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Introduction

Indigenous Graphic Communication Systems

A Theoretical Approach

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If a reader interested in the topic of the theory of writing systems picks up one of the classic books of the second half of the twentieth century, he or she will be left with the impression that prior to contact with Europeans, a few "pre-writing systems" existed in the Americas not worthy of being considered among the "true" writing systems known from the Old World (cf. Whittaker 2009, 47–48).[1] One of these classics, the 1952 monograph *A Study of Writing* by Ignace Gelb (1963 [1952])—a reference work still in use among Mesoamericanists—will inform the reader that not even the Maya had "true" writing, obviously because in 1952 Yuri Knorosov had not yet achieved his breakthrough in the decipherment of this system. To make matters worse, to learn anything of other Mesoamerican systems outside the Maya area, the reader will receive notice of only three documents, only one of which is truly indigenous: the *Codex Boturini*, an Aztec document created in the early colonial period. Regarding the other two examples provided, one is a kind of catechism in images created to convey prayers and principles of Christian religion to Indians through a non-alphabetic system. In this case, it is a catechism in the Mixtec language, quite late, having been published in 1839 (Seler 1902, in Gelb 1963 [1952], 57), which Gelb took from the monumental work of Eduard Seler. The other example is the so-called *Codex Hammaburgensis*, a document purchased in 1925 in Mexico for the Ethnographic Museum of Hamburg and kept there until the present day (Danzel 1926, 5). This manuscript was prepared as a collage of glyphs and images from several indigenous codices (Danzel 1926),

among them the colonial *Codex Mendoza* and the *Codex Borbonicus*. Regarding matters in the Andean area, our reader will find nothing at all, as is the case in another highly regarded work by David Diringer (1972 [1948]). In general, prior to Gelb's book, in one of his re-editions Diringer had mentioned two early essays of Knorosov, noting that the Russian academic's results were not accepted by eminent scholars of the subject (Diringer 1972 [1948], 132). Regarding Aztec documents, he includes the same illustrations as Gelb, consisting of short excerpts from the *Codex Boturini* along with the same catechism in the Mixtec language (above) plus three toponymic glyphs from the *Codex Mendoza* (fols. 5v, 42r, 7v)[2] and a fragment of leaf 36 of the Mixtec *Codex Bodley* (which he identifies as Aztec; Diringer 1972 [1948], 133).[3]

Regarding the content of the "Aztec" manuscripts (among which Diringer includes Mixtec, Zapotec, Chinantec, Mazatec, and other documents), he considers that the majority of the codices are devoted to divination, rituals, and astrology, while a few are concerned primarily with genealogies and sequences of political events, being in fact a kind of history (Diringer 1948, 127). Although Diringer uses the word *writing*, he says it is essentially more similar to secondary mnemonic characters, which must be complemented by a description, than to proper writing (1972 [1948], 134–135), although he allows that in some respects, this writing can already be considered analytical because some signs have phonetic value and it was partly based on the rebus principle, as with cuneiform, hieroglyphic, and Chinese scripts (1972 [1948], 135).

The theme changes a bit in Harald Haarmann's 1991 book. By this time, the author describes Maya writing in greater detail as well as "Aztec" writing, although he understands as such all of the non-Maya scripts, for which reason he places the Mixtec *Codex Nuttall* among Aztec texts (Haarmann 2001 [1991], 47–50). Other errors again concern details from the *Codex Boturini* (Haarmann 2001 [1991], 51), but most important is the author's mistake as to the date of the appearance of logo- and phonographic signs (referred to by Haarmann [2001 (1991), 52, 219–221] as "ideographs, syllabic and alphabetic signs") in the Aztec system, which he considers to have been introduced as a result of European influence.[4] In any event, also for this author, everything not registered as glottographic names are "images" and "a mnemonic resource in the hands of the priestly caste" (Haarmann 2001 [1991], 45). Likewise, he concludes by characterizing the purpose of the Andean *khipu*—but the important thing is that unlike previous authors, he includes information about this system in his work—as a "mnemonic procedure in the most characteristic sense of the word" (Haarmann 2001 [1991], 63). Overall, he dismisses the idea that a system that records information through a complex numerical system could register more than "chronological or statistical

data" and stresses that its effectiveness depends to a high degree on the knowledge of a living oral tradition (Haarmann 2001 [1991], 60–63). These findings are not consistent with the complexity of information that can be transmitted through other graphic communication systems that are not based on language (algebraic, decimal, or binary systems used in information and computer science, the system used in chemistry, and so on) or with what Gary Urton (2005, 161–162, original emphasis) says about *khipu*:

