

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/373522666>

Corpus of Indus Inscriptions

Book · July 2022

CITATIONS

0

READS

1,722

1 author:



[Andreas Fuls](#)

Technische Universität Berlin

23 PUBLICATIONS 39 CITATIONS

SEE PROFILE

Corpus of Indus Inscriptions



Andreas Fuls

Corpus of Indus Inscriptions

MATHEMATICA EPIGRAPHICA

No. 3

Editor

Andreas Fuls



Corpus of Indus Inscriptions

Andreas Fuls

Berlin 2022

Fuls, Andreas:

Corpus of Indus Inscriptions/Andreas Fuls.- Berlin: Self-publishing (Mathematica
Epigraphica, No. 3), 2022

ISBN: 978-1-671-80486-9

Independently published

Copyright © 2022 by Andreas Fuls, Berlin (Germany)

All rights preserved.

ISBN: 978-1-671-80486-9

Contents

Forword	1
1 Corpus of inscribed Indus artefacts	3
1.1 Inscribed Indus artefacts	5
1.2 The length of Indus texts	6
1.3 Temporal distribution of inscribed artefacts	10
1.4 Spatial distribution of inscribed artefacts	14
2 Introduction to Indus writing	16
2.1 How many Indus signs are there?	16
2.2 Reading direction	16
2.3 The ICIT database	18
2.4 Type of writing system	20
2.5 Indus sign list	21
3 Inscriptions	25
3.1 Alamgirpur	28
3.2 Allahdino	28
3.3 Altyn Depe	29
3.4 Amri	29
3.5 Bakkar Buthi	30
3.6 Bala-kot	30
3.7 Banawali	31
3.8 Baror	33
3.9 Bhirrana	33
3.10 Chandigarh	34
3.11 Chanhujo-daro	34
3.12 Daimabad	41
3.13 Derawar Ther	41
3.14 Desalpur	41
3.15 Dholavira	42
3.16 Failaka	58
3.17 Farmana	59
3.18 Ganweriwala	59
3.19 Gharo Bhira	60
3.20 Girsu	60

3.21	Gola Dhoru (Bagasra)	60
3.22	Gonur Depe	61
3.23	Guddal A	61
3.24	Gumla	61
3.25	Hajar	62
3.26	Harappa	62
3.27	Hissam-dheri	256
3.28	Hulas	257
3.29	Janabiyah	257
3.30	Jhukar	257
3.31	Kalibangan	258
3.32	Kanmer	273
3.33	Karanpura	274
3.34	Karzakan	274
3.35	Khirsara	274
3.36	Kish	275
3.37	Kot-Diji	275
3.38	Lakhanjo-daro	276
3.39	Lohumjo-daro	278
3.40	Lothal	278
3.41	Luristan	293
3.42	Miri Qalat	293
3.43	Mohenjo-daro	294
3.44	Naru-Waro-dharo	436
3.45	Nausharo	436
3.46	Nindowari-damb	439
3.47	Nippur	440
3.48	Nuhato	440
3.49	Pabumath	441
3.50	Pirak	441
3.51	Qala'at Al-Bahrain	441
3.52	Ra's Al-Junayz	441
3.53	Rahman-deri	442
3.54	Rajanpur	442
3.55	Rakhigarhi	443
3.56	Rappwala Ther	443
3.57	Rodji	444
3.58	Rupar	444
3.59	Saar	445
3.60	Salut	445
3.61	Shikarpur	445
3.62	Shortughai	446
3.63	Sibri	446
3.64	Surkotada	446
3.65	Susa	447
3.66	Tarkhanewala-dera	447

3.67 Tell Umma	448
3.68 Tello	448
3.69 Tepe Yahya	448
3.70 Tigrana	449
3.71 Unknown	449
3.72 Ur	451
3.73 Wattoowala	451
Index of ICIT artefacts	452
Index of CISI numbers	477
Index of excavation numbers	500
Index of M77 text numbers	548
Bibliography	569

List of Figures

1.1	Text length histogram of all texts	6
1.2	Text length histogram of all sealing, graffiti and painting on pottery	8
1.3	Text length histogram of sealing, graffiti and painting on pottery (dedpued) . .	8
1.4	Text length histogram of all texts on tablets	9
1.5	Text length histogram of deduped texts on tablets	9
1.6	Text length histogram of texts on seals and tags	10
1.7	Text length histogram of all texts corrected for multi-line texts	11
1.8	Temporal distribution of artefacts at Mohenjo-daro, DK.G area	12
1.9	Temporal distribution of artefacts at Harappa	13
1.10	Spatial distribution of inscribed artefacts	15
3.1	Regions with Indus inscriptions	25

List of Tables

1.1	Development of the Indus corpus	4
1.2	Number of inscribed sides on artefacts	6
1.3	Frequency distribution of text lengths	7
2.1	Reading direction on seals	17
2.2	Examples of boustrophedon reading direction on square seals	18
2.3	Reading direction on tablets	19
2.4	Identical or parallel text passages on multi-sided tablets	19
2.5	Statistics of reading directions	20
2.6	Sign list part 1	22
2.7	Sign list part 2	23
2.8	Sign list part 3	24

Forword

This volume is part of a series dedicated to the analysis of Indus writing. In 2008 an online epigraphic database of Indus inscriptions (ICIT) was developed in cooperation with Dr. Bryan K. Wells. At the same time new mathematical methods and tools were developed in order to analyse the statistical and positional behaviour of Indus signs, to map the spatial distributions of signs and inscribed artefacts, and to define sets of signs with similar positional behaviour.

The first volume called *Corpus of Indus Inscriptions* lists all Indus inscriptions that are currently available and presents the temporal as well as spatial distribution of inscribed artefacts. The inscriptions are indexed in the volume by their identifier in the ICIT database, the CISI number or the excavation number.

The second volume called *A Catalog of Indus Signs* presents a description of each sign, its frequency and positional behaviour. All sign occurrences on inscribed artefacts are listed in the volume with reference to sign sequences on inscribed artefacts in the volume *Corpus of Indus Inscriptions*. Here separate sections focus on discussing the type of the Indus writing system, the 'core' signs at different sites and on various artefact types, as well as the expected number of new signs that may be discovered in the future. The book presents a new method of positional sign analysis that accounts for different text lengths and makes it possible to classify Indus signs according to their positions within texts.

The two volumes can be used concurrently, since the same sign numbers and text identifiers refer to each other. They represent the most up-to-date corpus of Indus inscriptions.

Acknowledgments

The present book contains a most complete collection of inscriptions of the Indus culture, which was first started about 30 years ago by Dr. Bryan K. Wells when he was writing his Master's thesis at the University of Calgary and later continued in the context of his doctorate at Harvard University. Since 2009, the resulting database of Indus texts has been continuously expanded in our joint cooperation and made available to the public as an online database. I am also very grateful to Dr. Wells for our discussions in the course of which a lot of details in the inscriptions were clarified and elaborated. Without his preliminary work and his invaluable suggestions, the present work would not have been possible.

All inscriptions and the encoding of the signs have been checked on the basis of photographs. I would like to express special thanks to Prof. Dr. Asko Parpola, Dr. Dennys Frenez, Prof. Dr. Farzand Masih and Dr. Hansmukh Seth for supporting this work by giving me access to the relevant materials.

