1500) $6 \frac{1}{15}$ ratf$^{317}$ and thus corresponded to a weight of 2.786 kg of wheat or to 4.32 litres, as a measure of capacity.

2.2.24.5 Anatolia

In medieval Anatolia, there existed a variety of mîdd measures of capacity. With regard to the time around the year 1330, al-‘Umari [d. 1348/49]$^{318}$ presented comparative data on the Egyptian irdabb, which amounted (according to our own calculations) to about 69.5 kg of wheat or about 90 litres. Accordingly, the mîdd of Kastamonu, Konya, Iznik, Manisa, Antalya and Karahisar corresponded to one irdabb. In Denizli, the mîdd was said to have amounted to $\frac{3}{4}$ irdabb (about 67.5 litres), whereas in Kütahya and Bursa the rate was one mîdd to $1\frac{1}{4}$ irdabb (112.5 litres).

More reliable is the information from the time around the year 1518 with regard to the Anatolian provincial mîdd: in Mardin 100 mîdd corresponded at that time to 8 kale (see kile) of Istanbul.$^{319}$ One mîdd amounted thus to 2.052 kg of wheat or 2.66 litres. In Harpur, one mîdd equalled 8 kile of Istanbul$^{320}$ and thus corresponded to a weight of 205.25 kg or 266.7 litres. The mîdd of Arapgir was half the size of the Harpur-mîdd$^{321}$ and thus measured 133.3 litres.

More significant, however was the Anatolian and later Ottoman “imperial mîdd”. As early as around the year 1335, Pegolotti$^{322}$ had reported that one “moggio” (mîdd) of grain equalled 20 “ghille” (kile) in southern Anatolia, in contrast to Cyprus. The kitchen-storeroom journal from the year 1474 of Mehmed II$^{323}$ confirms that one mîdd amounted officially to 20

kile, thus weighing with regard to wheat 513.12 kg, and with regard to barley around 445 kg, thus corresponding to a capacity of about 664.4 litres.

2.2.24.6 ‘Iraq

Apparently, the measurement according to mîdd was seldom carried out in ‘Iraq. Only al-Muqaddasi$^{324}$ [fl. 10th century] with regard to Mossul and Nusaybin$^{325}$ mentioned one mîdd as corresponding to $\frac{1}{3}$ makkîük (see makkîük), and thus equal to 2.5 litres.

2.2.24.7 Iran

The Iranian mîdd seems to have prevailed only up to the 14th century, and even then was quite seldom used, since weighing was preferred to measuring. Al-Muqaddasi$^{325}$ [fl. 10th century] mentioned with regard to Marâgâh that the local mîdd was equal to the qafiz at 10 mann and thus corresponded to a weight of 8.3 kg or a capacity of about 10.8 litres. From a Persian administrative handbook of the late 14th century$^{326}$ we know of a mîdd at 10 (big) mann, i.e., about 30 kg (wheat) and of a mîdd-i sultânîyyah or “royal mîdd” [sic; or, more correctly: “mîdd” of the northern Iranian city and royal residence of Sultânîyyah?] at 100 mann, i.e., about 300 kg (rice).

2.2.25 paymânâh

An Iranian measure of capacity for wine, vinegar, melted sheep’s butter and the like, standardized around the year 1300 by Ghazan Khân [Ilkhânî, r. 1295–1304] in such a manner that it corre-

\[317\] Arab Archery, p. 116.  
\[319\] Tarih Veskilerî I, p. 102.  
\[320\] Ibid., p. 193.  
\[321\] Ibid., p. 196.  
\[322\] La pratica della mercature, p. 43.  
\[323\] TOEM, no. 49, pp. 26 and 53, respectively.  
\[324\] BGA III (2), p. 145.  
\[325\] A city in ‘Iraq (transl.).  
\[326\] Two in southeastern Turkey (transl.).  
\[327\] BGA III (2), p. 381.  
\[328\] Risalâh-yi Falâkîyyâh, ed. Walther Hinz (Wiesbaden 1952), fols. 112b, 115b and 121a.
sponded always to 10 *mehn* of Tabriz, i.e., 8.3kg, which meant that there had been different sizes of *payma'nah*-vessels, depending on the liquid that was to be measured.327

2.2.26 *qabb*

A dry measure, from the Greek *kabos*, prevalent especially in Jerusalem, equalling 1/6 *qa['fiz],328 and thus 19.47kg of wheat or 25 litres.

2.2.27 *qadah*

An Egyptian dry measure of two-fold size: 16 “small *qadah*” constituted one *waybah* and 96 “small *qadah*” amounted to one *ird-abb*, and 8 “big *qadah*” constituted one *waybah*, whereas 48 “big *qadah*” amounted to one *irdabb*. Of the contradictory statements concerning the size of the *qadah*, al-Qalqashandi’s [1355–1418] note329 seems to be the most reliable according to which one small *qadah* amounted to 232 *dirham* of cereals or 716.83g (wheat). Correspondingly, and with regard to the results of our calculation of the *irdabb* (see *irdabb*), one small *qadah* measured 0.94 litre and one big *qadah* 1.88 litres. Today, one *qadah* amounts officially to 2.062 litres, and there remains only one *qadah*-measure.330

2.2.28 *qaddab*

A Maghribine dry measure, in Ténès,’ equalling 3 *mudd* of the

Prophet’s time,331 and thus equal to 3.159 litres.

2.2.29 *qa[fdiz]*

The oldest reliable report about this dry measure refers to the *qa[fdiz]* of Ḥajjāj,3 according to which one *qa[fdiz]* was equal to one *yah* of the Prophet’s time,332 and thus was equal to 4.2125 litres.

2.2.29.1 ‘Iraq

In the course of the 10th century, two *qa[fdiz]* had emerged in ‘Iraq: the bigger *qa[fdiz]* measure, namely that of Baghdād and Kūfah, contained 8 *makkūk* at 3 *kaylajah* (per *makkūk*) at 600 *dirham* (per *kaylajah*),333 and was thus about 45kg (wheat). On the other hand, however, such a *qa[fdiz]* amounted to 1/4 *kārah* (see *kārah*) = 240 *ra[fd]* + 120 *ra[fd]* = 487.5kg (wheat). Both statements appear to refer to one and the same measure which we calculate to be 60 litres on the average. The smaller *qa[fdiz]* measure, which had been current in Maṣrāh and Wāṣī, amounted to 4 *makkūk* at 15 *ra[fd]* each at 128 *dirham* each,334 thus corresponding to a weight of 23.962kg of wheat. According to al-Muqaddasi [fl. 10th century],335 in Mesopotamia and ‘Iraq this *qa[fdiz]* equalled 30 *mehn* and also 60 *ra[fd]*, but at 130 *dirham*, which resulted in a weight of 24.375kg of wheat. Clearly, the smaller *qa[fdiz]* measure proved to be half the size of the bigger one and was thus to be calculated, on the average, at 30 litres.

