MOHENJO-DARO AND THE INDUS CIVILIZATION

Being an official account of Archæological Excavations at Mohenjo-daro carried out by the Government of India between the years 1922 and 1927

Edited by

SIR JOHN MARSHALL, C.I.E., Litt.D., Ph.D., F.S.A., Hon. A.R.I.B.A.,
Hon. Fellow of King's College, Cambridge

Late Director-General of Archæology in India

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Volume II: Text. Chapters XX—XXXII
Appendices and Index

ARTHUR PROBSTHAIN

41 GREAT RUSSELL STREET, LONDON, W.C. 1

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Chapter XXIX

SYSTEM OF WEIGHTS AT MOHENJO-DARO[1]

AMONGST the objects excavated at both Mohenjo-daro and Harappā are a large number of small rectangular blocks, mostly of a tawny or light grey banded chert, but also of other hard rocks such as gneiss. In one or two cases their form is cylindrical, but for the most part it is cubical. The blocks are well finished and polished, and are generally in a good state of preservation. None bears any inscription or mark indicating a value (Pl. CXXX, 25, 26, and 34; Pl. CXXXI, 20–35).

The results obtained from weighing these blocks show conclusively that they are weights belonging to a definite system, which is given in Table I.

In endeavouring to arrive at the most probable value of the unit, the only assumption I have made is that no one particular weight is more accurate than the rest, and that the probable percentage of error is the same for all. The loss due to chipping or wear of the edges in the specimens selected can rarely exceed 3 parts in 1,000, and in most cases is much less; the error due to this is therefore negligible in comparison with the variation of the different specimens of the same weight, which may evidently amount to as much as 10 per cent, though the mean deviation in a group hardly ever exceeds 2 per cent.

The assumption made by some metrologists that any given heavy weight, which happens to be in a good state of preservation and which, artistically speaking, has been made with care, can be taken as an accurate standard and that other weights can be derived from it as submultiples, is one which presupposes a knowledge of modern scientific method which is not justified by the evidence, particularly in the earlier periods.

The hypothesis of Ridgeway—a very reasonable one—that originally weighing was restricted to the more precious objects which would be bartered in small quantity, would lead us to expect the smaller weights to be the more accurate, and the evidence adduced in the tables shows much the same percentage consistency throughout the whole scale. The method of arriving at the most probable value of the unit was as follows: a casual inspection of the weights[2] showed that, with a few exceptions which were omitted, the weights fell into a series of groups which were in simple numerical ratios with one another. Giving the smallest the arbitrary value of unity, the others are in simple ratios, 2, 4, 8, etc. The mean weight of each group is divided by this ratio and multiplied by the number of specimens. The products for all the groups are added together and divided by the total number of specimens. This gives a mean value for the group of smallest weight in which every specimen weighed is allowed equal importance. The mean values for all the other groups are then obtained by multiplying

[1] In the Annual Report of the Archæological Department for 1925–6, p. 92, Mr. Mackay stated that a large range of weights had been examined by the Archæological Chemist with the object of ascertaining whether in their ratios they agree with the metrological systems of other parts of the Ancient East. I should like to take this opportunity of explaining that it was Mr. Hemmy and not the Archæological Chemist who was the first to work out the system of these weights at Mohenjo-daro.—[Ed.]

[2] The lists of weights are given at pp. 596–8. See also pp. 461–4.

this mean value by the ratio already found. In this way we arrive at the calculated values shown in column (7) in Table I.

Table I.—Weights at Mohenjo-daro

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation.	No. of specimens.	Mean weight observed.	Mean deviation.	Limits.	Ratio.	Calculated value.	Difference between Cols. 3 and 7.	Remarks.
N	1	1375 gm.	—	—	1600	1370 gm.	5	
L	2	272·95	2·25	270·70–275·20	320	273·92	—·97	One weight in Class L is a corrected value.
K	1	174·5	—	—	200	171·2	3·3	
J	6	135·97	·88	134·59–137·81	160	136·96	—.99	
H	6	54·21	·26	53·81– 54·50	64	54·78	—·57	
G	26	27·29	·24	26·85– 29·00	32	27·39	—·10	
F	32	13·79	·26	13·49– 14·90	16	13·70	·09	= 211·4 g.t.[1]
E	22	6·82	·09	6·31– 7·27	8	6·85	—·03	
D	9	3·40	·03	3·24– 3·51	4	3·42	—·02	—
C	9	2·28	·04	2·24– 2·33	$\frac{1}{3} \times 8$	2·28	·00	—
B	5	1·77	·06	1·69– 1·86	2	1·71	·06	—
A	1	·87	—	—	1	·856	·01	—

