

1

The History of Writing

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The history of writing depends critically upon what we mean by writing.

INTRODUCTION

Paradigmatically, writing is the representation of speech. But what then about the visual signs and symbols that humans created and continue to create sometimes for communication purposes, other times for sheer self expression, and at still other times for linking themselves to the gods? To tell the history of writing, even in its paradigmatic sense, it seems essential to begin with a more comprehensive view of writing as the use of created visual marks or other artefacts for communication and expression. From this base, we may then see more clearly how representations in general relate to representations of language more specifically.

With this more inclusive notion of writing as visual communication we can include the celebrated 40,000-year-old cave drawings at Lascaux and Altamira, as well as the first markings incised on bone, in China, dating back some 10,000 years, the clay gods

modelled by the Hittites some 8,000 years ago, as well as the petroglyphs carved by North American aboriginal peoples some 4,000 years ago. For it is out of these earliest attempts that the modern forms of communication we think of as 'true writing' evolved and it is from such attempts that even modern children work their way into writing and literacy. My concern in this chapter is to set out some of the transitions in visual communication and the social and cognitive conditions that contributed to the evolution of modern forms of writing.

Even the more inclusive notion of writing as visual communication rules out a huge realm of visual information, such as that of a face reddened by embarrassment, the gestures and gesticulations that accompany speech, the tracks we leave on sand or snow that may be 'read' and interpreted by others. We set them aside, not because they are unimportant, but because in such cases there is no attempt or intention on the part of the actor to express or communicate. On the other hand, smoke signals, a hand raised in greeting or anger, a headdress, or mansion indicating power or wealth, would fall within a scheme of visual communication and

expression, as they are conventional signs that are intended to represent and convey information. As signs, they may be distinguished from the things they represent. Just how they represent, and how they are understood by those who 'read' them, will be a major part of the story.

The study of visual signs has traditionally focused on the structure and meaning of the sign systems themselves, that is, on what the signs represent, whether ideas, words, sounds and so on. In the more recent past, the concern has shifted to the uses of those signs and the ways they may be, and have been, interpreted as well as the traditions they help to create. In the first of these, the classical theories of writing such as those set out by Gelb (1963) and Diringer (1968) showed the evolutionary pattern of how signs that at one time represented objects and events in a somewhat direct and unmediated way, progressively shifted to represent more and more indirectly through the use of marks to indicate the abstract properties of the spoken form – words, syllables, and eventually phonemes. Briefly stated, these evolutionary accounts showed that the signs that at first represented objects or events in the world evolved into signs that attempted to represent *language* about the world.

But more functionalist orientations to writing have focused on the widely divergent uses of those signs, arguing that it was the uses and attempted uses of those signs that drove their evolution. A few tokens may adequately represent a business transaction but a richer set of signs would be required to represent a name, an event, a poem, or a law. Moreover, the uses are not only those intended by the maker of marks or signs but also the ways they are taken up and used by the recipients. Visual signs designed to represent poetry may turn out to be useful for writing curses. While we cannot be certain of the uses of the earliest drawings, carvings, and other inscriptions – were they aesthetic or were they magical? – they fall into two rough classes we usually think of as drawing and writing. However, the classes are not so well

defined as to be mutually exclusive, because the users of those signs may treat them as basically similar or basically different. Thus, although a religious icon and the printed word 'Jesus' may represent that person in quite different ways, viewers may treat them as equivalent objects of veneration.

In fact, just how these marks or symbols relate to the things, events, ideas, and meanings they are thought to express has been not only a philosophical puzzle but a political matter sometimes resolved only by wars and revolutions. The first actions by either a despot or an invader is to tear down the existing gods and other symbols of the culture. Think of the planting of the flag on Iwo Jima or the toppling of the statues of Saddam Hussain. Some symbols such as icons, relics, pictures, and other souvenirs would seem to represent by *mimesis*, that is, by similarity to sharing essential features with, or having a natural connection to the things they represent. So much so that the god of the ancient Hebrews forbade the worship of graven images; presumably, the image would draw attention away from the thing the image was to represent, namely, God himself. Words, by contrast, would seem to represent by mere convention, an arbitrary relation to the thing represented, and hence much less likely to be seen as directly connected to or a participant in the thing represented.

