Unification of Weights and Measures by the Mongol Empire as Seen in the Uigur and Mongol Documents*

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0. Introduction

In the Uigur secular texts[1] brought from the Turfan region, we find many units for weights and measures. Understanding the concrete substance of these units is indispensable for the reconstruction of the historical background or the socio-economic circumstances. Regarding this subject, the preliminary researches by the late Professor Nobuo YAMADA are quite important. N. YAMADA, who was the leading scholar of Uigur studies in Japan, clarified some of the Uigur units, especially in regard to their mutual correspondences and the connection to Chinese units, though he had to leave many undetermined because of the limited number of Uigur contract document sources. Since his studies, a large number of Uigur documents have been edited, revised and made available to academic researchers. They include contracts as well as administrative orders, official ledgers and private lists, etc. We must utilize these sources to further develop YAMADA's pioneering works. Moreover, we should take into account that most of the Uigur documents (as well as those cited in this paper) belong to the Mongol period (the 13th–14th cc.)[2], and that some of the Uigur units are the same as those found in the Mongol documents. From this point of view, it is necessary also to compare Uigur units with Mongolian, Chinese and Persian units in the area dominated by the Mongol Empire.

In this paper I will investigate the units of measurement in the Uigur and Mongol documents: the liquid measure units *qap, tämbin* (~ *tembin*) and *saba*, and a grain measure unit *taγar,* especially in their correspondence with those of China and Iran and their estimated value.

1. *qap, tämbin* and *saba*

Of these three units, YAMADA has already proved that 1 *qap* is equal to 30 *tämbin*[3].

To broaden the scope of the investigation I will inquire into another unit, *saba*. This is a loan-word from Mo. *saba* "container"[4] and is attested in two Uigur administrative orders for deliveries of brandy (*araqï*). In one of the orders, U 5288 (= MATSUI 1998b, text 4), the phrase *bir saba araqï* "1 *saba* of brandy" appears frequently. It suggests that Uig. *saba* is used as a unit of liquid measure. In another order, U 5510 (= MATSUI 1998b, text 15), the phrase *üč tämbin araqï saba-sï bilä* "3 *tämbin* of brandy with their container (*saba*)" is repeated. From these two attestations, we may assume that 1 *saba* as a liquid measure unit is equal to 3 *tämbin*[5].

Besides these Uigur orders, in two Mongolian decrees granting a license for a postal relay issued by the Čaγatai Khanate (= BTT XVI, Nrn. 72, 74) *saba* and *tembin* (< Uig. *tämbin*) are mentioned as units of liquid measure in the enumeration of the provision for users of the postal relay. In the decree Nr. 72, the daily provision for the postal relay couriers (*elčin* "ambassadors") is *tabun tembin bor, qoyar köl miq-a, γürban baḏman künesün* "5 *tembin* of wine, 2 shanks of meat and 3 *badman* of provision (i.e. grain)[6]." In another decree, Nr. 74, the provision for *borčin* "persons in charge of wine" is *qoyar köl miqan, qoyar saba umdan, qoyar baḏman künesün* "2 shanks of meat, 2 *saba* of beverage (i.e. wine) and 2 *badman* of provision (i.e. grain)." Here, if we can apply my estimation that 1 *saba* is equal to 3 *tämbin*, "two *saba*" of Nr. 74 is equal to 6 *tämbin*, then the whole amount of the provision of Nr. 74 is almost similar as that of Nr. 72[7].

Concerning the regulation of daily provision for postal relay couriers in the Mongol Empire, we can refer also to the Chinese historical sources. According to the regulation, the daily provision per person was 1 斤 *jin* of meat (肉 *rou*), 1 *jin* of flour (麵 *mian*), 1 *sheng* 升 of liquor (酒 *jiu*), and 1 *sheng* of rice (米 *mi*)[8].

It must be noted that the ratio of numerical value of meat : grain (or flour) : liquor (or beverage) for provision in the Chinese sources, namely 1 : 1 : 1, is just the same as that in the Mongolian decree Nr. 74 (see the table).