> A rosary is a series of beads on a string. A message stick is a series of incisions on a stick. A khipu is an arrangement of cotton wool and/or strings—some or all of which may be dyed in astonishingly complex arrays of colors—which have been either Z-spun/s-plied or S-spun/Z-plied and attached recto or verso to a common (primary) string, and bear knots that may be (but [are] not necessarily) tied in to hierarchical, decimal-place fashion using three different types of knots that are tied with their primary axes either in an S- or Z-direction . . . In short, neither a rosary nor a message stick is even *remotely* similar to a khipu. Thus, whatever a rosary or a message stick was used for cannot be assumed to have the least bit of relevance or precedential value whatsoever for suggesting, much less determining, what a khipu was used for or *how* it might have been used.

Indeed, in the work of Haarmann (2001 [1991], 55–60) and in the later work of Florian Coulmas (2003, 19–20) or the more general work of Andrew Robinson (1995, 54–55), the *khipu* is mentioned after a discussion of counting sticks from the Paleolithic era. Nothing remains beyond emphasizing that in the view of many non-experts on the subject, indigenous American systems, not being based on a language, deserve the adjective "mnemonic" or "mnemotechnical," which, as Urton has well noted, classified them in the same drawer as counting sticks and rosaries or, for that matter, rock art, unless you take into account the high degree of complexity of their codes or the possibilities of transmitting information they offer. As a result, in various subsequent works, such as Geoffrey Sampson (1985), indigenous American systems are not mentioned, or information is limited to only the Maya script (DeFrancis 1989, 121–127; Calvet 2001, 175–192) or to explanations of recording names in Aztec writing (Cardona 1999 [1981], 137–140).

Elizabeth Hill Boone and Gary Urton (2012), in their edited volume *Their Way of Writing: Scripts, Signs, and Pictographies in Pre-Columbian America*, have attempted to fill this significant gap in our knowledge of native graphic communication systems in the Americas. Similarly, *The First Writing: Script Invention as History and Process* (Houston 2008 [2004]) includes important contributions by Stephen Houston (2008 [2004]) and Elizabeth Boone (2008 [2004]). Another edited volume, *Image et conception du monde dans les écritures figuratives* (Beaux,

Pottier, and Grimal 2008), includes significant articles by Marc Thouvenot (2008a, 2008b) presenting Mesoamerican graphic communication systems and placing them among different world writing systems. Yet much remains to be done to present American systems to the world outside the disciplines of Mesoamericanists and Andeanists so that they occupy an appropriate place in works on the theory of writing and so that these same Mesoamericanists and Andeanists analyzing these systems make use of the latest advances in this area and enter into the worldwide theoretical discussion. Although it cannot be said they are not doing this at all, important gaps need to be filled in. We therefore present this book as a follow-up to Boone and Urton's 2012 volume, with a similar aim of presenting to the reader the graphic communication systems native to the Americas but with additional emphasis on theoretical and methodological considerations. We are interested, however, not so much in systems that without a doubt and by any definition are referred to as "writing," that is, those which are glottal systems (Harris 1999 [1995]) or glottographic (which "represent forms of some particular spoken language;" Sampson 1985, 21), such as the Maya, Zapotec, Aztec, and Mixtec scripts used in recording different types of names, as above all in the system—or systems—applied to convey the huge mass of information contained in the Mesoamerican divinatory and historical books, the ceramics and fabrics of the Andean region, and also in rock art.

The Mesoamerican codices in particular—leaving aside the Mayan codices that contain texts organized in lines, along with the toponyms, anthroponyms, gentilic names, and office titles in the codices of Central Mexico and Oaxaca—continue to be a bone of contention among researchers. The problem is that in explaining the mode of operation of the graphic communication system used beyond name recording, a researcher is immediately confronted with the involved and passionate issue of what constitutes writing. And the answer or even the very discussion of whether the Mesoamerican system or systems of graphic communication should or could be attached to this category carries great emotional weight, as Michel Oudijk, one of the contributors to this volume, has well noted (personal communication, 2010). Immediately when this theme arises, everyone assumes their defensive posture to shield themselves, and it is difficult to move them from their positions, since this stance is characteristic of supporters of either of the two views. In any event, the bone of contention is not usually the nature of the graphic signs themselves—the majority of the researchers distinguish among which of them convey only sounds, which of them only meaning, and which of them sound and meaning—but instead the very definition of writing and therefore the system itself. For those who accept the traditional and restricted definition of writing, it is obvious that only those parts of a graphic system based on the glottographic principle, that is, whose