With numerous inscriptions and associated metadata, it was next to impossible that errors should not creep in from time to time. Many of these inconsistencies in the database have been discovered through the careful eye of database users, especially Pallavee Gokhale and Prof. Dr. Rama Viswanathan. I would like to thank them most warmly for their suggestions and corrections.

A concordance of the inscriptions in the ICIT database with the texts in the Mahadevan corpus (IDF80) has been achieved in collaboration with Prof. Dr. Rama Viswanathan (see Appendix 'Index of M77 text numbers'). Thus, it is now possible to compare both text corpora, for which I am very grateful.

I would also like to thank Irina Poljakova for reviewing the manuscript and making linguistic corrections, so that I hope the reader will find this book a comprehensible introduction to the writing system of the Indus culture.

Chapter 1

Corpus of inscribed Indus artefacts

The analysis and understanding of an ancient writing system requires a complete corpus of inscriptions. It is the basis for creating a sign list and for any further research of the writing system and its imbedded language. In the case of the Indus script, the first excavations at Harappa and at Mohenjo-daro discovered thousands of artefacts. Many of them are inscribed with an unknown writing system. Further excavations at Mohenjo-daro, Harappa and other sites such as Kalibangan, Lothal, Dholavira, etc. brought still more inscriptions to light (Figure 3.1). They constitute the corpus of Indus texts.

About nine years after the start of the excavations at Mohenjo-daro by Mr. Banerji in December 1922, the first systematically excavated inscriptions were published by Marshall (1931), together with the first sign list by Langdon (1931) based on 541 photos of seals and their impressions. The size of Langdon's corpus was about 566 texts with estimated 2500 signs in total. This may be considered the starting point for the compilation of a corpus of Indus culture inscriptions. Further corpora by Meriggi (1934) and Hunter (1934) with 750 and 760 inscribed objects, respectively, followed, differing mainly in the number of identified signs (Table 1.1).

The first comprehensive corpus ever published was the one by Mahadevan (1977). It included 2906 inscribed objects with 3548 lines of text (not counting the number of lines in the corpus with iconography but without a text). At the time of its publication Mahadevan's corpus of inscriptions was a major step forward in Indus research. There are, however, a few drawbacks in this corpus such as the wrong or misleading typology of artefacts and the merging of graphically similar but structurally distinct signs into one sign, which reduces the number of distinct signs in the sign list to only 417. Five new texts with two new signs were added shortly before the publication of the corpus, therefore this sign list has 419 signs written on 2911 inscribed objects with 3554 lines of text (Mahadevan, 1977, p. 19, 24–25).¹ In 1980 the M77 corpus was updated improving the category of field symbols, which resulted in the digital IDF80 corpus. The Roja Muthiah Research Library in Chennai, India made the IDF80 corpus available as a web application since 2021.

Shortly afterwards another corpus of Indus texts was published by Koskeniemi and Parpola (1979, 1982). They make use of an even shorter sign list of 386 signs based on about 3700 legible inscriptions. Unfortunately, their corpus is not available in a digital format.

Parpola collected a photographic corpus of seals and inscribed artefacts that was published

¹There is a disagreement in the number of lines in the printed corpus by Mahadevan (1977), who lists 5473 lines, and his digital corpus IDF80 of 3554 lines (Ansumali Mukhopadhyay, 2019).

Table 1.1: Development of the Indus corpus. The number of sign variants refers to the number of additional graphemes (allographs).

Publication or author	Year	Inscribed artefacts	Texts	Total number of signs	Sign list
Langdon	1931	541	c. 566	c. 2500	288 signs
Meriggi	1934	750	-	-	270 signs
Hunter	1934	760	885	-	234 signs
Mahadevan (M77/IDF80)	1977-1980	2911	3579	14163 (13383 legible signs)	419 signs with 459 variants
Parpola (Pairs Concordance)	1973	3204	2942	14616	396 signs
Parpola	1982	3265	c. 3700	-	394 signs with 281 variants
Fairservis	1992	c. 4000	-	-	419 signs
Wells (ICIT)	1999	2153	2301	10004	610 signs with 218 variants
Wells (ICIT)	2011	3835	3898	17423	676 signs
Wells (ICIT)	2015	3903	4794	17650	694 signs
Fuls (ICIT)	2020	4351	5318	19115 (17358 legible signs)	702 signs
Fuls (ICIT)	2022	4660	5644	19831 (17957 legible signs)	709 signs

in four volumes (Joshi and Parpola, 1987; Shah and Parpola, 1991; Parpola et al., 2010, 2019). The photographic corpus shows 3964 artefacts with at least one text and is used as a standard reference in the literature on Indus writing. Two additional volumes (CISI 3.3 and 3.4) are planned to be published in 2022 (Parpola, pers. com. 2021).

Another corpus of Indus inscriptions has been developed since 1998 by Bryan Wells. It is based on the photographic corpus (CISI volume 1 and 2) and a new methodology, which enables him to create his own sign list and coding system eliminating the shortcomings of previously published corpora (Wells, 1998, 2006, 2011). It resulted in the Interactive Corpus of Indus Texts (ICIT). Since 2009 the ICIT has been available to the public as an online database with various tools to analyse Indus sign sequences (Fuls, 2010).² The ICIT currently in use is based on an updated sign list from Wells (2015) with 709 signs (last update May 2022, version 2.8). At present a total of 4660 inscribed artefacts and 5644 texts with 17957 legible signs are stored in the ICIT database.

There is also an Extended Corpus of Indus Texts (ECIT) containing additional information of about 888 artefacts with iconography but without any text. It is connected with the ICIT database to analyse all iconographic elements shown on seals and tablets of the Indus culture.

Inscriptions of unknown provenience are a special problem for any text corpus. In addition, possibly fake inscriptions should not be included in any corpus. A red flag indicating (modern) fabrication of a sign sequence occurs when the sequence is directly copied from a photograph

²The ICIT is online since October 2009: <https://www.epigraphica.de/>

of the seal, ignoring the requirement that the actual sign sequence must be read from the seal impression. The so-called 'Kabul manuscript' is an example of this kind (Fuls, 2012), since signs are copied from the CISI photos of seals and the copyist of the 'Kabul manuscript' mistakenly used the mirror image for his copy on birch bark paper.

Other cases subject to criticism are incised copper plates from a private collection (Shinde and Willis, 2014) having too many signs that have never appeared before on any other Indus artefact. Whereas the use of a few new signs is quite possible, for example, during the input of 1148 new texts from the HARP expedition into the ICIT database, the frequent occurrence of many new signs contradicts epigraphic experience and the logarithmic decrease of new signs while the corpus size increases (Fuls, 2022, Chapter 2.4). Since one cannot be sure that these inscriptions are originals, they have been excluded from the ICIT corpus.

1.1 Inscribed Indus artefacts

About 82% of the inscribed artefacts are complete. Some of the artefacts are partly damaged or slightly chipped (0.7%). The rest of them are either fragments (16%) or chipped artefacts (0.5%).

Artefacts are classified according to Wells (2011, p.3). The typology of inscribed artefacts includes miniature tablets (TAB), pot sherds or ceramic vessels (POT), intaglio carved seals (SEAL), clay objects with impressions of intaglio seals (TAG), bangles (BNGL), cylindrical shaped artefacts of any material (ROD), implements or tools (IMPL), beads (BEAD), medallions (MDLN), and finally, artefact types not included in the other categories (MISC).

