THE ANCIENT STANDARDS OF MEASURE IN THE EAST.

By Lieut.-General Sir CHARLES WARREN, K.C.B., F.R.S., R.E.

(*Concluded from p.* 268.)

XIV.—WEIGHTS—BABYLONIAN AND HEBREW.

WE shall now be able to apply a test to the number of grains found to a log by examination of the Babylonian weights, viz.: Given 5,104·16 barley grains to a log—what is the weight of the log of water in terms of these grains, $\frac{5{,}104{\cdot}16 \times 175}{123{\cdot}3} = 7{,}244$ grains.

The number of grains weight in a log = mina is likely to be 7,200, to keep up the symmetry of the system of 3×2, as will be seen hereafter. This is the number Madden arrived at in the Babylonian system of weights (Madden's "Jewish Coins," pp. 267, 289). We may therefore take the relative weights of water and pressed barley in a log to be 7,200 : 5,104·16.

$$100 \quad : 70{\cdot}89.$$
$$141{\cdot}7 \quad : 100.$$

As already shown, there were 80 minæ of 8,187·5 Imperial grains each to $\frac{2}{3}$ cubit cubed of rain water; and this same weight of $\frac{2}{3}$ cubit cubed has been considered by the various authorities to represent the weight of the talent.

Hussey ("Ancient Weights and Money") mentions that—

Varro said that 80 Roman pounds $\left(\frac{2}{3}\text{ Roman cubit cubed}\right)$ = Egyptian talent,

Polybius said that 80 Roman pounds $\left(\frac{2}{3}\text{ Roman cubit cubed}\right)$ = Euboic talent,

Livy said that 80 Roman pounds $\left(\frac{2}{3}\text{ Roman cubit cubed}\right)$ = Attic talent,

and it seems to be accepted by modern writers that the Babylonian cubic foot of water weighed a Babylonian talent.

Böckh (as quoted in "Class. Mus.," vol. i, p. 4, by Grote) says:—"The Babylonian cubic foot, standing as it does in the ratio of 3 : 2 to the Grecian cubic foot, weighs 60 Eginetan minæ (= 60 Babylonian minæ = 1 Babylonian talent)."

I therefore assume that the weight of the ancient talent was the weight of $\frac{2}{3}$ ancient cubit cubed of rain water, *i.e.*, $\frac{70,000}{27} = 2,592{\cdot}59$ cubic inches, or $\frac{70,000 \times 252{\cdot}6428}{27 \times 7,000} = 93{\cdot}57$ lbs. avoirdupois, or 655,000 Imperial grains, or 576,000 ancient grains.

Among the Grecians the unit was the talent, and was thus divided:—1 talent, 60 minæ; 1 mina, 100 drachmæ; 1 drachma, 6 obols.

The Babylonian talent appears also to have been divided into 60 minæ for monetary purposes, but the Hebrew talent is variously computed as divided into 50 or 60 minæ, probably according to whether it was of gold or silver, the golden double talent being 100 minæ and the silver talent 60 minæ, the single talent in either case being represented by $\frac{2}{3}$ cubit cubed of rain water.

We may then consider the ancient talent of 655,000 Imperial grains to have been divided as follows:—

	Mina.		Proportions.
	Imperial Grains.	Ancient Grains.	
For ordinary weights, 80 minæ	8,187·5[1]	7,200	15
For silver .. 60 „	10,916·6	9,600	20
For gold (single) 50 „	13,100	11,520	24
„ (double) 100 „			

giving respectively to the minæ proportions of 15, 20, and 24.

The following relative proportions of the Grecian talents are given by ancient writers and accepted in the articles in Smith's

[1] This is the Hebrew log, and corresponds to the pound in the Grecian and Roman systems. As will be seen subsequently, the early Grecian pound is two-thirds 8,187·5, or 5,458·3 Imperial grains.

