

Die Fähigkeit lesen und schreiben zu können und Kartographie: methodologische, theoretische und kulturelle Folgen paralleler Technologien

Literacy and Cartography: Methodological, Theoretical, and Cultural Consequences of Parallel Technologies⁵²

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Zusammenfassung

Literatur und Kartographie ziehen gemeinsam Nutzen aus der Technologie des Druckens, die die Verbreitung von Information erleichtert, indem sie gleichzeitig das Wahrnehmen und die weitere Verarbeitung derselben gestaltet. Die darauf beruhende Modifikation des Verhältnisses der Sinnesfunktionen zeigt deutlich das Vorherrschen des Visuellen über das Gehörte, sowie des Räumlichen über das Zeitliche.

Abstract:

Both literacy and cartography are the beneficiaries of print technology which both facilitates the dissemination of information and structures the ways in which it is perceived and processed. The ensuing modification of the ratio of the senses manifests the elevation of the visual over the auditory, and of the spatial over the temporal.

Recent research into the nature and manifold ramifications of literacy has come to emphasize that, to paraphrase Marshall McLuhan's famous dictum 'The medium is the message', it is the technology of literacy itself which has set in motion a radical reconfiguring of the entire cultural

edifice. Literacy has not only afforded a means of sustaining cultural heritage, it has, even more importantly, impacted and directed the ways in which information and knowledge are acquired and organized. The premise is, more specifically, that the mind quite literally perceives, reflects and functions differently in the context of literate culture than is the case in predominantly oral culture: the technology of literacy --script, and, more importantly, print-- sets in motion a shift in the ratio of the senses which most conspicuously elevates the visual over the auditory but which furthermore underwrites the primacy of linearity and a mode of thought and expression suffused with highly structured concatenations. The fetters which literacy thus perhaps most obviously initially shakes free are those of space and time, and it is on this score that the parallel nature of cartography, or cartographic literacy, is at once manifest. Understanding just how both literacy and cartography function to direct and shape the cultural edifice is nothing less than imperative, for, as McLuhan reasons, "A theory of cultural change is impossible without knowledge of the changing sense ratios effected by various externalizations of our senses" (1962, p.42).

As a colonizing technology with the power to reconfigure consciousness, print technology quite naturally promoted developments in such allied extensions of our sensorium as diagrams and maps, which, like pre-print writing, had heretofore been constrained by the inevitable errors and distortions associated with scribal copies, or what Walter Ong refers to as 'chirographic' reproduction (1967, p.189). Like written texts, maps enable the encoding of that which exceeds the here and now, and so facilitate the composition and manipulation of mental projections. While writing expands and extends the focus of consciousness over ideas denominated in words, thus enabling novel integrations of the present with the past and future, and facilitating reflection and planning, maps --themselves literally spatial 'plans'-- manifest an analogous enabling mechanism over ideas denominated in abstract diagrams of spatial relations. Indeed the launching of the age of exploration itself unfolded.

Largely in tandem with the application of print technology to the mass production of maps, albeit in a somewhat paradoxical fashion. That is, by shifting to printers the copying of classical and medieval texts and maps for which a steady demand persisted, scribal cartographers were at once freer to apply their skills to recording up-to-the-minute information from explorers and voyagers, information which did not 'find its way into print' until the late sixteenth century. It is thus rather ironic that, in this sense, "The advent of printing ushered in a century of cartographic retrogression ... characterized by a slavish following of old doctrines and strongly influenced by Ptolemy..." (EISENSTEIN, 1979, pp.514- 515), a century during which printers' first concern was to purvey efficiently and affordably what might be called the 'best seller list' of the day, when works such as Isidore DE SEVILLE'S seventh-century **Etymologies** remained standard reference works. Incidentally, it was in fact in the first edition of ISIDORE'S

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Etymologies, printed in Augsburg in 1472, that the first mappamundi appeared in print (EISENSTEIN 1979, p.514).

In his pioneering work **The Presence of the Word: Some Prolegomena for Cultural and Religious History**, ONG observes that

... at approximately the same time that alphabetic typography appears, painting is being swept by a revolution in its treatment of **perspective**, and the mechanical reproduction of instructional (as against decorative) illustrations and diagrams becomes widespread. ... The visualism encouraged by print connects also with the increased use of maps and with the actual physical exploration of the globe (**dependent on visual control of space in maps and imagination**) which opens the modern age. (1967, pp.8-9; emphasis mine).

That this enhanced visualism associated with print technology '*spilled over*' into non-print domains is evident not only from contemporaneous developments in painting but also from the continued vitality of manuscript maps alongside printed versions of traditional mappae-mundi. With the massive influx of new data supplied by returning explorers themselves, maps --particularly portolan maps charting ports and sea routes-- ascended appreciably in accuracy and, ultimately, in graphic sophistication, though, owing perhaps to the greater sense of the exotic as of political potential attending sea travel, "The topographical map was, in comparison with the sea chart, slower to free itself from its written models" (SKELTON, 1972, p.7).