Out of a total of 120 weights selected for their good condition, only seven do not fall into the above table, and curiously enough these form another series, although the number is too small to base any important deduction upon it, *vide* Table IV.

The weights found at Harappā were treated in the same way, and the results are shown in Table II.

Table II.—Weights at Harappā

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation.	No. of specimens.	Mean weight observed.	Mean deviation.	Limits.	Ratio.	Calculated value.	Difference between Cols. 3 and 7.	Remarks.
N	1	1375 gm.	—	—	1600	1376 gm.	— 1	M and N are corrected values.
M	1	546·7	—	—	640	550·4	— 3·7	
L	0	—	—	—	—	—	—	—
K	0	—	—	—	—	—	—	—
J	1	135·86	—	—	160	137·60	— 1·74	—
H	1	54·32	—	—	64	55·04	— ·72	—
G	13	27·55	·46	26·79–28·64	32	27·52	·03	—
F	9	13·86	·25	13·62–14·94	16	13·76	·10	—
E	4	6·84	·10	6·65– 6·98	8	6·88	— ·04	—
D	3	3·44	·04	3·39– 3·49	4	3·44	·00	—
B	1	1·70	—	—	2	1·72	— .02	—

[1] To avoid the confusion often found between the abbreviations for grams and grains, gm. is used for grams and g.t. for grains troy.

The above table represents thirty-four out of thirty-nine selected weights. The exceptions will be considered later.

This table shows an exactly similar series of weights to the former, and the mean value for unit weight *A* is ·860, which is practically identical with the value ·856 found for the unit weighc at Mohenjo-daro. There is, therefore, no local variation between the weights in the two places, although 500 miles apart. We may, therefore, combine the results in the two tables and obtain Table III.

TABLE III.—WEIGHTS FOUND AT BOTH MOHENJO-DARO AND HARAPPĀ

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation.	No. of specimens.	Mean weight observed.	Mean deviation.	Limits.	Ratio.	Calculated value.	Difference between Cols. 3 and 7.	Remarks.
N	2	1375 gm.	—	1375	1600	1371 gm.	4	
M	1	546·7	—	—	640	548·5	— 1·8	
L	2	272·9	2·25	270·7 –275·2	320	274·2	— 1·3	
K	1	174·5	—	—	200	171·4	3·1	—
J	7	135·95	·77	134·59–137·81	160	137·1	— 1·1	—
H	7	54·23	·23	53·81–54·50	64	54·84	— ·61	—
G	39	27·38	·33	26·79–29·00	32	27·42	— ·04	—
F	41	13·81	·26	13·37– 14·94	16	13·71	·10	= 211·5 g.t.
E	26	6·82	·09	6·31– 7·27	8	6·86	— ·04	= 105·8 g.t.
D	12	3·41	·06	3·24– 3·51	4	3·43	— ·02	—
C	2	2·28	·04	2·24– 2·33	$\frac{1}{3}\times8$	2·28	·00	= 35·3 g.t.
B	6	1·76	·06	1·69– 1·86	2	1·71	·05	—
A	1	·87	—	—	1	·857	·01	= 13·2 g.t.

In the above table are represented 147 out of 159 specimens which were considered in good enough condition to furnish reliable weights. Only three have been corrected, and these were large weights, the original form of which could readily be calculated from their dimensions.

The sequence of ratios is striking. Omitting group C, it runs as follows :—

1, 2, 4, 8, 16, 32, 64, 160, 200, 320, 640, 1,600.

There is not a sign here of the sexagesimal system ; all the ratios are binary or decimal (with the exception of the two weights in group C, which weigh one-third of those in group E).

