

## REVISITING THE GOLD AND SILVER NISAB FOR ZAKAT: A NUMISMATIC STUDY OF PROPHETIC ERA DINAR AND DIRHAM WEIGHTS AND MEASURES

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### ABSTRACT

In the pivotal second year of Hijrah, a series of momentous events unfolded in Madinah, marking significant transformations within the Muslim community. Central to this period was the divine ordinance of zakat, mandating Muslims to allocate 2.5% of wealth, exceeding the nisab threshold, towards charitable deeds. Historically, this threshold was defined by the weight of 20 gold dinars or 200 silver dirhams, echoing a time predating the metric system's introduction in the late 18th century. This study investigates historical numismatic evidence to scrutinize established weights of dinars and dirhams from the Nabawi era, contrasting traditional values with those determined by contemporary numismatists — approximately 4.25 grams for dinars and 2.975 grams for dirhams, reflecting a 10:7 weight relationship not evident during the Prophet Muhammad's (PBUH) lifetime nor during the era of his great-grandfather, Hashim ibn 'Abd Manaf (464-497 CE). The finding reveals discrepancies stemming from the Umayyad Caliph 'Abd al-Malik's monetary reforms in the 7<sup>th</sup> century, which significantly lowered the standard weights of these currencies. By critically examining historical narratives alongside modern numismatic findings, this study proposes an alternative, empirically substantiated *taqribi* (approximate) definition for the dinar and dirham. This reevaluation not only challenges longstanding fiscal conventions but also aligns with Shaykh Yusuf al-Qaradawi's assertion on the necessity of redefining zakat thresholds for contemporary application. Findings advocate for a revision back to the nisab's original standards, thereby honoring directives against altering the Muslim ummah's monetary foundations, as evidenced by teachings. Through analytical journey, aspiration is to restore authentic nisab values for gold and silver, offering a recalibrated framework for Islamic economic practices.

## Introduction

The Arabs never minted their own dinars as there were plenty of gold coinage or *solidi* in its various weights and measures that arrived in Makkah from the summer trade caravans of the Quraysh that ventured into cities within the Byzantine empire then such as Gaza, Bosra, Damascus and al-Arish in Shām. As an accomplished trader, Prophet Muhammad (PBUH) would have been familiar with the various weights and measures of the Byzantine *solidus* (or *nomisma* in Greek) currency as he had accompanied his beloved uncle, Abu Talib on trade missions since the age of nine when he visited Bosra and was recognised by Bahira the Christian monk who had witnessed the early signs of his future prophethood (al-Tabari, 1988).

Prior to becoming the Messenger of God, Prophet Muhammad (PBUH) was known as “*al-Amin*” which means honest, truthful, or trustworthy. Khadijah bint Khuwaylid bin Asad bin ‘Abd al-‘Uzza bin Qusayy, a wealthy and well-respected merchant, employed men to engage in trade with her property and gave them a share of the profits (al-Tabari, 1988). When she heard about the truthfulness, reliability, and nobility of character of Muhammad al-Amin, she sent for him and proposed to him that he should go to Shām and engage in trade with her property. She would give him more than she gave other men who traded for her, and her male slave, Maysarah, would follow and observe him. The Prophet (PBUH) accepted her offer and set out to trade with her property accompanied by Maysarah. It was said that the Prophet (PBUH) sold the goods which he had brought with him, bought what he wanted to buy, and then set off back to Makkah. When he arrived in Makkah, he brought Khadijah her property, which she then sold for twice the price or nearly so (al-Tabari, 1988).

To be acknowledged as a successful trader even before becoming the Messenger of God, the Prophet (PBUH) would have had sound knowledge in recognising the different types and denominations of gold *solidi* that he came across, and he would have been able to quickly determine if a coin was spurious. This would require his ability to recognise the Latin text and symbols on each type of *solidus*. He would also have been well versed with the use of weighing scales of that era and the record-keeping of the various types of commodities that he brought with him for sale as well as the profits earned. As a good businessman with proven financial literacy, the Prophet (PBUH) would have also abided by the following Qur’anic injunction in his dealings long before its eventual revelation:

Translation: Give in full when you measure, and weigh with an even balance. That is fairest and best in the end.

(Surah al-Isrā, 17:35)

The Prophet (PBUH) conducted all his business dealings with fairness and honesty, and would go on to set the standardisation benchmark for weights and measures as well as establish the mercantile status of Makkah and Madinah with the following *ḥādīth*:

Translation: Narrated ‘Abdullah ibn Umar: The Prophet (PBUH) said: “Standard weights are according to the weights of the people of Makkah, while standard measures are according to the measures of the people of Madinah”.

(Sunan Abū Dāwūd, 2009, Hadith 1253)

Note that the people of Makkah were traders whilst the people of Madinah were farmers during the *Nabawi* era.

## Literature Review of the Official Narratives

In July 2003, a local daily announced the introduction of the very first gold dinar minted by the Royal Mint of Malaysia. The dinar, purportedly minted to the standards of similar gold coinage from the reign of Caliph Umar ibn al-Khattab, weighed 4.25 grams with a purity of 91.7% (22 Karat gold) (Fernandez, 2003). However, the standards from the Prophetic era, known as the *Nabawi* standard, were not immediately known at the time. Since then, private research on this subject matter has been conducted using the resources of a pioneer of the gold dinar movement in Malaysia, Wan Ainun Zarina Wan Ahmad Radzi. She was the first person to mint 999.9 fine gold dinars in 2005 at Logam Mulia in Jakarta, Indonesia

with Abdul Halim Abdul Hamid (d. 2021 CE). Her timely contributions were essentially crucial in helping to identify the actual dinar and dirham standards that the Prophet of Allah (PBUH) officially sanctioned for religious obligations such as the payment of zakat (almsgiving for the poor), *diyat* (blood money) and *hudud* (limits beyond which punishment is mandated by Islamic law). Other forms of punishment in traditional Islamic criminal jurisprudence that could apply the use of the dinar and dirham are *qisas* (retaliation in kind) and *ta'zir* (penalty for offences at the discretion of the judge or the ruler of the state).

In researching the various narratives on the weight of the dinar and the dirham, the ones that are best known are attributed to the *Muqaddimah* of Ibn Khaldun (d. 1406 CE) (1969), the *Ighathah* of al-Maqrizi (d. 1442 CE), *al-Dawhat al-Mushtabakat Fi Dawabit Dar al-Sikkah* of al-Hakim who was a mint-master of Fez (Morocco) during the reign of the Marinid Sultan Abi 'Anan Faris (r. 1348-1358 CE), and *al-Ahkam al-Sultaniyya* of al-Mawardi (d. 1058 CE). Al-Hakim corroborates the view of Ibn Khaldun and al-Maqrizi that the *mithqal* or full weight of the dinar is 24 *qirats*. This validates the fact that the Byzantine *solidus* was the gold dinar of the Arabs during the *Nabawi* era. This study will discuss more on the *qirat* and the complete metrology of the Byzantine gold dinar.

Al-Maqrizi was a student of Ibn Khaldun, and the primary source of information in the *Muqaddimah* regarding the dinar and the dirham was taken from *al-Ahkam al-Sultaniyya* of al-Mawardi, an eminent Sunni scholar and polymath who maintained close relations with the Abbasid Caliphs al-Qadir (r. 991-1031 CE) and al-Qa'im (r. 1031-1075 CE). We must bear in mind that it was already about 300 years since the coinage reforms (c. 697-699 CE) of 'Abd al-Malik when *al-Ahkam al-Sultaniyya* was written. His narrative regarding the weight of the dirham is as follows:

“Now, the weight and quality of the dirham must be learned. Its weight has been fixed in Islam as six *daniqs*, and every ten dirhams weigh seven *mithqals*. There are different explanations for the reason why it was stabilized at that weight. It has been suggested, for instance, that dirhams were minted by the Persians in three weights: a *mithqal* or 20 *qirats*, 12 *qirats* and 10 *qirats*. When a weight had to be considered for the purpose of paying the legal alms (zakat), the average weight, or the total of 42 *qirats* divided by 3, was settled upon, and it equalled 14 *qirats*. Islamic dirhams minted to match this average were then characterised as 10 per 7 *mithqals*, which is how it actually is. Others have argued that when Caliph 'Umar ibn al-Khattab noticed the variety of dirhams in use, including the Baghli which weighed 8 *daniqs*, the 4-*daniq* Tabari, the 3-*daniq* Maghribi, and the 1-*daniq* Yemeni, he ordered a study of the versions most used by all classes of people from the highest to the lowest. They turned out to be the Baghli and the Tabari. Adding them up and dividing the total of 12 by 2, he arrived at 6 *daniqs* as the weight of the Islamic dirham.”