Literary theorists distinguish these two ways of relating symbols to the things they represent as metonymy and metaphor; the first linked directly, a participant in, or part of, or bearing a strong similarity to the thing represented, the latter, standing for or taking the place of the thing represented. Images, icons, relics, sculptures, laying on of hands, and represent by metonymy – they are mimetic symbols. Words, theories, models, and equations represent metaphorically; they are conveniences for thinking about the things they represent, little more than conventions. It is noteworthy that names, unlike words, are treated as if they were mimetic, as if they were intrinsically related to the person or object they designate. Hence, considerable

effort goes into naming a child or a state or a building and few parents would be content to name their newborn with an arbitrary string of digits. On the other hand, it seems appropriate to name a robot R2D2.

This distinction between these two basic ways of representing is not only hard won, but it also remains controversial. Every culture treats some things as sacred and the symbols of the sacred are treated metonymically, that is, treated as if, in some sense, they embody the thing represented. Tambiah (1990) discussed the controversies about the burning of the American flag, an act that was seen by most as a desecration of the thing, the nation, it stands for. It is not regarded as merely a conventional sign even if, in fact, it is purely conventional. Names, as mentioned, are words but in addition are seen as a part of or a property of the person named, hence, the provisions against slander of 'my good name'.

It was only in the seventeenth century that signs came to be seen simply as signs. It was the Port Royal grammarians who sharply distinguished signs from things, *verba* from *res*, arguing that signs are not things but merely *representations* of things, the view we hold, at least when we are thinking scientifically, to this day. If signs are merely arbitrary and conventional and completely independent of the things they represent, what harm could there be in insulting a sign? None. Similarly, if signs such as words are merely conventional, how could words have power? They cannot. At a stroke, the world of signs was *disenchanted*. It, thus, came to be seen as ancient superstition to believe in word magic, in sympathetic medicine, or in Voodoo, the ancient practice of burning or destroying an effigy with the attempt to harm the person of whom it is an effigy. We still, of course, cringe when we see a pin poked into the eye of a person in a photo and young children will, occasionally, lick a picture of an ice-cream cone. Nevertheless, for most modern users of signs, we have adopted the Port Royal convention, passed on down to us through such famous linguists as Saussure

and Chomsky, that signs are arbitrary and conventional representations. Pictures too have come to be seen as not as mimetic but as expressions in a language of art, a view not shared by all societies nor by all members of the same society – recall the outrage expressed at the insultingly crude portrait of Churchill or the drawings of the Prophet.

Representations, then, are to be distinguished from the things they represent and they are ordinarily recognized by viewers as distinct, even if the boundary is sometimes masked or ignored. Consider the interesting drawing by the French artist Magritte who drew a picture of a pipe, smoke drifting from the barrel, which then he mischievously labelled '*Ceci n'est ce pas une pipe*' – 'This is not a pipe'. Surely, he is joking or contradicting himself. Not so, the major theme of Magritte's *oeuvre* is that of playing with the possible conflicts between a thing and the representation of a thing. Hence, he portrays the artist's easel with a painting on it in such a way that you cannot tell whether you are viewing the artist's painting or the object being painted. Other artists had toyed with this quandary earlier as in Velazquez' renowned 'Les Meninas' and Escher's drawing of doves that seem to slowly transform into turtles. However, it is Magritte who makes a habit of showing the troubled relation between the thing and the representation of a thing. This is not a pipe but rather a *picture of a pipe*. Woe unto him who fails to make the distinction as indeed, woe unto him who draws it too crisply.

The history of visual signs, including those that come to represent speech, is deeply embedded in the mimetic tradition, the tradition that sees resemblance or identity between sign and thing represented. The first visual signs tended to be symbols of deities, treated as objects of veneration, their form determined by resemblance or similarity to the thing represented. This was no less true for those symbols used for mundane commercial purposes, for keeping records or recording transactions, than it was for those created in the attempt to influence the gods. Furthermore,

how to adequately represent one's communicative intentions, as in conventional writing, was no more obvious than how to adequately represent and communicate with an abstract and unknown god. One may compare for example the 6,000 BC Anatolian fertility goddess moulded from clay with the stained glass windows of St. Peter's Cathedral. To those who viewed them, the symbol seemed adequate to its purpose even if the forms they take are radically different. So too is for the invention of signs for writing.