There are certain exceptional weights found in both places. It appears more than a coincidence that the seven found at Mohenjo-daro should be themselves in the simple ratios 1, 2, 3, 4, 24, 48 (*vide* Table IV), but the number of specimens is too small to build much upon.

TABLE IV.—EXCEPTIONAL WEIGHTS AT MOHENJO-DARO

(1)	(2)	(3)	(4)	(5)	(6)
Designation.	No. of specimens.	Mean value observed.	Ratio.	Label.	Remarks.
U	1	47·30	48	DK 3176	—
T	1	24·50	24	DK 1411	—
S	2	3·92	4	VS 3058 DK 220	= 3·90 gms. = 3·93 gms.
R	1	3·03	3	DK 3183	(3·92 gm. = 60·6 g.t.)
Q	1	2·07	2	DK 2106	—
P	1	·98	1	VS 332	—

At Harappā No. 266, weighing 49·73 gm. was made of gneiss, but though the faces were in a state of high polish, the edges were rounded. It is probably a worn member of Group H. No. 1,184, weighing 3·96, is slightly chipped and, therefore, should weigh slightly above 4. It cannot, therefore, belong to Group D, but appears to be a member of Group S in Table IV. No. 3,556, weighing 3·12 gm., is of gneiss, and has its edges rounded. This is probably due to wear, and this weight probably belongs to Group D. B (*g*) 23, weighing 1·255, made of chert, is in excellent condition. It cannot be placed with any group.

A comparison was made with the weights found at different times and places in Iraq and at Susa.

Comparison with the Babylonian system.

The best collection of data available was that in the Memoir of M. Soutzo, in vol. xii of the *Délégation en Perse*. For a just comparison it was desirable to make an analysis of these weights in the same manner as above described. Weights described as being broken or in poor condition were omitted, whilst those of doubtful attribution or definitely aberrant are considered separately.

The weights belonging to the Babylonian light *mina* system are considered together in Table V ; in Table VI are given those definitely marked as belonging to the Assyrian heavy *mina* system, and in Table VII those found at Susa which belong to the Babylonian system. As some of the smaller weights did not appear to be weighed to the nearest decigram, weights less than half a shekel were not taken into account in calculating the mean value of the unit from all the weights.

Table V.—Light Babylonian System

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation.	No. of specimens.	Mean weight observed.	Mean deviation.	Limits.	Ratio.	Calculated value.	Difference between Cols. 3 and 7.	Remarks.
Talent	1	29680	—	—	28800	30240	— 560	Weights in grams.
30 Minas	1	14975	—	—	14400	15120	— 145	—
	2	2466	44	2422–2511	2400	2520	— 54	—
	1	1492	—	—	1440	1512	— 20	—
	4	970	13	946–995	960	1008	— 38	—
Mina	3	486	16	468–510	480	504	— 18	—
	6	246	2	240–248	240	252	— 6	—
	5	170	4	164–175	160	168	2	—
	6	82·8	1·5	80·2–85·5	80	84·0	— 1·2	—
	7	41·8	0·9	40–43·7	40	42·0	— ·2	—
	4	16·91	·44	16·45–17·70	16	16·80	·11	—
Shekel	11	8·31	·26	8–9	8	8·40	— ·09	= 129·6 g.t.
	16	4·37	·21	4–4·80	4	4·20	·17	—
	5	2·15	·10	2–2·30	2	2·10	·05	—
⅛ Shekel	4	·96	·09	·80–1·10	1	1·05	— ·09	—

Mean value of Shekel = 8·40 gms. = 129·6 g.t.

Table VI.—Heavy Assyrian System

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation.	No. of specimens.	Mean weight observed.	Mean deviation.	Limits.	Ratio.	Calculated value.	Difference between Cols. 3 and 7.	Remarks.
Talent.	1	60303	—	—	7200	60106	197	—
15 Minas	1	14933	—	—	1800	15026	— 93	—
5 "	1	5043	—	—	600	5009	34	—
3 "	1	2865	—	—	360	3005	— 140	—
2 "	2	1962	30	1931–1992	240	2004	— 42	—
1 Mina	3	990	31	955–1037	120	1002	— 12	—
$\frac{2}{3}$ Minas	1	666	—	—	80	668	— 2	—
$\frac{1}{4}$ Mina	1	237	—	—	30	250	— 13	—
$\frac{1}{5}$ "	1	198	—	—	24	200	— 2	—
$\frac{1}{6}$ "	1	178	—	—	20	167	11	—
$\frac{1}{8}$ "	1	128	—	—	15	125	3	—
3 Shekels	1	52·4	—	—	6	50·1	2·3	—
2 "	1	36	—	—	4	33·4	2·6	—

Mean half large Shekel = 8·35 gm. = 128·89 g.t.

