

## **Universal Iconography in Writing Systems**

### **Evidence and Explanation in the Easter Island and Indus Valley Scripts**

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#### **Summary**

Iconography has played a central role in the development of writing systems. That all independently derived ancient scripts began as arrangements of pictograms before evolving into their elaborated forms evinces the fundamental importance of iconography in the evolution of writing. Symbols of the earliest logographic writing systems are characterized by a number of iconographic principles. Elucidation of these iconographic principles provides a theoretical framework for the analysis of structural similarities in unrelated, independently evolved writing systems. Two such writing systems are the ancient Indus Valley and Easter Island scripts. Although separated by vast tracts of time and space, the two writing systems share between forty and fifty complex characters, a problem first identified by Hevesy in 1932. Previous attempts to explain the similarities between the Indus Valley script and the *rongorongo* of Easter Island, which have relied on notions of cultural contact or historical derivation, have proved unfruitful. In reconsidering the problem, a novel approach based on comparative iconographic principles can explain the resemblances between the two scripts as the product of the universal iconography displayed by all writing systems in their pictographic and logographic stages of development.

#### ***The principle of iconography in writing systems***

It has been noted that graphically similar symbols have been employed to represent semantically cognate ideas in a number of early, unrelated writing systems.<sup>1</sup> One explanation for this phenomenon is that there exist universal iconographic principles that bear upon the minds of those creating these scripts, thereby influencing the graphical form of the glyphs<sup>2</sup> that comprise the newly created writing systems. The principle of universal iconography as applied to writing systems implies that certain pictorial representative forms tend to be

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<sup>1</sup> In the earliest examples of several ancient scripts, including Sumerian cuneiform, Egyptian hieroglyphs, and Chinese logograms, the graphical forms of the symbols for 'road,' 'man,' 'king,' 'sun,' and several other basic concepts are remarkably similar.

<sup>2</sup> For the present purpose, I shall use the term *glyph* as a term of art that means precisely 'a symbol or stylized figure that imparts information nonverbally.'

associated with semantically similar ideas irrespective of cultural or societal factors. A result of this principle is that many early logographic writing systems possess structurally similar signs, often representing semantically related referents.

It has been suggested that many early scripts are comprised of signs that appear structurally similar because people develop writing primarily for recording common things like jars, animals, and grain. However, this explanation merely makes an observation regarding the common purpose of writing in general and lacks the explanatory power to account for *why* the symbols created for recording common things like jars, animals, and grain frequently appear so graphically similar in scripts constructed by culturally disparate and geographically distant peoples. In order to account for these well-documented similarities among early writing systems, I shall argue that universal iconographic principles motivate us to associate certain physical forms and shapes with correlated objects and ideas. I shall further propose that a finite number of distinct symbolic forms exist from which we may choose in fashioning any representative graphical construct, particularly writing systems, which demand economy in order to be useful. These principles support the existence of a universal icon set<sup>3</sup> from which we select forms and shapes when constructing writing systems.

The existence of a universal icon set explains why many ancient scripts used glyphs of similar form to represent related semantic concepts. For example, in constructing a writing system, the creator who wished to symbolize the word ‘jar’ would likely choose from among the possible forms in the icon set a shape or arrangement of simpler shapes that most closely resembled the ‘correct’ form of the jar in his or her reckoning. Meanwhile, the creator of an unrelated writing system would also select shapes from the icon set to represent his or her

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<sup>3</sup> In proposing the concept of an *icon set*, I am suggesting the existence of a *universal* mental collection comprised of a finite number of shapes, forms, and patterns of arrangement, the existence of which imposes a limit on the number of different graphical shapes and forms that may be exploited in creating writing systems.

conception of the proper shape of a jar in fashioning the corresponding glyph. While the first scribe's fabrication of the 'jar' glyph may not be structurally identical to that of the second scribe, it is likely that the glyphs will possess enough common features to be recognizably alike.<sup>4</sup> Because the number of available shapes and arrangements of forms is limited due to the finite nature of the icon set, there are a restricted number of candidate forms that will appear sufficiently similar to the object being represented in order to be practically useful in the script.