Provision	Chinese	Nr. 72	Nr.74
meat	1 斤 *jin*	2 *köl*	2 *köl*
liquor	1 升 *sheng*	5 *tembin*	2 *saba*
grain	1 斤 *jin*	3 *badman*	2 *badman*
rice	1 升 *sheng*		

Probably decree Nr. 74 was for two postal relay couriers, and the daily provision per person was 1 shank (*köl*) of meat[9], 1 *saba* of beverage and 1 *badman* of grain. And I have shown that the Chinese unit of weight *jin* corresponds to Mo. *badman* ~ Uig. *batman* through the attestation in the quadrilingual inscription of the weight balances of the Yuan Dynasty[10]. Consequently we can assume that the Uigur-Mongolian liquid measure unit *saba* corresponds to Chin. *sheng*.

This assumption is supported by another Uigur document U 5308 (= USp 75), an administrative order for the delivery of wine to the postal relay couriers. Here I provide an English translation based on my own revised edition with the photographic reproduction [plate I].

1 ït yïl bigrminč ay iki otuz-qa
2 yanga buqa yočïn ilči-kä altï
3 otuz-qa-tägi käzig aš-qa bir qap
4 bor-nï biküs buqa borluq-ï birzün

"[1]On the 22nd [day], the 11th month, the year of the Dog. [2-3]For the provisions (instead) of the levy labor in rotation (*käzig aš*)[11] until the 26th [day] to [be delivered to] Yanga-Buqa and Ambassador Yočïn, [3-4]Biküs-Buqa's vineyard shall deliver 1 *qap* of wine."

In this text, 1 *qap* of wine is ordered to be delivered as the provisions for five days (the 22nd–26th). This 1 *qap* of wine is to be delivered to two persons, Yanga-Buqa and Ambassador Yočïn. Then, with YAMADA's proof that 1 *qap* = 30 *tämbin*, we can calculate the daily amount of wine per person as 3 *tämbin*, i.e. 1 *saba* or 1 *sheng* according to my estimation.

The point is that we can consistently establish the regulation of the provisions for the Mongol postal relay system observed from the Uigur, Mongolian and Chinese source materials when we estimate that 3 *tämbin* is equal to 1 *saba* or 1 *sheng*. It seems reasonable to establish this correspondence, accordingly we can calculate that 1 *qap*, which is equal to 30 *tämbin*, is also equal to 10 *saba*, or 10 *sheng* = 1 斗 *dou* in Chinese. In the Yuan period 1 *sheng* was about 0.8357 liter[12], so we may simplify 1 *saba* = 1 *sheng* as ca. 0.84 liter; 1 *qap* = ca. 8.4 liter; 1 *tämbin* = 1/3 *saba* = ca. 0.28 liter.

2. *taγar*

Recently I proved by means of a Mongolian-Chinese bilingual fragment excavated from Qara-qota that Mo. *taγar* and *šim* as grain measure units respectively correspond to Chin. 石 *shi* (*dan*) and 斗 *dou*[13]. But originally *taγar* was a loan-word from Turkic meaning "a large container; a sack; sack for keeping wheat"[14], and most of the Mongolian names of grains are from Old Turkic (or Uigur). So we should pay attention to the usage of *taγar* as a unit of grain measure in the Uigur texts.

As is well known, however, in Uigur secular texts the decimal system of the grain measure units as *šïγ*, *küri*, *šing* and *qav* is frequently used, and these units respectively correspond to Chin. 石 *shi*, 斗 *dou*, 升 *sheng* and 合 *ge*[15].