For there to be a history of writing, then, we must consider the structure of the symbols, the uses made of them, and, in addition, we must locate traceable lines of descent. Rather than celebrate the diversity of forms and uses, we must trace how one set of visual signs evolved into a second, often more complex set of visual marks and how those marks came to be seen as representing increasingly abstract properties of speech. In so doing, writing changed from quite diverse and special-purpose systems of signs into more or less all-purpose writing systems we employ to this day. A combination of borrowing good ideas and applying them to new and diverse uses motivated these advances.

To understand the history of writing we must set aside our literate prejudices, our tendency to assume as natural and obvious that language as an object available for inspection; that we have a natural consciousness of language. This tendency comes to literate people primarily from their identifying language with the written form and in some cases as identifying language as a distinctive 'tongue'. For nonliterate persons language is available to thought only in the most general sense, as answers to 'What did he say?' or for translating into a foreign tongue. Consequently, writing was never a matter of simply inventing a device for recording speech but rather a matter of discovering the properties of speech suitable for visual representation and communication. It was the latter task that required generations of borrowing and invention.

Consequently, while visual signs in general are as natural a means of communication

as any form of speaking, writing is not simply a natural communicative competence like speech. First, it was slow to evolve historically and second, is late to be acquired by children and normally requires explicit teaching. Moreover, unlike speech, writing has a relatively recent, traceable history. The great historians of writing mentioned earlier (Diringer, 1968; Gelb, 1963) traced this evolution from word signs or logographs, to syllable signs or syllabaries, and finally to alphabets that at first represented consonants only and later, in the hands of the Greeks, alphabets that represented both consonants and vowels. Consequently, three types of writing systems have been described by most writers in this tradition: logography, syllabaries, and alphabets, arranged according to Gelb's (1963: 252) *Principle of unidirectional development* 'from word to syllabic to alphabetic writing'. More recent theorists (Coulmas, 2003; Daniels, in press; Sampson, 1985; Taylor and Olson, 1995) have shown that such systems of signs do not so easily fall into the earlier categories in that all writing systems use a variety of forms of representation including special signs for names, namely capitalization, signs for sentences, namely capitals and periods, and the like. Others (Gaur, 1987; Harris, 1986) have emphasized the ways that function and use have driven the preservation, in some cases, and the evolution, in others, of writing systems. All writing systems are attempts at communication and as those needs change, so to do the writing systems.

As we have seen, it is a universal property of all so-called 'full' writing systems that they do not represent or depict the world directly but indirectly. In all of them writing is not about the world but about what one says about the world, writing is the representation of language. Consequently, all modern writing systems are based on the invention of signs that capture aspects of the sound patterns of speech rather than what those sound patterns mean or refer to. Daniels (in press) has pointed out, 'there are three known independent ancient origins of writing – the

Sumerian, the Chinese, and the Mayan – all of which served societies that had developed some degree of urbanism, and that the three languages involved were similar in basic structure: most of their morphemes are just a single syllable’ (p. 16, manuscript version). What this means is that all writing systems began with the recognition of the fact that signs could be used to represent sound, specifically, the sound of the syllable, and that was most readily discovered, as Daniels points out, in languages that had an abundance of single syllable words. This basic insight was then exploited as writing came to be used for languages with more complex syllable structures such as Greek. It is the fact that writing brings different aspects of linguistic form into awareness that gives writing its distinctive impact on cognition; writing is not only a means of communication but also a distinctive form of representation, a representation of language.

While all modern or ‘full’ writing systems, then, represent language, and they all began by representing monosyllabic morphemes, under the pressure of adapting to new languages and to serve new functions they were elaborated in quite different ways. Signs may represent whole words or morphemes such as ‘fee’, they may represent separate syllables in multisyllable words such as ‘fee/ble’, they may divide syllables into ‘onsets’ and ‘rhymes’, or they may take the further step of representing all similar onsets by means of single consonants. Distinctive signs for representing signs for the rhymes by means of vowels, the invention of the Greeks, produced the modern alphabet.