overall function is or rather seems to represent language, can be considered as such. Therefore, in Mesoamerica to the west of the Isthmus of Tehuantepec, "writing" so defined would be, as mentioned, basically used in registration of proper names (of places, names of people, ethnic groups, or office titles), and there the matter ends. The problem starts when defining the system employed in other parts of codices with economic, genealogical, or historical themes as well as in divinatory codices, organized on calendrical cycles. In this case it is spoken of with terms ranging from "mnemonic support" (Kircher, in Eco 1998 [1993], 139; Gelb 1963 [1952], 36–51; Diringer 1972 [1948], 134–135, above) to "iconography" (Batalla Rosado 1995a, 625, 1995b, 77; Whittaker 2011, 935), "complex iconography" (Marcus 1992, 17), "narrative pictography" (Prem and Riese 1983, 170), "pictographic language" (*lenguaje pictográfico*; Escalante Gonzalbo 2010), "paintings and glyphs" (*pinturas y glifos*; León-Portilla 2003, 42), pictography or pictographic documents (*pictografía* or *documentos pictográficos*) as a form of writing itself (Jansen 1988, 2012, 77; Doesburg 2008, 11; Oudijk 2008, among others), "mixed system of writing" and "iconography," "script signs," and "pictographies" (Urton 2011, 3; Boone 2011, 380) up to "writing" (Boone 2011, 379) and "semasiography" (Boone 2007, 30–31).

It would certainly be difficult to call this system "writing" if we apply the traditional definition of this concept, forged in the European context and in reference to the alphabetical system. Its origin can be found in Aristotle (2015, 2), who said "written words are symbols of words spoken" (cf. Coulmas 2003 [1997], 2; Hyman 2006, 240). Jean-Jacques Rousseau then followed with the statement "languages are made to be spoken, writing serves only as a supplement to speech" (apud Derrida 2008 [1967], 382; cf. Olson 2010 [1994], 123). Later came Ferdinand de Saussure (1915, 23), according to whom "language and writing are two distinct systems of signs; the second exists for the sole purpose of representing the first,"[5] and Leonard Bloomfield (1933, 283–285), who defined writing as a form of writing down language. Nevertheless, it is more than evident that in their genesis, the world's writing systems do not arise to represent language (Olson 2010 [1994], 42–43, 138–139; cf. Mikulska 2015, 243–244), and it is more than well-known that no writing reflects speech fully—or perfectly well (cf. Harris 1999 [1995], 135–141; Cardona 1999 [1981], 44; Battestini 2000 [1997], 30; Coulmas 2003 [1997], 199; Baines 2008 [2004], 177; Mikulska 2015, 199–210, among others). However, as Roy Harris (1999 [1995], 135) emphasizes, given that the aim of linguists of the twentieth century was a "concern for phonological systems, whose analysis constituted the basis of their discipline from the beginning of the nineteenth century," they were interested in systems that provided information "about the way in which the language studied is—or could have been—pronounced"; hence the great success enjoyed by this "linguistic" definition (cf. Basso 1974, 425).

On the other hand, taking into account that theorists of writing do not have, in my opinion, sufficient data about how the original system of central Mesoamerica (understood as the region west of the Isthmus of Tehuantepec) operates in its entirety and what possibilities of transmitting information it offers, this is the first issue that must be remedied. Still more serious is the case of the systems that were used for communication across time and space in the Andean area. Although the intermediate and temporary solution I have used so far in calling the "problematic" American systems "graphic communication systems" (GCS) could be used, obviously, for non-glottographic "Moche iconography" or the *tocapu* system (see Clados, this volume), unfortunately it will not work with the *khipu* because of the epithet "graphic" and despite its profound degree of complexity. Certainly, this is the same objection that can be raised when labeling the Braille system, which is undeniably a glottographic system. This last comparison shows that possibly, on the one hand, no all-encompassing label will suffice and that, on the other hand, all absolute distinctions are fundamentally mistaken.