2.2.29.2 Iran

In Iran, the *qa[fdiz]* was in use only during the period of direct Arabic influence since the Iranians preferred weighing to meas-

327 Rashid al-Din, ed. K. Jahn (Gibb Memorial), p. 291


329 Al-Qalqashandi, *Subh*, III, p. 445. A. Gonzales, *Hiervolensche Reysse, II. Deel* (Antwerp 1673), p. 84, mentioned only a rate of 48 *qadah* = one *ird-abb*. This *qadah* however, would according to my own calculations only amount to 1.56 litres (instead of 1.88 litres).


334 Ibid.

335 BGA III (2) (1906), p. 145.
uring. According to al-Istakhri [fl. 10th century] and Ibn Hauqal [fl. 2nd half of 10th century], in Shiraz one qa'fiz of wheat weighed 16 rafal or 6.5 kg, thus measuring 8.44 litres. In Istakhri, the qa'fiz measured half of this, i.e., 4.22 litres. In Arrajān, the qa'fiz amounted to 5/4 of that of Shiraz, i.e., about 10.55 litres, and in Kāzarūn to 8/5 or about 13.5 litres. In Fasā, the qa'fiz according to both the sources referred to above amounted to 9/10 of that of Shiraz, whereas according to al-Muqaddasi [fl. 10th century] the qa'fiz contained wheat of a weight of 6 manān at 300 dirham or 5.6 kg which corresponded in both cases to about 7.5 litres. With regard to almonds and barley, the weight was 6 manān or 4.87 kg, while the weight for rice, peas and lentils was 8 manān or 6.5 kg. In Niriz according to al-Muqaddasi, one qa'fiz amounted to a weight of 3 Baghdaādī rafal which for barley, raisins, sultanas or maize resulted in 1.217 kg, thus measuring about 1.87 litres. With respect to Marāqah, he mentioned the qa'fiz or mudd at 10 manān (or 8.112 kg) of wheat, whereas he gave for Akbār a rate of one qa'fiz = 7 manān (5.678 kg) or 7.4 litres. In Nayshāpūr during the 10th century, however, one qa'fiz amounted to 70 manān or about 56.8 kg of wheat, thus corresponding to 74 litres. During the 14th century, the qa'fiz had already been transformed to weight standard and amounted throughout to 1/10 jarīb (see jarīb) or about 10 kg.

2.2.29.3 Khvārizm

During the 10th century, one qa'fiz equalled 9 1/2 manān, and thus presumably 7.7 kg of wheat or 10 litres.

2.2.29.4 Syria, Palestine

According to al-Muqaddasi [fl. 10th century], in Ramla [in Palestine] one qa'fiz equalled 4 waybah or 8 makākūk or 24 kaylah at approximately 1/2 sā' each, and was thus equal to 151.4 litres, whereas in ‘Ammān it amounted to 1/2 kaylah, i.e., about 3.155 litres, and in Šūr it amounted to one modius of Jerusalem, i.e., 77.875 kg (wheat) or about 1 hectolitre. During the 12th century in Shayzar, one qa'fiz amounted to 16 sunbul at 1/4 rafal (or 684 dirham per rafal) or about 51.218 kg of wheat or 66.5 litres. In Ḥamāh and Hums, one qa'fiz equalled 14 sunbul, i.e., 44.816 kg or about 58.2 litres.

2.2.29.5 Maghrib

In Qayrawān, one qa'fiz equalled 32 thumm at 6 mudd of the Prophet’s time, i.e., 201.877 litres. This was also the case in Tunis around the year 1330, where according to al-’Umari [d. 1348/49], one qa'fiz consisted of 16 waybah at about 12 mudd of the Prophet’s time each (i.e., 201.877 litres). In Cordova [in Muslim Spain], the qa'fiz consisted of 42 mudd of the Prophet’s time, thus measuring 44.16 litres.

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336 BGA I (1870), p. 156.
337 BGA II (1873), p. 215.
338 BGA III (2) (1906), p. 452.
339 Ibid.
340 Ibid., p. 381.
341 Ibid., p. 417.
343 Saʿādat-Nāmah, MS Aya Sofya no. 4190, fol. 28b.
344 Al-Khwārizmī, Masāfāt al-’Ulām, ed. G. van Vloten (Leiden 1895), p. 68.
345 BGA III (2) (1906), p. 181.
346 * The capital of present day Jordan (transl.).
347 ** Tyre, in present day Lebanon (transl.).
348 *** Known to me is the modius, a Roman corn-measure which approximately amounts to a peck or a quarter-bushel (transl.).
349 Al-Shayzari, Book of al-Muḥātisib, p. 17.
350 **** Two cities in present day Tunisia (transl.).
352 ***** Kairouan in present day Tunisia (transl.).
2.2.30 qīrāṭ

An Egyptian dry measure, today equalling $\frac{1}{32}$ qadāh (see qadāh) or 0.064 litre.\(^{350}\)

2.2.31 qisṭ

Measure of capacity (Greek: xestes; Latin: sextarius) which existed in two sizes: the small qisṭ, which corresponded to a weight of 3 raṭl of liquid, measuring 1.2158 litres, and the big qisṭ, which was exactly double its size, and thus measuring 2.4336 litres.\(^{351}\) Apparently, one qisṭ in Egypt amounted to $\frac{1}{2}$ sā’ (see sā’), thus measuring 2.106 litres.\(^{352}\)

2.2.32 rub‘

As a measure of capacity, one rub‘ (variant: rub‘ah) in Egypt amounted to $\frac{1}{2}$ qadāh (see qadāh), today officially 0.516 litre.\(^{353}\) In early Islamic ‘Irāq, one rub‘ ḥāshīmī equalled one sā’ of the Prophet’s time,\(^{354}\) and thus 4.2125 litres.

In Andalusia, the expression rub‘ referred to a measure of capacity which weighed, with regard to wine, 18 raṭl at 12 ʻuqiyāh (per raṭl) at 8 mīhqāl (per ʻuqiyāh), thus containing 8.16 litres, i.e., exactly half of the Spanish wine “Arroba” of 16.17 litres.\(^{355}\)

2.2.33 sā’

The canonical sā’ consisted of 4 mudd. Its exact fixing—of crucial significance for numerous other Islamic measures of capacity—had been made possible by a report which was preserved by a lucky coincidence from the Ayyūbīd period, namely from the year 1195: according to this report a gough vessel of one mudd, of a capacity of 337 dirham of water,\(^{356}\) equalled 1.053125 kg/litre. One sā’ of the Prophet’s time, therefore, measured exactly 4.2125 litres. If we convert this measure into the weight for wheat (1 hl = 77 kg) we arrive at 3.24 kg. The canonists traditionally mention a weight of sometimes 5½ or 8 raṭl and sometimes 5 raṭl for the sā’.

Despite this apparent contradiction, the solution seems to lie in the fact that the said 5½ raṭl was Medinan and corresponded to 8 raṭl of Baghdād, agreeing in both cases with 3.245 kg of wheat. Therefore, both these values lead exactly to the figure of 4.2 litres calculated by us.