Some categories of the above mentioned are divided into smaller classes. Miniature tablets have three subtypes: bas-relief tablets (TAB:B), incised tablets (TAB:I), and cooper tablets (TAB:C). Seals are distinguished by their shape: square seals (SEAL:S), rectangular seals (SEAL:R), circular seals (SEAL:C), oval seals (SEAL:O), cylindrical seals (SEAL:CY), lenticular seals (SEAL:L), and others (SEAL:Ot). Fragments of seals that cannot be assigned to one of the subtypes are labelled as SEAL. Pot sherds or ceramic vessels with any text (POT:T) are distinguished from those with drawings (POT:D) and with potter's marks (POT:M). Pottery with text is still further subdivided depending on the fabrication of the text: seal impression (POT:T:s), graffiti (POT:T:g), and painting (POT:T:p). Depending on the type of clay sealing we can distinguish between palm sealing (TAG:P), cube sealing (TAG:C), pot rim sealing (TAG:R), the sealing on textile or reed (TAG:L), wooden strips or poles (TAG:W), sealing on box (TAG:B), and others (TAG:Ot).

The number of inscribed sides on the artefact varies from one to five (Table 1.2). Square seals (SEAL:S) inscribed on one side of the artefact are most frequent (36.6% of all inscribed artefacts). There are, however, square seals with a secondary text along the small edges of the seal and/or on the boss. Therefore, these square seals have more than one inscribed side. Most of the rectangular seals (SEAL:R) are also inscribed on one side, with a few exceptions when a text can also be found on the reverse side.

The majority of bas-relief tablets (TAB:B) and incised tablets (TAB:I) have the text on two sides. Many other tablets have the text only on one side and iconography on the other side. There are also some tablets with three sides (triangular prisms) and four sides (cubic or rectangular bars). They are not, however, necessarily inscribed on all sides. Some of them also have iconographic elements, either on a separate side or next to the inscription.

The condition of texts varies from poor to fine. There are 3016 texts in poor condition with

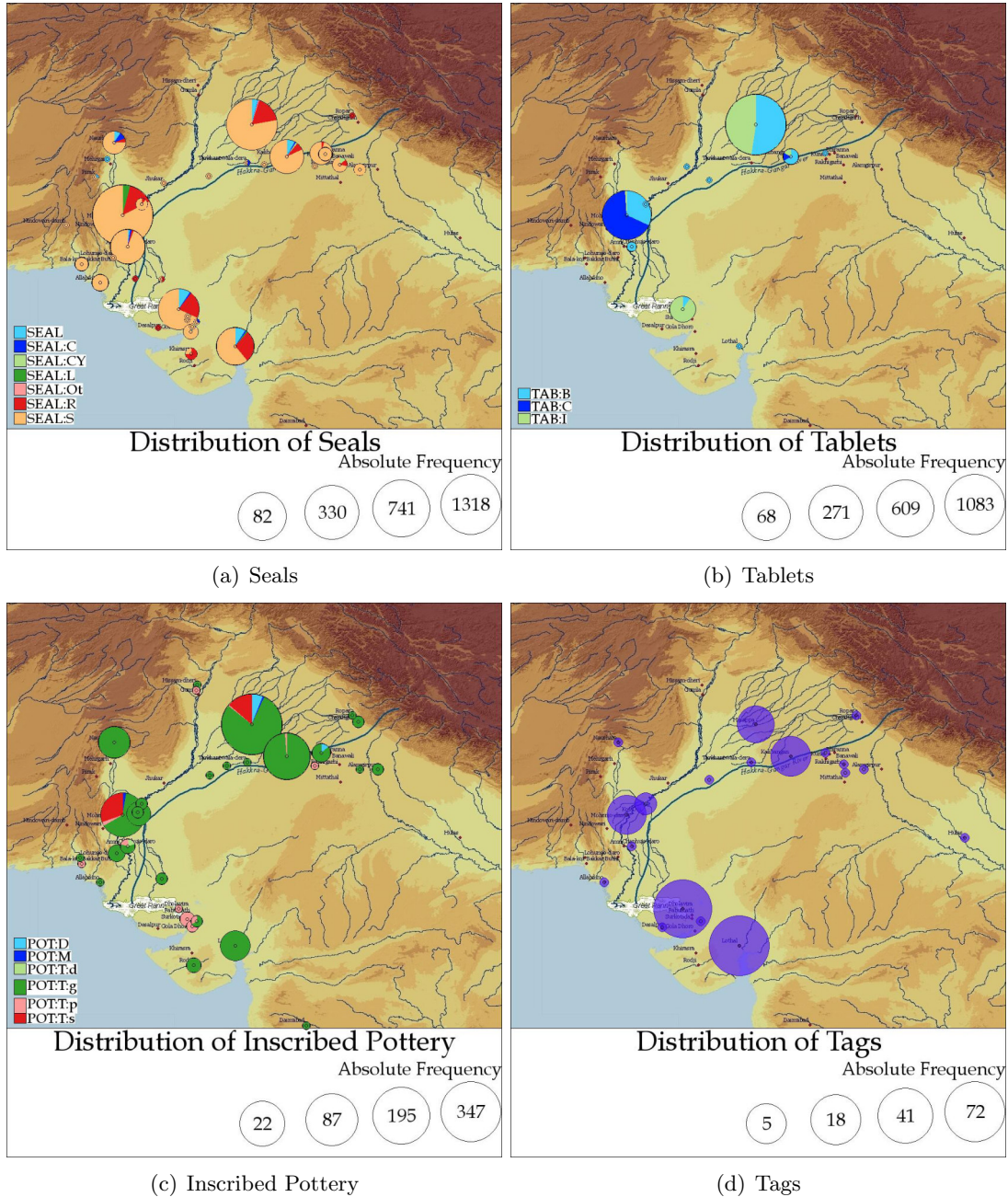


Figure 1.10: Spatial distribution of inscribed artefacts. The frequency at each site is shown by the size of the circle where the size depends on a logarithmic scale.

Chapter 2

Introduction to Indus writing

2.1 How many Indus signs are there?

Since the excavations in Harappa and Mohenjo-daro (Mackay (1998); Marshall (1931); Vats (1940)) Indus signs have been tabulated and distinguished by graphic features (graphemes). This resulted in the sign lists published by Mahadevan (1977) (419 signs) and Parpola (1994) (386 signs), as well as by Hunter (1934); Meriggi (1934); Fairservis (1992); Rao (1982); Dani (1963). The question remains: Which are distinct signs and which are allographs with the same meaning? The identification of allographs is a time consuming task involving the search of sign replacement patterns and requiring a large corpus of texts. This can be done by structural analysis developed by Forrer (1932) and applied by Wells (2006, pp. 67–93) to create a detailed sign list that has nowadays been extended to 709 signs. For those who believe that the Indus sign list should be as short as possible, Wells’ sign list looks like a step backwards. But as long as allographs cannot be distinguished from graphically similar but distinct signs, this is the surest way to move forward, especially for low frequency signs. In the future, however, I intend to reduce the sign list step by step, analysing the behaviour of signs in order to identify allographs and graphic variants.