"Biblical Dictionary" and "Dictionary of Greek and Roman Antiquities":—

(1) That the old Macedonian, Eginetan, or Babylonian talent bore to the Euboïc or old Attic talent the proportion of 6 : 5, and to the Solonian or newer Attic talent the proportion of 5 : 3.

(2) The Euboïc talent thus bore to the Solonian the proportion of 100 : 72, or 25 : 18.

Authorities also agree that there were 3,000 shekels to a silver talent. We shall thus have the following proportions[1]:—

—	Imperial Grains.			Ancient Grains.			Proportions.		
	Talent.	Mina.	—	—	Mina.	—			
Babylonian..	655,000	10,916·6	Shekel. 218·3 drachma	576,000	9,600	Shekel. 192 drachma	6	5	—
Eginetan ..	655,000	10,916·6	109·16	576,000	9,600	96	6	5	—
Euboïc ..	545,833	9,097·2	90·97	480,000	8,000	80	5	—	100
Solonian ..	393,000	6,550	65·5	345,000	5,760	57·6	—	3	72

It will thus appear that the ancient silver talent contained 3,000 shekels of 218·3 Imperial grains each, while the Eginetan talent contained 6,000 drachmæ of 109·16 Imperial grains each. The golden mina of 13,100 was also divided into 100 golden darics 131 Imperial grains each. We can now ascertain how far the weights of existing coins are in accordance with these deductions.

Hussey ("Ancient Weights and Money"), after many trials, gives the shekel of Simon Maccabæus as weighing 218 Imperial grains, or about half Roman ounce, and cites Arius Montana, Villanpandus, Greaves, Mersennus, and Eisenschmidt as giving the weight of the shekel as from 218 to 220 grains, and Barthelmy as giving it as 217 grains.

Madden ("Jewish Coinage") considers 220 to be the average weight of the Maccabæan shekel; in any case the difference is

[1] From these proportions it will be seen that the Eginetan talent contained 10,000 Solonian or Attic drachmæ, as stated by Pollux (ix, 76, 86).

only 1 per cent., and as there are just 3,000 shekels at 218 grains to an ancient silver talent, I have taken 218 grains as the ancient weight of the shekel.

By taking 220 grains to a shekel, Madden makes the weight of the silver talent some 5,000 grains heavier (660,000 instead of 655,000) than the weight deduced by me.

As to whether the shekel of the Maccabees was the same weight as that in use before the captivity we have no means of ascertaining, and the Talmudists seem to think it was increased in weight subsequently.

Modern authorities, however, seem to agree in supposing that the weight was the same, and the present deductions support that view.

Hussey gives 66·5 Imperial grains (from actual trials) for the new Attic drachma, and Greaves gives 67 Imperial grains, while the weight deduced from the ancient talent and proportion of 5 : 3 is 65·5 grains.

No drachmæ of the Euboïc standard appear to have been examined, but Hussey's deduced value is 92 grains, and Böckh's value is 93½ grains, while the weight now deduced is 91 grains. There appear to have been no comprehensive trials of the Eginetan coins except by Hussey, who made the weight of a drachma but 96 grains, whereas it should be 109 grains, but the writer of article "*Nummus*" in Smith's "Dictionary of Greek and Roman Antiquities" states that there are coins of the Eginetan system which come up nearly to the full theoretical weight.[1]

The table of weights from Nineveh (Layard's "Nineveh and Babylon"), some of which are in good preservation, gives several tests of the weight of the mina, and Madden considers that one of 15,984 Imperial grains is up to full weight, and represents two minæ of 7,992 grains. The weight deduced from the ancient cubit is 8,187·5, giving a difference of 188 grains, or nearly 2 per cent. This may be owing to a depreciated cubit having been in use at the time (700 to 800 years B.C.), or else to the weight not being up to the full standard.