2.2.34 saḥfah

A Maghrībīne measure of capacity, measured in Ténès** 48 qādas at 3 mudd of the Prophet’s time, i.e., 151.4 litres; in Nākūr it equalled 25 mudd of the Prophet’s time; in Fes, until the year 1294, 40 local sā’ amounted to 50 sā’ of the Prophet’s time, i.e., 210.28 litres. After the year 1294, the saḥfah of Fes amounted to 40 sā’ of the Prophet’s time or 168.23 litres.\(^{358***}\)

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\(^{352}\) Confer de Sacy, Traité des poids et mesures de Maqrizi, p. 52 (annotation).


\(^{354}\) Abū Yusuf, Kitāb al-Khairāj (Bulaq-Cairo 1302/1885), p. 31.


\(^{356}\) Journal Asiatique 8 III (1884), p. 442.


\(^{358}\) A town in the north of present day Algeria (transl.).

\(^{359}\) Supporting evidences to be found in H. Sauvain, in: Journal Asiatique 8 VII (1886), pp. 417–18 (conversion rate, however, by Walther Hinze).

\(^{360}\) Hinze adds in the ‘Anhang’ (appendix) to the German original based on information provided to him by T. Lewicki: according to al-ʿUmāri (Maṣālik al-ʿAbşār, ed. Paris 1927, p. 101 and note 1 therein), one saḥfah consisted of 12 Ḥāṣid mudd, i.e., probably 51.84 litres. Moreover, there existed in the Maghrib also a measure of capacity called ʿalḥaf which consisted of 10 saḥfah. The Ḥāṣid ruled over Tunisia and eastern Algeria between 1228 and 1574 (transl.).
2.2.35 sunbul

A Syrian dry measure, in Shayzar\textsuperscript{359} comprising 1 1/2 raṭl at 684 dirham, i.e., 3.206kg (wheat) or about 4.16 litres.

2.2.36 sunquri\textsuperscript{a}

The sunquri, a corn-measure of Zabid, corresponded to 240 dirham, i.e., apparently 792g.\textsuperscript{360}

2.2.37 taghār

An Iranian “pack animal’s load” [Hinz: “Saumlast’”), since the year 1300, standardised at 100 mann of Tabriz at 250 dirham each,\textsuperscript{361} thus equal to 83.4kg. As a dry-measure it existed in various sizes (depending on the kind of grain) since the weight had to be always 100 mann.

2.2.38 thumm

In Egypt equal to 1/16 qadāḥ (look up there), today 0.258 litre; in Qayrawān\textsuperscript{**} amounting to 6 mudd during the Prophet’s time (see qafīz), or 6.318 litres.

2.2.39 tillis

According to al-Muqaddasi [fl. 10th century], this Egyptian dry measure equalled 8 waybah of the weight of 15 Baghdādian mann (per waybah),\textsuperscript{362} i.e., 97.5kg of wheat; however, it is said to have

been already obsolete by then. This oldest tillis thus measured about 127 litres. During the High Middle Ages, one tillis amounted to 150 Egyptian raṭl,\textsuperscript{363} i.e., 67kg (wheat) or about 87.7 litres and thus came close to the irdabb of Cairo. During the 19th century, one tillis amounted to about 225g or about 3 hl.\textsuperscript{364} As a Turkish dry measure, one tillis amounted to 1/3 kile or 1/90 mūdd\textsuperscript{365} and thus corresponded to a weight of 6.41kg (wheat) and a capacity of 8.32 litres.

2.2.40 wasq

During the early Islamic period, one wasq or “camel load” consisted of 60 ṣā`,\textsuperscript{366} and thus equalled 252.3456 litres (or 194.3kg, with regard to wheat). At the time of the ‘Abbāsid caliph Hārūn al-Rashid [r. 786–809], one wasq amounted to 2 1/2 wasq of the Prophet’s time, thus 630.864 litres or about 485.765kg (wheat).\textsuperscript{367} In later times, however, the sources refer again throughout to 60 ṣā` of the Prophet being equal to one wasq.\textsuperscript{368}

2.2.41 waybah

A principally Egyptian dry measure, during the early Islamic period equalled 10 mann\textsuperscript{369} or 12.168kg (wheat), during the 14th

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{359} Al-Shayzarī, Book of al-Muḥtāṣib, p. 17.
\item \textsuperscript{a} This entry has been added to the English translation from the appendix (“Anhang”) to Hinz’s German original text, see there, p. 67] (transl.).
\item \textsuperscript{361} Rashid al-Dīn, ed. K. Jahn (Gibb Memorial), p. 290.
\item \textsuperscript{**} Kairou n in present-day Tunisia (transl.).
\item \textsuperscript{362} BGA III (2), p. 204.
\item \textsuperscript{363} Journal Asiatique 8 III (1884), p. 419.
\item \textsuperscript{364} According to a note by Girard, referred to by H. Sauvaire (in: Journal Asiatique 8 VII (1886), p. 154). It is, however, remarkable that the veracious observer E. W. Lane did not mention (around the year 1830) the tillis, but only the irdabb.
\item \textsuperscript{365} To be calculated in accordance with a Turkish kanunname-i ihittāb from the year 1501, published in Tarih Veskaları I, p. 330.
\item \textsuperscript{366} Abī Yūsuf, Kitāb al-Kharāj (Bulaq-Cairo 1302/1885), p. 30.
\item \textsuperscript{367} Ibid., p. 31.
\item \textsuperscript{369} Al-Muqaddasi, in: BGA III (2), p. 204.
\end{itemize}
\end{footnotesize}
and 15th centuries comprising 16 qadaḥ (see qadaḥ) at 232 dirham (per qadaḥ) or 11.6kg (wheat), i.e., practically 15 litres. Around the year 1665, however, Gonzales refers to one waybah of rice at 8 qadaḥ at 3 raf̄l kабir, i.e., 1.5kg, which would result in 12kg of rice or a capacity of only 12.5 litres for the waybah. During the 19th century, one waybah equaled 33 litres. This measurement, however, is Ottoman as indicated by the adjustment of the irdab to the weight of 100 qg̟a wheat. This waybah corresponded thus to 5/6 Ottoman kilo or 21.367kg wheat. In Ramlah, one waybah equaled 1/4 qafiz (see qafiz), and thus equal to about 37.8 litres. In Tunis around the year 1330, one waybah equaled about 12 mudd of the Prophet’s time, and was thus equal to about 12.6 litres.

3. Linear Measures

3.1 angusht

[A Persian expression, a “fingerbreadth”, literally “finger”]. See aşba’.

3.2 arash

The Persian term for “cubit” [Hinz: “Elle”] (see also under gaz and zar’), rarely used. According to Nāṣir-i Khusrau [1004–before 1078], one gaz-i malik or “royal cubit” amounted to slightly less than 1 1/2 arash. This “royal cubit” has been calculated (see entry gaz) fairly accurately at 95cm. Accordingly, one arash should be estimated at about 64cm.