Table VII.—Weights on Babylonian System found at Susa

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation.	No. of specimens.	Mean weight observed.	Mean deviation.	Limits.	Ratio.	Calculated value.	Difference between Cols. 3 and 7.	Remarks.
	1	10045	—	—	9600	10044	1	—
	3	4969	36	4985–5007	4800	5022	— 53	—
	2	2496	27	2469–2523	2400	2511	— 15	—
	1	2020	—	—	1920	2009	11	—
	2	1007	14	994 –1021	960	1004	3	—
Mina .	6	504	6	495–519	480	502	2	—
	3	420	10	405–429	400	418	2	—
	3	342	4	335–345	320	335	7	—
	6	257	2	252–260	240	251	6	—
	9	165	5	158–176	160	167	— 2	—
	2	122	2	121–124	120	126	— 4	—
	12	82·4	2·7	76–86	80	83·7	— 1·3	—
	8	41·3	·8	39–43	40	41·8	— ·5	—
	2	33·5	·5	33–34	32	33·5	·00	—
	8	17·26	·46	16·50–18	16	16·74	·52	—
Shekel .	20	8·45	·32	8–9	8	8·37	·08	= 129·2 g.t.
Double small Mina	5	5·50	·10	5·25–5·75	$\frac{2}{3} \times 8$	5·58	— ·08	—
Half shekel .	9	4·19	·17	3·80–4·50	4	4·18	·01	—
Small Mina .	6	2·77	·16	2·40–3·10	$\frac{1}{3} \times 8$	2·79	— ·02	—
	1	2	—	—	2	2·09	— ·09	—
	3	·95	·07	·85–1	1	1·05	— ·10	—

Calculated from the mean of all weights not less than a half shekel, the shekel = 8·37 gms. = 129·2 g.t.

It is clear that there is no special local variation in the shekel at Susa and that it is identical with that found in Iraq. Combining the results of Tables V, VI, and VII, we arrive at the result that the Babylonian shekel 8·38 gm. = 129·3 g.t. Comparing column (5) in Table III with the corresponding columns in these tables, we see that there is no overlapping anywhere except that one value of the ⅛th shekel at Susa, ·85, and one from Iraq, ·80, are less than the smallest weight, ·87, found at Mohenjo-daro, whilst Class C on the Mohenjo-daro system more or less overlaps the quarter shekel. The same succession of ratios from 1 to 32 of the actual weights used in the systems is worthy of note.

There are also certain approximations between the aberrant Indus Valley weights and those on the Babylonian system. These are shown in Table VIII.

TABLE VIII.—APPROXIMATIONS OF INDUS VALLEY WEIGHTS TO THE BABYLONIAN SYSTEM

Babylonian System.				Corresponding Indus Valley Weight.			
Locality. (1)	Cat. No. (2)	Weight. (3)	Attribution by Soutzo. (4)	Group. (5)	Cat. No. (6)	Mean wt. (7)	Limits. (8)
Hillah . .	— L.	·95	⅛ Shekel marked 22½	P	VS 332	·98	—
Niffer . .	959 C.	1·10	⅛ Shekel	—	—	—	—
„ . .	— C.	1	„	—	—	—	—
Susa . . .	55	1	„	—	—	—	—
„ . . .	12860	1	„	—	—	—	—
„ . . .	51	2	¼ Shekel	Q	DK 2106	2·07	—
—	— B.M.	2	„	—	—	—	—
Susa . . .	12994	2·90	Small Mina	R	DK 3183	3·03	—
„ . . .	50	3·10	—	—	—	—	—
Many weights	from 3·80	to 4·10	½ Shekel	S	DK 220	3·93	—
Niffer . .	— C.	2·30	¾ Shekel	C	—	2·28	2·24–2·33
„ . .	— C.	2·20	„	—	—	—	—
„ . .	— B.M.	2·19	„	—	—	—	—

The locality of discovery is given where stated, also the catalogue number in the Museum where the specimen is kept. (L = Louvre, C = Constantinople Museum, B.M. = British Museum.)