Madden allows 60 of these weights to a talent, and thus deduced a *lighter* Babylonian talent of 479,520 Imperial grains. I venture to think that these weights belong to the commercial

[1] Namely, those of Melos and Byzantium, both Dorian settlements, and those of the Macedonian Kings before Alexander the Great.

weights of Babylon, 80 to a talent, and that they simply form portions of the talent of 655,000 Imperial grains.

Madden further, by taking 67·5 grains to an Attic drachma, arrives at a lighter Babylonian talent of 486,000 Imperial grains. It is, however, pointed out by the writer of "*Nummus*," Smith's "Dictionary of Greek and Roman Antiquities," that it was the *old* Attic or Euboïc mina of which there were 72 to a Babylonian talent. The weight of this mina was about 9,097·2 Imperial grains, which again gives 655,000 Imperial grains to a Babylonian talent. In consequence of the introduction of the lesser Babylonian talent by Madden, there is great discrepancy in the estimates as to the Greek talents given in Smith's "Greek and Roman Antiquities," and in Smith's "Biblical Dictionary." I have no doubt that the former is more correct.

At the rate of 50 golden minæ to a talent of 655,000 grains, and 100 golden darics to a mina, we have the weight of a daric as 131 Imperial grains. Madden gives the weight of the Persian daric as 129 Imperial grains, and others of 124 to 126 grains, and Mr. Borrell gives the weight of the double daric as about 256 grains.

XV.—Grecian, Roman, and other European Measures.

Although the weight of $\frac{2}{3}$ ancient cubit cubed in rain-water was used as a standard weight of a talent at a very early period, yet this measure does not seem to have been used as a standard of linear measure in early days as it was subsequently in Greece and Rome under the name of the foot. It apparently did not become a standard of linear measure until the length of the cubit was reduced.

The division of the $\frac{2}{3}$ cubic cubit into 80 parts (or logs) is very simple.

$\frac{2}{3}$ ancient cubic cubit is $4\frac{2}{3}$ palms cubed, whilst a log is $(1\frac{1}{12})^3$ palms.

$$(4\tfrac{2}{3})^3 : (1\tfrac{1}{12})^3 :: 80 : 1 \text{ nearly.}$$
$$175{,}616 : 2{,}197.$$

Giving a discrepancy of about $\frac{1}{1000}$.

The Roman cubic foot was divided into 80 pounds in the same manner, and from this coincidence, and the similarity which exists

between the Grecian and Roman and the ancient Babylonian measures of capacity, it has been considered that the former are derived from the latter. It will be shown subsequently that many of the original Grecian and Roman measures are identical with the Babylonian, and it is evident that there is no intimate connection between the binary system of Egypt and the measures of capacity of Rome and Greece.

There are $\left(2{,}048 \times \frac{10}{8}\right) = 2{,}560$ Egyptian hons in a double cubit cubed—

$\therefore$ 320 hons in a cubit cubed.

$\therefore$ 80 hons in (cubit $\div \sqrt[3]{4}$)^3 = 13 cubic inches cubed = 1 bushel.

$\therefore$ 10 hons = 1 gallon. (*See* Tables VI and IX.)

Thus it will be seen that 80 hons are less than $\frac{2}{3}$ cubit cubed.

The $\frac{2}{3}$ cubit cubed or cubic foot of Greece, Rome, and of Europe generally is about two-thirds the capacity of that of Babylon, and the question arises whether this is due to the gradual depreciation of the cubit of 20·6109 inches to about 18 inches, or to a deliberate change of unit for purposes of convenience.

No doubt the old system of working in palms had many inconveniences, and the new unit of 70,000 to a double cubit cubed could not be fairly brought into use generally so long as the standard of length remained a broken number of inches, viz., 20·6109. The change that was made was a very simple one, by which the new pound (80 to a cubic foot) became half the monetary mina of which there were 60 to an ancient cubic foot or talent, and by which the standard cubit of 20·6109 inches became 18 inches, and the double cubit became a yard or 36 inches.

