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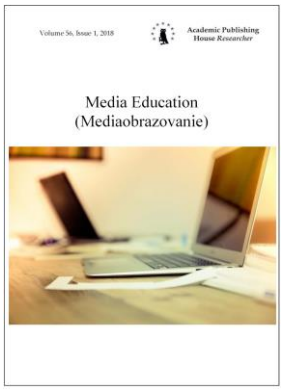

Scientific Reassessment of the Publishing Evolution: A Media–Archaeological Approach to Prospective Studies of Book as Medium

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Abstract

Modern media are characterized by extraordinary diversification and derivatisation. Multimodality has become central to all factors of the communication process – sources, codes, messages, channels and networks, intermediaries and agents, as well as end recipients. The most serious collisions occur in the field of publishing and books. *Object of the research:* A formal reason for this article is the 550th anniversary from the death of Johannes Gutenberg (ca. 1400–1468) used to re–examine and re–define the book as the oldest and, at the same time, most promising media in the world of publishing. *Purpose of the research:* To revise the periodisation of the publishing evolution outside the four phases of the 560–year biography of the print format of the book: incunables or early– printed books, post– incunables or first–printed books, old–printed books, and new–printed books or contemporary printed books. *Methodology/approach:* The archaeological approach to the study of media reveals larger–scale reasoning behind the evolution of the book as a medium: Pre–Gutenberg, Gutenberg and Post–Gutenberg book. *Results:* Each of the three phases is governed by five principles that also pre–empt the future of the print medium in the 21st century: the principle of bureaucracy, the principle of antagonism, the principle of fanaticism, the principle of emancipation and the principle of "form follows function". The perspective of media archaeology helps to correct the historical place and the evolutionary stance of the inventions pertaining to the Gutenberg Galaxy – the print medium, the printing press, the printed book, and paper as a printing resource. *Implications:* The conclusions may prove important for outlining the technological and ideological patterns affecting the invention and decline not only of the printed book but of every publication format before and after Gutenberg.

Keywords: media studies, media archaeology, publishing studies, education, book research, teaching, history of printing

1. Introduction

Book printing was invented twice – in China and in Europe. The movable type printing press was invented twice – in Korea and in Germany. Paper was invented twice – in China and in South America. These symmetries in the world of publishing and media constitute a finding obtained as a result of the X–ray view of the new scientific discipline known as "media archaeology".

The interest in reassessing the publishing evolution stems from the revolutionary change in the publisher's role during the past 20 years, which is in a state of transition from an artisanal (Kawasaki and Welch, 2013) to an intellectual or smart activity. This high–ranking form of social–economic activity already covers the processes of content production up to its multi–format realisation. At the

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same time, though, the crisis in book publishing worldwide is looming as are conflicts between old and new media as well as the clashes of viewpoints among media pedagogues, academics and researchers on the new situation in the field of publishing, books, and reading.

We undertake the present research in support of the position of A. Belovitskaya that the reason for the said crisis lies in book experts themselves as well as in the publishing and book studies education that takes place on a non–scientific basis: "The wrongful pragmatic–commercial attitude to the book only as a commodity and to the publisher only as a "producer" of this commodity, inculcated in the mindset of publishing professionals as well as particular book theoreticians is enough to consider in more detail the nature, essence, form, and social purpose of the book." (Belovitskaya, 2006: 42) One of the expected outcomes of this study is to confirm the hypothesis that the book did not appear in human society as a product for sale (Belovitskaya, 2006: 297). Books become commodities only in the economic value chain but they are not commodities outside it (Belovitskaya, 2006: 167–168).

The *purpose* of the present study is to revise the periodisation of the publishing evolution using the media– archaeological approach in order to formulate the stable patterns affecting contemporary relations among "print media – politics – readers". The immediate research *subject* is the factual revision of several fundamental events in the history of publishing and printing offering the context to re–examine the civilising role of the book as a medium of reading, as a medium for the transmission of knowledge and emotions.

A large number of the artifacts and primary resources subjected to analytic and synthetic processing, albeit not part of the conventional history of publishing, media, and books, represent archi–books (with the Greek prefix of αρχι– meaning "proto–") in our view because they comply with the definition of the book as medium. To ensure correctness with regard to the biography of printing, it is necessary to confirm that the printed book is not just the Gutenberg book. This process will be aided by an analysis of the key facts in the media history of civilisation:

Within the media–archaeological paradigm, it is reasonable to state that publishing has its roots in carving and stone– painting whereby, similar to the driving instinct, people made natural the impulse to record and make permanent the narratives of their personal experience (Schwartz, 2010).

The first "printer" was the Buddha. In its inception (2500 years ago) Buddhism comprised a single sheet of paper so its content could fit onto its creator's sole. While listening to Jean–Claude Carrière's account of the origins of printing, Umberto Eco assumed that the Buddha's footsteps were a legendary prototype of footprints: "I'd like to show you an image from an auction catalogue that I received just this morning. It's a footprint of the Buddha… One of the Buddha's physical characteristics is that he has messages written on the soles of his feet. These messages are of course fundamental. When he walks, the Buddha makes an impression on the ground, as if each of his footsteps were a printing block. As the Buddha walks, he teaches. You simply read his footsteps. And, of course, this printing block is not just any old printing block. It contains the whole of Buddhist teaching, in other words the 108 precepts that represent all the animate and inanimate worlds encompassed by the Buddha's wisdom. But this footprint also features other images: stupas, little temples, wheels of life, animals, trees, water, light, nagas, offerings – all of it contained within a single footprint. Printing before printing existed. A symbolic imprint." (Eco, Carrière, 2011: 52).