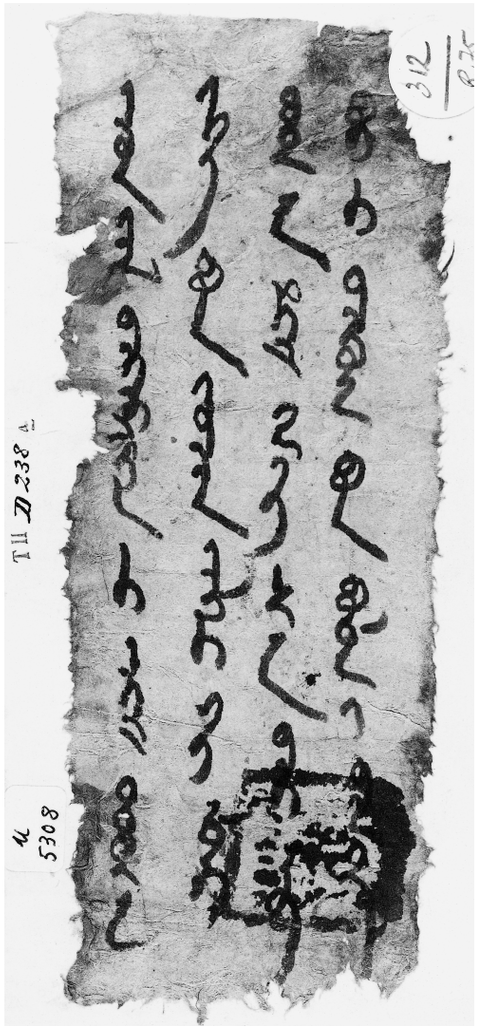

Plate I: U 5308 (T II D 238a = USp 75)
[Depositum der Berlin-Brandenburgischen Akademie der Wissenschaften in der Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Orientabteilung].

Of those edited and published so far, the only Turfan Uigur document that contains *tayar* as a unit of grain measure is SUK Lo18: [4]*manga qlïmdu-qa buỷday kärgäk bolup irinčipl-tin iki yarïm taỷar buỷday ạldïm*. Although the editors of SUK translated this passage as "Da mir, Qlïmdu, Weizen notwendig wurde, habe ich von Irinčipl 2 1/2 Sack Weizen erhalten", yet we may suppose from the context that *tayar* here means not simply "sack" but a certain concrete amount of grain.

And we should take into consideration that, in the Sino-Uigur inscription of Wenshusi 文殊寺 temple of 1326 in 肅州 Suzhou, Chin. 田地一十碩 *tiandi yishi shi* "cultivated land of 10 碩 *shi* (of grain)" is translated into Uig. *on tayarlïq yir-ni suv-nï* "cultivated land for 10 *tayar* (of grain)."[16] Thus the correspondence between Uig. *tayar* and Chin. 碩 *shi* (= 石 *shi*) is established as far as the Gansu region is concerned.

Furthermore, in 1996, three years after the publication of SUK, another Uigur contract housed in St. Petersburg, SI Kr I 147, was published (= Tugusheva 1996, No. 1). This contract provides us with a new attestation of Uig. *tayar* as a unit of grain measure. Unfortunately Tugusheva's edition contains many mistakes, so here I present a new revised edition[17], an English translation and the minimum of a commentary [plate II].

1 yïlan yïl ikinḍi ay on iki-
2 -kä manga ïrsul-qa öḍünü buγday
3 krgäk bolup yabaγu-tïn öṣi-
4 -ning šngsi birlä üč taγar ik
5 iki küri buγday aldïm bu buγday-
6 -nï bu oq yïl küz toqṣunč ay bir
7 yangïda yabaγu kälip körsär alïp
8 alur biz tägürüp birür biz birginčä
9 män ïrsul yoq bar bolsar män bu buγday-
10 -nï birlä alγučï tung su tay paošïn
11 män sulayman öz bodum-tïn köni birür
12 män bu biḍig-täki buγday iki taγar
13 ïrsul bodï-ta sulayman bodï-ta bir
14 taγar iki bu nišan ïrsul
15 bu nišan män sulayman-nïng'o(l)
16 bu nišan män tanuq [ ]
17 tanuq bu nišan (m)[än]
18 bäg tämür ïr[sul-qa ayïtïp bitidim]

[1-2]On the 12th [day], the 2nd month, the year of the Serpent.
[2-5]To me, Ïrasul, a loan of wheat being necessary, I have borrowed 3 *tayar* and 2 *küri* of wheat from Yabaγu, [measuring] with his own container.
[5-8]When, on the 1st day of the 9th month of autumn of this very year, Yabaγu comes and sees, we (i.e. Yabaγu) will receive this wheat. We (i.e. Ïrasul and the co-debtor) will bring and repay.
[8-12]If I, Ïrasul, escape before paying, I, Sulayman, who borrowed this wheat together [with Ïrasul] and who am [his] co-debtor and guarantor, will myself truly repay.
[12-14]Of the wheat [written] on this contract, 2 *tayar* [belong] to Ïrasul himself, 1 *tayar* and 2 [*küri*] to Sulayman himself.
[14-17]This signature [is] Ïrasul['s]. This signature is mine, Sulayman's. This signature [is] mine, the witness, ... the witness. This signature [is] mine, ...
[18][I,] Bäg-tämür, [having Ïrasul dictate, wrote (this contract)].