Understanding the iconographic principles at work in writing systems is a worthwhile desideratum of humanistic inquiry, as comprehending the mechanics of graphical structure and the relationships between form and meaning seen in naturally evolved scripts will provide valuable insight into human nature. I shall utilize the concepts of universal iconography in writing systems and the icon set to help account for the similarities noted between the ancient scripts of the Indus Valley civilization<sup>5</sup> and Easter Island, which developed independently of each other without any known contact or common influencing agent, and which remain undeciphered. From a dissident point of view, the similarities between the Indus Valley and Easter Island scripts could be construed as evidence in support of the idea of a universal iconography in writing systems. In either case, however, the issue remains the same: if universal iconographic principles apply to the natural development of writing systems, then the similarities between the Indus Valley and Easter Island scripts may be (at least partially) explained as a product of the limited number and variety of graphical forms and patterns of arrangement that may be called upon in the construction of writing systems.

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<sup>4</sup> When comparing the forms of glyphs for the same semantic concept in unrelated writing systems, the more abstract the object or concept being represented, the more likely it is that the two glyphs will be dissimilar in appearance, as each creator's conception of the 'appropriate' glyph is less grounded in physical similarity to and attempted reproduction in form of the semantic object. Nevertheless, because the number of possible forms is limited, there is still a probability that the two glyphs will share some common structural features and hence a degree of recognizable similarity.

<sup>5</sup> That is, the Harappan civilization that flourished in the Indus River valley between c. 2550-1900 B.C.

## ***The nature of writing systems***

There is considerable controversy surrounding the origin of writing, which has been and still remains a hotly debated topic in philological circles. Experts in ancient Near Eastern civilization regularly aver that Sumerian is “older than the oldest other scripts, and that it is the only script for which we have evidence about its origins” (Sampson 1985:46).<sup>6</sup> These facts have led some scholars to suggest that all writing systems ultimately are related to one another, with the early Sumerian script being the progenitor of all subsequent writing systems. Proponents of the monogenetic hypothesis emphasize the similarities among early scripts. Moreover, Gelb has argued “all Oriental systems outside of Sumerian came into existence in periods of strong cultural influence from abroad” (Gelb 1952:218-220).

I find it unlikely that writing was invented only once during the history of mankind.<sup>7</sup> In addition to the weaknesses of the monogenetic hypothesis, the historical and geographical distribution of structurally diverse writing systems militates to the view that writing was invented independently in several areas of the world. Proponents of the monogenetic view of writing exaggerate the similarities among early scripts and too quickly dismiss scripts that do not fit into their narrow conception of fully developed writing.<sup>8</sup> The greater weight of the evidence found in the archaeological record indicates that writing was invented independently at least three times, in Mesopotamia, China, and Central America. Moreover, it is possible that writing originated free from foreign influence in

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<sup>6</sup> Archaeological evidence of the Sumerian script in its incipient form may date to as early as 3700 B.C.

<sup>7</sup> That is, the idea of writing and the fashioning of a novel script un-inspired by contact with others. This term is to be contrasted with ‘writing system,’ which does not imply the inspiration of the idea of writing but rather refers to the written script, which records spoken language using a system of visual marks on a surface.

<sup>8</sup> For instance, Gelb refuses to consider systems that would tend to repudiate his claims, denying that the undeciphered Central American inscriptions, including Mayan hieroglyphs, constitute writing in the full sense (Gelb 1952: 61).

Crete, Elam, Easter Island, and the Indus Valley.<sup>9</sup> In addition, the origin of Egyptian writing is unclear; while some scholars contend that Egypt borrowed both the idea and form of writing from Sumer, no definitive archaeological or historical evidence proves this to be the case.<sup>10</sup> The unique structure of Egyptian hieroglyphs, which were in use as early as 3400 B.C., suggests a development independent of Mesopotamian influence. Thus, as writing likely was invented independently in several areas of the world, the similarities noted among several early writing systems cannot be accounted for by common origin or superstratal influence.