According to French scholars, *book printing* was invented in China (Julien, 1847: 505–534; Pelliot, 1953: 11) in 581 while according to Chinese sources – between 936 and 993. J. Needham proves the Chinese authorship of the four inventions of the Middle Ages – the compass, gunpowder, paper, and printing. The technique for printing designs on cloth was applied in China before 220 BC. In the 4th century, the Chinese were already using seals for stamping on paper. The printing technology involving hieroglyphs carved on wooden boards was developed during the Tang dynasty (618–907) (the world's first complete printed book "Diamond Sutra" dates back to this period). The onset of printing can be traced to the Song dynasty around 1040 and artisan Pi Sheng (990–1051) who first used the book printing technology with hieroglyph type made of roasted clay. This technology has set the principle of printing by means of lead type (Needham, 1986: 14, 201).

The world's earliest dated *printed paper book* is the Buddhist *Diamond Sutra* printed in 868 in China using xylography. The Chinese used woodblocks with engraved lettering which were then inked to allow for multiple copies printed on paper or parchment. The colophon at the inner end of the scroll reads: "Reverently made for universal free distribution by Wang Jie on behalf of his two parents on the 13th of the 4th moon of the 9th year of Xiantong [11 May 868]" (British Library, 2018b).

The print letter was devised in China as early as 1041 but the invention was deemed irrational because of the numerous hieroglyphs in the Chinese language.

The first *sign of copyright* appeared in China on the book "Dongdu Shilüe" (history of the "Eastern Capital" Kaifeng) written between 1190 and 1194. The sign is a stamp bearing a note comprised of 15 hieroglyphs: "Published by Cheng from Meishan, already registered, unauthorized copying prohibited" (Yang, Xiao, 2010: 1–5). This fact disproves the assertion that the idea of copyright came after the Gutenberg printing revolution and was legitimized as late as the 17th century.

The first *movable metal type printing press* was invented approximately 70 years before J. Gutenberg by an anonymous Korean metallurgist. The Buddhist book *Jikji,* which was printed on it in South Korea in 1377, was inscribed in 2001 in the UNESCO Cultural Heritage Register "Memory of the World" and is stored in the National Library of France (Fig. 1). 1434 Korean book *Ch'unch'u* (Spring and Autumn Annals) stored in the British Library was printed using the same typesetting method. If we consider bound sheets with text to be a full–fledged codex book, the oldest printed book will be exactly the "Jikji" of 1377 (Fig. 2).

The new *method of copying (dissemination)* was invented long before the Age of Gutenberg; it involved dividing the volumes into separate sheets and then giving them to copyists. This took place in the 11– 13th century when the first European universities sparked a greater need for books. Thus the book production process accelerated long before the invention of the printing press.

Fig. 1. The earliest printed book produced using metal type – *Jikji,* 1377, Korea (Seoul Printing Center, 2015; BNF, 2015)

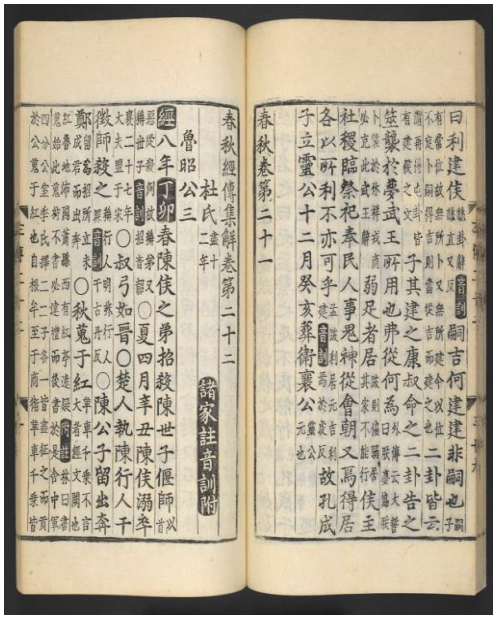

Fig. 2. Korean book "Ch'unch'u" printed using bronze movable type, 1434, Seoul (British Library, 2018a)

Undoubtedly, the Age of Gutenberg is associated with the most typical material host of the contemporary book – *paper*. However, the media chronotope of this printing resource continues to undergo revision even today:

The ancient origins of the *cloth printed medium* characterises paper printing as a more recent technology: "Archaeologists believe that the art of stamp has existed in Europe for at least a thousand years. However, in the East – in Egypt, India, China, and Japan printing on cloth was done in earlier epochs. Apparently, cloth was the first printing material", according to Russian bibliologist and book researcher Evgenii Nemirovskii (Nemirovskii, 2010: 169).

The most widespread belief is that paper was invented in 105 by Chinese eunuch Cai Lun but in 1957 a fragment of paper dated to the 2nd century BC was found in a tomb in the Shanxi province in China (Tsien, 1985: 38). Apparently, the Chinese Emperor had ordered to keep the paper–making technology secret from the rest of the world for over seven centuries. It was not until the 6th century that the formula reached the Japanese.

When speaking of paper as a resource of the print medium, we need to take into consideration another little–known fact: as early as the 1st century BC, the Maya were producing fully

autonomously unique paper from Ficus aurea called “amatl” or “amate” on which they created their famous colour codex books in the “leporello” format (López, 2000: 52–53; Burns, 2004: 1999; Miller and Taube, 1993: 65).

2. Materials and methods

The main approach to the research is the interdisciplinary combination of historical analysis, system mediological analysis, and media–archaeological analysis. The research utilises the quantitative systematic review, the methods of the analytic and synthetic processing of primary and secondary resources, and the selective monographic method.