(Al-Mawardi Abu al-Hassan, 2000, p. 170)

Upon conversation with Michael L. Bates, Curator Emeritus of Islamic Coins at the American Numismatic Society on 1 February 2018, it was stated that the coinage practice in Madinah and Makkah during the Prophet's time was not entered into Islamic monetary theory. Islamic coinage was considered to have started with the introduction of Islamic gold dinars and silver dirhams during the coinage reforms from 77-79 H of the Umayyad Caliph 'Abd al-Malik ibn Marwan (d. 705 CE). Over the next century or so, the idea that the standard weight of the dirham ought to be 7/10ths of the standard weight of the *mithqal*/dinar was probably put into effect by the Abbasid Caliph al-Ma'mun (r. 813-833 CE).

## Methodology

In determining what constitutes a legal dinar and dirham from the Prophetic era, this study employs empirical numismatic evidence from acknowledged numismatists from the 1800s to the present, including Mordtmann (d. 1879 CE) (1880), whose writings on Sasanian coin weights were carefully translated into English from French and German. More appreciably, email exchanges with Michael L. Bates, Curator Emeritus of Islamic Coins at the American Numismatic Society who provided invaluable insights into Islamic coinage weights and measures, and personal discussions with Vesta Sarkhosh Curtis, Curator of

Middle Eastern coins at the British Museum and a leading expert on coinage of the Sasanian empire. In addition to attending international coin exhibitions such as Coinex London in 2017 to build rapport with experts from the International Association of Professional Numismatists (IAPN) and the British Numismatic Trade Association (BNTA), authentic gold and silver coinage from the *Nabawi* era were gradually bought over the years since 2012 for study and to corroborate *ahādīth* on dinar and dirham.

### Issues and Problems Associated with the Official Narratives

1. The official narratives suggest that the Prophet (PBUH) had not fixed the proper weight of the 200 dirhams during his era with respect to the *nisab* of zakat for his *ummah* to follow. Bear in mind that the Prophet (PBUH) was a very successful trader who understood gold and silver coinage weights and measures. Silver dirhams would have been brought back to Makkah from the winter trade caravans of the Quraysh that ventured into Yemen, a vassal state of the Sasanians since 575 CE or 578 CE.
2. The full weight of the Sasanian Persian dirham was already set at 6 *obols* (in Greek) or 6 *daniqs* (in Arabic) since the beginning of the Sasanian Dynasty in the year 224 CE. The term “*Baghli*” dirham was used by Arabs to describe silver coins portraying Sasanian rulers wearing a headdress which had ear flaps that resembled the ears of a mule (*baghl* in Arabic). The Sasanian monarchs with this particular look were Ardashir I (r. 224-242 CE), Shapur I (r. 241-272 CE) and Bahram I (r. 273-276 CE). A plausible explanation for the *Baghli* dirham that weighs 8 *daniqs* in this narrative could be the description of a tetradrachm (4-dirham coin) that was very severely clipped down to that particular weight from its original weight of 24 *daniqs*. However, this hypothesis is untenable as a *Baghli* dirham of full weight has always been maintained by renowned international numismatists to be 6 *daniqs* and not 8.
3. The “*Tabari*” dirham was minted much later in 712 CE in Tabaristan by the Dabuyid Ispahbads. Its official weight is only 3 *daniqs*, and international numismatists classify it as a half-dirham. To suggest that it existed during the reign of Caliph Umar (r. 634-644 CE) and weighed 4 *daniqs* is totally baseless and untenable.
4. What is meant by a Maghribi dirham remains unclear. The Idrisid Dynasty of Maghribi (present-day Morocco) was established by Idris ibn ‘Abdullah al-Mahaz ibn al-Hasan al-Muthanna ibn al-Hasan ibn ‘Ali ibn Abi Talib, and their very first dirham was only issued in 788 CE.
5. A Yemeni dirham weighing 1 *daniq* would most likely refer to a Sasanian Persian silver *obol* that was minted since the establishment of the dynasty in 224 CE.
6. The fixing of “*every 10 dirhams must weigh 7 mithqals*” was said to have been established during the coinage reforms of ‘Abd al-Malik from 696-698 CE. However, numismatic evidence, as provided by Bates (2017) of the American Numismatic Society, suggests that the average weights of the reformed dirhams of that era ranged between 2.80 and 2.85 grams and rarely weighed more than 2.95 grams. Hence, this purported fixing is untenable.
7. Implying that the weight of a full dirham was a *mithqal* of 20 *qirats* would refer to a Damascus-related weight system and this does not comply with the Prophet’s *hādīth* to follow the weight system of the people of Makkah.
8. Hypothesising that a weight of 20 *qirats* represents a standard dirham, with 12 *qirats* being 12/20 or 3/5 of a dirham, and 10 *qirats* representing a half-dirham, then averaging these weights to make 14 *qirats* as the *Shariah* or legal dirham could be considered as *bid’ah* or an innovation. This violates the command of the Prophet (PBUH) prohibiting his *ummah* from changing coinage weights and measures that were already circulating during the *Nabawi* era in a similar *hādīth* that was reported earlier in this paper:

Translation: ‘Alqama bin ‘Abdullah (r.a.) reported on the authority of his father that the Messenger of Allah (PBUH) forbade from destroying the coins in vogue among the Muslims without any necessity.

(Sunan Abū Dāwūd, 1973, Hadith 3449)

9. The Prophet's great-grandfather, Hashim ibn 'Abd Manaf (464-497 CE), was the first to initiate and establish the two great trade caravan journeys of Quraysh from Makkah—the Caravan of Winter to Yemen and the Caravan of Summer to northwest Arabia and beyond to Palestine and Syria, which were then under Byzantine rule. The gold *solidus* was the main currency. There was no lightweight *solidus* minted pre-547 CE, and its standard weight was firmly stable at 24 *qirats* of gold.
10. Numismatic evidence includes the examination of an extremely rare “*Standing Caliph*” pre-coinage reform Arab-Byzantine gold dinar minted by 'Abd al-Malik ibn Marwan in 695/696 CE at the Bibliothèque nationale de France in Paris. It weighed 4.44 grams, which is within the acceptable range of a full-weight *solidus*. 24 Qirats PLT is in possession of a pre-coinage reform Arab-Sasanian silver dirham of 'Abd al-Malik with a “*Bismillah*” weighing 4.15 grams which is within the acceptable range of a full weight *drachm*. The very first Islamic silver dirham was minted circa 652 CE by Caliph Uthman ibn Affan (r. 644-656 CE) and a sample of this coin currently kept in the private collection of 24 Qirats PLT weighs 4.06 grams.

### The Shariah Rulings on Zakat for Gold and Silver

Al-Qaradawi (2013) wrote that the pre-Islamic Makkans used silver dirhams by weight and not by number, as if they were not minted. They had their weight measurement system, which is composed of *ratl* (equals twelve *uqiyyah*), *uqiyyah* (equals 40 dirhams), *nash* (equals 20 dirhams or one-half *uqiyyah*), and *nawat* (equals five dirhams). The Prophet (PBUH) said:

Translation: The weight (measurement system) is that of the Makkans.

(Sahih al-Bukhari, 2002, Hadith 68)

The Prophet (PBUH) obligated *zakat* on dirhams and dinars, giving gold and silver the recognised status as currency in Muslim lands. They have come to be subject to many *Shariah* rulings in transactions related to civil and commercial matters in addition to *zakat*, and they are used as measures in determining many values, such as dowries, ransoms, and *nisab* in *zakat* (al-Qaradawi, 2013).

According to many texts and *ijma'*, there is no *zakat* on anything less than 5 *uqiyyah* of silver currency or 200 dirhams. It seems that silver currency was predominantly used by the Arabs at the time of the Prophet (PBUH), so the sayings determine *nisab* and rates on silver currency. These are undisputed by Muslim scholars (al-Qaradawi, 2013).

Al-Qaradawi (2013) added:

As for gold currency (dinar) we have no sayings determining its *nisab*, or at least not as strong and commonly known sayings as those about silver. Hence, the *nisab* of gold is not agreed upon unanimously, but the great majority of scholars are of the opinion that the *nisab* on gold is 20 dinars. It was reported from al-Hasan al-Basri (d. 728 CE) once that it is 40 dinars, and once that it is 20 dinars. *Nisab* on gold is independent of that on silver, except according to Tawus (d. 724 CE), who evaluates gold by silver. Hence, according to him, an amount of gold whose value is 200 dirhams is the *nisab*. A similar view is also reported from al-Zuhri (d. 742 CE), Sulaiman bin Harb (d. 838 CE), and Ayyub al-Sakhtiyani (d. 748 CE).