However, the impression that the history of writing is one of simple progress toward the alphabet is misleading. Earlier writing systems were not faltering steps towards or failed attempts at creating a transcription of language. There never was any attempt to invent an alphabet as an ideal means of representing language (Daniels, in press: 15). Rather, each step in the revision and transformation of a writing system was the result

of applying a system that more or less adequately represented one language, to a new language for which it was not well adapted, requiring revisions in the writing system. Hence, the evolutionary metaphor is somewhat misleading; as in modern biology, there never was an attempt to evolve the ideal or perfect structure but only the attempt to adapt existing structures to new requirements. If other writing systems are seen as deficient in comparison with the modern alphabet, it is only in terms of the new goals and purposes for which the alphabet was developed. Yet it is also true that the invention of the alphabet turned writing from a special purpose device into a system of communication that was capable of expressing anything that could be said; writing became in many ways the equivalent of speech.

The most general principle guiding the development and evolution of writing systems is that of serving as an effective means of storing and communicating information, through time and across space, as Innis (1951) and many others have noted. That they have come to represent the most abstract properties of spoken language is an unanticipated outcome of the attempt to develop systems to convey information unambiguously. Thus, principles of communicative effectiveness as well as principles of economy are relevant to the shaping of writing systems into more abstract forms. However, principles of conservatism and tradition are also at play. To change the writing system is to abandon a tradition and to make its literate past inaccessible, hence, the conservatism of, among others, the Chinese script. Issues of national identity whether affirming or abandoning a past, as when Serbia retains the Cyrillic alphabet to identify its link to Greek Orthodoxy whereas its neighbours adopt the Roman alphabet to show their identity with the West or as in modern Turkey’s adopting the Roman script in an attempt to shed an abandoned past.

The fact that the evolution of writing systems were attempts at communication rather

than attempts to represent the most fundamental and abstract properties of spoken language, namely, phonemes, has the important implication I briefly mentioned above. It implies that these revisions of writing systems were at the same time discoveries of the implicit properties of speech. This provides justification for the radical conclusion that I advanced earlier (Olson, 1994) namely, that attempts at communication had as an unanticipated outcome the discovery of the implicit properties of speech. It is this new consciousness of language that has allowed literacy to serve as a new mode of thought. As I wrote, echoing Whorf (1956): 'We introspect our language in terms of the categories laid down by our script' (p. xviii). Our linguistic categories reflect rather than determine the properties of our writing systems.

What has become more conspicuous since that was written was that technological inventions depend for their effects on how they are picked up, used, amplified, and adopted as a social practice by what has been called a 'textual community'. Without readers who themselves adopt the practice and use it in a way that is mutually comprehensible for purposes that they, as a group come to share, writing as a technology would have no social impact. No written document stands alone; it is read, discussed, interpreted, and commentaries are written and new documents created to form a tradition. It is through this tradition, existing through time and across many readers and writers that such social practices evolve into such distinctive literate forms as commerce, philosophy, science, literature, and so on. In addition, for an individual to become literate is to learn how to participate in these textual communities. It merely begins with an acquaintance with orthography, a writing system.

Yet, communicative needs do not simply create inventions out of the blue; inventions are, at least in the case of writing, adaptations of existing systems of visual communication and hence, the very possibility of a history of writing.

A HISTORY OF WRITING SYSTEMS

The earliest signs for visual communication that provide a traceable link to later forms of writing are the clay tokens developed for accounting purposes in Mesopotamia in the ninth millennium BC. The system, developed by ancient Sumerians in what is now Iraq, about the time that traditional hunter-gatherers were developing an agricultural way of life, consisted of sets of distinctively shaped tokens used to keep records of sheep and cattle and other commodities such as oil, beer, and grain. About the fourth millennium, about the time of the growth of cities, the variety of tokens increased, some were pierced so that they could be strung together, and others were placed in envelopes or *bullae* so that they could indicate a single transaction. Schmandt-Besserat (1992) has suggested that the shift from tokens to writing began when markings were made on these envelopes to indicate their contents. These markings, she suggests, constitute the first true writing. All of the eighteen signs denoting commodities such as grain, animals, and oil which later appear on standard clay tablets were derived from these marking for tokens.