The theoretical basis of the study has been derived using P. Otlet’s documentary–descriptive analysis of the contribution of science to documentation (Otlet, 1909), the bibliology of R. Estivals (Estivals, 1987), the mediology of R. Debray (Debray, 1991, 2000, 2003), the media theories of M. McLuhan (McLuhan, 1962; 1964; 1988), N. Luhmann (Luhmann, 1997), H. Winkler (Winkler, 1996), the theory of mediatization of S. Hjarvard (Hjarvard, 2013), the transmedia theory of H. Jenkins (Jenkins, 2006; 2018), the visual book theory of E. Lissitzky (see: Johnson, 2015) and K. Smith (Smith, 2005), and M. Tsvetkova’s theory of the book as medium (Tsvetkova, 2012).

The reassessment of the publishing evolution, and in particular, the evolution of the book has been carried out using the media–archaeological approach developed and confirmed in terms of effectiveness in numerous recent scientific works (Huhtamo, Parikka, 2011; Huhtamo, 2013; Emerson, 2014; Carels, 2014; Vakoch, 2014; Elsaesser, 2016; 2018).

The perspective of the archaeological approach to the study of media is different from the one offered by the historical approach as the former is in–depth, vertical, and capable of identifying evolutionary trends and patterns, unlike the linear and horizontal approach aimed at representing a retrospective chronicle of events.

For the purposes of this study, therefore, the definitions set out below are used. “Publishing” as a scientific term is defined as placing into circulation an object of intellectual or artistic content for universal dissemination and use (ISO 9707:2008; ISO 5127:2017; ODLIS, 2004). The term “book” denotes a formatted medium (concept of “emplacement”) for perceiving long–lasting ideas and knowledge conveyed by a virtual image of a particular reality (concept of “text”) (Tsvetkova, 2012: 69). Hence, the category of “book as medium” represents a formatted “emplacement” for mediated communication and communication adherence between interlocutors in absentia. We expect that the media–archaeological approach will contribute to confirming the proposition that the explicit essence of the book is to provide an out–of–time emplacement for the adherence between writer and reader, source and recipient, as well as be the medium of the multiple and numerous reading; importantly, this essence is not affected by the technological transformations in publishing or by the book’s diverse material hosts and publication formats.

3. Discussion

It is an undisputed fact that the Gutenberg book has been the dominant knowledge medium for the past approximately 560 years. Its official media biography covers four evolutionary phases:

I. Incunables or early–printed books (15th century)
II. Post–incunables or first–printed books (16th century)
III. Old–printed books (17th –19th century)
IV. New–printed books or contemporary printed books (20th –21st century)

Each of the phases builds upon, or suggests a pattern that pre–empts the future of the print medium of the 21st century. Therefore it is expedient to re– examine and recapitulate historical facts from a present day perspective.

Incunables or early–printed books (15th c.). The “childhood” of European printing was legitimized in the period after 1452–1455 when J. Gutenberg printed a 42–line Bible in Mainz using movable type. Every book printed from the inception of book printing to the eve of 31st December 1500 is referred to as an incunable (from Latin *incunabulum* – cradle). In other words, all books printed in the 15th century were incunables. It is important to note that the boundary of the “cradle period” of book printing set at the last day of the year 1500 – the last year that belongs to the 15th century, has been artificially fixed for the convenience of historians and experts. Incunables are distinguished from first–printed books, which follow in the chronology, in that they still adhere to the standards of the handwritten book. The fact that approximately half of the incunables that have reached us were printed on vellum (Fr. *vélin* – fine tanned cowhide) – a type of parchment, along

with the steadfast imitation of handwritten fonts and decorations, reinforces the aspiration of the first printers to adorn the new book form with "seriousness" and non–conflict derivation from manuscripts. This trend can also be observed in today's transition from printed book to e–book.

In Europe, it all started in 1440 when German inventor Gutenberg completed his work on the first printing press – the key to spreading print knowledge and education through books. Although the very first printing press is still contested – whether it was the work of Johannes Gutenberg (1400–1468) from Mainz or of Dutchman L. Koster (1370–1440) from Haarlem who devised a primitive printing technique (see, for example: Marnix, 2012), the period after 1452–1455 when Gutenberg printed the parchment Bible has been unanimously accepted in science as the "childhood" of printing.

There is sufficient evidence to refer to the 42–line Bible as the first book of the Age of Gutenberg. This fact is acknowledged in the UNESCO Cultural Heritage Register "Memory of the World" whereby a copy of the Gutenberg Bible was inscribed in 2001 along with the text: "The 42–line Gutenberg – Bible is the first book printed in Europe with movable types." (UNESCO, 2014). UNESCO provides the following explanation. Of the original 30 Bibles printed on parchment, only four survived in full with all 1282 pages. The Göttingen copy is one of these four but its most distinctive characteristic is its unique contemporary documentary context – the Göttingen book model is a contemporary source of the colour illustration Bible, while the Notarial Instrument of Ulrich Helmasperger is the only surviving contemporary document that provides evidence on Gutenberg's invention. No other institution can claim three additional interconnected documents focusing on the invention of printing in Germany. It is this connection that elevates the Göttingen parchment copy of the Gutenberg Bible to a rank that cannot be attained by any of the other full copies. Two representatives of PIRA (the Printing Industry Research Association of Great Britain) – Y. Gates and J. Maslin, also refer to the Gutenberg Bible as the first printed European book at the World Congress on Books in London in 1982 (organized by UNESCO), published in the symposium proceedings "The Future of the Book" in 1985. Their claim is as follows: "There is some uncertainty over the exact date of the invention, the country in which it occurred, and the actual inventor but it is generally agreed that the first European book was printed by Gutenberg at Mainz in Germany in 1454 or thereabouts. Interestingly, the pages of the Gutenberg Bible were illuminated to give the effect of a hand–copied manuscript" (Gates and Maslin, 1982: 46).