3.3 aşba’

The “finger-breath” amounted principally to 1/24 of the “cubit” (look up under dhirā’) and fluctuated therefore in accordance with the latter. In Islamic metrology, however, two measures predominated: the aşba’ of the canonic “cubit” (i.e., 49.875 + 24 = 2.078cm) and the aşba’ of the so-called “black cubit” (i.e., 54.04 + 24 = 2.252cm). In Egypt today, the aşba’ amounts to 3.125cm.

Toward the end of the 16th century, the Mughal emperor Akbar [r. 1556–1605] subdivided the “cubit” into 41 angusht at 2.032cm each. This measure for the “finger-breath” was even maintained when the old “royal” cubit was in the year 1647 standardized again at 40 angusht.

3.4 ashl

The ashl, literally “chain” or “rope”, amounted to a length of 60 hāshimi “cubits”, thus, according to my own calculations (see below under al-dhirā’ al-hāshimiyyah), 39.9 metres.

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370 Hiervalsensche Reysc, II. Deel (Antwerp 1673), p. 84.
* A town in Palestine (transl.).
374 Nāṣir-i Khusraw, ed. Charles Schefer (Paris 1881), pp. 22 and 72, respectively.
375 Hinz adds in the ‘Anhang’ (appendix) to the German original: “A more exact calculation had been provided by Nāṣir-i Khusrau himself at another place (p.40 of the Persian edition), where he calculated the length of one side of the octagonal Dome of the Rock in Jerusalem at 13 arash (or gaz). Since in reality one side measures 20.4m (confer R. Hartmann, Der Felsendom in Jerusalem, Straßburg 1909, p. 13), the result for one arash during the high Middle Ages would have been 0.62m” (transl.).
376 Hinz adds in the ‘Anhang’ (appendix) to the German original: “The “finger-breath” (aşba’) equaled canonically 6 sha’irah (“barley seeds”) or 1/25 “cubit” (transl.).
3.5 bā’

The bā’ or “fathom” [Hinze: “Klafter”], also called qāmah by the Arabs, corresponded principally to 4 canonic “cubits” (see below under al-dhirā’ al-shar’iyyah), and thus equaled 199.5 cm or around 2 metres, amounting to \(\frac{1}{1000}\) mil or “mile”.\(^{378}\) In present-day Egypt, the bā’ equals 4 “carpenter’s cubits” [Hinze: “Zimmermannsellen”], i.e., 3 metres.\(^{379}\)

3.6 bāb

This linear measure (literally meaning “a rod”) amounted to \(\frac{1}{10}\) ashl,\(^{380}\) and thus (during the Middle Ages) to 3.99 metres.

3.6 bahr

An Iranian linear measure. 32 bahr amounted to one “cubit” of modern times (zar’) at 104 cm, and thus was corresponding to 3.25 cm.\(^{381}\)

3.7 barid

The barid (from Latin veredus) equalled 2 farsakh, and corresponded thus to about 24 km.\(^{382}\)

3.8 dhirā’

The number of Islamic “cubit” measures was considerable. The starting point for all calculations is the “cubit” of the old Nilometer on the Nile island of al-Raudah from the year 861. According to the investigations of the French expedition under

Napoleon Bonaparte and their reconsideration by K. A. C. Creswell in the year 1927,\(^{383}\) this “cubit” amounted on the average to exactly 54.04 cm. This is the so-called “black cubit” of the Abūbasid period. In the following we present the individual “cubit” measures in alphabetical order. With regard to Iran, the reader is referred to the entries gaz and zar’.

3.8.1 dhirā’ al-‘amal

The Egyptian “practical cubit” corresponded to the hāshimi “cubit”.\(^{384}\) The latter measured according to our own calculations (see al-dhirā’ al-hāshimiyyah) on the average, 66.5 cm.\(^{385}\)

3.8.2 al-dhirā’ al-‘ammah

The “ordinary cubit” was probably equal to the “black cubit” at 54.04 cm. It is true that Gonzales referred in the year 1665 to an “ordinary” quarter “cubit” in a drawing at 13.2 cm, which would imply 52.8 cm for such a “cubit”.\(^{386}\) However, the slight difference could have been the result of inexact reproduction in the printed version.

3.8.3 al-dhirā’ al-baladiyyah

According to measurements from the 19th century, the normal length of this “cubit” was 58.26 cm,\(^{387}\) thus corresponding to the “pik”, i.e., the “cloth cubit” [Hinze: “Tuchelle”] of Cairo (dhirā’


\(^{380}\) *Journal Asiatique* 8 VIII (1886), pp. 482–83.


\(^{382}\) *Journal Asiatique* 8 VIII (1886), pp. 484–85.


\(^{385}\) This seems to correspond to al-Maqritzi’s note (loc. cit.) with regard to the ‘Amr-Mosque in al-Fustāṭ, which is said to have covered an area of 28,000 square-dhirā’ al-‘amal. This would, according to our own calculations, also amount to 12,457.5 m² (K. A. C. Creswell, loc. cit., vol. II, p. 191).

\(^{386}\) *Hierusalemsehe Reysse, II. Deel* (Antwerp 1673), to face p. 84.

\(^{387}\) According to Mahmoud Bey, “Le système métrique actuel d’Egypte”, in: *Journal Asiatique* 7 I (1873), p. 73.
al-bazz, see below). E. W. Lane referred to it as a “cloth cubit” of 22 2/3 inches, 388 which would correspond to a mere 57.57 cm.

### 3.8.4 dhirā' al-barīd

The “post cubit” was identical with the canonic “cubit” of 49.875 cm. 389

### 3.8.5 dhirā' al-bazz

During the Middle Ages, the “cloth cubit” was, as could be expected, one of the most common kinds of “cubits” and was principally known as “pik” in Levantine trade. Its length varied from city to city.

#### 3.8.5.1 Cairo

According to al-Qalqashandi [1355–1418], 390 the Egyptian “cloth cubit” equaled one “hand cubit” + 4 asba’, and thus 1 1/6 “hand-cubits”. If we assume for the latter a value of 49.875 cm (see below under dhirā’ al-yad) we arrive at 58.187 cm for the “cloth-cubit” of Cairo. This figure has been confirmed most accurately by a statement of Da Uzzano 391 from circa 1440, according to which, “picchi 114 d’Alessandria sone di Vinegia braccia 97”, which results for the “pik” in 58.15 cm (since one Venetian “cubit” corresponds to 68.34 cm). The “cloth cubit” of Alexandria was thus of the same length as the one of Cairo.

Gonsales 392 refers in a drawing circa 1665 to a quarter

“cubit” at 14.5 cm, which results again in 58 cm for the “cubit”. He added, however, that only cloth from India used to be measured in it, whereas foreign cloth were measured according to the “cubit” of Istanbul, which, according to his drawing, was to be calculated at 64.4 cm (correctly at 68.579 cm).

#### 3.8.5.2 Damascus

The Damascene “cloth cubit” was, according to al-Qalqashandi [1355–1418], 393 about 1/12 longer than that of Cairo and is thus to be calculated at 63.035 cm.