(al-Qaradawi, 2013, p. 127)

A few sayings taken from the same book, while not free from criticism, gain strength when considered together. These include (al-Qaradawi, 2013):

- (a) Ibn Majah and al-Daraqutni report from Ibn 'Umar and 'Aishah that the Prophet (PBUH) used to collect half a dinar on every 20 dinars;
- (b) From 'Amr bin Shu'aib, from his father from his grandfather, from the Prophet (PBUH);

Translation: There is no (obligated *sadaqah*) on anything less than 20 *mithqal* (dinar) of gold or 200 dirhams.

(Sahih al-Bukhari, 2002, Hadith 580)

- (c) Abu ‘Ubaid, with his own chain, reports from Muhammad bin ‘Abd al-Rahman al-Ansari, that in the letter of the Messenger of God (PBUH) and in the letter of ‘Umar on *sadaqah* it is written:

Translation: From gold, nothing must be taken until it reaches 20 dinars. Once it is 20 dinars, then on it there is one half-dinar due.

(Sunan Abū Dāwūd, 1573, Hadith 1566)

- (d) Abu Daud reports from ‘Ali, linked up to the Prophet (PBUH):

Translation: If you have 200 dirhams, and a year passes on them, there must be five dirhams (taken as zakat). You are not obligated to pay anything [on gold] until you have 20 dinars. If you have 20 dinars and a year passes on them, there is a half-dinar due on it (as zakat).

(Sunan Abū Dāwūd, 1573, Hadith 1557)

Some hadith critics grade this as good. Al-Daraqutni considers it correct when it ends at ‘Ali.

Jurists who view the quantities as given by the Shariah and not deducted through reasoning, like the Hanafites say: “If it is authentically reported from ‘Ali that the nisab of gold is 20 dinars, then this has the same authority as if it were linked up to the Prophet (PBUH), because ‘Ali would not say it from his own opinion”. Historically, at the time of the Prophet (PBUH), one dinar equalled ten dirhams (of the full weight of 6 *daniqs* each) (al-Qaradawi, 2013).

It is worth noting that al-Baladhuri (d. 892 CE) (2002) states that there were only two weight categorisations of the dirham that could be interpreted to represent the measure of one dirham, i.e. dirhams ‘weight of ten’ and dirhams ‘weight of eight’. Dirhams ‘weight of five’ are actually half-dirhams and cannot be legally interpreted in any way to represent the weight of one dirham.

### Numismatic Study of the Two *Mithqals* – the Byzantine Dinar and the Sasanian Dirham

*Mithqal* simply means ‘weight’ because in weighing precious metals, it is ‘the weight’ par excellence (Grierson, 1960). For the Byzantine dinar, its *mithqal* is 24 *qirats*, while for the Sasanian dirham, its *mithqal* is 6 *daniqs*. The Byzantines had their own currency system that was not related in any way to the currency system of the Sasanians as they were two separate sovereign states with their own currency zones. It was only during the monetary reforms of ‘Abd al-Malik that the dinar and the dirham were redefined based on a *mithqal* that weighed 20 Syrian Qirats.

Caliph ‘Abd al-Malik ibn Marwan (r. 685-705 CE) undertook a monetary reform in the year 697 CE replacing the Byzantine *solidus* or *denarius aureus* with a new gold dinar. Whereas the Byzantine *solidus* weighed about 4.55 grams, the weight of the new dinar was fixed at approximately 4.25 grams. Likewise, he decided to replace the Sasanian *drahm* with a new silver dirham, the weight of which was, according to numismatist George C. Miles (d. 1975 CE), reduced from approximately 3.98 grams to some point between 2.91 and 2.95 grams. However, another numismatist, Ehrenkretz & Bacharach (d. 2008 CE) (1992), estimated the weight of the new dirham at 2.97 grams. Miles has explained the reason why the weight of the dinar was reduced as follows:

The reduced standard of the post-reform dinar resulted from a decision to redefine the *mithqal* (i.e. dinar) in convenient terms of 20 Syro-Arabian qirats of 0.2125 grams in place of such cumbersome terms as 21 (Arabian) qirats, or 22 (Arabian) qirats less a fraction, which had been employed by the Arabs in pre-Islamic times to express the weight of the *mithqal*.

(Yanagihashi, 2004, p. 227)

In the *al-Muwatta'* compiled by al-Hadathani: Sa'id ibn al-Musayyib (d. 715 CE) said, "*Clipping gold and silver is part of working corruption in the land once (the quantity of) mithqals have been fixed among the Muslims and they are familiar with them (qat' al-dirham wa-'l dinar ba'da al-mathaqil allati sarat bayna al-muslimin wa-'arafu-ha min al-fasad fi al-ard)*". This statement also does not seem to refer to individual coin clippers, but to the Umayyad redefinition of the *mithqal* in terms of 20 (Syro-Arabian) *qirats* in place of 22 (Arabian) *qirats* less a fraction for the dinar and 14 (Syro-Arabian) *qirats* in place of 19 (Arabian) *qirats* less a fraction (about 3.9 grams) for the dirham, with which definitions people were familiar (Yanagihashi, 2004). Sa'id ibn al-Musayyib is also reported to have said:

I sent gold bullion to Damascus, and it was coined for me according to the weight of the mithqal in the *Jahiliyya*.

(Yanagihashi, 2004, p. 230)

He may have been recounting that the Umayyads used to follow the Byzantine standard before the monetary reform, but it is also plausible that he was proud of having imposed his position by having made the Umayyads coin his bullion according to the ancient standards (Yanagihashi, 2004).

Al-Baladhuri (820-892 CE) (2002) writes that during the Umayyad monetary reforms, the Iraqi governor al-Hajjaj ibn Yusuf (r. 75-95 H / d. 714 CE) collected bullion and good metal obtained from spurious coins from the people, which were purified and weighed. Al-Baladhuri (2002) also writes that subsequently al-Hajjaj permitted merchants and other people to mint silver coins, and demanded a commission from the wages for artisans. A report recorded in the *Musannaf* of 'Abd al-Razzaq al-San'ani (d. 211 H / 827 CE) may reflect the fact that people received less than the weight of their original gold or silver. In essence, *Riba al-Fadhl* was practised widely during the Umayyad monetary reforms of 'Abd al-Malik (Yanagihashi, 2004).

Caliph 'Abd al-Malik is credited with being the first Muslim ruler to mint an Islamic gold dinar and its weight of 4.25 grams of pure gold is accepted as the standard for all Islamic rulings till today. However, Shaddel (2021) who argued that the Sufyanid caliph, Mu'awiya was the first Muslim leader to introduce a short-lived gold coinage in Syria based on new literary evidence. Bates (2017) in one of his presentations, stated that previous Arab gold issues weighed about 4.40 grams. François Thierry, conservateur général du département des pièces médailles et antiques de la Bibliothèque nationale de France in Paris allowed the examination of a very rare "*Standing Caliph*" dinar of 'Abd al-Malik weighing 4.44 grams on 13 March 2013 of which only a handful of specimens survived till today. To determine the actual weight standard of the gold dinar that the Prophet (PBUH) officially approved of, we need to study the Byzantine *qirat*.

### **The Byzantine *Qirat***

The metrology or science of systems of weights and measures of the dinar or *mithqal* at the time of the Prophet (PBUH) is based on the weight of the carob or *kharrubah* (*ceratonia siliqua linn*) seed as shown in Image 1. Its unit weight was known as the carat or *qirat*, and each *qirat* was theoretically equivalent to the weight of 4 barleycorns.



**Image 1:** *Ceratonia siliqua* (carob pods and seeds) (Wikimedia Commons, n.d.)

The *solidus* (short for *solidus aureus*) was the standard gold coin created by Constantine the Great (r. 306-337 CE) and was also known in Greek as the *nomisma* (gold coin). The *solidus* weighs 24 Greco-Roman carats (*qirats*) or *siliquae*. The *qirat* was too small to mint as a coin, but it served as a unit of account in the Byzantine monetary system. The *qirat* weight differs from one place to another depending on the region’s climatic conditions and soil fertility. The Arabian *qirat* is 10% heavier than the Greco-Roman *qirat*, but 2% lighter than the Syrian *qirat*.

With this information, distinguishing the different types of carob seeds is possible by their official carat or *qirat* weights. The data are organised as follows:

**Table 1:** *Qirat* Types and Weights

| <i>Qirat</i> Type | <i>Qirat</i> Weight (milligrams) |
|-------------------|----------------------------------|
| Byzantine         | 189                              |
| Arabian           | 208                              |
| Syrian            | 212                              |

Grierson (d. 2006 CE) (1960; 1999) researched al-Baladhuri (d. 892 CE), an eminent historian in the Abbasid court of Caliph al-Mutawakkil (r. 847-861 CE) who confirmed that the Heraclius dinar or *mithqal* was circulating in Makkah at the time of the Prophet (PBUH) at a weight of 22 Arabian *qirats* less than a fraction. As the weight of 1 *qirat* is equal to 4 barleycorns, it is tenable to infer that a fraction meant here is  $\frac{1}{4}$ . Thus, the Heraclius dinar would weigh about  $21\frac{3}{4}$  Arabian *qirats* x 0.208 grams = 4.52 grams (Grierson, 1982).