The official information about the "Gutenberg and the Slav World" exhibition of the Centre for Slavo–Byzantine Studies "Prof. Ivan Dujčev" at the Sofia University reads exactly: "marking the 560th anniversary of the first printed book – the Gutenberg Bible printed in 1453–1456 in Mainz." The exhibition was also presented at the Biblioteca and Pinacoteca "Ambrosiana" in Milan (24 November – 8 December 2015). The same information can be found on the website of the Bulgarian Ministry of Foreign Affairs: "The 'Gutenberg and the Slav World' exhibition is dedicated to the 560th anniversary of the first printed book – the Gutenberg Bible, printed in 1453–1456 in Mainz." (Ministry of Foreign Affairs, 2014) In their monograph "Crimes against Intellectual Property", Bulgarian judges Plamen Datsov and Petar Petrov also write about the 42–line Bible as the oldest printed book: "Gutenberg is credited with the printing of the Gutenberg Bible, the oldest surviving printed book with 42 lines per page in the Western World." (Datsov and Petrov, 2011: 57)

According to an outdated claim still enjoying marginal support, the first Gutenberg book was "Sibyllenbuch" ("Book of the Sybils"), and the fragments printed in 1445 in particular (Gergova, 2004: 136). More recent research shows that these are only single sheets. In 1447, an astronomical calendar for 1448 ("Calendar for 1448") was printed on Gutenberg's printing press, while a sheet containing an excerpt from medieval German poem "Sibyllenbuch" known as "a fragment from Last Judgment" was printed around 1452–1453, the latter being catalogued on the British Library website as probably the earliest surviving European printed text (British Library, 2018e). American researcher John Klooster formulates a similar proposition: "In 1450 Gutenberg printed a sheet of a German poem ('Sibyllenbuch') – probably the first product of the printing press" (Klooster, 2009: 8). Due to the fact that the first products printed by Gutenberg comprise only sheets, they cannot be called "a book".

Post–incunables or first–printed books (16th c.). The night of December 31, 1500 before 1 January 1501 marks the end of the incunable period and the beginning of the era of "first–printed books". The term "paleotypes" is applicable to the books printed between 1501 and 1551 in the European book publishing history. 16th–century Venice is an incubator of innovations in publishing and printing (Tsibranska–Kostova, 2013). Venice is still referred to as "the city of books" or "the

cradle of printing". The reasons for the prosperity of typography in Venice are objective and comprise the following:

1) Local paper production resulting from the economic upturn – a major prerequisite for successful publishing.

2) Market orientation of the printed output complying with the needs of consumption and quickly adapting to them.

3) The strong commercialisation and transformation of the book into a commodity required a reasonable correlation between the size and font of the carrier and its price and portability. Thus a trend to reduce the large *in folio* size appropriate for big solemn books and demonstrate preference for smaller 1/8 or 1/16 sizes was successfully established in Venice. The process was usually accompanied by the choice of a new, smaller font. Some publications are known to have been reprinted in two or even three different sizes and fonts (Richardson 1999: 126; Tsibranska–Kostova, 2013: 11).

4) An essential fact from the early days of first–printed books is the introduction of the *in octavo* format which replaces the big codex. Venetian publisher A. Manuzio, who was also the first to print in Greek, is credited with the invention in 1501. The new format made the book more compact, cheaper, and easier to carry, setting the stage for the emergence of the forerunner of the contemporary printed paperback book (Flogaus 2007: 203; Pettegree 2010: 57–58).

5) Printing as a fruit of Renaissance humanism and the interaction between enhanced production capabilities and social needs becomes part of the trend for setting a new cultural–information model whose most distinctive feature is its "mass demand for multiple copies of absolutely identical texts" (Liublinskii, 1959: 37; 1968: 159; Tsibranska–Kostova, 2013: 14).

6) The new cultural and information model inevitably leads to the nationalisation and democratisation of the book, which is facilitated by yet another trend. This is the possibility to print not only in Latin but also in vernacular Italian, especially the vivid Venetian dialect used in the works of the so– called *volgare lingua*. It is remarkable that such publications were not condemned by the Venetian Academia della Fama established in 1557, which endorsed a typically Renaissance principle – the book as a means of acquiring knowledge (Bolzoni 1995: 191).

Old–printed books (after 16th c.). Old–printed books are all Gutenberg books from the first day of the 17th c. There are numerous archetypal models of old–printed books from a mediological perspective. A *multi– format media* model of the old– printed book period in Europe is the first Bulgarian printed book containing new Bulgarian language elements, and the first printed Bulgarian amulet – "Abagar" by F. Stanislavov, printed in Roma on 6th May 1651. From a historical perspective, this is a standard old–printed book of the Italian book publishing of the 17th century. However, the edition has several peculiar characteristics. The printed text covers only one side of the paper (anopistographic) – on 5 large sheets measuring 44.5 cm in breadth and 33.5 cm in height. The text on each sheet is printed in four narrow columns measuring 28.5 cm x 7.9 cm, each placed in an ornamented frame so that if the columns were to be cut out and arranged sequentially, a strip of approximately 5.80 m would be formed. (Angelov, 1924; Izmirlieva, 2009) These are important prerequisites for the *publication's programmed liberation* as the application of different media formats is permitted. The design using vertical text boxes allows the collection to be formatted as a scroll (Mincheva, Georgiev, 2011). The scroll can also be worn as an amulet around the waist or the left arm (Hristova, 2001; Hristova, 2004: 15). According to documentary data by P. Keppen in his own handwriting in a copy of the "Abagar", the book was also used uncut, glued to the wall (Mincheva, Georgiev, 2011: 27). This form of use suggests that the magical impact occurs not only through the physical touch of the object but extends to the protection and control of a large enclosed space through exposure and oral reading of the text contained therein.