[Commentary]

2, *ïrsul*: ~ *ïrasul* < Ar.-Pers. *rasūl*. A personal name.

2, *öḍünü*: Tugusheva regards this as a gerund of the verb *ötün-* "to request, yield, beseech", and refers to *ötünč* "ssyda, zaem; loan, debt" attested in Maḥmūd al-Kāšγarī's *Dīwān luγāt al-turk*[18]. As to *öḍünü* ~ *ötünü* here, noteworthy is the attestation in the parallel passage of another Uigur loan contract of cotton cloth T III D 279 [183/34] (= Raschmann 1995, Nr. 75): [1]*manga* [2]*ögärünä-kä ötünü böz krgäk bolup aq̈ïl-*[3]*ta tört ton-luq böz ötünü altïm* "To me, Ögärünä, a loan (*ötünü*) of cotton cloth being necessary, I have borrowed from Aqïl 4 cotton cloth for clothing." Although Raschmann's translation of *ötünü* as "ergebenst" is also possible, I further assume the nominalization of *ötünü* into *ötnü* "a particle used in connection with loans; debt, loan" attested also by Kāšγarī[19]. Cf. New Uigur *ötünä* ~ *ötnä* "a debt; a loan; a bill"; *ötnä al-* "to borrow, have a loan"; *ötnä bär-* "to lend."[20]

4, *šngsi*: ~ *šingsi* < Chin. 升子 *sheng-zi* "a container (for *sheng*)." Tugusheva misread this as *s(ä)ks(ä)ni* ~ *säksäni* "eighty", yet translated it as "mera" from the context. In *Huayi yiyu* we find a translation of Mo. *šingsi* for Chin. 升 *sheng*[21]. It should also be added that Mo. *šingsi* was used also as a grain measure unit corresponding to Chin. *sheng*, since in a Mongolian-Chinese bilingual fragment from Qara-Qota housed in the British Library, Or. 8212 / 764 (= KK. 0118. gg.), we find the phrase [2]*nayan* (....) *tayar qoyar šim tabun šings[i]* "80(+x) *tayar*, 2 *šim* and 5 *šingsi*."[22]

4, *ik*: *iki* "two" is broken off without any reason and written again at the top of next line.

7, *yabaγu*: Tugusheva translates tentatively as "boz'mem", but it is undoubtedly the name of the creditor as well as in line 3. In the notorious Uigur petition to the Čaγatai ruler Tuγluγ-Temür-qan (r. 1346–63),