This change consisted simply of reducing the content of the double cubit cubed by one-third, and using the side cube of this remaining bulk as the new standard of length.

It was discovered that 70,000 is nearly exactly $\frac{3}{2}$ (36)^3.

$$(36)^3 = 46{,}656{\cdot}0$$
$$\tfrac{1}{2}(36)^3 = 23{,}328{\cdot}0$$
$$69{,}984{\cdot}0$$

Difference, 14 in 70,000, or $\frac{1}{5000}$,
or if 70,041·6 is taken, then $\frac{1}{1000}$.

The result of this change is tabulated below:—

Double cubit. Content cubic inch.	Inches.		⅔ cubit cubed C.I.	C.I. in mina or pound.	Imperial grains.	Ancient grains.	—
	Cubit.	⅔ cubit.					
70,000	20·6109	13·7406	2,592	32·4	8,187·5	7,200	Commercial mina.
				43·2	10,916·6	9,600	Silver mina.
46,656	18·0	12·0	1,728	21·6	5,458	4,800	Pound.

It was M. Böckh ("Metrol. Untersuch") who first called attention to the ratio in saying "that the Babylonian cubic foot, standing as it does in the ratio of 3 : 2 to the Grecian cubic foot, weighs 60 Eginetan minæ (= 60 Babylonian minæ = 1 Babylonian talent) of rain-water" ("Class. Mus.," vol. i, p. 4). To this Mr. Grote in his review of Böckh's work objects that "his proofs of the ratio of 3 : 2 between the Babylonian and the Grecian foot will be found altogether defective." It may have been defective in application owing to an incorrect length of the ancient cubit being taken, but yet it was right in principle. The application, however (strange to say), is to the English and not to the Grecian foot as it is now taken, and if it was correct then the Grecian foot must have been of exactly 12 inches, equal to our English foot, or else the ratio was not perfect.

M. Böckh also proposed a ratio of 10 : 9 between the Eginetan and Roman pound which Grote considers altogether inadmissible, and even denies that (properly speaking) there is any such thing as an Eginetan pound, or that there is any fixed normal relation between Grecian weights and Grecian measures, either of length or capacity.

At p. 753 Smith's "Dictionary of Greek and Roman Antiquities," *Mensura*, there is the statement with regard to measures of capacity that "they were not derived by a definite process of calculation from the measures of length, but were originally nothing more than the names of different sized vessels of no very definite capacity, which, when the metrical system came to be definitively constituted, were brought into harmony, on the one hand with the measures of length and on the other hand with

those of weight." So far this has not been found to be the case, the process of calculation being very definite.

According to the testimony of ancient writers the Grecian foot bears to the Roman foot the proportion of 25 to 24; on the other hand there is also testimony that the contents of the cubic foot, Grecian and Roman, were in the proportion of 10 to 9. This could not have happened at the same time, and as the ancient method of comparison was by content we may assume that the proportions of bulk or weight were of an earlier period and were the original proportions.

Now the various proportions of the talents were :—

Babylonian : Euboïc :: 30 : 25.
Babylonian : Solonian :: 30 : 18.
Babylonian : Grecian :: 30 : 20.
∴ Grecian : Solonian :: 20 : 18 :: 10 : 9.

Hitherto it has been a moot question how the Roman standard has been arrived at; I now suggest that it was nothing more than the Solonian system originally, bearing to the Grecian the proportion of 9 : 10.

That the Grecian and Roman systems may subsequently have somewhat appreciated may be admitted, but I have to observe that the exact dimensions of either are still matters of consideration.

In Table X the comparison of the various talents with weights of minæ and pounds is given. The mina is that for silver and the pound is the commercial mina for ordinary weights, 80 to a cubic foot; they bear the proportion of 4 : 3.

The Egyptian talent seems to be derived from the fourth part of the cubit cubed, instead of the third part or cubic foot, and it seems probable that it was considered equivalent to the Euboïc talent, from which it differs as 27·45 : 27.