The research presented here is based on an updated sign list from Wells (1998, 2006, 2011, 2015) with 709 signs (last update May 2022). Inscriptions are stored in the ICIT database (Interactive Corpus of Indus Texts) with a total of 4660 inscribed artefacts. Since some artefacts are inscribed on more than one side there are in total 5644 texts and 19831 sign occurrences. 3657 texts are complete with 13672 sign occurrences.

2.2 Reading direction

The reading direction of Indus texts is mostly from right to left (about 87% of the texts have a known reading direction) as indicated by blank space, squeezed signs on the left side of inscriptions, or incised signs on pottery overlapping the previous sign located on the right. Besides, the number of signs at the right side of texts is more randomly distributed than at the left side indicating a reading direction from right to left (Ashraf and Sinha, 2018). But there are exceptions. About 215 texts should be read from left to right, 16 texts from top to bottom, and 10 texts should be read boustrophedon.

While the reading order of sign sequences can be directly copied from tablets, the texts on seals should be obtained from the seal impression (Table 2.1). Finally, in the database

Table 2.5: Statistics of reading directions.

Reading direction	Texts	Lines	Sign occurrences	Legible signs
Right to left	4235	4328	17030	15737
Left to right	215	216	661	617
Top to bottom	16	18	51	45
Boustrophedon	10	15	74	72
Single sign text line	376	377	385	376
Symmetrical sign sequence	8	8	18	18
Unknown, doubtful	784	807	1612	1092
Sum	5644	5769	19831	17957

- Search through the text corpus.
- Comparison of the ICIT with the IDF80 corpus by Mahadevan.
- Sign cluster analysis through the corpus of Indus text.
- Mapping the spatial distribution of signs, texts, iconographic elements, and artefacts.
- Statistical analysis of texts, artefacts, and iconographic elements.

In addition to inscribed artefacts there are 888 artefacts only with iconography but without a text that are also stored in the database. The purpose of this extension is to provide a complete analysis not only of inscriptions but also of the iconography depicted on seals, tablets, etc. with the help of some of the same statistical tools that are used for inscribed artefacts.

2.4 Type of writing system

The primary concern is to classify the type of the Indus writing system. The number of distinct signs is a first indication of how to discriminate between alphabets, syllabic and logographic writing systems. Different sign lists have been proposed, ranging from only 62 signs (Rao, 1982) up to 694 signs (Wells, 2015). The sign list by Mahadevan (1977) with 419 signs and that by Parpola (1994) with 386 signs falls within this range. The question is: which graphemes are distinct signs and which are allographs? Because of the low frequency of many signs the question often remains unanswered, since a detailed structural analysis of each sign requires an adequate sample size. Therefore, we need to keep graphemes separate as long as they cannot be identified with certainty as sign variants (allographs), thus receiving a preliminary sign list of about 709 signs.

Most scholars agree that Indus writing is a mixed logographic-syllabic writing system, which can be confirmed by comparing the sign frequency distribution of Indus writing with that of known writing systems. To estimate the percentage of syllables and logograms in a sign list, the sign frequency distribution should be compared to known writing systems (Fuls, 2015a,b). The analysis shows that about 19% to 22% of all Indus signs in the sign list are syllables, whereas 78% to 81% are logograms. In the corpus, however, the ratio of syllables to logograms is less certain and may vary between 71% and 77% phonetic signs in the whole corpus of Indus inscriptions (see Chapter 4.5 in *A Catalog of Indus Signs*, Fuls (2022)).

The structural analysis leads to an average word length of about 1.7 signs for Indus writing (Fuls, 2015a, p. 138). This topic will be discussed in more detail in a separate volume dealing with the analysis of Multivariate Segmentation trees of Indus inscriptions.

2.5 Indus sign list














































































































































































































The sign list is based on the previous epigraphic analysis by Wells (1998, 2011, 2015). At present it contains 709 different signs (Tables 2.6–2.8). They are encoded as a three-digit number. Sign numbers range from 001 to 958, but not all sign numbers are used. There are gaps in the numbering of signs for further extension of the sign list. A complete description of the Indus sign list currently in use is given in *A Catalog of Indus Signs* (Fuls, 2022).

The corpus totals 19831 sign occurrences, although 1874 of them are eroded or not identifiable. Illegible signs are encoded as 000.

Some texts contain blank spaces between signs. These spaces are encoded as 999, for example at the graffiti on the pottery of H-2265 (ID 605). There are in total 14 spaces encoded in the corpus, 13 found on pottery (POT:T:g) and one on a miscellaneous artefact type (K-472, ID 5503).

The next chapter contains all available inscriptions sorted by the name of the site. Within each section of a site, inscriptions are ordered by artefact types and by the ID of the artefact.

Table 2.8: Sign list part 3

 703	 704	 705	 706	 707	 708	 709	 710	 711	 712	 713	 714	 715	 716
 717	 718	 719	 720	 721	 722	 723	 725	 727	 728	 729	 731	 732	 733
 734	 735	 736	 740	 741	 742	 743	 744	 745	 746	 747	 748	 749	 750
 751	 752	 753	 760	 761	 762	 763	 764	 765	 766	 767	 768	 770	 772
 773	 775	 776	 777	 778	 780	 781	 782	 783	 784	 785	 786	 790	 791
 792	 793	 794	 795	 796	 797	 798	 799	 801	 803	 804	 805	 806	 807
 808	 809	 810	 811	 812	 813	 814	 815	 816	 817	 818	 820	 821	 822
 823	 824	 825	 826	 827	 828	 829	 830	 831	 832	 833	 834	 835	 836
 837	 838	 839	 840	 841	 842	 843	 844	 845	 849	 850	 851	 852	 853
 854	 855	 856	 857	 858	 859	 860	 861	 862	 863	 864	 865	 866	 868
 869	 870	 871	 872	 874	 875	 876	 877	 878	 879	 880	 890	 891	 892
 893	 894	 895	 896	 897	 898	 899	 900	 901	 902	 903	 904	 905	 906
 907	 908	 909	 910	 911	 912	 913	 914	 918	 919	 920	 921	 922	 923
 924	 925	 926	 927	 928	 930	 931	 932	 933	 940	 942	 943	 944	 945
 946	 947	 950	 951	 952	 953	 956	 957	 958					

Chapter 3

Inscriptions

This chapter includes all currently known Indus inscriptions. The inscriptions are arranged in sections according to the site in alphabetic order. For each site additional information such as the region and the geographic coordinates is given.