The weights of doubtful attribution or definitely aberrant found at Susa as well as in various places in Iraq have been tabulated by M. Soutzo. Omitting those which are stated to be damaged or in bad condition, we observe in the list fifty-three exceptional weights, of which thirty-two come from Susa. Quite a number of these approximate to weights found in the Indus Valley, and Table IX gives a list of these approximations. No Indian weight corresponding to the last item has actually been found, but, as the double of N would form a reasonable part of the system, it has been included.

TABLE IX.—APPROXIMATIONS OF ABERRANT WEIGHTS FOUND IN IRAQ AND SUSA TO INDUS VALLEY WEIGHTS

Iraq and Susa.				Indus Valley.			
Locality.	Cat. No.	Weight.	Attribution by Soutzo.	Group.	Cat. No.	Mean Weight.	Limits.
—	— C.	·80	⅛ Shekel	A	DK 140	·87	—
Susa . . .	12859	·85	„	—	—	—	—
Niffer . .	959 C.	1·25	—	—	B (*g*) 23	1·255	—
„ . .	959 C.	1·70	—	B	—	1·76	1·69–1·86
Susa . . .	54	1·60	—	—	—	—	—
„ . . .	12827	3·50	—	D	—	3·41	3·24–3·51
Sippara . .	982 C.	3·45	—	—	—	—	—
Niffer . .	959 C.	3·45	—	—	—	—	—
—	— Berl.	3·36	—	—	—	—	—
Susa . . .	56	6·80	Shekel (?)	E	—	6·82	6·31–7·27
„ . . .	42	12·40	2 Shekels (?)	F	—	13·81	13·37–14·94
„ . . .	14209	12·25	„	—	—	—	—
„ . . .	40	12·70	„	—	—	—	—
„ . . .	14206	13·20	„	—	—	—	—
„ . . .	32	13	„	—	—	—	—
Niffer . .	959 C.	14·70	—	—	—	—	—
Susa . . .	28	29	—	G	—	27·38	26·79–29·0
Saida . .	1988 C.	47	5 Shekels (?)	U	DK 3176	47·30	—
Susa . . .	37	138·7	1 Mina (?)	J	—	135·9	134·6–137·8
—	91437 B.M.	268	2 Mina (?)	L	—	272·9	270·7–275·2
Susa . . .	1	272	„	—	—	—	—
„ . . .	10	271	„	—	—	—	—
„ . . .	7895	538	Mina (?)	M	421	546·7	—
„ . . .	13820	2769	5 Minas (?)	2 N	—	(2750)	—

We have here twenty-four, or omitting the two which coincide with aberrant Indian weights, twenty-two reasonably close coincidences of aberrant Babylonian weights (of which fourteen come from Susa) with the weights of the Indus Valley system. It may be noted that the greatest number of coincidences, six, and these nearly all from Susa, are with Group F, which is the group of which the greatest number of specimens have been collected. Nevertheless, I do not attach a great deal of importance to these coincidences. The proportional variation of weights in Susa and Iraq is much greater than at Mohenjo-daro, whilst the shapes are characteristically different. Those found in the west are either duckshaped or ellipsoidal, whilst those from India are all rectangular blocks.

It is a matter of interest to endeavour to discover whether the Indus Valley system of weights can be connected up with any particular grain.

It has been clearly shown, as in Ridgeway's *Origin of Currency and Weight Standards*, that the Babylonian system is based on the grain of wheat. The weight (= ·95 gm.) found at Hillah, marked 22½ grains, gives a value for the grain = ·042, but the fact that it is marked with a fraction shows that it has been derived from a higher multiple and that it is intended to be one-eighth of a shekel. This gives 180 grains to the shekel, a likely enough ratio on the sexagesimal system, and taking the 1–180th part of the mean value of the shekel, we arrive at the value ·047 for the grain, which is practically the same as that of the wheat grain, ·048 gm., which is three-quarters of the barley corn or grain troy, ·064 gm.