It has often been claimed that writing is the “essential distinguishing feature of urban life” (Sampson 1985:45). This argument is supported by the fact that, as far as is known, writing has been independently invented exclusively in urban societies. Early scripts typically were created for official purposes when the societies in which they were used achieved a level of advancement that required precise record keeping for their economic and administrative needs.<sup>11</sup> For example, Denise Schmandt-Besserat has argued that Sumerian cuneiform developed from small clay ‘tokens’ of various simple geometrical shapes that were used for commercial purposes. Schmandt-Besserat believes that the Sumerians eventually abandoned the original system in favor of the simpler method of impressing the tokens onto a soft clay tablet; over time, the Sumerians innovated their mercantile system by inscribing the original shapes of the tokens onto the clay (Schmandt-Besserat 1989:27). According to the complex token theory of the origin of Sumerian writing, once the general principle of communicating by marks on clay was established, the Sumerian system evolved into a logographic

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<sup>9</sup> The Indus Valley script may have been in use as early as 3500 B.C., while the earliest Minoan writing, Cretan hieroglyphs—the ancestor of the syllabic scripts Linear A and Linear B—dates from about 2000 B.C. *Rongorongo*, the indigenous script of Easter Island, was invented at the latest in the eighteenth century A.D. The Proto-Elamite script originated in 2900 B.C. in southwest Persia.

<sup>10</sup> For a thorough and well-reasoned apology of this view of the origin of Egyptian writing, see Fischer 2001:36-37.

<sup>11</sup> As Marcel Cohen (1958:7-8) has pointed out, “[p]ractically everywhere, the first use of writing must have been for more or less official messages. The next use would have been commercial and legal: accounting and the drawing up of contracts...Chronicles or ritual texts only appear later. Writing designed for instruction or entertainment, later still.”

form of writing. While this theory of the origin of writing is controversial, it is nevertheless illustrative of the general circumstances that motivate the invention of writing systems.

It is believed that all naturally evolved writing systems began as pictorial or mnemonic systems and then, over time, developed into scripts comprised of less motivated forms (Sampson 1985:59). This seems to be the case with all early, independently invented scripts; only writing systems that emerge as a result of contact with other literate societies fail to follow this general pattern.<sup>12</sup> It was only over time that each of the world's first writing systems applied logographic, phonetic, and determinative principles to develop into mixed systems, the most prevalent form of writing.<sup>13</sup> The *rebus principle* (from the Latin ablative plural of 'thing'), through which a representation of words in the form of pictures or symbols replaces purely phonetic or ideographic representations, developed first in Mesopotamia and then diffused to the Iranian Plateau, Indus Valley, and perhaps the Nile. In contrast to cuneiform, the Egyptian system innovated a number of logo-consonantal signs that represented only the phonetic value of the beginning consonant of the originally logographic glyph; this development turned out to be crucial to the history of writing, as it led to the first, and only, naturally evolved alphabetic writing system.<sup>14</sup>

The natural pattern of development in writing appears to be evolution from an incipiently ideographic or logographic system into a more-elaborated one involving phonetic and determinative principles. Implicit in the concept of

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<sup>12</sup> A good example of this phenomenon is the relationship between the Egyptian and Meroitic scripts. While the Egyptian script began as a pictorial-ideographic system, the scribes of Meroë borrowed only the external forms of twenty-three Egyptian hieroglyphs and assigned a phonetic value to each, creating an alphabetic system completely devoid of any logographic characteristics. While the phonetic values of all twenty-three Meroitic characters have been determined, the Meroitic language remains undeciphered.

<sup>13</sup> In this instance, *determinative* refers to the practice of using determinatives (or sign identifiers), auxiliary symbols added to the base glyph to impart phonetic or semantic content.