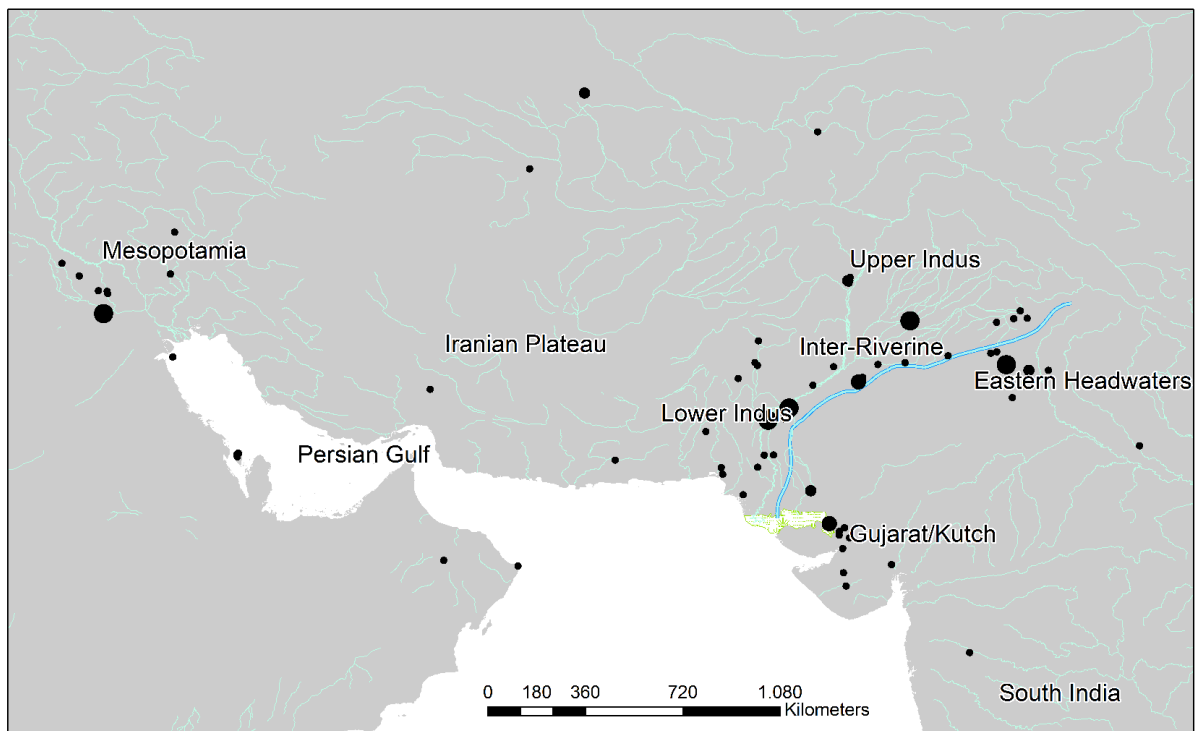


Figure 3.1: Regions with find spots of Indus inscriptions. Find spots are classified by circle size according to the size of the site from small settlements to large cities.

Each region includes the following sites.

Eastern Headwaters: Alamgirpur, Banawali, Bhirrana, Chandigarh, Farmana, Hulas, Rakhi-garhi, Rupar.

Gujarat/Kutch: Desalpur, Dholavira, Gola Dhoru (Bagasra), Kanmer, Khirsara, Kuntasi, Lothal, Pabumath, Rodji, Surkotada.

Inter-Riverine: Baror, Derawar Ther, Ganweriwala, Guddal A, Harappa, Kalibangan, Karanpura, Rajanpur, Rappwala Ther, Tarkhanewala-dera, Tigrana, Wattoowala.

Iranian Plateau: Miri Qalat, Sibri, Tepe Yahya.

Lower Indus: Allahdino, Amri, Bakkar Buthi, Bala-kot, Chanhujodaro, Gharo Bhiro, Jhukar, Kot-Diji, Lakhanjodaro, Lohumjodaro, Mohenjodaro, Naru-Warodharo, Nausharo, Nindowari-damb, Nuhato, Pirak.

Mesopotamia: Girsu, Kish, Luristan, Nippur, Susa, Tell Umma, Tello, Ur.

Persian Gulf: Failaka, Hajar, Janabiyah, Karzakan, Qala'at al-Bahrain, Ra's al-Junayz, Saar, Salut.

South India: Daimabad.

Upper Indus: Gumla, Hissam-dheri, Rehman-deri.

other: Altin Tepe, Gonur Depe, Shortughai, and unknown provenience.

Within one section the inscriptions are ordered firstly by the type of artefact and then by the ID of the artefact. Each table of inscriptions shows the following information.


ID: Identifier of the ICIT database.


CISI: Identifier used in the photographic corpus of Indus inscriptions published by Joshi and Parpola (1987); Shah and Parpola (1991); Parpola et al. (2010, 2019).


Type: Type of artefact as defined by Wells (2011), see also page 5.

Dir.: Direction of reading on the original artefact (Chapter 2.2). In the list of inscriptions all sign sequences are arranged in the same way to be read from right to left.

Cpl.: Completeness of text (Y: yes, N: no, ?: unknown). Texts are either complete with all signs readable or incomplete if at least one sign cannot be identified. In the case of fragmentary artefacts with signs on the edge of artefacts and with the danger of missing signs, the text completeness is labelled as unknown.

Symbol: Symbol according to Wells (2011). If there was no symbol it is labeled as 'None'. When there was a symbol which cannot be identified it is labelled as '?'.


Cult: Cult object according to Wells (2011). If there was no cult object it is labelled as 'None'. When there was a cult object which cannot be identified it is labelled as '?'.


Text: List of sign graphs (Tables 2.6-2.8). Eroded and illegible signs: .

Code: List of sign codes according to the sign list (Chapter 2.5). Eroded and illegible signs are encoded as 000 and blank space between signs is encoded as 999. Complete texts start and end with a plus sign ('+') on both sides. The plus sign is replaced by square brackets when it is doubtful whether the left ('[') or the right (']') end of a sign sequence is complete or not due to erosion or whether it is written on a fragment.

Some artefacts have more than one line of text on the same side. In this case the lines are shown below each other as, for example, in ID 2832 (M-314) which is a square seal with three separate texts.

Many texts are written on a fragment or the surface of the artefact may be partly eroded. In these cases, we cannot be sure if the text is complete or not and the uncertainty of completeness is indicated by '?' (column Cpl.). To indicate which part of a sign sequence might have once continued, a square bracket is used, '[' at the left end and ']' at the right end of the sequence. For example, the text on the rectangular seal ID 1562 (H-647) is recorded as]368-632-706-140+ and, therefore, shows that the text is complete at the right end (beginning with sign 140), but the text may have continued after the leftmost recognizable sign (sign 368), since the seal is a fragment. It is also possible that the text on a fragment may have been continued on both ends, for example on ID 1528 (H-578) with only two signs legible from a middle part of a longer text:]742-060[.

There are also many artefacts, especially tablets, with inscriptions on more than one side. These inscriptions are listed as separate texts, for example ID 222 (H-1354) with different texts on three sides of the four-sided tablet from Harappa.

At the end of the book one index of ICIT ID's and one of CISI numbers is given. They can be used for a quick text search. The ICIT ID is a unique identifier also used in the volume *A Catalog of Indus Signs* and provides linking sign numbers to their occurrences in texts. The CISI number can be used to refer to the photo of artefacts, see Joshi and Parpola (1987); Shah and Parpola (1991); Parpola et al. (2010, 2019).




Another index lists the excavation numbers (as well as plate numbers from previous publications).

The final index correlates the inscriptions from Mahadevan (1977) with texts of the ICIT database. The text numbers in the corpus by Mahadevan frequently occurs in former publications, therefore, the index allows one to find these texts in the ICIT corpus by means of the ICIT ID's.