Systems of signs of this sort do not yet compose a full writing system as they lack a *syntax*, a system for relating signs to each other. This began first by the invention of separate signs for number with the result that instead of representing three sheep by means of three tokens, one for each sheep, the new system could represent three sheep by two signs, one for the number three and one for the noun, sheep. Yet, even here, what we have is more of an accounting system than a full writing system. All of the world's modern writing systems evolved from systems which captured not things, and not thoughts, but the sound patterns of the language they were used to represent as we saw earlier (Daniels, in press: 16).

Subsequent developments, which gave rise to the alphabet are attributable largely to the

consequences of borrowing. When a script that adequately represents one language is borrowed to represent a quite different language, the signs are 'read' in a new way. Signs for one-syllable words come to be treated as signs for a single syllable of a multisyllable word. So, word signs in language A come to be treated as syllable signs when they are borrowed to represent language B as happened when Sumerian logographs were borrowed to represent a Semitic language Akkadian (Larsen, 1989: 131). A noteworthy feature of such syllable signs, or syllabaries, is that they lack signs for vowels. Distinctive signs for vowels are usually credited to the genius of the Greeks. Yet the story is less one of genius than of adapting the Semitic Phoenician syllabary to the special linguistic properties of spoken Greek. Pre-Greek scripts had reduced the complexity of their syllabaries by using a single sign for all the syllables sharing a common 'on-set' or initial sound. Thus, a single sign, say *p*, may be used to represent *pa*, *pe*, *pi*, *po*, or *pu* thereby losing any indication of the vowel differences, which, in any case, did not mark morphological or meaning differences. The Phoenician set of twenty-two graphic signs with a memorized order beginning *aleph*, *bet*, and *gemel*, was adequate for representing the full range of meanings and the signs can be seen as representing not only syllables but also the consonantal sounds of the language.

Vowels were added to the script by the Greeks about 750 BC, some have suggested especially for the transcription of the orally produced Homeric epic poems (Powell, 2002) – commercial transactions could be conducted in the scripts of the trading partners, the Phoenicians. Others (Thomas, in press) however, have argued that even prior to the recording of the epics, Greek writing was used for such ordinary purposes as writing curses and identifying valuable objects as one's own – 'This cup belongs to Tataie' or 'I am Nestor's cup'.

While not minimizing the significance of the Greek invention of distinctive marks for vowels, it is now widely acknowledged that

the development of the alphabet, like the development of the syllabary, was a more-or-less straightforward consequence of applying a script which adequately represented one language, to a second language, for which it was not completely adequate. Whereas in Phoenician vocalic differences were unimportant, in Greek, as in English, vocalic differences mark meaning differences – 'bad' is different from 'bed'. Moreover, words may consist simply of a vowel, they may begin with a vowel and words with pairs of vowels are not uncommon. To fill the gap, six of the signs representing sounds unknown to Greek speakers were borrowed to represent the isolated vowel sounds. In this way, syllables were dissolved into consonant-vowel pairings and the alphabet was born.

The structure and history of writing systems, what Gelb (1963) and more recently Daniels (in press) have called *Grammatology*, provide evidence for the claim that the implicit structure of language is not readily available even to those who are attempting to develop a writing system. Rather, the history of writing is one of the progressive discoveries of increasingly abstract properties of language. The original inventors of writing systems could not, or at least did not, simply sit down and ask themselves 'What are the basic properties of language that we should indicate with our visible signs?' Rather they worked as practitioners solving immediate problems of communication and record keeping and as the signs were applied to new languages and new tasks, the sign systems elaborated, first to capture the meanings, then the syllabic sounds, and eventually the phonemes of the language.