**Image 2:** 24 *Qirats Solidus* of Emperor Justin II (r. 565-578 CE)(Classical Numismatic Group, n.d.)





**Image 3.** Baldwin's, London, FG4326424: 24 *Qirats Solidus* of Emperor Phocas (r. 602-610 CE) weighing 4.51 grams (Private Collection of 24 *Qirats* PLT)

The *solidus* weighed 1/72 of the Roman pound of about 326.6 grams and this standard is clearly represented by CONOB or *Constantinopoli obryzum* on the coin. “OB” was an abbreviation for the word *obryzum*, which means refined or pure gold, and is the Greek numeral 72. Thus the exergue CONOB coin may be read as “Constantinople, 1/72 pound pure gold”. Jean Elsen (2005), a renowned numismatic auction house based in Brussels, Belgium published a study on a hoard of Byzantine *solidi* from the time of Emperor Theodosius II (r. 408-450 CE) discovered in Szikáncs, Hungary in 1963 to determine a fairly accurate Roman-Byzantine weight standard.

Results of the study found that 47.21% of the *solidi* weighed 4.50 grams, and an overwhelming 90.86% of them were in the weight range of 4.48-4.52 grams. Hence, it can be deduced that a fairly accurate weight of the Byzantine *solidus* or the dinar encountered during the lifetime of the Prophet (PBUH) is about 4.5 grams. Based on this standard, a metrological table of dinar weights and measures in various denominations is constructed and displayed in the latter part of this study.

However, numismatic evidence confirms that lightweight *solidi* also existed during the lifetime of the Prophet (PBUH) and they were represented by different markings. From the reign of Justinian I (r. 527-565 CE) to Constantine IV (r. 668-685 CE), certain gold coins issued were marked clearly as light in weight. In this respect, there was no deception at all as the lighter *solidus* might have been the tail end of a batch made lighter in order to make up the required 72 pieces of coins minted to the weight of the Roman pound. There would have been 71 pieces of *solidi* that weighed 24 *qirats* in the same batch with CONOB. However, the 72nd *solidus* would have different markings being lighter in weight. Different types of lightweight *solidi* were identified and marked according to their weight in Byzantine or Greco-Roman *qirats*. Another tenable explanation for the existence of lightweight *solidi* that has been put forward by numismatists is that it involves cross-border trade (Adelson, 1957).

The *solidus* was maintained essentially unaltered in weight, dimensions and purity, until about the 10<sup>th</sup> century. During the 6<sup>th</sup> and 7<sup>th</sup> centuries, lightweight *solidi* of 20, 22 or 23 *siliquae* (one *siliqua* was 1/24 or 1 *qirat* of a *solidus*) were struck along with the standard weight issues, presumably for trade purposes or to pay tribute. The lightweight *solidi* were especially popular in the West, and many of these lightweight coins have been found in Europe, Russia and Georgia. The lightweight *solidi* were distinguished by different markings on the coin, usually in the exergue for the 20 and 22 *siliquae* coins, and by stars in the field for the 23 *siliquae* coins (as shown in Table 4) (Grierson, 1982; Grierson, 1999).

**Table 2:** A Study of 1,434 Byzantine *Solidi* Weights

| <i>Solidus</i> Weight (grams) | Quantity | Percentage Breakdown |
|-------------------------------|----------|----------------------|
| 4.23                          | 1        | 0.07%                |
| 4.26                          | 1        | 0.07%                |
| 4.31                          | 1        | 0.07%                |
| 4.33                          | 1        | 0.07%                |
| 4.34                          | 1        | 0.07%                |
| 4.37                          | 1        | 0.07%                |
| 4.38                          | 2        | 0.14%                |
| 4.39                          | 1        | 0.07%                |
| 4.40                          | 6        | 0.42%                |
| 4.41                          | 2        | 0.14%                |
| 4.42                          | 2        | 0.14%                |
| 4.43                          | 4        | 0.28%                |
| 4.44                          | 5        | 0.35%                |
| 4.45                          | 29       | 2.02%                |
| 4.46                          | 5        | 0.35%                |
| 4.47                          | 35       | 2.44%                |
| 4.48                          | 231      | 16.11%               |
| 4.49                          | 124      | 8.65%                |
| 4.50                          | 677      | 47.21%               |
| 4.51                          | 126      | 8.79%                |
| 4.52                          | 145      | 10.11%               |
| 4.53                          | 16       | 1.12%                |
| 4.54                          | 2        | 0.14%                |
| 4.55                          | 11       | 0.77%                |
| 4.56                          | 2        | 0.14%                |
| 4.57                          | 2        | 0.14%                |
| 4.58                          | 1        | 0.07%                |
|                               | 1,434    | 100.00%              |

**Table 3:** A Study of 1,434 Byzantine *Solidi* Weight Ranges

| <i>Solidus</i> Weight Range (grams) | Quantity | Percentage Breakdown |
|-------------------------------------|----------|----------------------|
| 4.23-4.27                           | 2        | 0.14%                |
| 4.28-4.32                           | 1        | 0.07%                |
| 4.33-4.37                           | 3        | 0.21%                |
| 4.38-4.42                           | 13       | 0.91%                |
| 4.43-4.47                           | 78       | 5.44%                |
| 4.48-4.52                           | 1,303    | 90.86%               |
| 4.53-4.57                           | 33       | 2.30%                |
| 4.58-4.62                           | 1        | 0.07%                |
|                                     | 1,434    | 100.00%              |

As the lightweight *solidi* were struck during the 6<sup>th</sup> and 7<sup>th</sup> centuries, it is tenable to assume that the Prophet (PBUH) would have come across them during the trade Caravan of Summer into Byzantine territory.

**Table 4:** Types of Lightweight *Solidi* and Their Corresponding Approximate Weights

| Lightweight <i>Solidus</i> Type | Distinct Markings on Coin                                     | Weight ( <i>Qirats</i> ) | Approximate Weight (grams) |
|---------------------------------|---|--------------------------|----------------------------|
| I                               | OBXX or BOXX (refer to Image 4)                               | 20                       | 3.75g±                     |
| II                              | OB+* or OB** (refer to Image 5)                               | 22                       | 4.12g±                     |
| III                             | BOFK or with * on obverse and reverse (refer to Images 6 & 7) | 23                       | 4.31g±                     |



**Image 4:** 20 *Qirats* Lightweight *Solidus* of Emperor Tiberius II (r. 578-582 CE)(Kassim, 2017)



**Image 5:** 22 *Qirats* Lightweight *Solidus* of Emperor Maurice Tiberius (r. 582-602 CE) [Byzantium565] (Wikimedia Commons, n.d.)



**Image 6:** 23 *Qirats* Lightweight *Solidus* of Emperor Constans II (r. 641-668 CE)(Kassim, 2017)



**Image 7:** NGC Cert # 6329735-046, Grade NGC Ancients: 23 *Qirats* Lightweight *Solidus* of Emperor Maurice Tiberius (r. 582-602 CE) weighing 4.25 grams (Private Collection of 24 *Qirats* PLT)

### The Prophetic Tradition of ‘A Dinar is 24 *Qirats*’ as Literary Evidence

There is *ḥādīth* describing the weight of the dinar as being 24 *qirats* from *Kitāb al-Tamhīd* of Ibn ‘Abd al-Barr (d. 1071 CE), a Sunni Maliki scholar and *Atharī* theologian from al-Andalus. He served as the Qadi of Lisbon, and his work, *Kitāb Al-Tamhīd limā fil-Muwatta’ min al-Ma’ani wal-Asanid* (The Facilitation to the Meanings and Chains of Transmission Found in Malik’s Muwatta’) is accepted by the mainstream scholars of Islam. He passed on in 1071 CE at the age of 93. The *ḥādīth* is narrated by Jabir bin Abdullah, a very prominent and close companion of the Prophet (PBUH) who narrated over 1,500 *ahādīth*. He died at the age of 94 in 78 H / 697 CE, not long after the coinage reform of ‘Abd Malik ibn Marwan that reduced the standard weight of the gold dinar from 4.5 grams to about 4.25 grams. In one of Jabir’s more famous narrations as recorded in Sahih Bukhari (2002) [Book 34 (Sales and Trade), Number 310], it is mentioned that he sold his camel to the Prophet (PBUH) for an *uqiyyah* (ounce) of gold. This and other measures of gold from the Prophetic or *Nabawi* era are forever preserved in the *ḥādīth* of 24 *qirats* below:

مَنْ قَرَأَ أَلْفَ آيَةٍ كَتَبَ اللَّهُ لَهُ قِنْطَارًا، وَالْقِنْطَارُ مِئَةُ رَطْلٍ، وَالرَّطْلُ: ثِنْتَا عَشْرَةَ أَوْقِيَّةً، وَالْأَوْقِيَّةُ: سِتَّةُ دِينَارٍ، وَالدِّينَارُ: أَرْبَعَةُ وَعِشْرُونَ قِيرَاطًا، وَالْقِيرَاطُ مِثْلُ أَحَدٍ، وَمَنْ قَرَأَ ثَلَاثَ مِئَةِ آيَةٍ، قَالَ اللَّهُ عَزَّ وَجَلَّ لِمَلَائِكَتِهِ: يَا مَلَائِكَتِي، نَصَبَ عَبْدِي، إِنِّي أَشْهَدُكُمْ يَا مَلَائِكَتِي أَنِّي قَدْ غَفَرْتُ لَهُ، وَمَنْ بَلَغَهُ عَنِ اللَّهِ تَبَارَكَ وَتَعَالَى فَضِيلَةٌ، فَعَمِلَ بِهَا إِيمَانًا بِهَا وَرَجَاءً ثَوَابِهِ، أَعْطَاهُ اللَّهُ ذَلِكَ وَإِنْ لَمْ يَكُنْ ذَلِكَ كَذَلِكَ

Translation: Whoever recites a thousand verses, Allah will credit him with a *qintar*, where a *qintar* equals a hundred *ratls* (pounds). A *ratl* is twelve ounces, an ounce is six dinars, and a dinar comprises twenty-four *qirats* (carats), each as significant as Uhud. Whoever recites three hundred verses, Allah the Almighty commands His angels: “O My angels, My servant has labored hard; I call upon you as witnesses that I have forgiven him”. Furthermore, if someone learns of a virtue from Allah, the Blessed and Exalted, and acts upon it with belief and hope for its reward, Allah will grant it to him, even if it might not be so.

(Al-Busiri, 1999, 6: 339)

The following is a summary of weights and measures in the *ḥādīth* of ‘a dinar is 24 *qirats*’:

**Table 5:** The Weights and Measures in *ḥādīth* of ‘A Dinar is 24 *Qirats*’

| Weight                     | Measure          |
|----------------------------|------------------|
| 1 <i>Qintar</i>            | 100 Pounds       |
| 1 Pound ( <i>Ratl</i> )    | 12 Ounces        |
| 1 Ounce ( <i>Uqiyyah</i> ) | 6 Dinars         |
| 1 Dinar ( <i>Mithqal</i> ) | 24 <i>Qirats</i> |
| 1 <i>Qirat</i>             | 1 <i>Qirat</i>   |

The data were then used to construct the following metrological (weights and measures) table:

**Table 6:** Byzantine Metrological Table as Narrated in *ḥādīth* of ‘A Dinar is 24 *Qirats*’

| Byzantine Metrological Table as Narrated in <i>ḥādīth</i> of ‘A Dinar is 24 <i>Qirats</i> ’ |                        |         |       |     |    |   |            |
|---|------------------------|---------|-------|-----|----|---|------------|
| Roman   | Arabic                 | Grams   |       |     |    |   |            |
| Centum Libra (100 Pounds)   | <i>Qintar</i>          | 1       |       |     |    |   | 32,659.200 |
| Libra (Pound)   | <i>Ratl</i>            | 100     | 1     |     |    |   | 326.592    |
| Uncia (Ounce)   | <i>Uqiyyah</i>         | 1,200   | 12    | 1   |    |   | 27.216     |
| Sextula (Solidus)   | <i>Mithqal</i> (Dinar) | 7,200   | 72    | 6   | 1  |   | 4.536      |
| Siliqua (Carat)   | <i>Qirat</i>           | 172,800 | 1,728 | 144 | 24 | 1 | 0.189      |

It is tenable to assume that the context within which the Prophet (PBUH) made this statement would have been when he was replying to a question from his audience regarding the reward for reading verses from the Holy Qur’an. To facilitate the understanding of the value of the bounty that they would be receiving from their Lord, the Prophet (PBUH) used the analogy of weights and measures of gold, the noblest precious metal. The *ḥādīth* provides compelling literary evidence confirming the Prophet (PBUH) was an accomplished trader who truly understood weights and measures of coinage as he demonstrated his knowledge of the metrological standard of the *solidus*, the Byzantine gold currency of the time. The Prophet (PBUH) could have just described the value of reading 1,000 verses of the Qur’an as being 100 pounds of gold and go no further. Likewise, he could have stated that the reward for reading 10 verses of the Qur’an would equal 1 pound of gold. However, he chose to describe the metrological standard of the Byzantine *solidus* in detail right down to the single *qirat* or carob seed. This confirms that the Prophetic era or *Nabawi* standard for a gold dinar complies with that of the Byzantine *solidus* of the time. Based on a *qirat* weight of 0.189 grams, as proposed by Grierson (d. 2006 CE) (1960), who was a Professor of Numismatics at Cambridge University, the *Nabawi* gold dinar standard would have been about 4.5 grams. It is also worth noting that the Pound or *Libra* is the largest unit of weight in the Byzantine metrological table, but the Prophet (PBUH) used a multiple of this weight to describe the *Qintar* which is mentioned in the Qur’an:

Translation: If you desire to replace a wife with another and you have given the former even a *Qintar* of gold as a dowry, do not take any of it back. Would you still take it unjustly and very sinfully?

(Surah an-Nisa’, 4:20)

This verse from the Holy Qur’an clearly describes the rights of a woman who is entitled to keep her dowry in full should her husband choose to divorce her in order to take another wife. In Islam, the man would be committing a great sin if he were to make a demand for any portion of the dowry, no matter how much it cost him originally, as it is the legal right of the woman to hold on to all of it for the rest of her worldly life.

As additional support to the definition of ‘*qintar*’ mentioned above, there is another *ḥādīth* where its *matn* is supported by Mu’adh ibn Jabal and ‘Abdullah ibn ‘Umar where Ubayy ibn Ka’b related that the Messenger of Allah (PBUH) said: “A *qintar* is 1,200 *uqiyyah*” (Al-Tabrani, 1984).

Translation: The enjoyment of worldly desires - women, children, qintars of gold and silver, fine horses, cattle, and fertile land - has been made appealing to people. These are the pleasures of this worldly life, but with Allah is the finest destination.

(Surah Ali ‘Imran, 3:14)

In addition to the *solidus*, the *semissis*, a one-half *solidus* weighing 12 *siliquae* or *qirats* (about 2.25 grams) was circulating during the lifetime of the Prophet (PBUH). The *tremissis*, a one-third *solidus* weighing 8 *siliquae* or *qirats* (about 1.5 grams) was also circulating along with the *solidus* and the *semissis* during the lifetime of the Prophet (PBUH) (Grierson, 1999).



**Image 8:** Stephen Album Rare Coins, Auction 45, January 2023, Lot 1731: *Tremissis* of Emperor Maurice Tiberius (582-602 CE) weighing 1.46 grams (Private Collection of 24 Qirats PLT)

### The Prophet (PBUH) Who was Educated in Gold Dinar Weights and Measures: An Analysis

As a trader, it would have been crucial for the Prophet (PBUH) to be able to understand the different weights and measures of the gold coinage he encountered when he joined the summer trade caravans of the Quraysh that journeyed into Byzantine territory. He flourished as a student of coinage under the close tutelage of his uncle, Abu Talib. He would have easily recognised and understood the meaning of the Latin script and different markings on the coins that he came across, and the era of their mintage with the images of the different Byzantine emperors on them. He would have been able to determine whether any of the gold coins were spurious or clipped, and he would have made sure that the value of the goods that he bought or sold were fairly paid for according to the agreed upon price between buyer and seller.

To be appointed as the head of a trade caravan by his then future wife, Khadijah, the Prophet (PBUH) would have had good organizational skills, including the ability to account for money and goods that he was responsible for. This would also necessitate his ability to keep good financial records. Assuming that his very first trade journey into Byzantine lands with his uncle, Abu Talib was when he was only 9 years old, the Prophet (PBUH) would have had 16 years of experience by the time he traded on behalf of Khadijah at the age of 25.

Translation: In a *hādīth* narrated by Abu Hurairah, the Prophet (PBUH) said, “Allah did not send any Prophet but he shepherded sheep.” His companions asked him, “Did you do the same?” The Prophet (PBUH) replied, “Yes, I used to shepherd the sheep of the people of Makkah for some *qirats*”.