<sup>14</sup> The Egyptian innovation of representing of a single consonantal phoneme with an originally logographic symbol eventually led to the formation of the Old Canaanite alphabet and its immediate descendent, the Phoenician alphabet, the world's first and only naturally evolved alphabetic writing system and the ancestor of the Latin alphabet.

logography is that written symbols have a natural iconographic, that is non-arbitrary, relationship to the object or idea being represented: the symbol bears a discernable resemblance to the referent. That all early scripts began as simple ideographic systems is persuasive evidence that there is a basic iconographic link between spoken and written language. That is, the overt relationship between the two forms of communication is, at least during its embryonic stage, fundamentally non-arbitrary and symbolically precise.<sup>15</sup> As a result, the similar patterns of relationship between symbolic form and semantic referent seen in diverse early writing systems are significant and worth exploring.

### ***Fundamental iconographic principles of early writing systems***

The pictography common to all early scripts is an important cornerstone in the theoretical argumentation of universal iconography in writing systems. That all writing began as pictograms makes evident the iconographic nature of writing as a concept; it must have seemed only natural to the first scribes that the symbols they selected to represent this or that object structurally resemble their referents. While this fact may at first appear to be a triviality, it is not. There is no inherent reason, independent of the idiosyncrasies of human nature, why the graphical form of a symbol should bear a visually obvious similarity to its object of reference. After all, few writing systems in use today retain any semblance of pictography in the forms of their characters.<sup>16</sup>

It has been noted that a number of glyphs representing semantically cognate concepts in several early logographic scripts appear strikingly similar. In Figure 1 below, characters from the early Sumerian (pre-cuneiform) logographic

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<sup>15</sup> While this contention is true in a strict sense only as applied to literate societies, there is no reason to believe that the *principle* of iconography in writing systems should not be considered universal, particularly in view of the highly geographically and culturally diverse writing systems for which it appears to be valid.

<sup>16</sup> The only writing system in widespread use today with noticeable pictographic qualities is the Chinese script, which for apparently cultural reasons has resisted the otherwise universal tendency toward pictographic simplification in favor of phonetic and ideographic economy.

script, Egyptian hieroglyphs, Hieroglyphic Hittite,<sup>17</sup> and Chinese are compared. Particularly noteworthy are the characters for ‘deity,’ ‘road,’ and ‘water’ in Sumerian and Chinese; the characters for ‘wood’ and ‘ox’ in Sumerian and Hieroglyphic Hittite; and the characters for ‘king’ in Hieroglyphic Hittite and Chinese.

*Figure 1: Comparing characters in four unrelated writing systems. From Keith Schoville, *Sign, Symbol, Script: An Exhibition on the Origins of Writing and the Alphabet* (Madison: University of Wisconsin Press, 1984).*

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<sup>17</sup> The script known as Hieroglyphic Hittite, so named due to its superficial similarity to Egyptian hieroglyphs, was used in the city-states of Southern Anatolia and Northern Syria from c. 1000 B.C. to c. 700 B.C. The eventual decipherment of the script led to the conclusion that the language recorded by the script was not Hittite but Luvian, a closely related Indo-European language of the Anatolian subgroup. As a result, some scholars now refer to the script as Hieroglyphic Luvian.



	Sumerian	Egyptian	Hittite	Chinese
Man				
King				
Deity				
Ox				
Sheep				
Sky				
Star				
Sun				
Water				
Wood				
House				
Road				
City				
Land				

In comparing the structural forms of glyphs from early logographic scripts, some broad iconographic principles can be discerned. Most obvious are the numerals,<sup>18</sup> which are almost universally represented by the requisite number of

<sup>18</sup> For obvious reasons, the inventors of most early scripts used a decimal numerical system. Exceptions include the Maya, who used a vigesimal system (base 20), and the Babylonians, whose sexagesimal system (base 60) had some vestiges of a base 10 system within it.

hash marks or other simple geometric shapes, frequently up to the number ten.<sup>19</sup> In addition to similar systems of numeration, anthropomorphic and simple naturalistic symbolism is a prominent feature of most early scripts. Even a cursory inspection of Egyptian hieroglyphic inscriptions reveals the script's abundance of avian, serpentine, and anthropomorphic symbols. Moreover, the Easter Island script is replete with naturalistic features, described by Barthel as "identifiable icons from the environment and culture." Another example is the undeciphered Phaistos Disk, which contains a number of distinct anthropomorphic and naturalistic, particularly avian and floral, symbols.<sup>20</sup> Indeed, Coulmas' comparison of Sumerian cuneiform and Chinese characters, two independently developed and unrelated scripts, exemplifies this broadly applicable iconographic feature of early writing systems: "The only thing that can be said with confidence is that both systems had their origins in drawings of natural objects" (Coulmas 1989:94).