It is important to note that the toolbox of media archaeology is not sufficient to establish the truth about the *first works of each type of medium,* which is even more difficult in the age of the printed book. In order to accomplish this task, a follow–up study combining bibliographic, historiographic, and philological approaches is necessary.

The media archaeology approach demonstrates five permanent patterns as regards the role of the book in politics and the development of human relationships. These patterns may be established following five media archaeology and social psychology principles: the principle of bureaucracy, the principle of antagonism, the principle of fanaticism, the principle of emancipation, and the "form follows function" principle.

1) *The principle of bureaucracy*

The predominant media format of the book affects human organisation patterns. The spatial features of the medium recording the fundamental information determine the type of social structure – whether it is a static or a mobile society, and the type of psychological structure – whether it is a harmonious or an anxious society. If the material host is stationary, we observe a "temple" type of bureaucracy which is devoted to serving for the sake of stability in time. When the material host is replaced with a portable one such as a scroll or a codex from papyrus, parchment or paper, we see a "mobilized" type of bureaucracy whereby social structures establish expansionistic and aggressive agendas aimed at conquering new space.

2) *The principle of antagonism and cannibalism*

This principle legitimates the perpetuation and the inevitability of format wars between hegemonic and subversive media. According to A. Toffler (Toffler, 1981: 387), at a certain stage of social development there are always hegemonic and subversive media in the spectrum of media channels. They have antagonistic relationships ranging from media– format competition to media cannibalism (in the mode of "This will kill that!", or "The book will kill the cathedral, the alphabet will kill images"). "Subversive" media are illegal channels for exchanging confidential information, used by entities engaged in unregulated or criminal activities or trying to circumvent regulations. Subversive media should meet two conditions – firstly, they should ideally appeal to literate and illiterate recipients alike and, secondly, they should be most difficult to control by official authorities. These conditions tend to be met by non–mass formats, which are positioned at the two extremes of the media spectrum, in other words, the oldest and the newest media. On the one hand, these are media channels that are no longer commonly used, and on the other–state–of–the–art media channels yet to gain popularity.

Today old media such as smoke, pictograms, signs and symbols, cryptography, leaflets, carrier pigeons, secret meetings and performances, as well as their media continuations ("extensions") in the digital and the virtual world – satellite telephones, personal messengers, e–mails, intranet private networks, etc. are used as "subversive" media. For instance, modern people find smoke or fumes (Dertouzos, 1997: 433–435) to be one of the most attractive media channels alongside its use by the Vatican in the election of a new Pope. Carrier pigeons, leaflets and broad sheets are extremely attractive tools used in political, diversion or terrorist communication. Terrorist groups as well as marginal and criminal networks are known to use cryptography and the human body as "subversive media" (through tattoos on the skin or the shaved crown of the head). In 2007 it was announced that B. Provenzano, head of the Sicilian Mafia, who was imprisoned in 2006, ignored all technical means of communication and used the subversive "pizzini" instead (small paper notes with encoded messages containing numbers, letters and quotes from the Bible, which were exchanged only through two old mailboxes).

In the 17th – 18th century in France, especially during the reign of Louis XV, there was a very wide range of subversive media formats which are being reborn with unbelievable intensity today thanks to personal computers, home printing technology, and the Internet. Examples include mauvais propos, bruit public, pasquinade, canard, libelle, chronique scandaleuse, feuille volante, nouvelle á la main.

Today the printed book also serves as a subversive medium but mostly when it contains fewer than 30 pages, i.e. as a booklet (especially by sect organizations), because the format facilitates its fast production and dissemination. Furthermore, K. Goldsmith claims that *paper is the medium of the new radicalism:* "Right. Publish it on a printed page and no one will ever know about it. It's the perfect vehicle for terrorists, plagiarists, and for subversive thoughts in general. In closing, if you don't want it to exist – and there are many reasons to want to keep things private – keep it off the web." (Goldsmith, 2005)

3) The principle of fanaticism

There is a little–known curious case from the "youth" period of the Western European printed book, which is symmetrical to today's lack of understanding of the "baby" of the publishing evolution – the e–book. In *The History of the Devil*, Daniel Defoe tells of Gutenberg's partner J. Fust ("Faustus"), arriving in 15th–century Paris with a wagon load of printed Bibles. When the Bibles were examined, and the exact similarity of each book was discovered, Parisians quickly demanded their money back. The printed Bibles were said to be a fraud. Pre–Gutenberg people believed that "a book" was a unique handwritten item, an original, a personal family tree board where the family itself wrote the history of their lives. The printing press which produced absolutely identical printed

Bibles was condemned as a creation of the Devil so Gutenberg's partner was sent away being accused of "selling" black magic. (Defoe, 1727: 378; Johns, 2010: 8; Wahrman, 2012: 64)

Fig. 3. "This will kill that." ("Ceci tuera cela."), i.e. the printed book will kill religion, the printing press will kill architecture. Illustration in the novel *The Hunchback of Notre–Dame* by Victor Hugo, 5th ed. (Lemud, 1889)

This episode illustrates the thesis shared by M. McLuhan and U. Eco that fanatics and orthodox guardians of the status quo always fear innovation and do their best to ostracize it instead of generating motivation to develop both the old and the new (Fedorov and Kolesnichenko, 2013: 80–81). However, the story described by D. Defoe is extremely important due to the moral that can be derived from it and developed into a *pattern*. The resistance to recognise the contemporary electronic book as "a book" owing to its text instability and susceptibility to manipulation is fully justified from a psycho–analytic perspective as a natural human fear of "the deeds of the Devil" – a byword for "the sudden", "the unusual", "the inexplicable", and "the abnormal".