In learning to read and write children appear to go through a parallel discovery process. First come representations of things and events, as in drawing. Then they distinguish writing from drawing on the basis of iterative signs (Tolchinsky: in press) claiming that *kydz* but not *kkkk* could be writing, and that writing should represent words not things. As Bruce Homer and I (Homer and Olson, 1999) showed, prereading/prewriting

children when asked to write ‘Three little pigs’ make three small scribbles, for ‘Two little pigs’ they make two scribbles and so on. This indicates that they still assume that the written marks stand for the things represented, the pigs, rather than for the words of the utterance. When asked to write ‘No little pigs’, they may leave the paper unmarked ‘Because there are no little pigs’. Still later, when they realize the writing represents sounds they may use only consonants as in representing ‘book’ as BK or ‘boat’ as BT. Interestingly, Spanish children are more likely to represent the word by its vowel sound than by its consonantal sound as when they represent ‘boat’ as OT (Ferreiro and Teberosky, 1982). (If you listen to your own speech you may be surprised to hear that the ‘o’ sound outlasts the onset ‘b’ sound). Discovering the distinctive phonemes in one’s speech is difficult for most children and presents an almost insurmountable hurdle to some children in learning to read an alphabetic script. Goswami (in press: 10) has provided both psychological and neuroscientific evidence to show that reading difficulties associated with dyslexia are traceable to difficulties in linking sounds to letters. She concluded that ‘awareness of phonological structure of one’s spoken language is clearly fundamental to the acquisition of literacy’.

The importance of learning to link letters to sounds should not be surprising in view of the fact that, as we saw earlier, all writing systems are composed of marks that represent the syllabic and phonological invariants of speech. Yet, there is some danger of over-attention to the issue of ‘phonological awareness’, which itself as much a product of learning to read as a precondition for achieving it. Thus, reading *Harry Potter* may do as much for one’s phonological awareness as hours of practice at long vowels. Of course, neither the code nor its uses should be neglected and pedagogy should be adjusted to those aspects of knowledge that are problematic for particular individuals.

So what is writing? To be sure, it is a set of signs invented to represent speech. But because

of its unique relation to speech and its properties of preservation through space and time writing has come to play an incredibly diverse set of social functions – in commerce, government, literature, and science – as well as in a myriad of smaller scale, local contexts documented by Barton and Hamilton (1998). It is these uses, which have given literacy such significance and the history of writing is in large part how the potentials of writing have been taken up in various times and places. The study of writing, thereby, becomes the study of the uses of writing. To see this, consider the concept of literacy. On the one hand, it is simply the ability to decode or transform scripts into speech. However, on the other, literacy is the ability to use that competence for various culturally defined purposes. The Oxford English Dictionary captures both of these meanings: the ability to read, and, knowledge of literature.

A HISTORY OF READING

Eric Havelock (1982), one of the pantheon of heroes of our story, once pointed out, the history of writing is perhaps better described as the history of reading. For the same marks may at one time be taken, that is read, as one thing and later as another. He argued that the invention of marks, their differentiation and elaboration in various contexts of use, reflected the attempt to reduce misreadings, to reduce ambiguity. Punctuation, for example, was introduced into a writing system when it was recognized that it could forestall misreadings. Similarly, with additions to the inventory of signs; adding vowels to the set of signs was in part a response to misreadings rather than simply a discovery of an implicit property of speech by the writer. Consequently, the study of writing is at the same time the study of reading and their histories are, if not the same history, at least rather intertwined.

No history of reading exists and perhaps none is possible. Ways of reading depend not

only on the properties of the text or document but on the purposes or stances of the readers. The same document could be read, for example, as the word of God, or the word of an ancient scribe, depending on whether one was a member of the faithful or an intellectual historian. Ways of reading are not uniquely individual practices but rather social practices, ways of reading that are shared by a textual community. It is within such textual communities or communities of practice that specialized and distinctive uses of writing, as for example in modern literature, evolve. Conventions of form, conventions of meaning and definition, accepted practices evolve to meet these socially shared goals. One reads and interprets documents not only according to their words but also in terms of the goals and practices in which those words are encountered. We distinguish these forms generally in terms of genres and registers – poetry as opposed to prose, philosophy as opposed to literature, and so on. Moreover, learning the conventions for these social practices is as complex and sometimes as obscure as the long-vowel rule in learning to read. To be literate is to learn to read according to those structures sets of conventions. Conversely, ways of reading dictate ways of writing. Written commentaries on sacred texts take a different form than the texts they comment on, presumably reflecting the forms that oral discourse on those topics tend to take. Hence, the history of writing and of literacy more generally is the history of the evolution of these more specialized forms of discourse. And it remains an open question as to whether there is one literacy which may be put to vastly divergent uses (Goody, 1987; Olson, 1994) or many literacies, each more or less unique with minor and incidental relations between them (Cole and Cole, 2007). Of course, it may profitably be viewed in either way (Gee, 2006).