#### 3.8.5.3 Aleppo

The “cloth cubit” of Aleppo was, according to al-Qalqashandi [1355–1418], 394 about 1/6 longer than the one of Cairo and is thus to be calculated at 67.9 cm. This has been confirmed accurately by W. Barrett, 395 who in the year 1584 gave the rate: 100 “pike” of Aleppo = 103 “codes” of Hormuz. Since one Portuguese codo of Hormuz measured 66 cm, 396 the result with regard to the “cloth cubit” of Aleppo was 67.98 cm. During the 19th century one “pik” amounted to 67.7 cm in Aleppo. 397

#### 3.8.5.4 Tripoli

In Tripoli, the “cloth cubit” amounted to 11/10 of the one in Cairo 398 and thus measured 64 cm.

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389 To be calculated from Ibn Taghi Birdi, ed. W. Popper, vol. VIII, p. 475, according to which 5,648 “and a fracture” dhirā’ al-ḥadid (look up there) amounted to 6,589 2/3 “post-cubits”.
391 *La pratica mercatura*, p. 113.
392 *Hiervalsensche Reyse, II. Deel* (Antwerp 1673), to face p. 84.
394 Ibid., p. 216.
397 Ibid., 489.
398 A city in present day Lebanon (transl.)
3.8.5.5 Jerusalem

During the 19th century, the "cloth-cubit" in Jerusalem amounted to 25 \(\frac{1}{2}\) inches,\(^{399}\) or 64.77 cm.

3.8.5.6 ʿIrāq

During the 16th century, the "cloth cubit" measured 82.9 cm in Bagh)dād as well as in Baṣrāh. This has been calculated from the statements of Barrett,\(^{400}\) according to whom 82 "pikes" of "Babylon" (i.e., Bagh)dād) amounted to 100 "pikes" of Alep). According to him, 100 Bagh)dādān "pikes" equalled also 125 \(\frac{2}{3}\) "codes" of Hormūz at 66 cm each. In the 19th century, Bleibtreu\(^{401}\) referred to the Bagh)dādān "cloth cubit" as corresponding to 80.26 cm.

3.8.5.7 Iran

See gāz and gār.

3.8.5.8 India

In the international trade with India (as well as in medieval Iran) the "cloth cubit" of Alep) prevailed. In Surat [a harbour on the western coast of India], there existed during the 17th century a smaller "cubit" at 27 inches, i.e., 68 cm (which was thus equivalent to that of Alep) and a bigger one at 36 inches or 91 cm.\(^{402}\)

3.8.6 ʿdhirāʿ al-bilādiyyah

The name of this "cubit" can be traced to Bilāl b. Abī Burdah (d. 739) who was a judge (qādī) in Baṣrāh. This "cubit" was also called "small hāshimī-cubit" and was around \(\frac{2}{3}\) aṣbaʿ; longer than the "black cubit", thus measuring 60.055 cm.\(^{403}\)

3.8.7 ʿdhirāʿ al-dār

The "cubit of the houses", also called fīddiyyah and supposedly introduced by the qādī Ibn Abī Laylāh Yāsār of Kūfah (d. 765), was around \(\frac{1}{3}\) aṣbaʿ; smaller than the "black cubit", thus measuring 50.3 cm.\(^{404}\)

3.8.8 ʿdhirāʿ al-ḥadīd

During the 15th century in Egypt and the Hijāz, the "iron cubit" at 28 canonically aṣbaʿ served as "cloth-cubit" and amounted to \(\frac{2}{3}\) of the "hand cubit" (see ʿdhirāʿ al-yad).\(^{405}\) Thus measuring 58.187 cm, exactly the same as that calculated for the "cloth cubits" of Cairo and Alexandria (see ʿdhirāʿ al-bazz).

3.8.9 ʿal-ʿdhirāʿ al-hāshimīyyah

The (big) hāshimī "cubit" at 8 qabdāh or 32 aṣbaʿ was equal to the "royal" or ziyādī "cubit"aṣbaʿ. It was supposedly known under the name hāshimī "cubit" since the time of the Abbāsid Caliph al-Mansūr (r. 754–75). This "cubit" was around \(\frac{2}{3}\) aṣbaʿ (finger-breath) longer\(^{406}\) than the above "cubit of the houses" which has been calculated at 50.3 cm. If we assume a "finger-breath" to be 2.078 cm, the hāshimī "cubit" is to be calculated at 66.27 cm. Since we have calculated the "royal cubit" at 66.81 cm and 66.21 cm (see below under ʿdhirāʿ al-malik), respectively, we

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399 T. Tobler, Denkbilder aus Jerusalem (St. Gallen and Constance 1853), p. 279.
400 Hakluyt, Extra Series VI, p. 15.
401 Loc. cit., p. 490.
403 Al-Māwarī, [quoted by Hinz from:] Maximilian Enger (ed.), Maverdii Constitutiones politicae, ex recensione (Bonn 1833), p. 266.
405 Auszüge aus den Geschichtsbüchern der Stadt Mecca von Muhammed el-Fāṣi, ed. by F. Wüstenfeld (Leipzig 1859), pp. 68–69 and 590.
estimate, thus, the average figure 66.5cm for the hāshimi "cubit". The small hāshimi-"cubit" was equal to the "Bilāl cubit" [see al-dhirā' al-bilāliyyah, above], i.e., 60.055cm.

3.8.10 dhirā' al-hindāsah

E. W. Lane⁴⁰⁷ ascribed to this "cubit", which was used merely for measuring Indian cloth, a value of about 63.5cm. Today, this Egyptian linear measure amounts to exactly 65.6cm.⁴⁰⁸ Probably, this refers to the old hāshimi "cubit".

3.8.11 al-dhirā' al-Istānbulīyyah

This "cubit", actually being the "cloth-cubit" of Istanbul, has been used in modern times in Egypt for measuring European clothes. E. W. Lane⁴⁰⁹ calculated it at circa (c.) 26 1/2 inches = c. 67.3cm. According to Bleibtreu⁴¹⁰ during the 19th century, it measured 68.579cm. It was introduced [officially] in Cairo in November 1920.⁴¹¹

3.8.12 dhirā' al-kirbash

This Egyptian "cubit" for measuring white sacking [Hinz: "Sackleinwand"] equalled the "ordinary cubit" (al-dhirā' al-‘ammanah),⁴¹² whereas the "ordinary cubit", in turn, equalled, as already mentioned, the "black cubit" (al-dhirā' al-saudā') at 54.04cm.

3.8.13 dhirā' al-malik

The "royal cubit" equalled the big hāshimi "cubit", whose name it had assumed during the time of the 'Abbāsid Caliph al-Manṣūr (r. 754–75). The "royal cubit" was around 5 2/5 ašba' (finger-breathths) longer than the "black cubit" of 54.04cm. According to another statement from the same source,⁴¹³ it amounted to 1 9/40 of the "black cubit". In the first case the "royal cubit" (i.e., the finger-breathth at 2.252cm) was to be calculated at 66.81cm, in the second at 66.21cm. As a practical average figure, we propose, therefore, 66.5cm.