If we now take the early Roman system to be the same as the Solonian we arrive at the following deductions :—

The Roman amphora quadrantal, or cubic foot = 48 sextarii. But the Roman cubic foot is—

$$\frac{2}{3} \times \frac{9}{10} = \frac{3}{5} \text{ Babylonian} = 80 \text{ logs} \times \frac{3}{5}.$$

∴ the Roman cubic foot = 48 logs.
∴ the sextarius = the log.

Also the metrêtês = $1\frac{1}{2}$ amphora = 72 logs.
But the bath = 72 logs.
∴ the metrêtês = the bath.

It follows that the seah must equal the urna, and the hin equal 2 Attic choes.

The kor also would equal 10 metrêtês.

This is all in accordance with the statements of Josephus, as follow:—

"Ant." viii, 2, 9.. ..	Bath	= 72 xestæ.
	∴ Bath	= metrêtês.
"Ant." iii, 8, 3, and 9, 4..	Hin	= 2 Attic choes.
"Ant." ix, 4, 5	Seah	= $1\frac{1}{2}$ Italian modii.
		= Urna.
"Ant." xv, 9, 2	Kor	= 10 Attic medimni. (Metrêtês taken.)
"Ant." iii, 6, 6	Omer	= 7 Attic cotylæ. (Xestes taken.)
"Ant." xiv, 7, 1	Gold mina	= $2\frac{1}{2}$ Roman pounds.

$2\frac{1}{2}$ × 4,988 Imperial grains = 12,475
Golden mina 13,099

624 Difference, 5 per cent.

Epiphanius estimates the Hebrew talent at 125 Roman pounds—

12,475 × 50 = 623,750 grains to a talent.
655,000

32 Difference, 5 per cent.

Ancient Authorities.

Plutarch (Solon 15), on testimony of Androtion, "Solon made the mina of 100 drachmæ, which had formerly contained 73."

Actually 25 : 18.

Herodotus says Babylonian talent = 70 Euboïc minæ (iii, 89).

As 6 : 5 it really equals 72 Euboic minæ.

Pollux says the Babylonian talent contains 70 [old] Attic minæ and 7,000 Attic drachmæ (ix, 86).

Aelian (*l.c.*) said Babylonian talent contains 72 [old] Attic minæ.

Old Attic or Euboïc talent = 8,333⅓ Solonian drachmæ.
Euboïc mina = 138⅔ „ „
(138⅔ × 72) = 10,000 „ „

By decree B.C. 160 commercial mina = 138 drachmæ (of Solon). This decree raised the standard by adding 12 drachmæ to 138 and making it 150.

Mina = 150 drachmæ.
5 minæ = 6 minæ (old commercial).
Talent = 65 minæ commercial.

British Weights and Measures.

Linear.—It has been shown that the inch is almost exactly equivalent to $\frac{1}{70{,}000}$ double cubit cubed of the ancients, and that the foot and yard cubed are almost exactly two-thirds respectively of the $\frac{2}{3}$ cubit and double cubit cubed.

	Cubic inches.
The double cubit (41·2218 inches) cubed	= 70,045·6
$\frac{3}{2}$ of the yard (36 inches) cubed	= 69,984·0
	61·6 About $\frac{1}{1000}$.

But if 70,000 cubic inches is taken the difference is $\frac{1}{5000}$.

Square measure is evidently based on a cubit of 19·8 inches (*see* Table VII), but there seems no evidence as to whence this cubit is derived: it may be the parent of the Belgic foot (13·2 inches) which was used in England at one time ("Encyc. Brit.," W. and M.).

70,000 square inches = 264·6 inches square.
= 22·05 feet square.

(22 yards)^2⁄$_9$ = 69,696 square inches; 304 short of 70,000, about $\frac{1}{2}$ per cent.