Beyond thematic similarities, the graphical forms of glyphs in the earliest logographic scripts are often characterized by a small yet distinct number of geometric patterns that are combined to form more complex characters. The earliest versions of both Sumerian cuneiform and the Proto-Elamite script primarily combine short lines and semicircles to create their sign inventories, whereas the Indus script relies more on circular and rectangular forms with complex combinatory schemes to form its set of characters. The earliest Egyptian hieroglyphs, such as those found on the pottery inscriptions of Ka and Aha, while employing some circular and semicircular shapes rely heavily on short linear marks combined at varying angles to create complex logograms. Finally, the *rongorongo* of Easter Island employ circular, semicircular, linear, and triangular

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<sup>19</sup> For example, the Egyptian system of numeration represented numerals up to nine with the appropriate number of small vertical lines arranged side by side, whereas early Sumerian cuneiform used semicircular incisions in the same fashion. In contrast, the Chinese script uses horizontal lines arranged one above the other only up to the number three.

<sup>20</sup> The Phaistos Disk is a small clay disk unearthed in 1908 at the city of Phaistos in southern Crete. It is the only example of what is probably a syllabic or logosyllabic script, thought to date to about 1700 B.C. The Phaistos Disk is most interesting in that there are practically no variations between different copies of the same symbol, indicating that stamps were probably used to create its detailed signs.

forms with extremely complex ligatures and combinatory patterns to form some 120 basic elements and between 1500 and 2000 compound signs. Thus, although the earliest logographic writing systems differ in several key respects, <sup>21</sup> they nevertheless are united by a small number of iconographic principles: pictography, thematic symbolism, and what can be described as the ‘finite internal geometric arrangement’ of their signs.

I propose that these three common principles, and perhaps others, apply to all logographic writing systems so as to constrain the graphical forms of the glyphs of which the scripts are comprised, such that the number and type of possible fundamental forms exploited by characters of any script, while potentially quite large, is limited. That is to say that there are a finite number of symbolic forms that, based on these constraining principles, form an ‘icon set’ from which the creators of a writing system (subconsciously) select in constructing a graphical system of symbolic representation. Because all independently developed writing systems began as an arrangement of pictograms and then logograms, the possible forms of their glyphs were highly constrained by the principle of pictography; as a result, at the earliest stages of development, many scripts shared similar looking characters for analogous semantic referents. As these scripts developed varying degrees of phoneticism and relied less on pictography to impart meaning, the potential forms of their glyphs became less constrained and the scripts had access to a much greater share of the universal icon set from which to build their characters. As a result, over time the graphical forms of the characters of these early, independently developed scripts acquired greater variety, as each script gained increasing access to the universal icon set based on the varying degrees of fidelity that the creators of the script applied to each universal iconographic principle in its construction.

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<sup>21</sup> The most obvious fundamental differences among the early logographic scripts are the number of characters contained in their sign inventories, the degree of phoneticism they employ, and the relative complexity in form and mechanics of arrangement of their signs.

## ***The Easter Island and Indus Valley scripts***

In 1932, the Hungarian scholar Guillaume de Hevesy pointed out a number of similarities between the signs of the ancient Indus Valley script and the indigenous script of Easter Island.<sup>22</sup> In fact, there is a striking resemblance between approximately fifty Indus and Easter Island signs. While this number may seem insignificant when one considers that the Indus Valley script comprises up to 500 signs and the Easter Island sign inventory numbers into the thousands, the external forms of the glyphs in question, many of which are complex, elaborated signs involving what appear to be ligatures or combinations of simpler symbols, are almost identical. That such similarity is attributable to mere coincidence seems improbable, as many of the similar signs appear to be unique to the two scripts. Five pairs of nearly identical signs from the Easter Island and Indus Valley scripts are exhibited in Figure 2.