(Sahih al-Bukhari, 2002, Hadith 2262)

Based on this *hādīth*, it is clear that the Prophet (PBUH) understood the terminology used then to describe the weight of Byzantine gold of which the *solidus* was adopted as the *dinar* by the Arabs. The single *qirat* weight of about 189 milligrams (according to Grierson) would have been too little to mint, and the smallest physical gold coin denomination circulating then was plausibly the *tremissis*. In the context of the above *hādīth*, this was the most tenable description of the gold coin that the Prophet (PBUH) was paid with to shepherd sheep as a young man in Makkah. When he decreed that the *Nabawi* standard for the weight of the gold *dinar* to be fixed at 24 *qirats*, it was not only because he was an accomplished trader like his great grandfather, Hashim ibn ‘Abd Manaf, he was also a Numismatist for his sound understanding of the different types of Byzantine coinage and their respective weights and measures.

### The Nabawi Silver Dirham during the Lifetime of the Prophet (PBUH)

At least one aspect of the economy was always completely under the control of the king, that is, the minting of coins. Aside from several experiments at the beginning of the Sasanian period, when coins of different alloys were struck, Sasanian coinage consisted of three types: gold, limited to a few commemorative issues; bronze, copper, and lead for regional, or perhaps only local, circulation; and silver, of which the *drahm* was the basic unit. Its theoretical weight was about 4 grams, sometimes a little more (Göbl, 1971; Gyselen, 1989; Gyselen, 1990); the *dang* (q.v.) or *daniq* was a fraction (one-sixth) of the *drahm*. Aside from rare references in Pahlavi texts, little is known of the Sasanian weight system.

After the earliest Sasanian reigns, the standard of the *drahm* (silver dirham) coin, the dominant currency unit, had declined to a typical figure of around 3.90 grams, which persisted until the fall of the dynasty in the mid-7th century. As Walter B. Henning (d. 1967 CE) (1961), a German scholar of Middle Iranian languages and literature, observed:

The maximum average weight of the coins issued by the early Sasanian kings from Shapur I (r. 241-272 CE) to Bahram V (r. 420-438 CE) never falls below 3.90 grams nor rises above 4.05 grams.

(Henning, 1961, p. 353-356)

Bates (2017), Curator Emeritus of Islamic coins at the American Numismatic Society stated that based on his research, the weight of the silver dirham during the early Islamic period ranged between 4.0 grams to 4.15 grams on average.



**Image 9:** Tim Wilkes, G1798/11/43: Silver dirham of Khusro II (r. 590-628 CE) circa 627 CE weighing 4.05 grams (Private Collection of 24 Qirats PLT)



**Image 10:** Stephen Album Rare Coins, Auction 46, May 2023, Lot 1650: Silver daniq (*obol*) of Shapur I (r. 241-272 CE) weighing 0.67 gram (Private Collection of 24 Qirats PLT)

To complement these statements regarding the range of weights for the *drahm*, a study of weights of 716 dirhams was conducted by Mordtmann (d. 1879 CE) from various Sasanian emperors up to Khusrau II to find a suitable official weight for the *Nabawi* silver dirham. He was a German diplomat, Oriental scholar and epigraphist, as well as a numismatist. He also studied cuneiform texts and Sasanian coins. Also for

the latter, he made invaluable pioneering work. To be as accurate as possible in determining the *mithqal* or the most ideal weight of the silver dirham, only *drahm* denominations issued by Sasanian emperors from Ardashir I (r. 224-242 CE) up to Khusro II (r. 590-628 CE) were studied as the revelation on zakat was received by the Prophet (PBUH) in the second year of Hijrah which corresponds with 624 CE. All the data in Table 7 are adapted from the results of his study.

**Table 7:** A Weight Study of 716 Sasanian Silver Dirhams by Andreas David Mordtmann (1880)

| Weight of the Sasanid Coins<br>by Andreas David Mordtmann | First Column<br>(more than 3.5 grams) |                 |                   | Second Column<br>(more than 3.6 grams) |                 |                   | Third Column<br>(more than 3.75 grams) |                 |                   |
|---|---------------------------------------|-----------------|-------------------|--|-----------------|-------------------|--|-----------------|-------------------|
|   | Weighed<br>Pieces                     | Total<br>Weight | Average<br>Weight | Weighed<br>Pieces                      | Total<br>Weight | Average<br>Weight | Weighed<br>Pieces                      | Total<br>Weight | Average<br>Weight |
| <b>Minting Authority</b>                                  |                                       |                 |                   |  |                 |                   |  |                 |                   |
| Ardashir I (224-241)                                      | 4                                     | 14.88           | 3.720             | 3                                      | 11.28           | 3.760             | 1                                      | 3.85            | 3.850             |
| Shahpur I (241-272)                                       | 21                                    | 80.20           | 3.819             | 19                                     | 73.05           | 3.845             | 12                                     | 47.35           | 3.946             |
| Varahran I (273-276)                                      | 4                                     | 15.50           | 3.875             | 3                                      | 11.95           | 3.983             | 3                                      | 11.95           | 3.983             |
| Varahran II (276-293)                                     | 6                                     | 23.30           | 3.883             | 6                                      | 23.30           | 3.883             | 4                                      | 15.90           | 3.975             |
| Narseh (293-303)  | 6                                     | 22.90           | 3.817             | 5                                      | 19.35           | 3.870             | 4                                      | 15.65           | 3.913             |
| Hormizd II (303-309)                                      | 3                                     | 11.65           | 3.883             | 2                                      | 8.05            | 4.025             | 2                                      | 8.05            | 4.025             |
| Shahpur II (309-379)                                      | 39                                    | 148.29          | 3.802             | 30                                     | 116.10          | 3.870             | 21                                     | 82.55           | 3.931             |
| Ardashir II (379-383)                                     | 2                                     | 7.67            | 3.835             | 2                                      | 7.67            | 3.835             | 1                                      | 4.03            | 4.030             |
| Shahpur III (383-388)                                     | 15                                    | 57.35           | 3.823             | 12                                     | 46.60           | 3.883             | 10                                     | 39.23           | 3.923             |
| Varahran IV (388-399)                                     | 30                                    | 114.99          | 3.833             | 27                                     | 104.29          | 3.863             | 19                                     | 74.74           | 3.934             |
| Yazdigerd I (399-420)                                     | 25                                    | 100.25          | 4.010             | 24                                     | 96.70           | 4.029             | 23                                     | 93.05           | 4.046             |
| Varahran V (420-438)                                      | 7                                     | 26.33           | 3.761             | 4                                      | 15.60           | 3.900             | 4                                      | 15.60           | 3.900             |
| Yazdigerd II (438-457)                                    | 6                                     | 22.17           | 3.695             | 4                                      | 15.02           | 3.755             | 2                                      | 7.57            | 3.785             |
| Peroz (457-484)   | 8                                     | 30.97           | 3.871             | 8                                      | 30.97           | 3.871             | 6                                      | 23.52           | 3.920             |
| Valkash (484-488)   | 3                                     | 11.49           | 3.830             | 3                                      | 11.49           | 3.830             | 2                                      | 7.75            | 3.875             |
| Kavad I (first reign) (488-497)                           | 4                                     | 14.70           | 3.675             | 2                                      | 7.50            | 3.750             | -                                      | -               | -                 |
| Zamasp (497-499)  | 3                                     | 11.62           | 3.873             | 2                                      | 8.07            | 4.035             | 2                                      | 8.07            | 4.035             |
| Kavad I (second reign) (499-531)                          | 32                                    | 119.00          | 3.719             | 24                                     | 90.40           | 3.767             | 8                                      | 30.95           | 3.869             |
| Khusro I (531-579)  | 236                                   | 922.63          | 3.909             | 224                                    | 879.94          | 3.928             | 206                                    | 812.68          | 3.945             |
| Hormizd IV (579-590) 1st trade                            | 88                                    | 344.89          | 3.919             | 84                                     | 330.65          | 3.936             | 78                                     | 308.61          | 3.957             |
| Khusro II (591-628)                                       | 174                                   | 672.03          | 3.862             | 164                                    | 636.58          | 3.882             | 133                                    | 521.79          | 3.923             |
| <b>Total</b>  | <b>716</b>                            | <b>2,772.81</b> | <b>3.873</b>      | <b>652</b>                             | <b>2,544.56</b> | <b>3.903</b>      | <b>541</b>                             | <b>2,132.89</b> | <b>3.942</b>      |

Note: A total of 716 Sasanid coins weighing more than 3.5 grams were weighed of which 652 pieces (91.06%) weighed more than 3.6 grams, and of which 541 pieces (75.56%) weighed more than 3.75 grams.

From this study, it is observable that the highest average weight of the silver dirham was 4.046 grams from the reign of Yazdigerd I (r. 399-420 CE). This corroborates the earlier statement by Walter B. Henning that the average weight of the Sasanian *drahm* does not rise above 4.05 grams.

24 Qirats PLT has a wide range of silver dirhams from the time of the Prophet (PBUH) up till the Umayyad and Abbasid eras within its private collection for the study of coinage weights. It includes a dirham of Caliph Uthman Ibn Affan weighing 4.06 grams and a pre-reform dirham of ‘Abd al-Malik Ibn Marwan circa 72 H weighing 4.15 grams as numismatic evidence of the *Nabawi* silver dirham weight standard.