Actually, the incorporation of first-hand accounts from contemporaneous explorers and travelers itself represents a radical break with tradition insofar as, up until the fourteenth and fifteenth centuries, maps were routinely drawn almost exclusively from literary sources --yet another witness to the longstanding interdependence of text and map production. So firmly, in fact, were early maps locked in the space of literary itineraries and their attendant baggage of mythical beings and confabulated proportions that information from direct experience only very gradually managed to infiltrate and ultimately usurp the mappae-mundi ensconced in the annals of the ancients. As Anthony GRAFTON points out in his book *New Worlds, Ancient Texts*, "... a monolithic body of thought and imagery imprisoned even the most original thinkers" (1992, p.9). Indeed, the very authority of various disciplines was seen as residing in texts inherited from antiquity, texts which, moreover and therefore, dominated the publishing field once printing was invented. No doubt the remarkable endurance of ancient cartographic, not to mention cosmological, schemes is to no small degree ascribable to the fantastic symbols and allegories in which they were anchored and to which the ancient and medieval frame of mind was understandably held thrall.

It is quite true that legends of exotic wonders, of marvels and mythical beings --troglodytes, cyclops, anthropophagi and allied manifestations of the grotesque-- exceeded in importance and preceded in cartographic history the map 'legend' as we now understand it, namely as key to the not

quite iconic or else outright linguistic symbols incorporated in the map. For, though maps do get a bit more mileage out of iconic representation than does writing, which advances incrementally away from pictorial towards phonetic representation, they nevertheless require supplementation through numbers and words, specifically names.

Maps are, then, very much so a matrix of names, of proper names, superimposed upon abstractions of space which, in early maps, were more often than not associated with genealogies and the legitimation of suzerainty. Referring to early Mixtec maps in his book **The Power of Maps**, Denis WOOD concludes that these, for example, manifest "...the linkage of two sets of names ...[sic] the names of places (and do not overlook the instrumentality implicit even in these, since, ...'naming the land is one of the most emotive and symbolic acts that cartography constructs') and the names of rulers" (1992, p.150). Importantly, these early maps show no map signs per se, no pictorial signs aimed at capturing significant features of the landscape, but rather only representations of names, names of rulers, names of hills, and so on: "That is, the place sign is tied to the land only through the medium of language" (WOOD, 1992, p.150).

This suggests an even greater dependence of cartographic upon linguistic representation than necessity would have dictated, a dependence which may well help us to comprehend a most curious circumstance. With the exception of the limited early production of maps in China by taking rubbings from a master, it could well be said that cartography waited around, as it were, for print technology to be developed for writing, rather than avail itself of various techniques for the "... mass production of an illustration, [which had] long been possible in manuscript cultures --in its essentials even from antiquity-- for the printing of designs from various dies or blocks [techniques which] antedate[s] GUTENBERG by centuries" (ONG, 1967, p.52). ONG attributes this curiosity of technological and cultural history to the pre-print "oral organization of the sensorium" (1967, p.52). The communication of information was associated first and foremost, as in the Mixtec maps, with speech, and not so much with space as was to become the case with typography, which ushered in a heightened sense of information as being both in a fixed location and in a developmental sequence. Prior to the advent of typography, by contrast, texts were rarely assigned a date of composition: "... in the late fifteenth century, habits of dating texts and arraying them in chronological sequence were just beginning to be formed. [At this time the] ... reading public ... was oblivious to the kind of 'intellectual progress' modern scholars regard as obvious now" (EISENSTEIN, 1979, p.514).

This idea of fixity in space, and the need to make this space navigable, took on new urgency with the advent of print technology and the mass production of invariant copies of texts, as of maps. The development of '*access software*', of title pages (which replaced the simple incipit of manuscript books), of chapter heads and running heads, as well as detailed alphabetic indexes to the loci of included information all attest to and celebrate the newly solidified relationship of text to space, a relationship no

less pronounced in the parallel development of the map legend beyond its earlier status as mere caption or list of captions to a more refined inventory of the various encoded symbols and metric devices.

Whether much of what mapmakers include in legends is in fact requisite to 'reading' a map is itself debatable. Arguing that most map signs are either iconic in the universal sense or else, so to speak, culturally iconic -- that is, they reflect and are continuous with the codes of the culture in which they function-- Wood concludes that map legends simply "...in a more or less muddled fashion put into words map signs that are so customary as to be widely understood without the words, while leaving the map images themselves littered with conventions it taxes professional cartographers to put into English" (1992, p.101). In other words, through the deliberate selection or privileging of certain signs over others --signs derived primarily from the repertoire of popular visual discourse-- the map legend is subtly pressed into the service of persuasion, of myth, of legend making. In this vein the map legend might perhaps best be assessed as excess tribute to the overarching commitment to space, to the systematization through orderly arrangement and display, which the marriage of cartography to print technology dispatched. On the other hand, one could argue that the legend cartouche more palpably pays homage to those antecedent forms of didactic and aesthetic embellishment to which, in years of yore, the strict informational function of maps frequently deferred.