3.8.14 al-dhirā' al-mi‘mariyyah

The "construction cubit" [Hinz: "Bauelle"] equalled the Egyptian "carpenter’s cubit" [Hinz: "Zimmermannsselle"] (al-dhirā' bi‘l-najjārí). During the Middle Ages, it amounted to 9/2 "hand cubits".⁴¹⁴ The dhirā' al-yad (see dhirā' al-yad, below) has been calculated by us at 49.875cm, which resulted in 79.8cm for the medieval "construction cubit". In the 19th century, Mahmoud Bey calculated the "hand cubit" on the average at 49.32cm.⁴¹⁵ This resulted in a "carpenter’s cubit" being 78.9cm. This figure of 78.9cm, however, appears to be slightly too high with regard to other equations (see qasabah), it, therefore, follows that the "carpenter’s cubit" was to be calculated at 77.5cm. During the second half of the 19th century, the Egyptian "carpenter’s cubit" was standardised at 75cm,⁴¹⁶ apparently in order to adjust it to the metric system.

3.8.15 dhirā' al-misāhah

The "survey cubit" [Hinz: "Vermessungselle"] equalled, appar-
ently, the “royal cubit” (dhirā’ al-malik) at 66.5cm.\textsuperscript{417}

3.8.16 \textit{al-dhirā’ al-mizānīyyah}

The “scales cubit” [Hinz: “Waage-Elle”], introduced by the ‘Abbāsid Caliph al-Ma’āmūn (r. 813–33), amounted to $2\frac{2}{3}$ “black cubits” + $\frac{1}{2}$ asba’ (finger-breathths) and was mainly used for measuring canals.\textsuperscript{418} According to the above calculations, it amounted to 145.63cm.

3.8.17 \textit{al-dhirā’ al-mursalah}

Literally a “loosened cubit” of which 12,000 amounted to a farsakh (see farsakh). Without any doubt, this “cubit” was identical to the canonic or “hand cubit” (see dhirā’ al-yad) at 49.875cm according to my own calculations.

3.8.18 \textit{al-dhirā’ bi’l-najjarī}

The Egyptian “carpenter’s cubit”, on the average, amounted to 77.5cm (see also al-dhirā’ al-mi’āriyyah).

3.8.19 \textit{al-dhirā’ al-qā’imah}

This “cubit” was identical to the canonic or “hand cubit” (see dhirā’ al-yad) at 48.875cm, which is derived from the fact that 80 of these “cubits” equaled 60 hāshimi “cubits”.\textsuperscript{419} The latter has been calculated at 66.5cm.

3.8.20 \textit{al-dhirā’ al-rashshāshīyyah}

The rashshāshī “cubit” at 6 qabdah (see qabdah) was predominately current in Maghrib and Muslim Spain and equaled exactly the “black cubit” (al-dhirā’ al-saudā’),\textsuperscript{420} measuring thus 54.04cm.

3.8.21 \textit{al-dhirā’ al-saudā’}

The so-called “black cubit” was introduced under the ‘Abbāsid Caliph al-Ma’āmūn (r. 813–33) and amounted to 24 asba’ (finger-breathths) and measured 54.04cm, according to the Nilometre on the island of al-Raudah.\textsuperscript{421}

3.8.22 \textit{al-dhirā’ al-shar’īyyah}

The canoncic “cubit” was identical to the Egyptian “hand cubit” (see dhirā’ al-yad) and measured, according to my own calculations, 49.875cm.\textsuperscript{422}

3.8.23 \textit{al-dhirā’ al-‘umariyyah}

The “cubit” of the caliph ‘Umar [r. 634–44], amounted to half of the “scales cubit”,\textsuperscript{423} i.e., according to my own calculations, to 72.815cm.

3.8.24 \textit{dhirā’ al-yad}

The Egyptian “hand cubit” was, as just mentioned, identical with the canoncic “cubit” and $1\frac{2}{3}$ asba’ (finger-breathths) smaller than the “black cubit” at 54.04cm (see al-dhirā’ al-saudā’) or corre-

\textsuperscript{417} Journal Asiatique 8 VIII (1886), p. 508.
\textsuperscript{418} Ibid., p. 496, and al-Mawardi, ed. M. Enger, p. 267.
\textsuperscript{419} Journal Asiatique 8 VIII (1886), p. 482.
\textsuperscript{420} Ibid., p. 500.
\textsuperscript{421} Compare with what has been stated by us above under the entry dhirā’, and refer also to al-Muqaddasi, in: BGA III (2), pp. 65–66 and al-Mas’ūdi, Prairies d’or, vol. 1, p. 183.
\textsuperscript{422} Cult ed-Dīn’s Geschichte der Stadt Mekka, ed. F. Wüstenfeld (Leipzig 1857), p. 15.
\textsuperscript{423} Journal Asiatique 8 VIII (1886), p. 496.
sponding to \(1/3\) “scales cubits” (see \(al\-dhir\(\dot{a}\)‘ \(al\-mi\(\dot{c}\)ànîyyah)\).

In the first case the “hand cubit” was to be calculated at 50.3cm (since one \(asba\‘\) equalled 2.252cm), in the second case at 48.54cm. The length of the “hand cubit” can be ascertained more precisely by a statement of Al-Qalqashandi [1355–1418], according to which it consisted of 6 \(qab\(\dot{d}\)ah\) (hand-breathths) at 4 \(asba\‘\) (finger-breathths) or 2.078cm (per \(qab\(\dot{d}\)ah\), and 8 of such “cubits” amounted to 6 \(h\(a\)sh\(m\)î “cubits” (see \(al\-dhir\(\dot{a}\)‘ \(al\-h\(a\)sh\(m\)î\(\dot{y\)yyah). The result for the \(dhir\(\dot{a}\)‘ \(al\-yad\) is therefore 49.875cm. During the 19\(th\) century, the “hand cubit” had been calculated by Mahmoud Bey, on the average, at 49.32cm.\(\text{426}\)

3.8.25 \(al\-dhir\(\dot{a}\)‘ \(al\-y\(\u{u}\)sufiy\(\dot{y}\)y\)

This “cubit”, named after the well-known \(q\(\ddot{a}\)\(\ddot{d}\)î Abû Yusuf (d. 798), was \(1/3\) “finger-breathths” shorter than the “black cubit,”\(\text{427}\) thus amounting to 52.55cm. This, however, could be the result of incorrect transmission of data. According to a better attested statement,\(\text{428}\) the \(y\(\u{u}\)sufî “cubit” was \(1/3\) shorter than the “black cubit”, which would make it 48.9cm. Most probably the \(y\(\u{u}\)sufî “cubit” was identical to the canonical or “hand cubit” at 49.875cm (according to our own calculations).

3.8.26 \(al\-dhir\(\dot{a}\)‘ \(al\-zi\(\u{y}\)âdi\(\dot{y}\)y\)

A “cubit” of the early Islamic period which had been applied by Ziyây b. Sumayyah (d. 673 in Kâfah) for surveying ‘Irâq. It was identical to the “royal cubit” (\(dhir\(\dot{a}\)‘ \(al\-malîk\) or the big \(h\(a\)sh\(m\)î “cubit”),\(\text{429}\) and thus, according to our own calculations, equal to 6.5cm.