3.1 Alamgirpur

Region: Eastern Headwaters



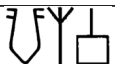


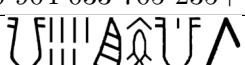
Longitude: 77°28', Latitude: 28°59'








ID	CISI Type	Dir. Cpl.	Symbol Cult	Text Code
1	Agr-1 POT:T:g	L/R Y	None None	 +410-017+
2	Agr-2 POT:T:g	L/R Y	None None	 +410-017+
3	Agr-3 POT:T:g	L/R Y	None None	 +405-017+

3.2 Allahdino

Region: Lower Indus

Longitude: 67°18', Latitude: 24°51'


ID	CISI Type	Dir. Cpl.	Symbol Cult	Text Code
4	- POT:T:g	- N	None None	 +220-000+
5	- TAG	R/L Y	Bull -	 +740-235+
6	Ad-1 SEAL:S	R/L Y	Bull1 -	 +740-390-590+
7	Ad-2 SEAL:S	R/L Y	Bull1:J SAN	 +368-390-125-033+
8	Ad-3 SEAL:S	R/L Y	Bull1:II SAN	 +740-904-033-705-235+
9	Ad-4 SEAL:S	R/L Y	Bull1:II SAN	 +740-017-495-235-741-066+
continue next page				

ID	CISI Type	Dir. Cpl.	Symbol Cult	Text Code
10	Ad-5 SEAL:S	R/L Y	Bull1 SAN	 +156-460-510+
11	Ad-6 SEAL:S	R/L Y	Rhin Trough	 +072-170-740-840-013+
12	Ad-7 SEAL:S	R/L N	None None	 +000-388-000+  +740-142-000+
13	Ad-8 MISC	R/L N	Elep SAN	 +740-440-503-002-861-000+
14	Ad-9 POT:T:g	- N	None None	]000-004-455+
15	Ad-11 MISC	- N	None None	]000-415+

3.3 Altyn Depe

Region: Other


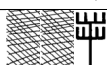



Longitude: 60°12', Latitude: 35°41'

ID	CISI Type	Dir. Cpl.	Symbol Cult	Text Code
16	- SEAL:S	L/R Y	None None	 +390-415+

3.4 Amri

Region: Lower Indus


Longitude: 67°55', Latitude: 25°54'

ID	CISI Type	Dir. Cpl.	Symbol Cult	Text Code
17	Ai-7 POT:T:g	L/R Y	None None	 +390-034+
5412	- POT:T:g	R/L N	- -	]000-000-416[
5413	- POT:T:g	R/L ?	- -	 +515-849[
5414	Ai-1 POT:T:g	NR Y	- -	 +515+
5415	Ai-2 POT:T:g	NR Y	- -	 +480+

3.5 Bakkar Buthi

Region: Lower Indus


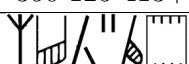
Longitude: 66°34', Latitude: 25°45'




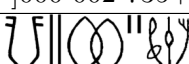
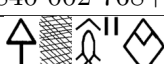
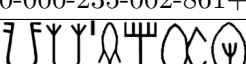

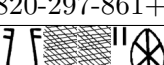
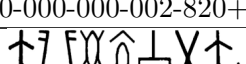
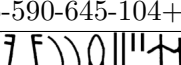

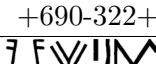


ID	CISI Type	Dir. Cpl.	Symbol Cult	Text Code
18	- POT:T:g	R/L Y	None None	 +405-844-032-840-002-861+




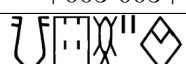
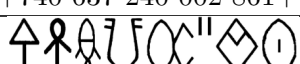
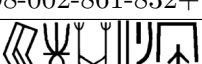
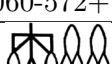
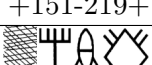
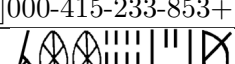
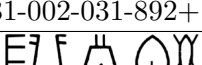
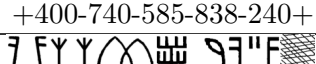
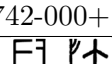
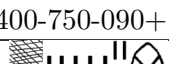
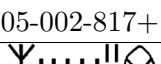
3.6 Bala-kot

Region: Lower Indus

Longitude: 66°37', Latitude: 25°31'

ID	CISI Type	Dir. Cpl.	Symbol Cult	Text Code
19	Blk-1 SEAL:S	R/L Y	Bull1 -	 +226-003-002-297-350-125-413+
20	Blk-2 SEAL:S	R/L Y	Bull1 R	 +390-717-061-002-368-634+
continue next page				

ID	CISI Type	Dir. Cpl.	Symbol Cult	Text Code
2372	M-1740 SEAL:S	R/L Y	Bull1:S SAN	 +151-061+
2373	M-1695 SEAL:S	R/L Y	Bull1:J SAN	 +740-337-484-031-060-891+
2374	M-1733 SEAL:S	- N	Bull1:S SAN	]000-002-735+
2375	M-1759 SEAL:S	R/L Y	Bull1:S SAN	 +740-032-840-002-768+
2376	M-1842 SEAL:S	R/L N	Bull1 RBF	 +520-000-235-002-861+
2377	M-707 SEAL:S	R/L Y	Bull1:W SAN	 +740-760-001-220-415-798-803+
2378	M-1701 SEAL:S	R/L Y	Bull1:W SAN	 +820-297-861+
2379	M-1960 SEAL:R	R/L N	None None	 +740-000-000-002-820+
2380	M-2026 TAB:B	R/L Y	Cros None	 +090-740-240-235-590-645-104+
2381	M-1686 SEAL:S	R/L Y	Bull1:W SAN	 +740-904-220-032-002-142+
2382	M-2040 TAB:I	R/L Y	None None	 +690-322+
2382	M-2040 TAB:I	R/L Y	None None	 +740-690-060-550+
2383	M-2083 BNGL	NR Y	None None	 +840+
2384	M-1918 SEAL:S	R/L N	Scene S621	 +390-090-000[
continue next page				

ID	CISI Type	Dir. Cpl.	Symbol Cult	Text Code
2385	M-1715 SEAL:S	R/L Y	Bull1:J RAF	 +740-923-033-705-060-692+
2386	M-1729 SEAL:S	R/L Y	Bull1:W SAN	 +390-003-002-820+
2387	M-1904 SEAL:S	SYM Y	Goat S390	 +003-003+
2388	- SEAL:S	R/L Y	Bull1:S RAN	 +740-637-240-002-861+
2389	M-1681 SEAL:S	R/L Y	Bull1:W SAN	 +520-072-233-740-798-002-861-832+
2390	M-1707 SEAL:S	R/L Y	Bull1:I RAN	 +298-350-761-032-060-572+
2391	M-1837 SEAL:S	R/L Y	Bull1 RAN	 +151-219+
2392	M-1876 SEAL:S	- N	Gaur Trough	]000-415-233-853+
2393	M-1745 SEAL:S	R/L Y	Bull1:L SAN	 +368-821-055-031-002-031-892+
2394	M-2106 ROD	R/L Y	None None	 +400-740-585-838-240+
2395	M-1663 SEAL:S	R/L N	Bull1 -	 +740-760-840-416-175-742-000+
2396	M-1921 SEAL	- Y	None None	 +400-750-090+
2397	M-1927 SEAL:S	R/L N	Mult None	]000-005-002-817+
2397	M-1927 SEAL:S	R/L Y	Mult None	 +390-005-002-817+
				continue next page

Index of ICIT Artefacts

The index of the IDs referring to the ICIT database (Interactive Corpus of Indus Texts).

