bearing at all on that of the length of the Hebrew *ameh*.

*The Digit.*—Mr. Beswick enters upon a very difficult question, for there are two elements of incertitude in the matter. 1st. Whether the Jews were accustomed to great exactitude in measurement, such as we now require, or whether their measures were rude and inexact, like those of the modern Arabs and ancient Egyptians. 2nd. Because the exact application of the Hebrew terms rendered "digit," "handbreadth," &c., has never been minutely described by any ancient author.

Two standard examples of the small and medium *ameh* are said in the Mishna to have been preserved at the Gate Shushan, which was due east of the Holy House. This gate, though known to Mejr ed Din, has not yet been rediscovered. When it is, let us hope the standard measures (Kelim xvii. 9) will also be found.

The Jews had at least three measures called *ameh*. The smallest, of five handbreadths, measured the vessels of the Temple; the medium, of six handbreadths, measured its buildings (Tal. Jer. Menakoth 97a). The medium cubit consisted of two spans (*sit*).

It must not be forgotten, in dealing with this matter, that the Jews were not a tall people, and that their hands were probably as delicate as those of the present Jews and Arabs. We may therefore take the measures of an English gentleman's hand as not being less than those of a Jewish hand.

Taking, therefore, the cubit of forty-eight barleycorns (Maimonides,

Sepher Torah ix. 9), and the barleycorn as equal to our English long-measure barleycorn—as results from actual measurements of barleycorns in Syria made in 1872—we obtain 16 inches for the medium cubit, and the span is consequently 8 inches, which is the extreme distance which can be stretched from the thumb to the small finger of an ordinary hand. A hand spanning 9 inches is a large one.

The *zereth*, rendered “handbreadth,” will in this case be 5·33 inches, which is the ordinary span of the four fingers. As to the smaller divisions, there is great difficulty in ascertaining how the measurements are to be made, and the determination of the larger ones, *set* and *zereth*, is of course more conclusive in the matter. The details will be found in the new Handbook to the Bible just issued by Messrs. Longmans, page 79. As regards verification from monumental remains, I have already pointed out that in the Synagogue of Umm el 'Amed the pillars are ten cubits high, with bases of one cubit and capitals of half a cubit, the cubit being taken as sixteen inches.

The satisfactory determination of the levels of the Temple Courts from the same hypothesis has also been explained in “Tent Work in Palestine” (vol. i. p. 359).

In the Haram itself there are several other similar indications. Thus, at the north-west corner of the Area, the chamber which I explored in 1873 shows piers projecting from the wall at an interval of 8 feet 8 inches, with a face of 4 feet 8 inches, giving a total of 13 feet 4 inches as the distance from centre to centre of the piers. Ten cubits of sixteen inches is equal to 13 feet 4 inches, giving an interval of ten cubits for the piers from centre to centre, while the piers are three and a half cubits broad.

The average height of a course of masonry in the Haram walls is 3 feet 4 inches, or two and a half cubits of sixteen inches. The lintel of the Single Gate is eighty-two inches high, which is within two inches of five cubits. The master course on the south wall is 6 feet in height, or four and a half cubits of the sixteen-inch dimensions. Three consecutive stones in the second course of the east wall, as measured by Colonel Warren, are respectively seven cubits, three and a half cubits, and four and a half cubits in length. Colonel Warren has remarked that the dimensions of the Haram masonry are generally multiples of the English foot. The explanation is perhaps to be found in the relation of 4 to 3 between the foot and the cubit.

It may be that this accumulation of coincidental indications is not conclusive, but at least no such evidence has been collected in favour of a longer dimension for the cubit.

The *ameh* was the length of the fore-arm to the first joint of the fingers. It requires a long arm to make this equal to eighteen inches.

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