In my opinion, it is relevant to make comparisons with other "problematic" systems—that is, those that do not have the objective of reflecting language—that exist in the world, some of them sufficiently well described to make it possible to establish their formal characteristics and the possibilities of communication they offer. There is no doubt that only by having more data about graphic systems used outside the Western world, within which the definition of "writing" was formed, can the accuracy of this definition be discussed. It was with a similar objective, I believe, that Boone (1994, 9) proposed some years ago: "An expanded epistemological view would, and should, allow all notational systems to be encompassed. If the indigenous American phenomena are to be considered objectively, a broader view is required." Later, she suggested that "writing should be recognized and studied as a graphic communication system rather than as a speech-recording system" (Boone 2008, 315). Similarly, Urton (2005, 28), speaking of the Andean *khipu*, proposed that we ought "to drop the label 'true writing' and maintain a straightforward distinction between glottographic (both phonologically and nonphonologically based) and semasiographic (non-language-utterance-based) sign system[s] [. . .] The point on which differentiation between different types of signing/recording system[s] would turn (according to the perspective proposed here) is that of need, rather than intelligence."

I reiterate that in my opinion the focus of the discussion between researchers is not the nature of the graphic signs themselves, whether we are dealing with a single system or a mix of different systems and whether it–or they—can be included in the category of writing. And in this case, it is obvious that by accepting different definitions, the result will be different (cf. Mikulska 2008, 20–30, 43; Prem and

Riese 1983, 167). On the other hand, certainly, all the writing systems of the world are in fact mixed systems (see Whittaker, this volume), or they are a kind of "system of systems" (Hyman 2006, 245). But even if it is generally known that glottographic systems absorb notation systems, it does not change their general perception as "writing," while notation systems, even with numerous glottographic signs embedded, are still considered "notation systems." But what, then, is the criterion for this distinction: the proportion of the signs of different nature that constitute them?

In recent years, some Mesoamericanists and Andeanists have opted to look for other terms, and one of the most popular, on the one hand, and controversial, on the other hand, is the term *semasiography*. This designation comes from the Greek word *semasia*, "meaning," and *graph*, "drawn or painted" (Boone 2000, 30; Jackson 2013, 22). As such, it was used for the first time by Gelb (1963 [1952], 11), who spoke about the "phonographic" and "semasiographic" stages of writing, understanding the latter as that which "express[es] meanings and notions loosely connected with speech." Later, (1985, 29; original emphasis) Sampson defined semasiographic systems as "systems of visible communication [. . .] which indicate ideas directly, in contrast to *glottographic systems* which provide visible representations of spoken-language utterances." In other words, for Sampson (1997 [1985], 40), semasiography refers to non-glottographic systems, which "we could describe as 'writing.'"

The author provides two examples of this type of system. One of them and at first sight better is the "Yukaghir love letter," which Sampson took from Diringer (1972 [1948], 36; cf. Sampson 1997, 40–42), an example strongly criticized by DeFrancis, to the extent that Sampson himself (1994) later said that he would have preferred not to have included it in his book. This famous example concerns "letters" not in the Western sense of the word but messages recorded on pieces of birch bark by young women, who could express their feelings toward men in this sole socially accepted way. Importantly, these messages were always constructed in the presence of a "public" that was interacting with a woman, because friends gathered with her guessed at the message recorded by the interested woman (DeFrancis 1989, 31–32). Without a doubt, it was a "very restricted means of communication," as DeFrancis (1989, 34) says,[6] and not so much real letters but a "semiritualized product of these Yukaghir party games" (1989, 32). Therefore, in my opinion we are not dealing here with a system created to "communicate across time and space," which I consider the primary function of writing (cf. Mikulska 2015, 201–202, 308–311, and in this volume), but on the contrary, with a pastime of young people in a given situation. As DeFrancis (1989, 32) says, "If the 'letters' were sent anywhere, it was not by the girls to their boyfriends, but by visiting

Russians to the Museum for Anthropology and Ethnology of the Academy of Sciences in St. Petersburg." It is therefore difficult to consider this phenomenon as an example of a semasiographic system.

Another example of semasiography provided by Sampson (1997 [1985], 45) is the graphic message concerning the automatic starting of an automobile, consisting of a brief series of images. Although, on the one hand, it is a good demonstration of how in the contemporary world semasiographic systems are used more frequently and for more sophisticated messages, forming more complex systems with greater degrees of coding than a single picture or image, it is also true that in this case it is a simple message. That is why Sampson's proposals have met with criticism such as that of Michael Coe (2001 [1992], 22), who has found Sampson to be almost unique in making such assertions about "semasiographic 'writing' as [a] complete system, because it can only be proposed as a theoretical possibility, and he cannot point to a real example of such writing." However, as mentioned, Sampson does not provide even one example of indigenous American systems, and perhaps this is exactly what is lacking—if we accept that at least in some of them the system effectively employed is semasiographic.