**Image 11:** Tim Wilkes, E.0227/PCP/19/21: Silver dirham of ‘Abd al-Malik ibn Marwan (r. 685-705 CE) circa 72 H weighing 4.15 grams (Private Collection of 24 Qirats PLT)



Al-Baladhuri (2002) explains in his *Futuh* that weight standards in Persia were expressed as a relationship to the (*drahm*) *mithqal*, in a formula such as “*dirhams weight of 10*” meaning that ten dirhams at such a standard weighed ten *mithqals*, while ten “*dirhams weight of 7*” weighed seven *mithqals*. Since in his account the original dirhams were “*weight of 10*”, it follows that the *mithqal* in 7<sup>th</sup> century Persia was the weight of the heaviest circulating silver coins, or just over 4 grams (there were minor local variations in this standard). There were, however, other weight standards such as “*weight of 8*” (8/10 *mithqal*) and “*weight of 5*” (5/10 *mithqal*). It is known that “*dirhams weight of 7*” were created in Damascus after the coinage reforms of ‘Abd al-Malik, and that “*dirhams weight of 5*” referred to half-dirhams.

In certain regions the value of 1 gold dinar was equivalent to 10 silver dirhams (*Nabawi* standard), while in another, 1 gold dinar was equal in value to 12 silver dirhams. Hence, this tallies with the narration of al-Baladhuri (2002) that there were “*dirhams weight of 8*” during the *Nabawi* era where the weight of 12 pieces of “*dirhams weight of 8*” would equal in weight and value to 10 pieces of “*dirhams weight of 10*”. To put this into the context of *daniqs*, and using 4.05 grams as the weight of the full *Nabawi* silver dirham at 6 *daniqs*, it is tenable to conclude that the “*dirham weight of 8*” on average weighs 5 *daniqs* or about 3.375 grams which is 83.33% the weight of the “*dirham weight of 10*” standard of Madinah.



**Image 12:** Stephen Album Rare Coins, Internet Auction 21, July 2023, Lot 190: 6-*Daniq* Baghli dirham of Shapur I (r. 241-272 CE) weighing 4.01 grams (Private Collection of 24 Qirats PLT)



**Image 13:** Stephen Album Rare Coins, Code #150343: 5-*Daniq* dirham of Khusrau II (r. 590-628 CE) circa 624 CE weighing 3.40 grams (Private Collection of 24 Qirats PLT)



**Image 14:** Stephen Album Rare Coins, Auction 32, September 2018, Lot 172: 6-*Daniq* dirham of Caliph Uthman (r. 644-656 CE) weighing 4.06 grams (Private Collection of 24 Qirats PLT)

The weight of the *Nabawi* silver dirham is confirmed at 6 *daniqs* as mentioned in the following tradition: It has been related to me from Sharik from Sa’d ibn Tarif from al-Asbargh ibn Nubata from ‘Ali ibn Abi Talib, who said: “*The Messenger of God (PBUH) married me to Fatimah for a sum of 480 dirhams with a weight of six (daniqs)* (Ibn Sallam, 2003).”

### The Proposed *Taqribi* Weights of the *Nabawi* Gold Dinar and the *Nabawi* Silver Dirham

Based on results of the study on the average weights of the Byzantine *solidi* earlier in Table 2, it is proposed that the *Taqribi* weight of the *Nabawi* gold dinar be set at 4.5 grams. It is also proposed that based on results of the study on the average weights of the Sasanian *drahm*, the *Taqribi* weight of the *Nabawi* silver dirham be set at 4.05 grams. These proposed weights are supported by years of study by qualified international numismatists who focused on coinage of the early Islamic period and cannot be refuted. Hence, the *nisab* of zakat for gold would be 20 dinars x 4.5 grams = 90 grams, while the *nisab* of zakat for silver would be 200 dirhams x 4.05 grams = 810 grams.

At 1 gold dinar being equal in value to 10 silver dirhams, the gold to silver ratio or bimetallic standard of Madinah of the *Nabawi* era during the revelation of zakat in the second year of Hijrah would be 4.5:40.5 or 1:9 while the weight relationship then would be 10 dirhams being equal in weight to 9 dinars.

Based on these proposed *Taqribi* weights of the *Nabawi* gold dinar and the *Nabawi* silver dirham, the following metrological tables are constructed for the ease of reference and understanding.

**Table 8:** Nabawi Metrology of Prophetic Era Dirham Weights and Measures based on Sasanian Drachm Denominations and Prophetic Tradition

| Prophetic Era Silver Measure | Arabic Name                      | Unit    | Unit  | Unit  | Unit | Unit | Unit | Unit | Unit | Unit | Unit | Unit | Unit | Weight (grams) |
|------------------------------|----------------------------------|---------|-------|-------|------|------|------|------|------|------|------|------|------|----------------|
| 100 Pounds                   | <i>Qintar (48,000) Dirham</i>    | 1       |       |       |      |      |      |      |      |      |      |      |      | 194,400.0      |
| 1 Pound                      | <i>Ratl (480) Dirham</i>         | 100     | 1     |       |      |      |      |      |      |      |      |      |      | 1,944.0        |
| 5 Ounces                     | <i>Nisab (200) Dirham</i>        | 240     | 2.4   | 1     |      |      |      |      |      |      |      |      |      | 810.0          |
| 1 Ounce                      | <i>Uqiyah (40) Dirham</i>        | 1,200   | 12    | 5     | 1    |      |      |      |      |      |      |      |      | 162.0          |
| 20 Drachms                   | <i>Nash (20) Dirham</i>          | 2,400   | 24    | 10    | 2    | 1    |      |      |      |      |      |      |      | 81.0           |
| 5 Drachms                    | <i>Nawat (5) Dirham</i>          | 9,600   | 96    | 40    | 8    | 4    | 1    |      |      |      |      |      |      | 20.25          |
| 1 Tetradrachm                | <i>Arba'a (4) Dirham</i>         | 12,000  | 120   | 50    | 10   | 5    | 1.25 | 1    |      |      |      |      |      | 16.2           |
| 1 Drachm                     | <i>Wahid (1) Dirham</i>          | 48,000  | 480   | 200   | 40   | 20   | 5    | 4    | 1    |      |      |      |      | 4.05           |
| 1 Hemidrachm                 | <i>Nisfu (1/2) Dirham</i>        | 96,000  | 960   | 400   | 80   | 40   | 10   | 8    | 2    | 1    |      |      |      | 2.025          |
| 1 Obol                       | <i>Daniq (1/6) Dirham</i>        | 288,000 | 2,880 | 1,200 | 240  | 120  | 30   | 24   | 6    | 3    | 1    |      |      | 0.675          |
| 1 Hemiobol                   | <i>Nisfu Daniq (1/12) Dirham</i> | 576,000 | 5,760 | 2,400 | 480  | 240  | 60   | 48   | 12   | 6    | 2    | 1    |      | 0.3375         |

**Table 9:** Nabawi Metrology of Prophetic Era Dinar Weights and Measures based on Byzantine Solidus Denominations and Prophetic Tradition

| Prophetic Era Gold Measure | Arabic Name                      | Unit    | Unit  | Unit | Unit | Unit | Unit | Unit | Unit | Unit | Unit | Unit | Weight (grams) |
|----------------------------|----------------------------------|---------|-------|------|------|------|------|------|------|------|------|------|----------------|
| 100 Librae / Pounds        | <i>Qintar (7,200) Dinar</i>      | 1       |       |      |      |      |      |      |      |      |      |      | 32,400.0       |
| 1 Libra / Pound            | <i>Ratl (72) Dinar</i>           | 100     | 1     |      |      |      |      |      |      |      |      |      | 324.0          |
| 20 Sextulae / Solidi       | <i>Nisab (20) Dinar</i>          | 360     | 3.6   | 1    |      |      |      |      |      |      |      |      | 90.0           |
| 1 Uncia / Ounce            | <i>Uqiyyah (6) Dinar</i>         | 1,200   | 12    | 3.33 | 1    |      |      |      |      |      |      |      | 27.0           |
| 1 Sextula / Solidus        | <i>Wahid (1) Dinar</i>           | 7,200   | 72    | 20   | 6    | 1    |      |      |      |      |      |      | 4.5            |
| 1 Semissis                 | <i>Nisfu (1/2) Dinar</i>         | 14,400  | 144   | 40   | 12   | 2    | 1    |      |      |      |      |      | 2.25           |
| 1 Tremissis                | <i>Thuluth (1/3) Dinar</i>       | 21,600  | 216   | 60   | 18   | 3    | 1.5  | 1    |      |      |      |      | 1.5            |
| 6 Siliquae (unminted)      | <i>Rubu' (1/4) Dinar</i>         | 28,800  | 288   | 80   | 24   | 4    | 2    | 1.33 | 1    |      |      |      | 1.125          |
| 1 Half Tremissis           | <i>Nisfu Thuluth (1/6) Dinar</i> | 43,200  | 432   | 120  | 36   | 6    | 3    | 2    | 1.5  | 1    |      |      | 0.75           |
| 1 Siliqua (unminted)       | <i>Qirat (1/24) Dinar</i>        | 172,800 | 1,728 | 480  | 144  | 24   | 12   | 8    | 6    | 4    | 1    |      | 0.1875         |