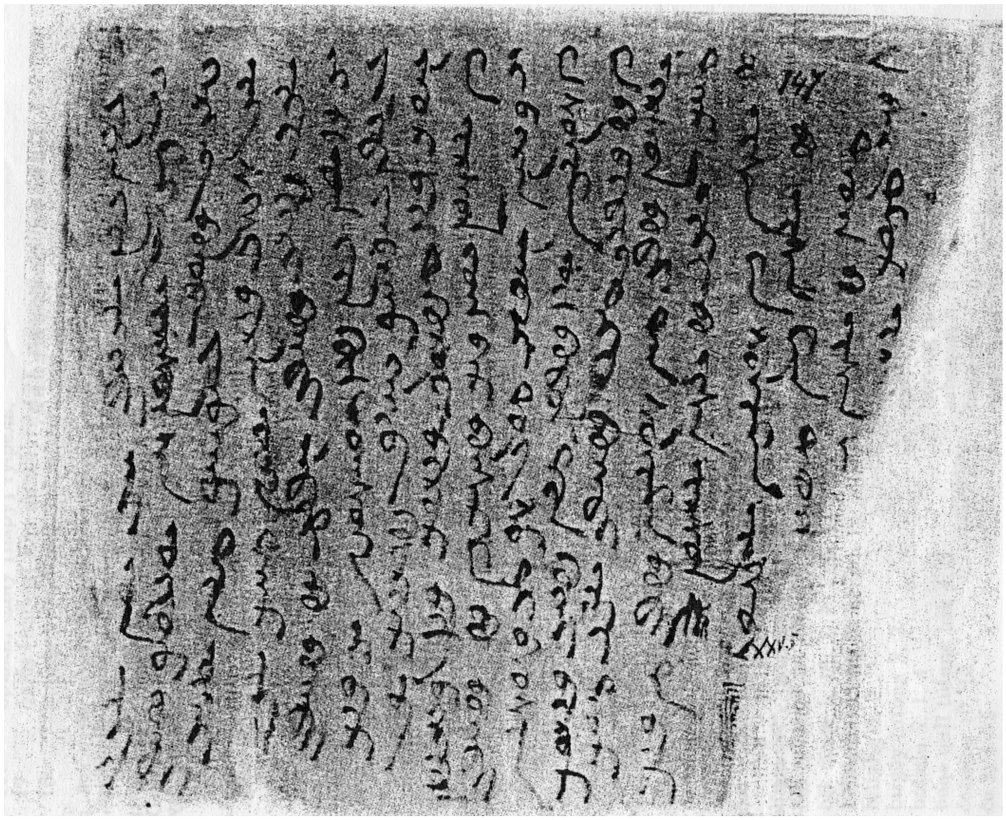

Plate II: SI Kr I 147
(Reprinted from Tugusheva 1996, No. 1)
[St. Petersburg Branch of the Institute of Oriental Studies, Russian Academy of Science].

U 5282, we find [20]Yabaγu-bäg, an officer dispatched to Qočo in the reign of Kebeg-qan (r. 1318–26)[23].

7, *kälip körsär*: The letters exclude Tugusheva's reading as *q(ï)lïp küri*g*läp* (?) "obmolotiv (?) i otmeriv." Though this is not attested in the Uigur contracts edited so far, I tentatively regard "Yabaγu comes and sees" to mean in this context that the creditor Yabaγu requests repayment.

10, *tung su tay paošïn*: Tugusheva's reading as *tov šu tï bošïγ* makes no sense. *tung su* ~ *tungsu* < Chin. 同取 *tong-qu* "co-debtor; Mitschuldner" and *tay paošïn* ~ *taypaošïn* < Chin. 代保人 *dai-bao-ren* "guarantor with responsibility for repayment on behalf of the debtor; Bürge."[24]

11, *bodum*, 13, *bodï*: For *bod* (> *bodum, bodï*), which Tugusheva translated as "clan, family", I give the meaning "body; self."[25]

14: Following Tugusheva, we should suppose that *küri* was omitted by mistake after *iki* "two."

18: On the basis of a comparison with other Uigur contracts, I have restored the text in a different way to Tugusheva.

In lines 4, 12, 14, we find the grain measure unit *taγar*, all of which Tugusheva misread as *tang*[26]. What is remarkable is the attestation [4]*üč taγar* [5]*iki küri buγday* "3 *taγar* and 2 *küri* of wheat." It clearly expresses that the Uigurs in the Turfan region used *taγar* as a unit of grain measure larger than *küri* which corresponds to Chin. *dou*. Therefore, as well as *šïγ*, Uig. *taγar* also corresponds to Chin. *shi*.

Since during the Mongol-Yuan period 1 *sheng* is equal to ca. 0.84 liter, the value of *shi* or *taγar* should be estimated as ca. 84 liters. On the other hand, Uig. *šïγ* is a loan-word from Chin. *shi*, and the value of *šïγ* in the late-10th century has been estimated as ca. 60 liters, i.e. the value of Chin. *shi* of the Tang period, when the Uigurs borrowed the word from Chinese[27]. Now the question arises: how can we explain the difference in the estimated value between *taγar* and *šïγ*?

Currently, we have no Turfan Uigur or Mongolian text that directly answers this question. But we may compare the circumstances in China and Iran under Mongol rule as described in the historical sources.