$\frac{2}{3}$ of 70,000 square inches = 46,666 = (216·02)^2.
= 18 feet square.
= 6 yards square (within $\frac{1}{5000}$).

Six yards square corresponds to 9 Ἑξαπόδης equal to 324 Grecian square feet, but it does not correspond to English square measure.

The English pounds Troy and avoirdupois appear to have been derived from different sources.

The pound Troy would appear to have the same relation to the cubic foot as the Roman pound has to the Roman cubic foot, and thus to have been derived from the Babylonian measures; but there is a difference of about 6 per cent. between the pound Troy as it is and as it should be by the test of 80 to a cubic foot of water.

	Ancient grains.	Ancient grains in ounce.
The Babylonian commercial mina, or pound, is 8,187 Imperial grains ..	7,200	600
The English pound should be 5,458 Imperial grains	4,800	400
The English pound actually is 5,760 Imperial grains	5,060	421

The pound avoirdupois, from its division into 16, may be the direct descendant of the hon. There are 320 hons to a cubic cubit, and there are 320 lbs. avoirdupois to a comb or 4 bushels which equal a cubic cubit (*see* Table IX).

There are 80 pounds to a bushel. The hon weighs 6,913 grains Imperial, so that the pound avoirdupois exceeds it by 87 grains, or about 1 per cent. (*see* Tables IV and IX).

The Hebrew kor (= 10 baths) is exactly half an English cubic yard. If the contents of a cubic yard are shaped in the form of a sphere and a cylinder enclose it, and a cone be erected on the base of the cylinder with the same height, the cone will represent exactly a kor, the sphere will represent a cubic yard, and the cylinder will represent an Egyptian chest, and their proportions respectively will be 1, 2, and 3.

ERRATA.

Chapters I to XIII.

P. 236, line 13, *for* "1,150" *read* "1,140."
" " 17, *for* "901$\frac{5}{9}$" *read* "912·6."
" " 19, *for* "6" *read* "15."
" " 20, *for* "3 per 2,000" *read* "15 per 1,000."
P. 263, line 27, *for* "12 × 3·3" *read* "123·3."
" " 36, *for* "176" *read* "141·7."

TABLE VIII.—*Comparison of Greek and Roman Measures of Capacity with the Hebrew.*

—	Cotyla.	Sextarius.	Congius.	Urna.	Amphora.	Metrêtês.	Smith's "Dict. of Greek and Roman Antiquities." Roman foot of 11·65 inches.	Deduced from Roman foot of 11·65 inches. 80 lbs. to cubic foot.	Solonian measures, Early Roman and Grecian systems.	Hebrew Measures (*see* Table V).
							Cubic inches.	Cubic inches.	Cubic inches.	
Hemina or Cotyla	1						—	—	—	
Sextarius or Xestes	2	1					33·28	33·0	32·4	Log.
Congius or Chous	12	6	1				199·67	198·0	194·0	½ hin.
Semimodius or Hemekton ..	16	8	½				266·24	264·0	—	8 logs.
Modius or Ektos	32	16	⅓				532·48	528·0	—	16 logs.
Urna	48	24	4	1			798·53	792·0	777·7	Seah.
Amphora Quadrantal, or Roman foot cube.	96	48	8	2	1		1,597·06	1,581·1	1,555·5	⅗ ancient cubic foot.
Metrêtês	144	72	12	3	1½	1	2,396·1	2,376·0	2,333·3	Bath.
Medimnus	192	96	16	4	2	⅔	—	—	—	4 seahs.
Culeus	1,920	960	160	40	20	⅔	—	—	—	40 seahs.
One cubic yard	—	—	—	—	30	20	—	—	—	2 kor.
One Egyptian chest	—	—	—	—	45	30	—	—	—	3 kor.
Roman pound in grains (Imperial)	—	—	—	—	—	—	4,988*	4,988	4,913	

* Smith's Dictionary gives both 5,053·2 and 4,988, the latter is at the rate of 80 lbs. to cubic foot.
252·6428 Imperial grains to a cubic inch of rain water.