3.9 \(f\(a\)rsak\(h\)

The \(f\(a\)rsak\(h\) [Hinz: “Parasange”] consisted of 3 “miles”, at 1,000 \(b\(a\)‘ or “fathoms” [Hinz: “Klaffter”] (per “mile”), at 4 canoncic “cubits” (see \(al\-dhir\(\dot{a}\)‘ \(al\-shar\(\i\)î\(\dot{y}\)y\)ah, above) (per “fathom”),\(\text{430}\) measuring thus about 6 km.

3.10 \(g\(a\)z

\(Gaz\) is the Persian term for the “cubit”, for which the terms \(zar\‘\) and \(zir\(\dot{a}\)‘ (see \(zar\‘\) and \(zir\(\dot{a}\)‘) are also often used. Ascertaining these is somehow difficult.” During the High Middle Ages, one \(g\(a\)-\(i\) \(sh\(a\)h\(i\) amounted, according to Chardin [1643–1713, French traveler to Iran],\(\text{431}\) to 3 “pieds moins une pouce”, i.e., 94.745cm, and, according to Fryer\(\text{432}\) [d. 1733, English traveler to India and Iran], to 37 \(1/2\) inches, i.e., 95.15cm, and thus, on the average, to 95cm. One \(g\(a\)z amounted still to 94cm during the 19\(th\) century in Başra.\(\text{433}\)

Apart from the \(g\(a\)-\(i\) \(sh\(a\)h\(i\), there existed also a \(g\(a\)-\(i\) \(m\(u\)k\(a\)s\(a\)r or “shortened cubit” for measuring carpets, silk and fine textiles. According to Chardin, it amounted to \(2/3\) of the “royal \(g\(a\)z” or, according to his calculations, to 63.12cm. According to Fryer, it amounted to 27 inches, i.e., 68.58cm. The latter appears to be more probable since this could be referring to the “cloth cubit” of Aleppo, which we have calculated at 68cm.

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\(\text{424}\) Ibid., pp. 495 and 497.
\(\text{425}\) Al-Qalqashandi, \(S\(u\)bh, III, p. 446.
\(\text{426}\) \(J\(o\)rnal \(A\)siatique\) 71 (1873), p. 106.
\(\text{427}\) Al-Mâwârdî, in: \(J\(o\)rnal \(A\)siatique\) 8 VIII (1886), p. 491.
\(\text{428}\) Al-\(R\(a\)\(y\)î, in: \(J\(o\)rnal \(A\)siatique\) 8 VIII (1886), p. 497.
\(\text{429}\) Al-Mâwârdî, ed. M. E\(n\)ger, p. 266.
\(\text{430}\) E. \(W\(i\)edemann, “\(B\(e\)iträge zur Geschichte der Naturwissenschaften XXII”, in: \(S\(i\)tzungsberichte der Physikalisch-Medizinischen \(S\(o\)s\(c\)ö\(t\)t\(e\) in \(E\(r\)l\(a\)n\(g\)en, vol. IV (Erlangen 1911), p. 308 n. 3.
\(\text{432}\) \(A\(n\) \(N\(e\)w \(A\)ccount of \(E\(a\)st-\(I\)ndia and \(P\(e\)rsia\) (London 1698), p. 211.
\(\text{433}\) L. C. \(B\(l\)eb\(u\)treu, \(H\(a\)ndbuch der \(M\(i\)nz. -, Mass- und \(G\(e\)wichtskunde\) (Stuttgart 1863), p. 57.
Today, there exists in Iran only one kind of gaz, namely that at 104 cm.\(^{334}\)

3.11 gereh

A Persian linear measure, amounting to \(\frac{1}{16}\) zar (see zar; referring to one zar at 104 cm). One gereh was equal to 2 bahr, thus amounting to 6.5 cm.\(^{335}\)

3.12 habl

This measure, literally meaning “rope”, amounted to 40 rashshashi “cubits”\(^{336}\) at 54.04 cm (per rashshashi “cubit”), i.e., 21,616 metres, in western Andalusia.

3.13 khufwah\(^*\)


3.14 mil

The “mile” amounted to 4,000 canonic “cubits”, or \(\frac{1}{3}\) farsakh (see farsakh), i.e., about 2 km.\(^{337}\)

3.15 qabđah

The qabđah or “first-breath” at usually 4 āšba’ or “finger-breathths” generally equalled \(\frac{1}{6}\) “cubits” during the Middle

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\(^{335}\) Ibid.

\(^{336}\) Journal Asiatique 8 VIII (1886), pp. 488–98.

\(^*\) [Translator’s note: This entry has been added to the English translation from the appendix (“Anhang”) to Hinz’s German original text, see there, p. 68].


Ages,\(^{338}\) but fluctuated, depending on the measure for the “cubit”. With regard to the “ordinary” (“black”) “cubit” the qabđah amounted, therefore, to 9 cm, and with regard to the canonic “cubit”, to 8.31 cm. During the 19th century, the qabđah amounted to about 6\(\frac{1}{4}\) inches\(^{339}\) or about 15.875 cm in Egypt.

3.16 qâmah

See bâ‘.

3.17 qaṣabah

With regard to the so-called hâkimî “rod” [Hinz: “Rute’], named after the Fāṭimid caliph al-Ḫākim bi-Amr Allâh [r. 996–1021], there existed the following equations: one qaṣabah = 6 hâšimi-“cubits”, one qaṣabah = 5 “carpenter’s cubits” = 8 “hand cubits”, or one qaṣabah = 6 \(\frac{2}{3}\) “cloth cubits”, or one qaṣabah = 7 \(\frac{1}{7}\) “black cubits”.\(^{440}\) From this supporting evidence, 3.99 metres emerges as an average-figure for the qaṣabah. This figure of 3.99 metres, however, applied only up to the year 1830. Thereafter, the qaṣabah amounted merely to 22 qabđah,\(^{441}\) instead of 24 qabđah previously, thus, up to the present, to 3.55 metres.\(^{442}\) In addition to this, there exists in Egypt today also a second, totally different, linear measure, namely the qaṣabah at \(\frac{1}{6}\) “carpenter’s cubits”, which is officially 12.5 cm.\(^{443}\)

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\(^{338}\) Confer Journal Asiatique 8 VIII (1886), p. 525.


\(^{440}\) Al-Qalaqashandi, Šubb, III, p. 446; al-Bakri, Notices et extraits I, p. 269; Journal Asiatique 8 VIII (1886), pp. 518 and 527, respectively.


\(^{442}\) Mitteilungen des Seminars für Orientalische Sprachen, Westasiatische Studien (Berlin 1925), p. 22.

\(^{443}\) Ibid.
3.18 *tanāb*

This Persian linear measure, literally meaning “rope”, is identical to the Arab *ashl* (see *ashl*), as can be deduced from a Persian chronicle from the 17th century.⁴⁴⁴ Accordingly, 80 *zar‘-i shar‘i* or canonic “cubits” at 49.875cm amounted to one *tanāb*, which is, therefore (like one *ashl*), to be calculated at 39.9 metres. 150 *tanāb* amounted to one *farsakh*.