**Table 10:** 'Abd al-Malik Silver Measures Post-Coinage Reforms (79 AH)

| 'Abd al-Malik Silver Measure Post-Coinage Reforms (79AH) | Unit    | Unit  | Unit  | Unit | Unit | Unit  | Unit | Unit | Weight (grams) |
|--|---------|-------|-------|------|------|-------|------|------|----------------|
| <i>Qintar (48,000) Dirham</i>                            | 1       |       |       |      |      |       |      |      | 142,800.0      |
| <i>Ratl (480) Dirham</i>                                 | 100     | 1     |       |      |      |       |      |      | 1,428.0        |
| <i>Nisab (200) Dirham</i>                                | 240     | 2.4   | 1     |      |      |       |      |      | 595.0          |
| <i>Uqiyyah (40) Dirham</i>                               | 1,200   | 12    | 5     | 1    |      |       |      |      | 119.0          |
| <i>Wahid (1) Dirham</i>                                  | 48,000  | 480   | 200   | 40   | 1    |       |      |      | 2.975          |
| <i>Daniq (1/6) Dirham (unminted)</i>                     | 288,000 | 2,880 | 1,200 | 240  | 6    | 1     |      |      | 0.4958         |
| <i>Qirat (1/14) Dirham (unminted)</i>                    | 672,000 | 6,720 | 2,800 | 560  | 14   | 2.333 | 1    |      | 0.2125         |

**Table 11:** 'Abd al-Malik Gold Measures Post-Coinage Reforms (77 AH)

| 'Abd al-Malik Gold Measure Post-Coinage Reforms (77AH) | Unit    | Unit  | Unit  | Unit | Unit | Unit | Unit | Unit | Weight (grams) |
|--|---------|-------|-------|------|------|------|------|------|----------------|
| <i>Qintar (8,400) Dinar</i>                            | 1       |       |       |      |      |      |      |      | 35,700.0       |
| <i>Ratl (84) Dinar</i>                                 | 100     | 1     |       |      |      |      |      |      | 357.0          |
| <i>Nisab (20) Dinar</i>                                | 420     | 4.2   | 1     |      |      |      |      |      | 85.0           |
| <i>Uqiyyah (7) Dinar</i>                               | 1,200   | 12    | 2.857 | 1    |      |      |      |      | 29.75          |
| <i>Wahid (1) Dinar</i>                                 | 8,400   | 84    | 20    | 7    | 1    |      |      |      | 4.25           |
| <i>Rubu' (1/4) Dinar (unminted)</i>                    | 33,600  | 336   | 80    | 28   | 4    | 1    |      |      | 1.0625         |
| <i>Qirat (1/20) Dinar (unminted)</i>                   | 168,000 | 1,680 | 400   | 140  | 20   | 5    | 1    |      | 0.2125         |

**Table 12:** Effect of the 79 AH Coinage Reforms on the Weight Standards of Silver Measures in Makkah

| Silver Measure | Makkah/Nabawi Weight Standard (grams) | Damascus/79 AH Marwanid Weight Standard (grams) | Effect of 79 AH Coinage Reforms on Weight Standards (Increase/Decrease) |
|----------------|---------------------------------------|---|---|
| <i>Qintar</i>  | 194,400.0                             | 142,800.0                                       | Decrease by 26.54%  |
| <i>Ratl</i>    | 1,944.0                               | 1,428.0   | Decrease by 26.54%  |
| <i>Nisab</i>   | 810.0                                 | 595.0   | Decrease by 26.54%  |
| <i>Uqiyyah</i> | 162.0                                 | 119.0   | Decrease by 26.54%  |
| <i>Dirham</i>  | 4.05                                  | 2.975   | Decrease by 26.54%  |
| <i>Daniq</i>   | 0.675                                 | 0.4958  | Decrease by 26.54%  |

**Table 13:** Effect of the 77 AH Coinage Reforms on the Weight Standards of Gold Measures in Makkah

| Gold Measure       | Makkah/Nabawi Weight Standard (grams) | Damascus/77 AH Marwanid Weight Standard (grams) | Effect of 77 AH Coinage Reforms on Weight Standards (Increase/Decrease) |
|--------------------|---------------------------------------|---|---|
| <i>Qintar</i>      | 32,400.0                              | 35,700.00                                       | Increase by 10.19%  |
| <i>Ratl</i>        | 324.0                                 | 357.0   | Increase by 10.19%  |
| <i>Nisab</i>       | 90.0                                  | 85.0  | Decrease by 5.56%   |
| <i>Uqiyyah</i>     | 27.0                                  | 29.75   | Increase by 10.19%  |
| <i>Dinar</i>       | 4.5                                   | 4.25  | Decrease by 5.56%   |
| <i>Rubu' Dinar</i> | 1.125                                 | 1.0625  | Decrease by 5.56%   |
| <i>Qirat</i>       | 0.1875                                | 0.2125  | Increase by 13.33%  |

## Conclusion

The poorer people would have been most affected by the 79 H silver coinage reforms of ‘Abd al-Malik as they were more likely to have only dirhams as their main currency. The main reason for establishing the *nisab* of gold at 20 dinars and silver at 200 dirhams was that these respective currency amounts were sufficient then to buy 5 *awsuq* (a special measure for food-grains in Madinah during the *Nabawi* era) of food-grains, enough to feed a family of 3 or 4 for 1 lunar year. Zakat is only meant to be paid when a family has enough money to survive for 1 year, and the more Sahih or authentic *hādīth* specifies zakat on silver dirhams which is the currency of the common people.

Translation: There is no zakat on less than five camels and also there is no zakat on less than five uqiyyah (200 silver dirhams), and there is no zakat on less than five awsuq”.

(Sahih Bukhari, 2002, Hadith 526)

It is very clear that the common people were coerced to pay zakat on their silver currency when they had not yet earned enough to feed their family for a full lunar year. This is effectively considered as being an act of *zulm* or cruelty on the part of the Umayyads when the monetary weight reforms were enforced upon the masses who were already accustomed to the currency standards of the *Nabawi* era. It was an unjust act of exploitation, oppression, and wrongdoing by those in power then. In addition, *riba al-fadhl* was practiced openly by the moneychangers as the heavier Byzantine and Sasanian coinage belonging to the common people were exchanged for lighter Umayyad dinars and dirhams 1-to-1 after a minting fee was extracted from the original gold and silver weights.

The coinage practice in Madinah and Makkah during the *Nabawi* era has not been entered into Islamic monetary theory for over 1,300 years since the monetary reforms of ‘Abd al-Malik ibn Marwan from 77-79 H. The idea that the standard weight of the dirham ought to be 7/10ths of the standard weight of the dinar was most probably put into effect much later during the reign of the Abbasid caliph al-Ma’mun (r. 198-218 H / 813-833 CE). This has effectively altered the original prescribed weights and measures of the gold dinar and the silver dirham for the *Ummah* and all Islamic rulings associated with them including

*zakat, diyat, hudud, qisas, and ta'zir*. Islamic rulings are now being made based on lighter weights of the dinar and the dirham and this is a form of injustice to the *Ummah* and especially to all those who are directly affected.

The official weight of the dinar has been determined by Orientalist numismatists to be 4.25 grams, while the weight of the dirham has been set at 2.975 grams in a weight relationship of 10 dirhams being equal to 7 dinars. This weight relationship never existed during the lifetime of the Prophet (PBUH). Unfortunately, these dinar and dirham weights are the adopted *Taqribi* (approximate) metric weights used to set the *nisab* of zakat for gold at 85 grams, and that for silver at 595 grams today.

With the wealth of numismatic evidence and *ḥādīth* narrations to support the definition of the *Taqribi* weight standards of the *Nabawi* gold dinar and the *Nabawi* silver dirham as being about 4.5 grams and 4.05 grams respectively, it is hoped that a new *fatwa* will be issued to put the *Nabawi nisab* of gold and silver of this pillar of zakat back to its rightful place in accordance with that of the *Nabawi* era when the revelation of zakat first came to the Prophet of Allah (PBUH) in the second year of Hijrah in Madinatul Munawwarah. It is also high time for the *Ummah* to revive this forgotten aspect of the *Sunnah* of Prophet Muhammad (PBUH).

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