Fig. 4. A Printer and his Devil. *Hartley's illustrated coaching guide to North Wales*, 1889, 41 (British Library, 2018d)

Fig. 5. A Printer and his Devil. *The Men in the Moon: or, the Devil to pay*, 1820, 25 (British Library, 2018c)

4) The principle of emancipation ("open format")

The remarkable aspect of the above– mentioned "Abagar" book published in 1651 in Roma is its unique multi–functional format – *its material host can be "converted"*. The publication contains all the prerequisites for transmedia use and can be defined as an "open format" medium. When claiming that "Abagar" had key prerequisites for the *programmed liberation of the publication*, we had the following facts in mind. The original publication is in a 5–sheet codex format; these 5 sheets can be glued to the wall as a wallpaper or poster; without its covers it looks similar to a

newspaper; when the columns are cut out and arranged sequentially one below the other, a scroll is formed; the scroll acquires the power of an amulet that guarantees magical contact protection for the person through the magical texts printed on it while if rolled on its owner's body, it also acquires the function of a clothing accessory. This derives yet another function of the "Abagar" book, namely its use as an accessory or piece of clothing supporting the validity of yet another mediologic pattern – *the relationship between the convenience of the media format for reading and the use of the medium as a piece of clothing or an accessory*.

Consequently, the contemporary print of a particular post–incunable or old–printed book such as the "Abagar" in a standard codex format (traditional printed book) *deforms* the function and point of the authentic publication. First, because its author F. Stanislavov created it strictly as a personal amulet – as a protective medium adapted for personalised preformatting. Second, the publication was created as a "subversive" medium for the official religion in Bulgaria – amulet texts (apotropaic) are unofficial, apocryphal, and heretical. Third, as it was important to observe the ergonomics of the material host, it had to be worn on the body, as a belt wrapped around the wrist, or on the left arm. This conclusion warns contemporary publishers and media producers about the importance of being familiar with the publishing evolution and complying with the principle of the emancipated publication formats.

5) *The FFF principle (Form Follows Function)*

The media biography of the book illustrates the major principle of human form creation in an excellent way – "form follows function" (the principle of L.H. Sullivan's three F's). The book is an integral civilisation project between form (material host) and function (reading). The form of the book always follows its purpose according to the circumstances of the particular civilisation moment. It is a convenience sought for both religious and political reasons.

Let us examine how function (reading) imposes the change in form (material host). The historical moment of introducing the book into the codex format will be used as an example.

According to facts, the codex–book replaces the scroll–book the earliest and most massively in the Christian world. While non–Christian traditions (such as Judaism) use scrolls, early Christians recognise the codex as their medium. The reasons for choosing the codex book format for the new religion do not comprise only ideological differences. It is very likely that the codex was brought from somewhere (to Europe) as a political instrument – as a "subversive" medium for the official polytheistic religion as well as being most convenient for the global spread of the new religion. The official medium during the first years of Christianity was the scroll but in 1st – 2nd century when the words, deeds, and evidence about Jesus had to be disseminated secretly, they wrote on alternative media – notebooks and codexes. Therefore it can be claimed that the codex spread due to the needs of the young Christian religion. The codex is a very convenient format for personal reading. Ordinary Christians always need the evangelical text or a list of biblical citations in a compact form to use readily in disputes and secret enlightenment gatherings. In brief, it was the convenience of fostering mass readership among Christians that elevated the codex book to the position of a dominant media format for the past 200 years. Apparently, the codex established itself due to purely functional reasons: *a highly convenient mass media format* to penetrate an alternative religion and circumvent censorship. Later book form in terms of composition was a reflection of the need for facilitating reading. The "octavo", which remains the most convenient reading format to date, was actually created out of *readability considerations*. It is for the same reason that paging was introduced, chapters or scenes were numbered, headings, sub–headings and summaries were inserted, the number of paragraphs and retreats increased, all of which marked "the final victory of the white fields over the black ones".

All efforts to liberate and adapt, e.g. shortening, simplifying, segmenting, illustrating print editions were subjected to the vision of contemporary reading as strategically and economically profitable for the publisher; the type of reading that is satisfied with minimal coherence and is maintained with maximum ergonomics. The key transformations and corrections in the "youth" period of the printed book arose precisely from practical motives and as a result of the excellent knowledge of the reader.

Fig. 6. Form Follows Function – reading is a long journey. The original of „On the Road“ by Jack Kerouac in a 120–foot–long scroll, 1951 (©Associated Press, 2005, undated photo)

4. Results

We assume that the root causes of the ongoing crisis in world book publishing, the conflicts between old and new media, and the collisions among the views of media pedagogues, academics and researchers are conceptual problems. We are convinced that it is important to undertake a scientific revision and reassessment of the publishing evolution and book evolution in particular, starting with a conceptual analysis.