TABLE IX.—*Egyptian Measures of Capacity.*

——		Kat.	Uten.	Hon.	Tima.	Apit.	Ram.	Cubic Palms.	Cubic Inches.	Inches Cube.	Imperial Grains.	Weight in Imperial grains, Madden's "Jewish Coinage," p. 277.
—	Kat ..	1						·0214	·54		138·76	140
—	Ro ..	6½										
—	Uten ..	10	1					2·17	5·4		1,387·6	1,400
—	Hon ..	50	5	1				1·07	27·3	3	6,938·2	
—	Tima ..	100	10	2	1			2·14	54·7		13,876·4	
—	Honna ..	200	20	4	2			4·28	109·4			
Gallon ..	—	—	—	10	5			21·43	273·0	6½		
Del = Tovit	Apit ..	—	—	40	20	1		42·87	1,094·4	½ cubit.		
Bushel ..	—	—	—	80	40	2		85·75	2,188·8	13		
Strike ..	Ram ..	—	—	160	80	4	1	343·0	4,377·0			
Comb ..	—	—	—	320	160	8	2	343·0	8,755·0	cubit.		
Quarter ..	—	—	—	640	320	16	4	686·0	17,510·4	26		
Chest ..	—	—	—	2,560	1,280	64	16	2,744·0	70,041·6	2 cubits.		

TABLE X.—*Comparison of Weights.*

—	Ratio of content.	Cubit inches linear.	Foot inches linear.	Cubic foot, C.I.	Imperial Grains.			Cubic Inches.		Ancient Grains.		
					Talent or cubic foot.	Silver Mina.	Pound.	Mina.	Pound.	Talent or cubic foot.	Mina.	Pound.
Babylonian ..	30	20·6109	13·7406	2,592·5	655,000	10,916	8,187	43·2	32·4	576,000	9,600	7,200
Egyptian ..	—	—	—	2,197	555,056	9,250·9	6,938·2	36·6	27·45	488,166	8,135	6,101
Euboïc ..	25	19·36	12·926	2,160	545,833	9,095	6,821	36·0	27·0	480,000	8,000	6,000
Later Grecian	—	18·202	12·135	1,786	—	7,504	5,628	—	—	396,838·8	6,629	4,972
Early Grecian Modern English	20	18·0	12·0	1,728	436,666·6	7,277	5,458	28·8	21·6	384,000	6,400	4,800
Later Roman..	—	17·485	11·657	1,584	—	6,651·7	4,988·8	26·4	19·8	352,000	5,866	4,400
Early Roman.. Solonian ..	18	17·3787	11·5858	1,555·2	393,000	6,550	4,912	25·92	19·44	345,600	5,760	4,320
Euboïc (raised by decree).	—	19·92	13·28	2,347	—	9,885	—	—	—	—	—	—

TABLE XI.—*Comparison of Weights of Talents in Pounds Avoirdupois.* (*See* Table X.)

—	Now deduced.	Smith's "Dictionary of Greek and Roman Antiquities."	Smith's "Dictionary of Bible."	Madden.	"Handbook of Bible."	Variorum Bible, notes.
Hebrew gold and silver	93·57	—	94·28	94·28	166	130·0
Babylonian	93·57	95·00	—	68·50		108·0
						96·3
Egypt	78·99	—	—	60·00	—	—
Euboïc raised	84·89	88·00	85·42	85·42	—	—
Euboïc	77·97	79·00	79·84	79·89	—	—
Late Grecian	64·32	—	—	—	—	—
Early Grecian	62·36	—	61·4	64·4	—	—
Late Roman	56·92	57·77	—	—	—	—
Solonian and early Roman	56·14	57·00	57·9	57·9	—	—
Euboïc	—	—	55·2	55·2	—	—
Persian	—	—	—	57·08	—	—