Such a proposal was made for the first time by Boone (2000, 30) and precisely in reference to the system used in the historic Mixtec and Aztec codices: "Semasiographic (based on the Greek word *semasia*, which means 'meaning') refers to those systems that communicate information directly to the reader within the structure of their own system; these are systems of writing that do not detour through speech to be understood. They function independently of language, although they operate on the same logical level as spoken language and can parallel it. These are the systems that the broader definition of writing embraces." Boone's approach, however, has also met with criticism, especially by Mesoamericanists who are in favor of the traditional definition of writing and who in principle are already occupied either with the Maya system—glottographic—or that part of systems of central Mesoamerica containing glottographic signs, that is, the aforementioned toponyms, anthroponyms, and so on (cf. Zender 2008, 28).[7] In my opinion, the problem here is twofold. First, many (though not all) of the researchers who focus on the aforementioned glottographic elements do not necessarily feel the need to name or define what remains outside their main line of research and are satisfied with calling the "other part" of the system "iconography"—although no doubt this is a different term that does not correspond faithfully to what we have been discussing (above and following). The other side of the coin is that semasiography has not yet been clearly defined, or at least researchers who use the term have not reached agreement on how to understand it. Therefore, as Margaret Jackson (2013, 21) says: "The category includes everything from symbolic diagramming and math

to transit maps and, of course, pictographies and hieroglyphics—genres of great interest among Americanists. Such multiplicity points to the fact that semasiography is actually an umbrella term covering a range of graphic systems and operative structures."

Already at first glance it can be noted that the term in question can cover almost everything one might want to include, and it is precisely because of this vagueness and lack of definition that it is not strange to find it a target of criticism. On the one hand, we can agree with Sampson (1985, 30), who concluded by saying: "Whether we wish to insist on this definition [a system must be glottographic to count as 'writing'] and, accordingly, categorize semasiography as something other than writing [. . .] or whether we feel that semasiographic systems are sufficiently like 'core' examples of writing to count also as 'writing' of a marginal kind [. . .] is ultimately a personal choice about how to use words." On the other hand, for a person who has before herself such complex systems as used in the divinatory books from the part of Mesoamerica to the west of Tehuantepec or in the codices with historical or economic subject matter in the same region (but not only in their recording of names) and likewise in the Andean *tocapu*, in Moche "iconography" it is more than essential to have categories and nomenclature that accurately describe the methods of operation of these systems of graphic communication, without either simplifying them or forcing them into the traditional definition of writing (as attempted in the Galarzian approach).

Yet one might ask, why not use time-honored categories, that is, pictography or iconography? With regard to the first, indeed, many Mesoamericanists and Andeanists use this term or its "derivatives" *pictographic writing*, *pictographic codices*, *pictographic manuscripts*, and so on. It would be difficult to list all the researchers who use such terms, although some of them have been mentioned above. This term is frequently used by the representatives of the so-called Dutch school or those who emerged from it (cf. Jansen 1988, 2012; Roskamp 1998; Doesburg 2001, 2008; Oudijk 2008; Hermann Lejarazu 2009; Castañeda de la Paz and Oudijk 2012, to cite some of their works), who at the same time consider this system as one more type of writing. It would be good if we could all reach agreement and use this term, but the problem is that outside Mesoamerica the term *pictographic* applies to totally different systems and graphic representations (cf. Sampson 1997 [1985], 50; Cardona 1999 [1981], 139; Mikulska 2015, 218).[8] On the one hand, it is used in reference to the rock art of very different cultures (see discussion in Iwaniszewski, this volume). On the other hand, the part of Chinese signs that refers to the semantic value of the sign is characterized with the root picto- (while the other part transmits the sound value through phonetic means), and the first-mentioned part still contains traces of iconic origin. The name picto-, however, comes from the translation of

the original Chinese name of one kind of the signs of this writing system, 形聲字, or *xíngshēngzì*. This word is composed of two others, 形, or *xíng*, meaning "shape, form"; 聲 *shēng* is "sound"; while 字, *zì*, is "sign of writing" (Olech, personal communication, 2016). Even if the whole word is frequently translated as "pictophonetic characters" (Kuo, Chen, and Zhang 2009, 18) or "pictophonetic compounds" (Kubler n.d.), it could be as well translated as "shape-phonetic," "visual-phonetic," with a word referring to the iconicity of one part of this sign.[9]