We believe that the issue at the core of the collisions among scientists and academics is the notion of *"format"*. In other words, the problem of misunderstanding or non–acceptance of the new situation in the field of publishing, books, and reading stems from the limited, narrowly productive, and non–scientific idea of the book as a format. This mass belief requires the use of the term "book" only in Gutenberg projections and connotations, even in research discourse: "book in *written* format", "book in *paper* format", "book in *print* format" , "book in *codex* format".

The problem stemming from the poor understanding of the new situation in the field of publishing, books, and reading is further complicated by the limited idea of the book only as a *paper product* and only as a *printed product*. That is, a "book" is thought and spoken of stereotypically, in the narrow Gutenberg sense – within the *stereotype of "book = paper"*. Equating the book only with paper is tantamount to short–sightedness with regard to its pre–paper and post–paper existence. This prejudice leads to an incorrect language substitution and the synonymisation of "book–based" = "paper–based" = "printed".

The first step in reassessing the publishing evolution and, in particular, the evolution of the book as publication is the analysis based on the definition of format in the field of media and communications. The term "format", in general, refers to the particular physical presentation of a resource (ISBD 2011: 327). We use the term "media format" to denote the physical packaging of content whose optimising characteristics guarantee its relevant arrival with the receiver. Such a definition allows the identification of a particular information resource in the system of recording mediums (Tsvetkova 2012: 11).

In this context, the modern printed paper book is only one of the representations of the historically established stable *codex format*. However, the book as a *codex* can be made not only from paper but also from wood, leather, cloth, resin, plastic, metal (gold, bronze, lead, aluminium), rock, gemstone, etc. That is, the physical composition of media formats can also vary. In turn *paper,* apart from its codex application, is the physical basis for three other media formats – paper book in the form of a scroll (vertical or horizontal), paper book in the form of "leporello" or "concertina" (Maya codices and Chinese bamboo books) and paper book in the form of sheets codex (the printed book of the Age of Gutenberg) (*see* Fig. 7).

In conclusion, it can be said that the printed paper book in codex format (the Gutenberg book) – the queen of the past five centuries of publishing and reading, today is only one of the available formats in circulation co– existing with multiple technology derivatives – talking books, audiobooks, visual books, e–books, cross–media books, hybrid books, augmented reality books, etc. Contemporary books have also taken paperless forms; they seek conversation as well as inform and speak with different codes. Today the book triumphs in the overall vortex of transmedia and the blending of all media into one.

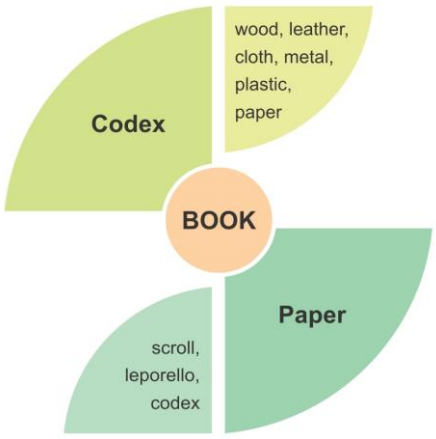

Fig. 7. Media diversification of the book – according to material and format

In order to continue with the revision and reassessment of the publishing evolution and, in particular, the evolution of the book from the perspective of the highly–technological 21st century, it is also necessary to clarify the term "*medium":* the physical substance or material (paper, film, magnetic tape, optical disc, etc.) that carries or communicates information content (ISBD 2011: 331). For the purposes of this study, we suggest adhering to the formula of the book as medium. According to it, the book is an artifact bearing the characteristics of a communication trinity or meeting the three requirements of a medium: (1) content (information, text, narrative, story), (2) sign system (code, language), (3) form (carrier, host). This formula is derived by A. Grechihin (Grechihin, 2001) and is operationalised in the monograph *The book as medium* (Tsvetkova 2012: 42). For the purposes of this study, we will ignore the component of "content", that is we are not going to analyse the content qualification and its sensory specification – presence or absence of movement, dimensionality and sensory essence of the resource published (ISBD 2011: 39, 46, 322).

MEDIUM = content (text) + code (language) + form (carrier/launcher/host)

Given this formula, we find that the notion of book should not restrict diversity or discriminate against any of the elements of the trinity. It is a fact that when someone says "a bird", we do not always think of a penguin or an ostrich. However, that does not mean that the above species do not satisfy the generic definition. It is true that when someone says "a book", we do not always think of a scroll or a tablet. Yet the book used to have, has, and will continue to have numerous different meanings.

The above formula shows that the scientific category of "book" encompasses the entire medium, while the formats it could take are as numerous as its material hosts. Consequently, the scientific discourse on the formats of the book as medium should be based on the general definition of medium as well as on an objective, media– archaeological classification of its material hosts (Table 1).

Table 1. Classification of the material hosts of the book as medium

MATERIAL HOST OF THE BOOK			
According to format		According to composition	
Static	Portable	Inorganic	Organic
rock	tablet	stone	wood
wall	block	clay	wax
column	cylinder	metal	leather
monument	scroll	lead	cloth
obelisk	leporello	resin	papyrus
stele	codex	plastic	parchment
			paper

Taking into consideration the 15th century invention of J. Gutenberg, which was a book of organic composition (parchment or paper) in a portable format (codex) that represented a revolution in publishing with a yet unexhausted potential, the name of the German inventor is to be granted word– formation status in a broader media archaeological periodisation of publishing and book formats (Table 2).