After the conquest of the Song dynasty, the Mongol-Yuan government prohibited the use of the Song measure units in 1282, installing their own Mo. *taγar* even in the Jiangnan region, i.e. the former territory of the Song[28]. In 1286, this prohibition, which had not been thoroughgoing in the region[29], was strengthened[30]. Even after that, the prohibition still remained patchy, as the similar prohibition act issued in 1312[31] shows. Nevertheless, 孔齊 Kong Qi, a man of letters in Jiangnan of the mid-14th century, reports that containers of Yuan standard were also used solely in some areas of Jiangnan[32]. Furthermore, the Franciscan friar Odoric of Pordenone, in his report on a rich man whom he met during his stay in Jiangnan ca. 1324-28, calculates the man's revenue with a unit *tagar* (= Mo. *taγar*)[33]. These reports suggest that *taγar* or *shi* of the Mongol-Yuan standard were in use among the Jiangnan people to some extent.

In Iran, Ghazan Khan (r. 1295–1304) issued a decree standardizing weights and measures in ca. 1302. In his decree translated into Persian, *taġār* (< Mo. *taγar*) was chosen as the standard of grain measure units, and the traditional Islamic units *kīla* and *mann* were linked with *taγar* in the decimal system[34]. It should also be added that the correspondence between 1 *taγar* and 100 *mann* had been established before the westward campaign from 1252 on, under the command of Hülegü, the first Il Khan[35].

These historical sources tell us that the Mongol administrations in China and Iran, even if more or less abortively, installed the grain measure unit *taγar* in the subordinate territories, and that former units there, e.g. Chin. *shi* or Pers. *kīla* and *mann*, were equalized or linked with *taγar*.

It is plausible that the same equalization took place in Turkistan and the Turfan region; in other words, during the Mongol period, the value of Uig. *šïγ* was, officially or institutionally, equalized to Mo. *taγar* (ca. 84 liters) and other Uigur units of grain measure such as *küri* and *šing* were also linked to *taγar* in a single decimal system.

3. Results and Conclusion

The results of my investigation are presented in table A. It indicates that units of capacity, grain and liquid measure in Chinese, Mongolian, Uigur and Persian fit into a single unified system over the Eastern and Western Eurasia in the Mongol period.

On the other hand, as displayed in table B, it has been clarified that the system of denomination (i.e. weights of silver ingot) was also unified throughout Eurasia in the Mongol period[36]. Moreover, the abovementioned Yuan weight balances bearing quadrilingual inscriptions (i.e. Chinese, 'Phags-pa-Chinese, Persian, Uigur-Mongolian) can reflect the historical circumstance that the Yuan government intended to have the Chinese, Persian and Mongol (and probably Uigur) speaking peoples use the units of weight in common.

From these I conclude that the Mongol Empire on the whole had a policy to unify not only the denomination system but also the system of measurement in the whole area under their rule. Needless to say, both the system of measurement and the denomination system are of great significance in commercial activities. Then we may go on to the conclusion that the policy intended to lead and develop the contemporary Eurasian-wide system of commerce, which is well known as the *Pax Mongolica*.

Value	Chinese	Mongolian		Uigur		Persian
(liter, ca.)	(capacity)	(grain)	(liquid)	(grain)	(liquid)	(grain)
84.0	石 *shi* (*dan*)	*taγar*		*šïγ / taγar*		*taġār*
8.4	斗 *dou*	*šim*		*küri*	*qap*	*kīla*
0.84	升 *sheng*	*šingsi*	*saba*	*šing*	*saba*	*mann*
0.28			*tembin*		*tämbin*	
0.084	合 *ge*			*qav*		

Table A

Weight (gm)	Chinese	Mongolian	Uigur	Persian
2000	錠 *ding*	*süke*	*yastuq*	*bāliš*
40	兩 *liang* = 貫 *liang*	*siǰir*	*sïtïr ~ stïr*	*sīr*
4	錢 *qian*	*bakir ~ baqir*	*baqïr*	*miṣqāl*

Table B

Notes

* I would like to express my sincere thanks to J.E. Philips for improving my English.

1 I adopt the system of SUK for Uigur transcription, and common systems for the other languages.

2 For the criteria for dating of Uigur documents, see Moriyasu 1994, 63–83.

3 Yamada 1965, 180–182; Yamada 1971, 493–495.

4 Lessing 1960, 653: *saba* "any container or receptacle; vessel, vase"; Kowalewski II, 1302: *saba* "vase, poterie, vaisselle; réceptacle." Cf. Wb IV, 411: *saba* (kirg.) "ein Ledersack zum Bereiten des Kumiss"; Zieme 1997, 443.