The spread of writing and literacy, the so-called ‘democratization’ of writing appears to play an important part in general social change. One such change, going back to antiquity, was the association between writing

and power. ‘It is written’ had a finality that many found irresistible. Another, more recent change, was dissolving the relation between the written and power. Modernity is identified with the increasing recognition of right of everyone to have an opinion and a forum for expression it removed writing from the prerogative of the rich and powerful. This move, visible in the tradition of letters to the editor, and now overwhelming clear in the era of internet chat rooms and blogs that rival in significance, and certainly in readership, the records of the actions of parliament. With it comes the gradual disenchantment of the written. One still finds a certain regard given to writers, a kind of regard the hope for which keeps many of us at our computers. With the growth of literacy, there is an increasing acknowledgement that the written is always simply the expression of some writer who is more or less like the reader. Remarkably enough, until recent times, and still only for a minority, sacred texts have come to be seen, that is read, as if they were written by men not by gods. Modern readers, I suspect, do not really believe anything they read, or hear for that matter.

One relatively well studied transformation in the ways of reading is that involved in the Protestant Reformation. The Church of Rome had, for centuries, maintained a monopoly not only on who should read and what should be read but also on how it should be read, that is, interpreted. Whether that monopoly eroded because of the more general availability of written materials or because of a loss of respect for the Church and its clergy in regions remote from Rome or both is not clear. Yet the fraying of control on how to read can be seen not only in Lutheran Protestantism but also in the rise of heretical movements throughout Western Europe (Stock, 1983). Most, if not all, heretics were literates who disbelieved in Roman orthodoxy. The well-known study of one such heretic by Carlo Ginzburg (1982) of the rustic, self-taught literate miller Menocchio, who insisted that the Biblical account of the origins of life was incorrect and that people

had appeared on the earth not by the act of god but by a simple natural process known to every farmer, that of worms simply and non-miraculously appearing on the cheese. When he refused to relent, to keep his opinions to himself, he was burned at the stake.

Luther, of course, did not deny the Bible; rather he contested the Church's authority to determine how it was read, what it really meant. He drew a strict line between what it literally meant, the meaning available to every reader, and the penumbra of tradition about its correct interpretation that was traditionally defended by the Church. Luther was not the first to recognize that the authors of the books of the Bible were men like himself who wrote for a particular purpose in a particular time and particular place to particular readers. What he succeeded in doing was recruiting a powerful following who, often for their own reasons, joined him in forming a textual community. Protestantism to this day, cherishes the view that the meaning of scripture is open to the ordinary reader, the meanings clear and transparent to all who approach with an open heart. This optimism survives even in the face of hundreds of competing sects each claiming to have discovered that true meaning.

Nonetheless the assumption that one could write and read in this direct and transparent manner, and relying only on the authority of the ordinary writer and reader, was responsible for a new way of writing, a language of description, and a new way of reading what Thomas Brown called 'the book of nature'. Reading the book of nature was to be a matter of seeing nature not as a symbol of something else but of addressing nature as an object in its own right. Alpers (1983: 81), in her careful study of Dutch artists of the seventeenth Century showed that their strategy was to 'separate the object seen from those beliefs or interpretations to which it had given rise'. Thus, one of the artists urged painters to see the clouds as clouds rather than symbols of the heavens. This new naturalism became the standard for Early Modern Science as well as the standard model for all modern descriptive

or expository prose, which imposes a sharp distinction between facts and opinions, observations and inferences, evidence and claims and so on.

In summary, what began as a useful mnemonic, a device for keeping records some four or five millennium ago, turned into a means of communication, writing, that was readily adapted to serve diverse social practices in different ways in different contexts and cultures. Writing did so by capturing not only the basic structures of speech but also by the capacity, more developed in some cultural contexts than others, the full range of functions that speech serves. By specializing some of these functions to serve special purposes such as science and government, writing put its imprint on much of the modern world. Through such institutional arrangements as reading circles, churches, and schools, writing changed not only our ways of acting in the world but also our ways of thinking about our language, and ultimately our very selves.