The media archaeological approach to the formats of the book as the oldest medium shows that it is necessary to conceive it in three new general stages: Pre–Gutenberg book (35 000 BC – 1455), Gutenberg book (1455–1971) and Post–Gutenberg book (after 1971). I consider this periodisation to be correct as books were in existence before the printing press, the codex format was in existence before book printing, and the deployment of computers ushered the era of the new formats of non–material books. Speaking of a Library of Alexandria in the 3rd century BC and a Library of Alexandria in the 21st century AD, likewise we can speak of an Alexandrian book of the 3rd century BC and an Alexandrian Book of the 21st century AD. Reducing the scientific category of "book" merely to the Gutenberg period of its biography would constitute disrespectfulness to its millennial history and short– sightedness with regard to its future.

Table 2. Media–archaeological periodisation of the publishing formats

<table>
<tr><td rowspan="8">PRE-GUTENBERG FORMATS</td><td>35 000 BC – 1st c.</td><td>Stone
Clay
Metal</td><td>Rock, Wall, Tablet</td></tr>
<tr><td>2400 BC – 8-9th c.</td><td>Papyrus</td><td>Scroll</td></tr>
<tr><td>1400 BC – 9th c.</td><td>Wood</td><td>Tablet</td></tr>
<tr><td>1250 BC – 3rd c.</td><td>Bamboo strips and wooden slips</td><td>Scroll</td></tr>
<tr><td>500 BC – 5th c.</td><td>Silk</td><td>Scroll</td></tr>
<tr><td>500-400 BC – 8-9th c.</td><td>Parchment</td><td rowspan="2">Scroll, Codex</td></tr>
<tr><td>200 BC – 21st c.</td><td>Paper</td></tr>
<tr><td rowspan="2">GUTENBERG FORMATS</td><td>1455 – 1500</td><td rowspan="2">Printing</td><td>Codex, printed (incunable)</td></tr>
<tr><td>1500 – 21st c.</td><td>Codex, printed (contemporary)</td></tr>
<tr><td rowspan="2">POST-GUTENBERG FORMATS</td><td rowspan="2">1971 – 21st c.</td><td rowspan="2">Digitisation</td><td>Staticals (computer screen)</td></tr>
<tr><td>Portables (e-reader, tablet, smartphone)</td></tr>
</table>

It is important to note that it is hardly an attainable task to grasp the historical formats of publishing in their entirety insofar as organic material hosts are perishable and easily destroyable, and unlike inorganic media, they are almost impossible to preserve as artifacts obligatory to confirm the historical truth.

Nevertheless, applying the media–archaeological approach to the publishing evolution demonstrates that the book always takes the form offered to it by the "technological park" of the respective civilisation phase while at the same time looking for the most convenient format to inform and speak in comprehensible code. This is the reason why the book as medium in the beginning of the 21st century triumphs in the overall trans–media whirl and the merging of all media formats into a single one.

5. Conclusion

The present research challenges book publishing science which is still identified with the Gutenberg paradigm. According to it, the 560–year biography of the printed book develops over four phases: incunables, first–printed books, old–printed books, and contemporary printed books. Acknowledging the colossal nature of Gutenberg's invention, the scientific discipline of "media archaeology" revealed larger–scale reasoning behind the evolution of the book as a medium: Pre–Gutenberg, Gutenberg and Post–Gutenberg book. Each of the three phases is propelled by

patterns also pre–empting the future of the print medium in the 21st century. The media–archaeological approach has made it possible to correct the historical place and the evolutionary stance of the inventions pertaining to the Gutenberg Galaxy – the print medium, the printing press, the printed book, and paper as a printing resource. The outcome of the study may prove important for outlining the technological and ideological patterns affecting the invention and decline not only of the printed book but of every publication format before and after Gutenberg. These are sufficient grounds to support the inclusion of media archaeology as a subject in the curriculum of proactive media education (Fedorov, Levitskaya, Camarero, 2016).

In conclusion of the reassessment of the publishing evolution, three important warnings are formulated to both producers and researchers of mass media, books, and print communications from the perspective of media archaeology.

Firstly, what has been said so far proves not only that the book has its own place in media evolution but also that this place is always key and revolutionary. In this sense, it is not far–sighted to speak of a "bookless" civilisation. Of "paperless" – yes, but not of "bookless".

Secondly, effective publishing/book printing has always been in direct relationship to *the decisions of publishers as readers*. Such is the reasoning behind the anthropological principle of "form follows function". This is also how the systematic approach in mediology works, i.e. that the convenience of reading plays a major role in media transformations. Hence, *the reader is the "dictator" of successful media formats*. Therefore in every historical age and in every individual society, dominance is exerted not by the cheapest or the most harmless mass media "book" format but by the most convenient one. The rehabilitation of the book in the media archaeology scheme contains sufficient basic arguments to denounce any neurotic and apocalyptic spells about "the end of the book". "The end of the book" may occur if (hypothetically) the generation of ideas is declared "in liquidation", the idea of "the book" is vetoed, declared reactionary or deemed a form of bioterrorism against the human brain.

Finally, media archaeology demonstrates that the printed book has been the dominant media technology for five centuries now despite the impact of information technology innovation. During its reign, albeit perfecting its functions, it has locked its physical form in an unchanged "interface". We only need to hold a copy of any incunable in our hands, for instance, "The ship of fools" by Sebastian Brant, printed in 1494 so as to be able to feel its "modernity". What is more, a permanent devaluation of the aesthetic and psychosomatic characteristics of the print form towards elementarisation and clicheing can be observed in the mass book market. The conclusion is that as far as the emancipation and humanisation of book formats are concerned, designers from the print and publishing industries remain indecisive and conservative, preferring to work in the comfort of their own personal book experience, which increasingly distances them from the needs of the radically new and ever more rapidly changing reader.

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