5 Matsui 1998b, 28–30, 52.

6 Lessing 1960, 503: *künesün* "provision"; Kowalewski III, 2565: *künesün* "des vivres, comestibles, provision que l'on porte lorsqu'on fait voyage"; Haenisch 1952, 52: Mo. *gunesun* = Chin. 粮 *liang* "Getreide"; cf. Weiers 1967, 28; BTT XVI, [179, (Nr. 72)] "Getreide."

7 Weiers suggested the approximation between the amount of the 5 *tembin* (Nr. 72) and of the 2 *saba* (Nr. 74), see Weiers 1967, 40. But he had no grounds, especially for the relation between *saba* and *tembin*.

8 *Zhanchi* I, 10, 12-13, 16, 18, 53–54; YDZ, chap. 16, 713–714, 715; YS, chap. 101, 2584. Sometimes the liquor is measured with 瓶 *ping* "bottle", but the value of *sheng* and *ping* were the same. See *Zhanchi* I, 42, the 17th year of Zhiyuan (1279), 是月 *shi-yue* (= the 6th month): 仍定每瓶準酒一升為數 "Still more it is determined that every *ping* should be estimated as identical with 1 *sheng* of liquor."

9 Mo. *köl* "leg, shank" used as a unit for meat could be a certain unit of weight, which was approximate to Chin. *jin*. In 飲膳正要 *Yinshan zhengyao*, the collection of recipes for the Yuan imperial court edited by 忽思慧 *Hu-si-hui* in 1330, a term 腳子 *jiao-zi* "shank, leg" is frequently used in measuring mutton or bear meat. Also we know that Uig. *saq*, a loan word from Persian *sāq* "shank", is used as a unit of meat in a Turfan Uigur document. See Matsui 2002, 109.

10 Matsui 2002, 111–112. For examples of the weight balance of the Yuan Dynasty with the quadrilingual inscriptions, see Qiu 1992, 466–467, Nos. 221 and 222.

11 See Matsui 1998a, for Uig. *käzig* meaning "a turn of levied labor; labor work levied in rotation" and *käzig aš* attested here.

12 Qiu 1992, 263.

13 Matsui 1997, esp. 36–43.

14 ED, 471; CTD I, 312; DTS, 529.

15 Yamada 1965, 171; Yamada 1971, 491–493.

16 Geng/Zhang 1986, 261, 263, though with a misprint 頃 *qing* for 碩 *shi*.

17 In the edition [abc] stand for suggested restorations of missing letters; (abc) for damaged letters or uncertain readings.

18 Cf. CTD I, 154; ED, 61; DTS, 393. Clauson assumed a verb **öten-* as the etymology of *ötünč*, while Erdal regards *ötünč* as a deverbal noun from the verb *ötün-*. See ED, 60; OTWF, 281 & n. 314.

19 CTD I, 153; ED, 60; DTS, 393.

20 Wb I, 1266; Jarring 1964, 220; WHCD, 754; Schwarz 1992, 443.

21 HY, 161.

22 I have presented an edition of this fragment in a paper read at the Annual Conference of the Japan Society of Mongol Studies, Nov. 18, 2000 (Ōtani University).

23 Arat 1937; Clark 1975, 196–198; cf. BTT XVI, Nr. 76.

24 Mori 1961, 132–144; cf. SUK Mi17.

25 ED, 296–297; DTS, 106–107; cf. SUK Em01: ^{5}*mäning öz bodum-qa* "mir selbst"~ ^{13}*öz bodï* "selbst."

26 Uig. *tang* is a common unit of weight. See Yamada 1965, 195-196; Yamada 1971, 496–498; Moriyasu 1991, 82.

27 Moriyasu 1991, 55–57.

28 YS, chap. 93, 2359: "(In the 19th year of 至元 Zhiyuan = AD 1282), as for the cases in which rice [as tax] is to be paid, only the container

of the Song Dynasty should be used [in measuring]. It was for the reason that 1 *shi* of Song was equal to only seven *dou* of [our] present [measure].” Cf. Cleaves 1955, 32. However, this passage should derive from a mistake in the editing of YS by the historiographers of the Ming Dynasty, since it contradicts other sources from Yuan times which show the repeal of the Song standard. See notes 29–32 below.