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<sup>22</sup> In the October 1932 edition of the British journal *Nature*, there appeared the following note: "M. Guillaume Hevesy, a Hungarian resident in Paris, has discovered that a number of the signs of the pre-historic Indian script on seals from Mohenjo-daro also appear in the script of Easter Island...It would now be interesting to hear whether there is any coincidence in the interpretation of the pre-historic Indian signs...and those suggested for the Easter Island script...The suggestion of a connexion [sic] between the two scripts is not the only attempt to find an affinity between Easter Island and this part of Asia."

Figure 2: Comparison of five similarly formed characters from the Indus Valley (left) and Easter Island (right) scripts. From Andrew Robinson, *The Story of Writing* (New York: Thames and Hudson, 1995).



Scholars have proposed a number of theories to account for the similarities observed among these signs in the two scripts. Hevesy hypothesized that the *rongorongo* of Easter Island originated in the Indus Valley civilization. Hevesy's publication initially was hailed as an important discovery with the implication that the Rapanui might have originated in that part of Asia. If true, Hevesy's 'Indus Valley hypothesis' would have explained the cultural advancements achieved by the Rapanui in the eighteenth and nineteenth centuries, a curiosity begging for explication in the early twentieth century European mind. <sup>23</sup> However, it is hardly conceivable that the Indus signs were

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<sup>23</sup> Particularly in need of explanation were the monolithic *moai*, to which Skinner referred as "the well-known statues of Easter Island" (Skinner 1932:323).

transmitted across thousands of years and 13,000 miles of ocean to an isolated Pacific island. Moreover, no archaeological evidence whatever exists to corroborate the Indus Valley hypothesis.

Father Sebastian Englert, once regarded as the leading authority on the Easter Island script, argued correctly that “[s]pecialists today are inclined to the opinion that the similarities are not close or frequent enough to suggest any contact between these two cultures so separated by space and time” (Englert 1970:79). Unfortunately, Englert went on to suggest that the similarities between the two scripts are essentially a random phenomenon.<sup>24</sup> In critiquing Englert’s views, Fischer has claimed that Englert actually believed Hevesy’s discovery might be evidence of an indirect connection between the inhabitants of the Indus Valley and the Rapanui, or that the Polynesians learned writing from a South Asian people.<sup>25</sup> Fischer himself has adopted the pragmatistic position that realities of time and distance render the Indus Valley hypothesis untenable.

A general comparison of the two writing systems and their cultural contexts yields few clues that might explain the similarities between the Indus Valley and Easter Island scripts. On the one hand, both scripts make extensive use of pictography and ligatures in the external forms of their characters. Moreover, the number of basic signs in each script is around 100 (Richter-Ushanas 2002: 2). It has also been suggested that both scripts were used primarily for liturgical or otherwise ritualistic purposes.<sup>26</sup> However, there are also great differences between the two writing systems. Whereas the Indus

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<sup>24</sup> However, Englert vaguely hinted at some underlying principle of cultural universality, positing that the similarities between the two scripts are more likely to be of “the sort... that often exist between objects of independent origin in cultures which have no historical relationships” (Englert 1970:79).

<sup>25</sup> It should be pointed out that Fischer has demonstrated a strong bias against Englert’s opinions, characterizing the German cleric as an “unqualified amateur who based all his conclusions on recent Rapanui oral traditions” (Fischer 1997:183).

<sup>26</sup> Fischer believes that the *rongorongo* were recited publicly on special occasions and are believed to have served the ritualistic function of declaring lineage for both supernatural and mundane lines of descent. Because the motifs on the Harappan seals often appear to have a mythological or religious character, the Indus script may have served a similar purpose (Richter-Ushanas 2002:2).