3.19 *zar‘* [from Arabic *dhar‘*]

Principally, a term applying to the Persian “cubit” (also called *gaz*, or more rarely *gīrā‘*). The two most important *zar‘*- measures are the canonic “cubit”, or *zar‘-i shar‘i*, and the “cubit” of Iṣfahān. Both measures can be ascertained clearly from the Persian chronicle-note referred to in the previous entry, according to which 7,500 “cubits” of Iṣfahān or 12,000 canonic “cubits” amounted to one *farsakh*. Therefore, one *zar‘-i shar‘i* (identical to one Arabic canonic “cubit”; see *al-dhirā‘* al *shar‘iyah*) amounted to 49.875cm. Correspondingly, one *zar‘-i Iṣfahān* equalled 9/5 *zar‘-i shar‘i* or 79.5cm. This “cubit” of Iṣfahān had been calculated by Sparr de Homberg around the year 1681 at 1 3/16 *aunes d’Holland“,⁴⁴⁵ which resulted in 81.63cm and was, therefore, not accurate.

3.20 *gīrā‘* [from Arabic *dhar‘*], see above

Insofar as this expression was used in the areas influenced by Persian culture, it corresponded to the above *zar* and *gaz*. In Turkey, one *gīrā‘* amounts today to 65cm (see also the above referred to *al-dhirā‘* al *Istanbulīyyah*). In the Indian Mughal empire, there existed a “royal cubit” (*gīrā‘-i pādīshahī*) at 40

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*angust* each, which measured exactly 32 inches or 81.28cm. The Mughal emperor Akbar [r. 1556–1605] standardised this “cubit” toward the end of the 16th century at 41 *angust*. His “royal cubit” thus measured 83.31cm (see *angust*). In the year 1647, however, the former “cubit” which, as just mentioned, had measured 81.28cm, was reintroduced officially in Agra.⁴⁴⁶

4 **Square Measures**

4.1 *āsīrī*

The square measure *āsīrī* corresponded to the square *qaṣabah* (see Part 3) or to 6 big square *hāshimi* “cubits”.⁴⁴⁷ Since we have already ascertained the *qaṣabah* with a high degree of exactitude at 399cm, we thus arrive at 15.92m² for one *āsīrī*.

4.2 *azālah*

One *azālah* measured 100 by one “scales cubit” (see *al-dhira‘* al- *mīzānīyyah*) at 145.63cm each, thus 145.63m².⁴⁴⁸

4.3 *dāniq*

An Egyptian square measure, corresponding to 1/6 *qirā‘*, today measuring 29.172m².⁴⁴⁹

4.4 *faddān*

The predominantly Egyptian square measure *faddān* amounted to

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⁴⁴⁸ *Journal Asiatique* 8 VIII 918861, p. 480.

400 square qasabah, according to al-Qalqashandi [1355–1418].\textsuperscript{450} The qasabah (see Part 3) has been ascertained at 399 cm. We should thus be able to assume an area of 6,368 m\textsuperscript{2} for one faddān during the Middle Ages. During the 19\textsuperscript{th} century (up to the year 1830), one faddān amounted merely to 333 1/3 square-qasabah,\textsuperscript{451} and thus corresponded to an area of 5,306 2/3 m\textsuperscript{2}. After the year 1830, the qasabah had been reduced to 335 cm, as mentioned in Part 3. Since then, one faddān in Egypt has equaled 4,200.833 m\textsuperscript{2}.\textsuperscript{452}

4.5 habbah

An Egyptian square measure at 1/3 qirāt or 1/72 faddān, today corresponding to 58.345 m\textsuperscript{2}.\textsuperscript{453}

4.6 jarib

During the early and high Middle Ages, one jarib amounted as a square measure to 100 square qasabah\textsuperscript{454} and thus quite exactly to 1,592 m\textsuperscript{2} (one qasabah = 399 cm, see Part 3). This jarib was known in Fars as the “small jarib”, namely at 60 by 60 “royal cubits” (dhira’ al-malik), the “big jarib” amounting to 3 2/3 of such “small jaribs” thus measuring 5,837 1/3 m\textsuperscript{2}.\textsuperscript{455} During the later Middle Ages, the jarib comprised a square area with a side length of 32 2/3 gaz, thus 1,066 square gaz (see Part 3), one gaz calculated at 94.745 cm.\textsuperscript{456} Accordingly, one jarib during the 17\textsuperscript{th} century measured 30.95 by 30.95 metres, i.e., 958 m\textsuperscript{2}. It is not possible to ascertain when the reduction of the jarib from around 1,600 m\textsuperscript{2} to about 960 m\textsuperscript{2} took place in the areas under Persian cultural influence. Some indicators, which we cannot refer to here in detail, suggest that this reduction already existed during the 15\textsuperscript{th} century. Today, one jarib equals officially one hectare in Iran. However, a variety of local square measures, which fluctuate between about 400 and 1,450 m\textsuperscript{2}, continue to exist. For example, the jarib-i shah equals 1,200 m\textsuperscript{2}, the jarib-i rasm being equal to 760 m\textsuperscript{2}.\textsuperscript{457}

4.7 marja’

A predominantly Maghribine square measure at 40 square rashshāsh “cubits” (see al-dhirā’ al-rashshāshiyah, Part 3),\textsuperscript{458} and thus equal to 467.4 m\textsuperscript{2} (since the respective “cubit” is equal to the “black cubit” at 54.04 cm).

4.8 qaftiz

As a square measure it was equivalent to 1/3 jarib or 360 square “cubits”,\textsuperscript{459} and thus, according to the above calculation, to 159.2 m\textsuperscript{2}.

4.9 qirāt

An Egyptian square measure, today equal to 1/24 faddān or 175.035 m\textsuperscript{2}.\textsuperscript{460}

\textsuperscript{450} Al-Qalqashandi, Subh, III, p. 446.
\textsuperscript{452} Mitteilungen des Seminars für Orientalische Sprachen, Westasiatische Studien (Berlin 1925), p. 23.
\textsuperscript{453} Ibid.
\textsuperscript{454} Al-Māwarid, ed. M. Enger, p. 265.
\textsuperscript{455} Ibn Haqal (BGA II, 1873), p. 216; al-Iṣṭakhrī (BGA I, 1870), p. 157; the statement by al-Muqaddasi (BGA III, p. 451), according to which the big jarib is said to have measured 70 x 70 “royal cubits”, appears to be inaccurate.
\textsuperscript{458} Journal Asiatique 8 VIII (1886), pp. 488-89.
\textsuperscript{459} Al-Māwarid, ed. M. Enger, p. 265; Ta’rīkh-i Qumm, p. 109.
\textsuperscript{460} Mitteilungen des Seminars für Orientalische Sprachen, Westasiatische Studien (Berlin 1925), p. 23.
4.10 sahm

An Egyptian square measure, today equal to $\frac{1}{24}$ qirāf or $7.293m^2$.\textsuperscript{461}

\textsuperscript{461} Ibid.