Be that as it may, of overriding theoretical concern, in cartography as in print literacy, is the new orientation to and use of space associated with print technology, and the new 'ratio of the senses' this brought with it by laying the foundation for a new alignment of the visual with the verbal. Emphasizing the importance of such a shift in the sensorium, McLuhan writes: "*When technology extends one of our senses, a new translation of culture occurs as swiftly as the new technology is interiorized*" (1962, p.291).

It is interesting to observe that whereas maps, specifically concerned with the display of spatial relations, remain considerably dependent on a frame of reference denominated in names, the printed text is no less dependent on a frame of reference denominated in places. In the end, and rather paradoxically, the text is even more constrained by spatial considerations than is the map: for while the reading of a text proceeds from beginning to end, from left to right, and from top to bottom, there is no fixed 'starting point' from which to 'read' a map. Thus, with respect to the decoding process at any rate, typography fixes words in space to a degree which significantly exceeds the fixity of diagrammatic and non-linguistic symbolic information in maps. Each, we might say, has a different, though very real, hold on space.

In the age of discovery and colonial expansion maps ranked alongside military might as an instrument for gaining a hold on space in the very real sense of taking possession of territory. With their surveys and resultant maps explorers were able symbolically to stake their claim, to lay at the feet of their sovereigns new found lands whose

indigenous place names had, in the strictest sense of the term, been 'obliterated'. In this way native peoples, assaulted by the two edged sword of literacy and cartography, were quite literally and systematically dispossessed of their lands and toponyms.

In contemplating this conspiracy of letters and maps one is reminded of the myth of the Phoenician prince Cadmus, the fabled creator of the Greek alphabet, who reportedly achieved his feat by sowing the dragon's teeth. The power and poignancy of this myth's imagery derives significantly, I would argue, from its palpable linkage of both senses of the term 'plot', as 'outline of land' and as 'outline of text or narrative', the net effect of which is the forceful imposition of ordering in space upon ordering in time, the very basis of typographic fixity in space. Alternately, the process of mapping, of subdividing land into uniform parcels, is, in a very real sense, a kind of writing upon the land, an imposition of signposts of narrativity which itself has been associated with enhanced regional, if not political, consciousness. As Eisenstein notes in her work *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early-Modern Europe*, "*Heightened awareness of distant regional boundaries was also encouraged by the output of more uniform maps containing more uniform boundaries and place names*" (1979, p.83; cf. also p.227). In his own assessment of the pertinence of the Cadmus myth to our understanding of media, McLuhan reminds us that

In terms of the extensions of man, the theme of the dragon's teeth in the Cadmus myth is of the utmost importance. ... That the power of letters as agents of aggressive order and precision should be expressed as extensions of the dragon's teeth is natural and fitting. Teeth are emphatically visual in their lineal order. Letters are not only like teeth visually, but their power to put teeth into the business of empire-building is manifest in our Western history (1964, p.83).

Unlike the situation in manuscript culture where the execution of multiple copies inevitably spelled distortion, in typographic culture the ability to produce, mechanically, multiple copies or "*exactly repeatable pictorial statements*" (Ong, 1967, p.224) in principle enabled enhanced dissemination and emendation of maps as of texts on the basis of corrective feedback from the consumers of these documents. After all, "*A map maker who puts out an inaccurate map will soon have this fact called to his attention by people ... who find that it violates their ... personal experience*" (Eisenstein, 1979, p.479).

Yet given the immense potential of accurate maps as instruments of political and cultural hegemony through the visual control of space, they tended, in the age of exploration and before, rather to be sequestered and guarded as state secrets, to be seen --to cite a modern day example-- as something like the grail of industrial espionage. As Eisenstein points out, "*Some medieval coastal maps had long been more accurate than many ancient ones, but few eyes had seen either*" (1979, p.74). This bent to secrecy, coupled with the practice of 'dis-card-ing' maps rendered obsolete by each new influx of observational data, has

resulted in a lamentable dearth of early maps as opposed to early texts: only something in excess of "...600 maps and sketches made between 300 and 1300 have [in fact] survived the ravages of time" (EISENSTEIN, 1979, p.479).

The parallelism, indeed synergism, of literacy and cartography, is, I would like to conclude, nothing short of remarkable. Linked through a matrix of shared spaces, both these technologies evince, in their advance from the chirographic to the typographic mode of production, a common capacity to shape and radically reorient consciousness by intrusively recalibrating the sensorium, by effecting, specifically, a new and stronger bond between the visual and the verbal. I hope to have conveyed here some inkling of the importance this parallelism portends for any assessment of our technological and cultural heritage.

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