ID 1, 28	ID 36, 32	ID 71, 36	ID 105, 39
ID 2, 28	ID 37, 32	ID 72, 36	ID 106, 39
ID 3, 28	ID 38, 32	ID 73, 36	ID 107, 39
ID 4, 28	ID 39, 32	ID 74, 36	ID 108, 39
ID 5, 28	ID 40, 32	ID 75, 36	ID 109, 39
ID 6, 28	ID 41, 32	ID 76, 36	ID 110, 39
ID 7, 28	ID 42, 32	ID 77, 36	ID 111, 39
ID 8, 28	ID 43, 32	ID 78, 36	ID 112, 39
ID 9, 28	ID 44, 32	ID 79, 37	ID 113, 40
ID 10, 29	ID 45, 33	ID 80, 37	ID 114, 40
ID 11, 29	ID 46, 33	ID 81, 37	ID 115, 40
ID 12, 29	ID 47, 33	ID 82, 37	ID 116, 40
ID 13, 29	ID 48, 33	ID 83, 37	ID 117, 40
ID 14, 29	ID 50, 33	ID 84, 37	ID 118, 40
ID 15, 29	ID 51, 33	ID 85, 37	ID 119, 40
ID 16, 29	ID 52, 33	ID 86, 37	ID 120, 40
ID 17, 30	ID 53, 34	ID 87, 37	ID 121, 40
ID 18, 30	ID 54, 34	ID 88, 37	ID 122, 41
ID 19, 30	ID 55, 34	ID 89, 37	ID 123, 42
ID 20, 30	ID 56, 34	ID 90, 38	ID 124, 42
ID 21, 31	ID 57, 34	ID 91, 38	ID 125, 42
ID 22, 31	ID 58, 34	ID 92, 38	ID 126, 42
ID 23, 31	ID 59, 35	ID 93, 38	ID 127, 42
ID 24, 31	ID 60, 35	ID 94, 38	ID 128, 42
ID 26, 31	ID 61, 35	ID 95, 38	ID 129, 42
ID 27, 31	ID 62, 35	ID 96, 38	ID 130, 42
ID 28, 31	ID 63, 35	ID 97, 38	ID 131, 42
ID 29, 31	ID 64, 35	ID 98, 38	ID 132, 43
ID 30, 31	ID 65, 35	ID 99, 38	ID 133, 43
ID 31, 31	ID 66, 35	ID 100, 38	ID 134, 43
ID 32, 32	ID 67, 35	ID 101, 38	ID 135, 43
ID 33, 32	ID 68, 35	ID 102, 39	ID 136, 43
ID 34, 32	ID 69, 35	ID 103, 39	ID 137, 43
ID 35, 32	ID 70, 35	ID 104, 39	ID 138, 43

Index of CISI numbers

The index of CISI numbers referring to Joshi and Parpola (1987); Shah and Parpola (1991); Parpola et al. (2010, 2019).

?-3, 449	B-19, 32	C-17, 39	C-65, 35
?-4, 450	B-21, 32	C-18, 39	C-66, 35
?-5, 450	B-23, 32	C-19, 40	C-67, 37
?-6, 450	B-24, 32	C-20, 39	C-68, 36
	B-25, 32	C-21, 39	C-69, 35
Ad-1, 28	B-28, 32	C-22, 39	C-70, 35
Ad-2, 28	B-29, 33	C-23, 39	C-71, 36
Ad-3, 28	B-30, 33	C-24, 39	C-72, 34
Ad-4, 28	B-32, 33	C-29, 39	C-74, 36
Ad-5, 29	B-35, 33	C-30, 40	C-75, 35
Ad-6, 29	Blk-1, 30	C-32, 40	C-76, 36
Ad-7, 29	Blk-2, 30	C-33, 40	C-77, 37
Ad-8, 29	Blk-3, 31	C-34, 40	C-78, 37
Ad-9, 29	Blk-4, 31	C-35, 40	C-79, 36
Ad-11, 29	Blk-5, 31	C-36, 40	C-80, 35
Agr-1, 28	Blk-6, 31	C-37, 40	C-85, 37
Agr-2, 28		C-38, 40	C-87, 34
Agr-3, 28		C-39, 40	C-88, 34
Ai-1, 30	C-1, 37	C-40, 40	C-89, 37
Ai-2, 30	C-2, 38	C-51, 36	C-91, 40
Ai-7, 30	C-3, 38	C-52, 35	C-94, 41
	C-4, 38	C-53, 36	Ch-1, 34
B-1, 31	C-5, 38	C-54, 35	Ch-2, 34
B-3, 31	C-6, 38	C-55, 35	Ch-4, 34
B-4, 31	C-7, 38	C-56, 37	
B-5, 31	C-8, 38	C-57, 37	Dlp-1, 42
B-7, 31	C-9, 38	C-58, 36	Dlp-2, 42
B-8, 32	C-10, 38	C-59, 35	Dlp-3, 42
B-9, 32	C-11, 38	C-60, 35	Dlv-1, 43
B-10, 32	C-12, 38	C-61, 37	Dlv-2, 44
B-12, 32	C-13, 38	C-62, 37	Dmd-1, 41
B-15, 32	C-14, 39	C-63, 37	Dmd-8, 41
B-17, 32	C-15, 39	C-64, 35	
B-18, 32	C-16, 39		G-8, 61

Index of M77 text numbers

The index of M77 text numbers referring to Mahadevan (1977). At present, not all M77 text numbers are linked to ICIT inscriptions.

1001: ID 3396, 391	1035: ID 2545, 325	1071: ID 2697, 336
1002: ID 2415, 315	1036: ID 2431, 316	1072: ID 2197, 298
1003: ID 2526, 323	1037: ID 2544, 325	1074: ID 2261, 303
1004: ID 3078, 368	1038: ID 2537, 324	1075: ID 2615, 330
1005: ID 3258, 381	1039: ID 3099, 369	1076: ID 2630, 331
1006: ID 2539, 324	1040: ID 3111, 370	1077: ID 2193, 297
1007: ID 3380, 390	1041: ID 2516, 322	1078: ID 3142, 373
1008: ID 3081, 368	1042: ID 2561, 326	1079: ID 2417, 315
1010: ID 2464, 319	1043: ID 2199, 298	1080: ID 2691, 336
1011: ID 2536, 324	1044: ID 2266, 303	1081: ID 3169, 375
1012: ID 3077, 368	1045: ID 2264, 303	1082: ID 3144, 373
1013: ID 3345, 387	1046: ID 2601, 329	1083: ID 2242, 301
1014: ID 3146, 373	1047: ID 2577, 327	1084: ID 3212, 378
1015: ID 3075, 368	1048: ID 2598, 329	1085: ID 2547, 325
1016: ID 3083, 368	1049: ID 2224, 300	1086: ID 3236, 380
1017: ID 3082, 368	1050: ID 3126, 371	1087: ID 2566, 326
1018: ID 3553, 404	1051: ID 2568, 326	1088: ID 2506, 322
1019: ID 2603, 329	1052: ID 2594, 328	1089: ID 3231, 379
1020: ID 2497, 321	1053: ID 2484, 320	1090: ID 3164, 374
1021: ID 3110, 370	1054: ID 2548, 325	1091: ID 3137, 372
1022: ID 2542, 324	1055: ID 2271, 303	1092: ID 3286, 383
1023: ID 2550, 325	1056: ID 2553, 325	1093: ID 2182, 297
1024: ID 3091, 369	1057: ID 3096, 369	1094: ID 2178, 296
1025: ID 3112, 371	1058: ID 2562, 326	1095: ID 2597, 329
1026: ID 3352, 388	1059: ID 3128, 372	1096: ID 2570, 326
1027: ID 3076, 368	1060: ID 3159, 374	1097: ID 3133, 372
1028: ID 3179, 376	1061: ID 3101, 370	1098: ID 2575, 327
1029: ID 2587, 328	1065: ID 2473, 319	1099: ID 2647, 332
1030: ID 3109, 370	1066: ID 3116, 371	1100: ID 2673, 334
1031: ID 3123, 371	1067: ID 2531, 324	1101: ID 2260, 303
1032: ID 3094, 369	1068: ID 3113, 371	1102: ID 3174, 375
1033: ID 3079, 368	1069: ID 2541, 324	1103: ID 2485, 320
1034: ID 3086, 369	1070: ID 2517, 323	1104: ID 2645, 332