inscriptions are found mainly on small steatite seals bearing on average five glyphs, the *rongorongo* of Easter Island were carved into wooden objects in long lines of between forty and eighty characters.<sup>27</sup> Based on the number of characters found in each writing system, it can be surmised that the Indus script was likely a logosyllabic script, similar to Sumerian cuneiform. In contrast, the Easter Island script was probably a predominantly logographic system with some degree of phoneticism, akin to ancient Egyptian hieroglyphs at an early stage of development (Robinson 1995:155). In addition, the language expressed by the *rongorongo* is known to be Rapanui, a Polynesian language native to Easter Island, whereas the Indus script in all likelihood was used to write either an early form of Dravidian,<sup>28</sup> perhaps something close to Proto-Dravidian, or an Indic tongue.<sup>29</sup> Moreover, the Indus script was used by many thousands of people living in the large towns of the Harappan civilization, an advanced urban society with extensive relations over land and sea with other cultures. In contrast, the *rongorongo* script of Easter Island was used by a select scribal group in a small, extremely isolated tribal society.

It is apparent that neither the internal structure and patterns of usage of the two scripts, nor the cultural contexts in which they are encountered can explain the similarities among the fifty or so characters shared by both writing systems. Furthermore, practical constraints eliminate any possibility of contact between the two cultures or with a mutually encountered outside civilization. Hevesy's Indus Valley hypothesis, in addition to being wholly unsupported by the archaeological record, is similarly implausible. Lastly, accepting as an explanation that the similarities between the two scripts are of the sort that "often exist between objects of independent origin in cultures which have no

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<sup>27</sup> Parpola, however, believes that the Harappans used the palm leaf as their normal writing material. (Parpola 1994:54). As this is a perishable medium, it is not surprising that no artifacts of this type have been found.

<sup>28</sup> Fischer is a proponent of this view (Fischer 2001: 63).

<sup>29</sup> That is, a member of the Indic branch of the Indo-Iranian subgroup of the Indo-European language family, whose modern members include such languages as Hindi, Punjabi, Gujarati, Bengali, and Singhalese.

historical relationships” without further elaboration, or that mere coincidence is to blame, is as unsatisfying as it is inadequate.

### ***Universal iconography and the icon set as an explanation***

A novel account for the similarities between the Indus Valley and Easter Island scripts is that the creators of each writing system, in applying various degrees of constraint to each iconographic principle as the scripts developed, selected from the universal icon set a small number of similar forms, which may or may not represent analogous semantic referents. Because the *rongorongo* of Easter Island still maintained a high degree of logography in a writing system with up to 2000 characters, that the two independently developed, unrelated scripts would share a small number of nearly identical glyphs is not surprising. On the other hand, had the *rongorongo* developed a higher degree of phoneticism at an early stage in its development, the number of symbols in its character inventory in all likelihood would have been reduced to several hundred glyphs at most. If such a development actually had occurred, the probability of the two scripts sharing up to fifty similarly formed characters would have been sharply reduced.<sup>30</sup>

The theory of universality iconography in writing systems provides a theoretical framework in which to analyze the problems presented by the Indus Valley and Easter Island scripts. Although the fifty or so characters shared by the two writing systems may be the product of some degree of randomness, at least in terms of the particular forms selected from the universal icon set by the creators of each script, that a few dozen signs appear in the scripts of both the Indus Valley and Easter Island is not coincidence, which implies accidental correspondence with no causal factor. Because both the Easter Island and Indus

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<sup>30</sup> As the number of distinct characters from which any writing system may select is necessarily limited, it should be obvious that in comparing two unrelated scripts, the probability that the two scripts will share identical or nearly identical characters is proportional to the number of glyphs contained in each script’s character inventory. This is particularly true of scripts that employ a significant degree of pictography.



Valley scripts make at least moderate use of the principle of pictography, the variety of forms exhibited by the symbols in their character inventories is heavily constrained. As a result of this and other factors constraining the graphical forms of the characters that compose the two scripts,<sup>31</sup> between forty and fifty similarly formed glyphs appear in both writing systems. When one considers that the Indus script is comprised of some 500 characters and that the *rongorongo* of Easter Island number into the thousands, and that the formation of their characters follows a discrete number of definable principles, that the two scripts have in common a few dozen characters is not remarkable.

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<sup>31</sup> Viz., the principles of thematic symbolism and 'finite internal geometric arrangement,' and perhaps others.

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