Starting from the mean value of Group E (= 6·86 gm.), we may divide by various round numbers which may seem likely or possible. The results are as follows :—

Dividing by	256,	dividend	= ·027
"	200,	"	= ·034
"	180,	"	= ·038
"	150,	"	= ·046
"	128,	"	= ·054
"	100,	"	= ·069
"	80,	"	= ·086
"	60,	"	= ·114

The values given in Ridgeway's book for various grains used in weighing are as follows :

Rice grain	= ·036
Wheat	= ·048
Barley	= ·064
Ratti	= ·113

The coincidence between the ratti and the dividend by 60 is tempting, but as there is no evidence in favour of a sexagesimal system, I am more inclined to prefer the relation between the rice grain and the dividend by 200.

Conclusion.

A system of weights has been therefore discovered which is identical in Mohenjo-daro and Harappā. These weights are with hardly an exception uniform in shape, a rectangular block, cubical in the smaller sizes, and in the great majority of cases of the same material—a hard chert. They are well finished with polished faces and occasionally with bevelled edges. They are made with much greater accuracy and consistency than those of Susa and Iraq.

The system is binary in the smaller weights and then decimal, the succession of weights being in the ratios 1, 2, $\frac{1}{3} \times 8$, 4, 8, 16, 32, 64, 160, 200, 320, 640, 1,600. There is no evidence of a sexagesimal system, but between 1 and 32 we find a similar succession of ratios at Susa. The most frequently discovered weight, of ratio 16, has a mean value 13·71 gm. = 211·5 g.t., which shows no relation to the Babylonian shekel or its double.[1]

No inscription nor mark of value has been found on any of the weights. It is therefore probable (unless marks were originally painted on) that commercial transactions took place between classes of people who were completely ignorant of reading and writing.

Appendix I.—Weights at Mohenjo-daro

Cat. No.	Weight.	Designation, etc.	Cat. No.	Weight.	Designation, etc.
HR 4479	1375 gm.	N.	HR 4536	136·5	J.
HR 2390	266·06		DK 1227	135·38	Limits
	corner knocked off.		HR 636	135·28	134·59–137·81
	Corrected to		HR 19	134·59	Cylindrical.
	275·20	L.	DK 316	136·25	
VS 2678	270·7		DK 835	137·81	
DK 1910	267·55		DK 272	53·81	H.
	Slightly chipped		DK 1636	54·01	Limits
	omitted.		HR 4350	54·50	53·81–54·50
VS 35	174·5	K.	HR 4292	54·45	

[1] Sir Flinders Petrie has pointed out that this value comes within the range of the *beqa*. Egyptian weights of various designations, however, can be found of almost any value between 7·5 gm. and 14·25 gm., so that equality with one or another is more likely than not to occur; but the fact that the *beqa* is one of the earliest Egyptian weights may give some significance to the coincidence.