Finally, Egyptian writing is also characterized with the qualifier "pictographic," especially hieroglyphs or "sacred writing" (although not so much the hieratic and demotic other forms of this same writing system),[10] even though this system is completely glottographic, composed of logograms and phonetic consonant signs (Davies 1987). Yet another two systems are referred to as "pictorial" (cf. www.ethnic-china.com). The first is the system of the autonomous country of Naxi (Yunnan Province of China), originally priests' script—that is why it is also called *dongba* (priest) script (cf. Beaux 2008). The second is that of the indigenous Kuna of Panama, which is used to record prayers and sacred songs (Severi 1997; cf. Mikulska, this volume). What both systems have in common is that, on the one hand, they rely on oral tradition to be verbalized, but, on the other hand, they contain signs that possess a high degree of iconicity (below). Apparently, this last feature is common to all systems qualified as pictographic, although, as has just been seen, their modes of operation—or their operating principles (cf. Mikulska, this volume)— may be as far apart as rock art and Egyptian writing.

As for the second possible designation, iconography, despite its wide use, in my opinion refers more to a methodology than to a particular system of graphic communication. It is known that in the tradition of Western Europe, *iconography* includes the study of Christian art, referring to "the branch of the history of art that deals with the substance or signification of works of art, as opposed to their form," as Erwin Panofsky (1979, 26) defined it. However, as Umberto Eco (1996 [1968], 155, 157–158) has well noted, iconographic "codes" are different from "iconic codes." According to this semiologist, iconographic codes connote more complex meanings and are culturally rooted, such as *Pegasus*, *The Nativity*, *The Last Supper*, but for their recognition, it is first necessary to recognize the most basic and analytical iconic code on which the iconographic is built (Eco 1996 [1968], 155, 157–158; cf. Mikulska 2008, 86). Therefore, each iconographic code is iconic or is based on an iconic code, but the same does not necessarily hold in reverse (Eco 1996 [1968], 155, 157–158). The word *iconic*, which comes from the Greek word εἰκών, "*likeness, image, picture*" (Lampe 1984, 410), refers to the visual similarity of a graphic representation to a represented object, that is, it is a "participation [of the sign, KM] in some characteristics of the object" (Eco 1978: 326–360) and not so much a real likeness.

Nevertheless, it must be emphasized again that several Mesoamerican researchers use the term *iconography* in the same way others mean *pictography*—hence the differences when it comes to naming the non-glottographic part of the Mesoamerican system of graphic communication (above). When we understand how each researcher defines all these concepts, it turns out that there is more agreement that disagreement when it comes to characterizing the system in question. For example, Sebastian van Doesburg (2008, 11), one of the representatives of the Dutch school (which implies that in general he calls the GCS pictography), says: "Mixtec pictography, on the other hand, is of the direct type [which encodes the story directly in writing and not through language; SD] that encodes its message directly through the interrelation and the contextualization of images. Here the dividing line between art (or rather, iconography) and writing is thin and sometimes it is not possible to draw it. The two make up graphics systems coded directly to transmit human messages. Mixtec pictography is located on the boundary of the two: it is iconography and it is writing."[11]

What matters is that he emphasizes that the Mesoamerican GCS does not fit into any of the categories set out in the context of the Old World. David Wright-Carr, one of the contributors to this book, emphasizes the same thing: "The visual language manifested in the pictorial writing of Central Mexico is on the blurry border between the European semantic categories of 'visual arts' and 'writing'" (this volume). However, even when we restrict ourselves to the writing systems known and accepted as such in the reality of the Old World, what results is that none of the commonly used categories—logographic, syllabic, phonetic, and other writing—is pure. But if all the systems are in fact a mixture of systems, what really matters is the nature of their constituents—the graphs—and whether they are logographic, syllabic, phonetic, or semasiographic because this nature determines how they are processed by the scribe and the reader. In other words, what does matter is which operational principles are at work (e.g., semasiographic, logographic, phonographic), and it must be stressed again that no system makes use of only one unique principle. Instead of concluding by saying that most classifications of writing systems suffer from being tremendously inexact, the more productive question is how the systems—the graphic communication systems of indigenous America—worked. It is with this objective that we put this book in the hands of the reader. In this volume, some authors participate in the theoretical argument outlined above while others do not, focusing more on an in-depth presentation of evidence and means to analyze it.