[29] *Dayuan haiyun-ji* 大元海運記 (Taipei 1972), 50: “(In the 23rd year of Zhiyuan = AD 1286, the 11th month) the vice-minister (平章 *pingzhang*), Sečegen (> 薛徹干 *Xue-che-gan*), reported [to the Emperor]: [We have conducted] the marine transport of rice [from Jiangnan region] for four years. The total amount of the transported rice is estimated at 1,010,000 *shi*. The amount actually carried to the capital comes to 840,000 *shi*; the amount not carried is 170,000 *shi*. The porters say, ‘the container of Jiangnan is smaller, but here (i.e. the Metropolitan area) the container is larger. For this [reason] the amount [of rice] decreases.’...”

[30] YDZ, chap. 57, 2223, 禁私斛斗秤尺 (Prohibition of the private container, balance and scale): (In the 23rd year of Zhiyuan = AD 1286) “Previously the measures of scales (度尺 *duo-che*) and containers (升斗 *sheng-dou*) currently used by shopkeepers on the various routes (路 *lu*) were never according to the legal [standards], we sent down instructions to all subordinate organs [to the effect] that they should manufacture [such measures] according to the same models of the standard utensils presently currently used under the government and that, after having employed the officials to ascertain [them] to be uniform [with the official standards], having wrapped and branded [them] with a seal and having fixed a basic price [for them], they should issue them throughout the route to be used everywhere and they should set a deadline to call in the old containers, scales and balances.” Cf. Cleaves 1955, 45 (with modifications). Obviously this prohibition was the result of Sečegen’s report cited in note 29 above.

[31] YDZ, chap. 57, 2224, 斛斗秤尺牙人 (the containers, measures and the brokers). See Cleaves 1955, 47 ff.

[32] 至正直記 *Zhizheng zhiji* (Shanghai 1987), chap. 3, 113: “the container and scale in 浙東 Zhedong still keep the standard of the fallen Song Dynasty. They call [the container of] *dou*: 百合 *bai-ge*. It is equal to eight *sheng* in the current official [standard]. In my country (i.e. 溧陽 Liyang, Jiangnan) [they] never use this container [of Song standard]; they use [Yuan-] official. In 宜興 Yixing [we] often find such [container of Song standard]; In 杭城 Hangcheng (i.e. 杭州 Hangzhou) people have the container of seven *sheng* or the scale of seven *cun* 寸.”

[33] Yule 1916, 254–255: “Now this man hath a revenue of xxx *tuman* of *tagars* of rice. And each *tuman* is ten thousand, and each *tagar* is the amount of a heavy ass-load.”

[34] Honda 1991, 333–341.

[35] TǦ III, 94; TMEN II, 513–514 (Nr. 905).

[36] Maeda 1973; Moriyasu 1997, 9–13. To Moriyasu’s table I add Pers. *miṣqāl* (~ Ar. *miṯqāl*) as the institutional correspondent of Chin. *qian* = Mo. *bakir* = Uig. *baqïr*. See Vaṣṣāf, 22: *bāliš-i čāv ba-iṣṭlāḥ-i īšān panǧāh sīr ast ki bahāī-yi ān dah dīnār bāšad*, *va ammā bāliš-i zar va nuqra pānṣad miṣqāl ast*“ In their (i.e. the Yuan dynasty’s) terminology, *bāliš* of paper currency (*čāv* < Uig.-Mo. *čao* < Chin. 鈔 *chao*) is 50 *sīr*, whose value is 10 *dīnār*; but *bāliš* of gold and silver [ingot] is 500 *miṣqāl*.” Cf. Uig. 必兒米思哈 < *bir misqa* “1 *misqa* (< Pers. *miṣqāl*)” = Chin. 一錢 “1 *qian*” in the Sino-Uigur vocabulary of Ming, 畏兀兒館譯語 *Wei-wu-er-guan yiyu*. See Shōgaito 1984, 157, No. 825; HY, 604.

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