Bibliography

Ansumali Mukhopadhyay, Bahata

- 2019 Interrogating Indus inscriptions to unravel their mechanisms of meaning conveyance. *Palgrave Communications* 5(73).

Ashraf, Md. Izhar and Sitabhra Sinha

- 2018 The "handedness" of language: Directional symmetry breaking of sign usage in words. *PLOS ONE* 13(1), pp. 1–16.

Bisht, Ravindra Singh

- 2015 *Excavations at Dholavira (1989-90 to 2004-2005)*.

Dani, A. H.

- 1963 *Indian Palaeography*. Oxford: Clarendon Press.

Fairservis, Walter A.

- 1992 *The Harappan Civilization and its Writing. A Model for the Decipherment of the Indus Script*. New Delhi: Oxford and IBN Publishing Co. Pvt. Ltd.

Forrer, Emil O.

- 1932 *Die hethitische Bilderschrift*. Chicago: University of Chicago Press.

Fuls, Andreas

- 2010 Entwicklung einer geographisch-epigraphischen Datenbank der Indusschrift. In: Weisbrich, Sven and Robert Kaden (Eds.): *Entwicklerforum Geodäsie und Geoinformationstechnik 2010*, pp. 29–45 Aachen: Shaker Verlag.
- 2012 Das Kabuler Manuskript: Eine Fälschung der Indusschrift? *Antike Welt - Zeitschrift für Archäologie und Kulturgeschichte (online)* .
- 2015a Appendix III: Classifying Undeciphered Writing Systems. In: Wells, Bryan (Ed.): *The Archaeology and Epigraphy of Indus Writing*, pp. 134–140 Oxford: Archaeopress.
- 2015b Classifying Undeciphered Writing Systems. *Historical Linguistics* 128(1), pp. 42–58.
- 2022 *A Catalogue of Indus Signs*. No. 4 in *Mathematica Epigraphica*. Berlin: Independently published.

Hunter, G. R.

- 1934 *The Script of Harappa and Mohenjodaro and its Connection with Other Scripts*. London: Trubner & Co. Ltd.

Jansen, Michael and G. Urban

- 1985 *Mohenjo-Daro: Report of the Aachen University Mission 1979-1985*. Leiden: E.J. Brill.

Joshi, Jagat Pati and Asko Parpola

- 1987 *Corpus of Indus Seals and Inscriptions. Collections in India (Vol. 1)*. Helsinki: Suomalainen Tiedekatemia.

Koskenniemi, Kimmo and Asko Parpola

- 1979 *Corpus of Texts in the Indus Script*. No. 1 in Research Report. Helsinki: Department of Asian and African Studies, University of Helsinki.
- 1982 *Concordance to the texts in the Indus script*. No. 3 in Research Report. Helsinki: Department of Asian and African Studies, University of Helsinki.

Langdon, St. H.

- 1931 *Mohenjo-daro and the Indus Civilization*. Chap. The Indus script, pp. 423–455 Arthur Probsthian.

Mackay, E. J. H.

- 1998 *Further Excavations at Mohenjo-daro*. New Dehli: Munshiram Manoharlal Publishers Pvt. Ltd. originally published 1938, Delhi.

Mahadevan, Iravatham

- 1977 *The Indus Script: Texts, Concordance and Tables*. No. 77 in Memoirs of the Archaeological Survey of India. New Delhi: Archaeological Survey of India.

Marshall, Sir John

- 1931 *Mohenjo-daro and the Indus Civilization*. London: Arthur Probsthian.

Meadow, Richard H. and J. M. Kenoyer

- 2001 *Recent Discoveries and Highlights from Excavations at Harappa: 1998-2000*. Vol. 22 of *Indo Koko Kenkyu*. Tokyo: Indian Archaeological Society.

Meriggi, Piero

- 1934 Zur Indusschrift. *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 87(NF 12), pp. 198–241.

Parpola, Asko

- 1994 *Deciphering the Indus Script*. Cambridge: Cambridge University Press.

Parpola, Asko; B.M. Pande and Petteri Koskikallio (Eds.)

- 2010 *Corpus of Indus Seals and Inscriptions. Volume 3: New material, untraced objects, and collections outside India and Pakistan. Part 1: Mohenjo-daro and Harappa (Vol. 3.1)*. Helsinki: Suomalainen Tiedekatemia.
- 2019 *Corpus of Indus Seals and Inscriptions. Volume 3: New material, untraced objects, and collections outside India and Pakistan. Part 2: Shar-i Sokhta, Mundigak, Mehrgarh, Nausharo, Sibri, Dauda-damb, Chanhudaro, Ahar, Balathal, Gilund, Kalibangan, Rojdi. (Vol. 3.2)*. Helsinki: Suomalainen Tiedekatemia.

Rao, S. R.

- 1982 *The Decipherment of the Indus Script*. Bombay: Suomalainen Tiedekatemia.

Shah, Sayid Ghulam Mustafa and Asko Parpola

- 1991 *Corpus of Indus Seals and Inscriptions. Collections in Pakistan (Vol. 2)*. Helsinki: Suomalainen Tiedeakatemia.

Shinde, Vasant and Rick J. Willis

- 2014 A new type of incised copper plate from Indus valley (Harrappan) civilisation. *Ancient Asia* 5(1), pp. 1–10.

Vats, Madho Sarup

- 1940 *Excavations at Harappa*. Delhi: Munshiram Manoharlal Publishers Pvt. Ltd.

Wells, Bryan

- 1998 *An Introduction to Indus writing*. M.A. thesis The University of Calgary URL: <http://www.nlc-bnc.ca/obj/s4/f2/dsk2/ftp03/MQ31309.pdf>.
- 2006 *Epigraphic Approaches to Indus Writing*. Dissertation Harvard University.
- 2011 *Epigraphic Approaches to Indus Writing*. Oakville and Oxford: Oxbow Books.
- 2015 *The Archaeology and Epigraphy of Indus Writing*. Oxford: Archaeopress.