In his chapter, David Wright-Carr, based on the definition of Geoffrey Sampson, proposes a carefully considered definition of semasiography. Given, as he says, that most writing systems are mixed and incorporate different kinds of signs, he

focuses on particular graphs from Mexica and Otomi documents, presenting their classification matching the division of writing into semasiography, logography, and phonography. In particular, graphs that can be read perfectly in two or more Mesoamerican languages show how semasiography should be understood according to Wright-Carr's proposition.

In my chapter, it is important for me to review the functions accomplished by any system of writing and from this point of view to see which purposes the graphic communication system used in the divinatory codices from pre-Hispanic Central Mexico fulfills, which in reality has many more objectives than representing language. In this chapter I present my proposal for defining writing, forged from the idea that systems of graphic communication function on the basis of distinct operative principles, that is, glottographic, iconic, notational, and semasiographic—this last in particular in the GCS used in the divinatory codices of Central Mexico. It therefore contains some of my answers to the questions raised in this introductory essay, as I find it more appropriate to present them there to avoid creating in this introduction any implicit context with which all other contributors to this volume must comply.

As the reader will see, at first glance the proposals of David Wright-Carr and myself might seem divergent. Nevertheless, this is not so, since both take into account that semasiography does not imply dependency on a specific language, but this does not indicate a lack of precise rules of operation. Danièle Dehouve lays bare an important part of how precise rules work in terms of such delicate matters as metaphor in her chapter. She not only develops her earlier proposal of the metonymic series that conforms to "definition by extension" but also demonstrates that its components can enter into different operational chains, which sometimes interweave among themselves, and that the proper identification of the series as much enables the avoidance of overinterpretation as it makes possible the comprehension of graphic, oral, and performative expression among the ancient Mesoamericans.

Continuing on, Angélica Baena Ramírez applies Dehouve's theory to metonymic and definition by extension series, among other theoretical proposals, in a pragmatic way when analyzing the divinatory codices, in this case, the *Codex Borgia*. It is also another chapter that shows how the graphic communication system used in this kind of document is par excellence one that operates on the borders of classical categories, constantly crossing them.

In a similar manner, Loïc Vauzelle also takes a pragmatic approach in his chapter. Nevertheless, he not only takes advantage of the cognitive theory of metaphor and develops its visual aspect but also presents a novel proposal that explains how, in the domain of costumes, the semasiographic and glottographic principles are applied, further explaining how this system adapts itself to "re-create" a god—visually, physically, and through speech.

The chapters by Jerome Offner and Katarzyna Szoblik turn attention to another kind of Mesoamerican book, this time historical, in particular, the *Codex Xolotl*. Offner brings a variety of methods developed for the study of indigenous historiography that parallel the investigations of other contributors' investigations into the graphic communication of religious subject matter. In an approach arising from complexity theory that has similarities to Dehouve's, he uncovers underlying rules and principles that generate the rich surface of this very complex document. He severely tests the boundaries of conventionally understood "iconography," pointing out along the way the false beliefs Westerners hold about the inerrancy and immutability of meaning transmitted by their alphabetic script. He compares the boundaries of indigenous historiography to those of Western historical inquiry and examines the situation of graphic communication in a predominantly oral culture not dominated by glottographic writing, furthering the effort to contextualize graphic communication in social process. For her part, Szoblik shows how this graphic Aztec document is "deeply related to Nahua oral tradition" and so-called oral mind. Here her use of the terms *oral* and *orality* accords with their wide understanding as the opposite of "literacy," that is, what is created by a mind educated in alphabetical writing. Therefore, Szoblik's chapter is an important contribution to the worldwide discussion regarding the Great Divide.

In the next three chapters, Christiane Clados, Stanisław Iwaniszewski, and Janusz Wołoszyn occupy themselves with subjects that, at the first glance, are very remote from what the classic definition of writing includes. Still, their chapters clearly show the degree and operation of the complexity of the graphic communication systems used in Andean clothes and ceramics, in Clados's case; in rock art, in Iwaniszewski's case; and in Moche portrait vessels. Therefore, Clados shows how originally, figural motifs are hidden in apparently abstract Andean *tocapus*. Iwaniszewski shows how the iconicity of depicted dots and strokes, sometimes together with pictorial representations, leads to the development of a numerical additive system. Finally, Wołoszyn demonstrates how the system of status markers in Moche portrait vessels forms a precise language of understandable signs that refers to a social, ritual, cultural, or ethnic group rather than to a particular represented individual.