Cat. No.	Weight.	Designation, etc.
HR 4612	54·05	H.
HR 4621	54·45	
DK 3176	47·30	U.
DK 2767	27·21	G.
DK 1007	27·22	Limits
VS 2986	27·12	26·85–29·00
DK 1934	26·93	
DK 183	26·85	
HR 340	26·88	
HR 1683	27·50	
HR 2708	27·10	
VS 3493	27·30	
HR 154	27·29	
HR 4535	27·05	
VS 3451	27·25	
HR 2045	26·92	
HR 2207	27·30	
HR 5563	27·75	
HR 4941	27·45	
L 648	29·00	
VS 3267	27·40	
HR 5608	27·10	
VS 3184	27·10	
HR 5654	27·22	
VS 1006	27·35	
VS 1740	27·85	
VS 1879	27·15	
VS 1148	27·05	
VS 2172	27·25	
DK 1411	24·50	T.
Unmarked	13·54	F.
HR 2356	13·67	Limits
HR 2636	13·58	13·37–14·90
HR 2046	13·62	
C 3262	13·79	
DK 1269	13·62	
DK 1572	13·70	
DK 739	13·50	
DK 197	13·60	
DK 1207	13·64	
DK 2793	13·61	
DK 1872	13·91	
DK 2250	13·69	
DK 813	14·59	
DK 2012	13·67	
DK 909	13·49	
HS 975	13·59	
HR 4477	14·35	
HR 4460	13·95	
HR 5608	13·70	
HR 4388	13·62	
HR 4579	13·60	
HR 5602	14·41	
HR 3799	13·65	F.
L 208	13·37	
VS 1737	14·46	
VS 2083	13·62	
VS 2615	13·78	
VS 2074	13·85	
VS 2577	14·90	
VS 2281	13·70	
VS 1799	13·62	
VS 2879	6·87	E.
DK 1439	6·85	Limits
DK 529	6·83	6·31–7·27
DK 1643	6·82	
HR 2502	6·79	
HR 3873	6·92	
DK 643	6·80	
DK 535	6·31	
DK 326	6·73	
DK 1211	6·84	
HR 5800	6·76	
HR 3049	6·78	
HR 4499	6·83	
HR 3713	6·91	
HR 2852	6·89	
VS 3465	6·84	
HR 4445	6·87	
HR 5602	6·66	
VS 1281	7·27	
DK 1730	6·77	
VS 2259	6·76	
VS	6·87	
DK 220	3·93	S.
VS 3058	3·90	
DK 1428	3·44	D.
DK 232	3·24	Limits
DK 787	3·39	3·24–3·51
HR 2191	3·44	
HR 4284	3·43	
HR 3587	3·38	
HR 3029	3·30	
VS 2270	3·48	
VS 929	3·51	
HR 3183	3·03	R.
HR 4331	2·33	C.
HR 3079	3·24	
DK 2106	2·07	Q.
HR 3906	1·86	B.
HR 1872	1·81	Limits
VS 340	1·69	1·69–1·86
VS 2734	1·70	
VS 3495	1·79	
VS 332	0·98	P.
DK 140	0·87	A.

Appendix II.—List of Weights from Harappā

Cat. No.	Weight.	Designation, etc.	Cat. No.	Weight.	Designation, etc.
1642 [1]	1261 gm.	Poor condition.	3561	27·43	G. Gneiss.
	Corrected to	Cherty lime-	525	26·79	Grey slate, fair.
	1375	stone. N.	120	25·31	? Grey slate, fair.
421 [1]	492	Limestone; worn	1074	13·87	F. Chert.
	Corrected to	at edges only.	874	13·67	
	546·7	M.	120	13·62	
771	135·86	J. Chert; corners,	120	13·71	
		slightly	1173	13·81	
		chipped.	120	13·90	
771	54·32	H. Chert; corners	278	14·94	
		good.	1575	13·64	
266	49·73	? Gneiss; edges	185	13·62	Brown steatite.
		worn.	B (*g*) 22	6·90	E. Chert.
3663	28·21	G. Chert.	817	6·65	
1356	27·28	"	2585	6·82	
1356	27·68	"	2928	6·98	
855	27·30	"	1184	3·96	S. Chert, chipped.
2550	27·35	"	1708	3·49	D. Chert.
B (*g*) 14	28·62	"	120	3·39	
A (*f*) 284	27·40	"	A (*e*) 155	3·43	Steatite.
A (*e*) 155	27·06	"	3556	3·12	? Gneiss, edges
A 757	27·01	Gneiss.			rounded.
854	27·33	Chert.	3831	1·70	B. Chert.
645	28·64	"	B (*g*) 23	1·255	? Chert, good.

A number of objects of different shapes were weighed, but furnished no evidence of being weights. One (No. 78), however, may be mentioned as a possible exception. It was of sugar-loaf form, carefully shaped, with two round holes pierced near the top and meeting in the middle, through which a rope could be reeved or the weight lifted by the fingers. The material was grey limestone and the weight was 7,900 gms, which bears no obvious relation to the system worked out above. It was found at Nāl, in Balūchistān.

[1] Recalculated from density determination and measurement of dimensions.