REFERENCES

- Alpers, S. (1983) *The Art of Describing: Dutch Art in the Seventeenth Century*. Chicago: Chicago University Press.
- Barton, D. and Hamilton, M. (1998) *Local Literacies: Reading and Writing in One Community*, London and New York: Routledge.
- Cole, M. and Cole, J. (2007) 'Rethinking the Goody myth', in D.R. Olson and M. Cole (eds), *Technology, Literacy and the Evolution of Society*, Cambridge: Cambridge University Press. pp.305–324.
- Coulmas, F. (2003) *Writing Systems. Cambridge Textbooks in Linguistics*, Cambridge: Cambridge University Press.
- Daniels, P. (in press). 'Grammatology', in D.R. Olson and N.G. Torrance (eds), *Cambridge Handbook of Literacy*, Cambridge: Cambridge University Press.
- Diringer, D. (1968) *The Alphabet: A Key to the History of Mankind* (third edn.), New York: Funk & Wagnalls.
- Ferreiro, E. and Teberosky, A. (1982) *Literacy before Schooling*, Exeter, NH: Heinemann.
- Gaur, A. (1987) *A History of Writing*, Paperback edn., London: The British Library. (Original, 1984.)

- Gee, J. (2006) 'Oral Discourse in a World of Literacy', *Research in the Teaching of English*, 41(2): 153–159.
- Gelb, I. (1963) *A Study of Writing* (second edn.), Chicago: University of Chicago Press.
- Ginzburg, C. (1982) *The Cheese and the Worms: The Cosmos of a Sixteenth-century Miller*, Markham, ON: Penguin Books.
- Goody, J. (1987) *The Interface between the Oral and the Written*, Cambridge: Cambridge University Press.
- Goswami, U. (in press) 'The basic processes in reading: Insights from neuroscience', in D.R. Olson and N.G. Torrance (eds), *Cambridge Handbook of Literacy*, Cambridge: Cambridge University Press.
- Harris, R. (1986) *The Origin of Writing*, London: Duckworth.
- Havelock, E. (1982) *The Literate Revolution in Greece and its Cultural Consequences*, Princeton, NJ: Princeton University Press.
- Homer, B. and Olson, D.R. (1999) *Literacy and Children's Conception of Language, Written Language and Literacy*, 2: 113–137.
- Innis, H. (1951) *The Bias of Communication*, Toronto: University of Toronto Press.
- Larsen, M.T. (1989) 'What they wrote on clay', in K. Schousboe and M.T. Larsen (eds), *Literacy and Society*, Copenhagen: Copenhagen University, Centre for research in the Humanities. pp.121–148.
- Olson, D.R. (1994) *The World on Paper: The Conceptual and Cognitive Implications of Writing and Reading*, Cambridge: Cambridge University Press.
- Powell, B. (2002) *Writing and the Origins of Greek Literature*, Cambridge, UK: Cambridge University Press.
- Sampson, J. (1985) *Writing Systems*, Stanford, CA: Stanford University Press.
- Schmandt-Besserat, D. (1992) *Before Writing*, Austin: University of Texas Press.
- Stock, B. (1983) *The Implications of Literacy*, Princeton, NJ: Princeton University Press.
- Tambiah, S.J. (1990) 'Relations of analogy and identity: Toward multiple orientations to the world', in D.R. Olson and N.G. Torrance (eds), *Modes of Thought*, Cambridge: Cambridge University Press. pp.34–52.
- Taylor, I. and Olson, D.R. (eds) (1995) *Scripts and Literacy: Reading and Learning to Read Alphabets, Syllabaries and Characters*, Dordrecht: Kluwer.
- Tolchinsky, L. (in press) 'The configuration of literacy as a domain of knowledge', in D.R. Olson and N.G. Torrance (eds), *The Cambridge Handbook of Literacy*, Cambridge: Cambridge University Press.
- Thomas, R. (in press) 'The origins of western literacy: Literacy in ancient Greece and Rome', in D.R. Olson and N.G. Torrance (eds), *Cambridge Handbook of Literacy*, Cambridge: Cambridge University Press.
- Whorf, B.L. (1956) 'Science and linguistics', in *Selected Writings of Benjamin Lee Whorf*, Cambridge, MA: MIT Press. pp.207–219.