Gordon Whittaker uses more traditional classifications to maintain engagement with and employ mutually understandable terms for researchers from other areas. Nevertheless, what stands out in particular in his chapter is the way the authors and users of the Aztec system themselves utilized it, without their solutions being ascribable to classical categories. "Blurred borders" becomes an understatement.

Finally, the chapter by Juan José Batalla Rosado and Miguel Ángel Ruz Barrio, as well as the one by Michel R. Oudijk, show how lack of precision and attention to detail can lead to erroneous constructions of interpretation, with both chapters contributing

notably to the development or improvement of methods used to study the content of Mesoamerican books, including those created in the colonial era. Batalla Rosado and Ruz Barrio, even while focusing on the logo- and logo-phonetic part of the Central Mexican graphic communication system, show that its precise rules were not created to fit our Western view of what writing "should" be. Written from another perspective, the chapter by Oudijk provides a clear example of how the overinterpretation mentioned earlier by Dehouve can persist over many years. The investigation and correction of such episodes is especially important for Mesoamerican divinatory codices, so richly described in this book, as they are little known outside of Mesoamerican academic circles; and worldwide comparative work on the theory of writing requires the most accurate input possible from the distinctively different means of graphic communication and writing developed in Central Mexico.

Comprehension of the indigenous graphic communication systems of the Americas has, from a theoretical perspective, resisted scholarly investigation in the modern era for many decades. The contributors to this volume, my co-editor, and I hope this body of work, including inquiry into indigenous religion, divination, historiography, and social process, in addition to graphic communication systems—which also include writing systems—will advance understanding of these systems and these societies as a whole. Their situation in society and culture was indeed different from those of Western systems, and in challenging and changing often too-resistant categories and boundaries of Western inquiry, we hope a new and productive conversation regarding "what is writing" in a truly worldwide perspective can be encouraged, thereby also inspiring examination of and illuminating important but neglected aspects of our own Western society and its perception of and relationship to its own graphic communication systems.

NOTES

1. This book is a result of the international symposium Indigenous Graphic Communication Systems: A Theoretical Approach, financed by the project funded by the National Science Centre of Poland (Narodowe Centrum Nauki), decision no. NCN-KR-0011/122/13, and carried out by Katarzyna Mikulska. This introduction also presents a portion of the results of this project.

2. The place names of Cuauhtitlan, Tepeyacac, and possibly Teteuhtepec (*Codex Mendoza* fols. 5v, 42r, and possibly 7v), respectively.

3. The scene represents a visit made by the man called 1-House to the *señorío* (kingdom) of Jaltepec. The governors of this place are the Lady 9–Wind Flint–Quechquemitl and Lord 10–Eagle, Stone-Jaguar, the governor of Tilantongo. I owe and thank Manuel Hermann for the identification of both the codex and the scene.

4.   Of course, this is true for the alphabetic signs, but it has been known since the 1970s that the Aztec system made use of phonographs (signs used only on their phonic level), particularly for (foreign) names of places. See the first works about the subject in Dibble (1971) and Nicholson (1973). For more information, see Wright-Carr (this volume).

5.   Langue et écriture sont deux systèmes de signes distincts; l'unique raison d'être du second est de représenter le premier (Saussure 1995, 94).

6.   DeFrancis (1989, 28–34) also stresses that we have far too few data to decipher the content of these "letters," given that "the details of the actual permutations of these items are apparently only partly revealed by the sketchy summaries available to us," and that we can in fact know their content thanks only to the descriptions of Shargorodskii, the first researcher who, while in exile in Siberia, found this phenomenon among the Yukaghir.

7.   Zender (2008, 28) says explicitly: "Nahuatl writing was demonstrably not an ideographic or semasiographic system."

8.   See also the considerations regarding the term *pictogram* and the validity of its use in Whittaker (2011, 936).

9.   I am profoundly grateful to Marian Olech, PhD student, for these data and explication.

10.   See also the considerations on the term *hieroglyph* in Whittaker (2011, 936).

11.   La pictografía mixteca, en cambio, es del tipo directo [que codifica el relato directamente en la escritura, y no a través de la lengua; SD], ya que codifica su mensaje directamente mediante la interrelación y la contextualización de imágenes. Aquí la línea divisoria entre el arte (o mejor dicho, la iconografía) y la escritura es delgada y a veces no es posible trazarla. Los dos conforman sistemas gráficos codificados directamente para transmitir mensajes humanos. La pictografía de los mixtecos se encuentra en el lindero de los dos: es iconografía y es escritura (Doesburg 2008, 11).

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