

- [14] EN 12498:2005 Paper and board intended to come into contact with foodstuffs. Determination of cadmium and lead in an aqueous extract (2005)
- [15] EN 12497:2005 Paper and board intended to come into contact with foodstuffs. Determination of mercury in an aqueous extract (2005)
- [16] EN 14719:2005 Pulp, paper and board. Determination of the diisopropyl-naphthalene (DIPN) content by solvent extraction (2005)
- [17] ISO 15318:1999 Pulp, paper and board. Determination of 7 specified polychlorinated biphenyls
- [18] BfR, 2009, XXXVI. Papiere, Kartons und Pappen für den Lebensmittelkontakt, Bundesinstitut für Risikobewertung, 2009 Available at <http://bfr.zadi.de/kse/faces/resources/pdf/360.pdf>
- [19] Croatian Ordinance on sanitary safety of materials and articles intended to come into direct contact with foodstuffs, Official Gazette, No. 125, 2009.
- [20] Nordic report on Paper and Board Food Contact Materials, TemaNord 2008:515, ISBN 978-92-893-1657-6, 2008
- [21] MAFF, UK (1999) United Kingdom Ministry of Agriculture, Fisheries and Food, Food Surveillance Sheet No 169, January 1999; Diisopropyl-naphthalenes in food packaging made from recycled paper and board, Available at <http://archive.food.gov.uk/maff/archive/food/infsheet/1999/no169/169dipn.htm>

Typography and graphic design in newspaper Slovenec

Klementina MOŽINA¹, Miša ŽIDAR¹, Marija HORVAT¹

¹University of Ljubljana, Faculty of Natural Sciences and Engineering,

Chair of Information and Graphic Arts Technology, Snežniška 5, Ljubljana, Slovenia

Abstract

The aim of the research was to analyse the typographic changes in the newspaper Slovenec from its inception in 1873 – first it was published three times per week and after ten years, it became a daily newspaper – until its decline in 1945, as well as during its revival from 1991 until 1996.

All the issues of the newspaper were analysed; however, the focus was put on those which were actually changed.

By analysing the typeface style, it was established that for the content, the most widely used typestyle in the “old” newspaper (1873–1945) was modern, which was not always the case with titles and subtitles where decorative or lineal typestyles were used. On the other hand, the most widely used typestyle in the “new” newspaper (1991–1996) was transitional and was used for titles and subtitles, sometimes replaced by slab serif and lineal typestyles. The design of the “old” newspaper somehow followed the common European newspaper design, while in the “new”, modern newspaper, the design could not be detected.

Therefore, the cultural heritage of the “old” newspaper was lost.

Keywords: cultural heritage, graphic design, newspaper, Slovenec, typography

1. Introduction

At the beginning of the 19th century, the printing art expansion was slowing down, since it already became established in the political, social and cultural life. At the end of the 19th century, Ljubljana got four new printing houses. One of the most important printers was Jožef Blaznik [1–4].

He was the supporter of young Slovenian writers and researchers, which is why the works published in his printing house were mostly works of literature and natural science written in the Slovenian language [5]. His printing house was one of the most up-to-date printing houses and the first one where Slovenec, a catholic newspaper in the Slovenian language, was printed between 1873 and 1883. During that time, it was published three times per week. Later, Slovenec became a daily newspaper and was printed in Catholic printing house, which was after the First World War in 1919 renamed into Yugoslav printing house. During and after the Second World War, the printing house worked under the name Printing house of national justice. Due to the catholic content of the newspaper Slovenec, its publishing stopped after the Second World War until its revival in 1991, when a new printing house was established for its printing and was closed down when the newspaper stopped being published in 1996 [1–6].

2. Newspaper design

A daily newspaper is an actual paper with most current news – at least that was the case before the new, digital media. Nevertheless, it still brings news, information, analysis and comments about the political, social, economic, cultural, global and national events.

The newspaper head is most commonly placed at the top of the first page. The newspaper layout is divided into a few columns. For a different type of content (i.e. subtitles, titles, body text, headings for figures and tables, pagination etc), specific typography (typeface, type size, leading – i.e. space between lines) is defined [4, 7–9].

Based on their typical design, typefaces can be grouped according to the variations in stroke width and serif design into old-style, transitional and modern; or into a group without (or with a minor) variety in stroke width, i.e. slab serif and sans-serif (lineal). As it is evident from the designation of this typeface style, sans-serif typefaces do not have serifs. These type styles are the most useful for body sized text [4, 9, 10].

Old-style typeface: The principal features of old-style typefaces are a slight contrast between the thick and thin character strokes and an oblique emphasis. An early version (known as Humanist) of these typefaces has steeply sloping serifs and an angled crossbar in the lowercase e.

A later version (known as Garalde) of the old-style typeface has a more pronounced contrast between the thick and thin strokes. The crossbar in e has become resolutely horizontal, the serifs are finer and more horizontal [4, 10–13]. Generally, old style typefaces are legible as body text in printed media.

Transitional typeface: The contrast between thick and thin character strokes is much more marked. The emphasis of curved letters is vertical. Serifs have become even more horizontal. The crossbar in e is horizontal. [4, 10–13] In general, transitional typefaces are still very popular for book, journal and magazine print work, due to their good legibility of the body text.

Modern (didone) typeface: The contrast between the thick and thin strokes of characters has been reduced to hairlines. Serifs have become extremely thin lines – hairlines, which are unbracketed.

Right angles predominate among strokes and serifs. The crossbar in e is horizontal [4, 10–13]. Modern typefaces are generally used nowadays as display typefaces and newspaper headlines etc; however, due to the lack of legibility, they are not used as body text.

Slab serif typeface: The contrast between character strokes is limited, slab serif typefaces having little or no difference between the thick and thin strokes. The crossbar in the letter e is horizontal [4, 10–13]. Slab serif typefaces are more preferably used for headlines than for the body text.

Sans-serif (lineal) typeface: As it is evident from the designation of this typeface category, sans-serif typefaces do not have serifs. The contrast between character strokes is limited, sans-serif typefaces having little or no difference between the thick and thin strokes. The crossbar in the letter e is horizontal [4, 10–13]. Sans-serif typefaces can be subdivided into four groups, namely into grotesque, neo-grotesque, geometric and humanist [4, 12].

For titles and bigger sized text, also a decorative, script and similar typestyles can be used [4, 9, 10].

3. Experimental

In the research, the typographic changes in the “old” Slovenec (1873–1945) and “new” newspaper (1991–1996) were analysed. The focus was put on the issues which were actually changed.

The changes in the head size and newspaper format, the size of layout, the number of columns, typestyle, type size and leading of titles, individual text, columns, chronicle etc were compared. The measurements were performed in the Didot sized points [4]. All the published issues of the newspaper are available in the Slovenian National and university library, where the analysis was conducted.

4. Results and discussion

4.1. “Old” newspaper (1873–1945)

The data about the newspaper design are in *Tables 1 and 2*. A part of the first page of the newspaper from its first year of publishing (1873), second (1894) and third (1905) redesign of it, and from when the last change occurred (1926) in this period of the publishing can be seen in *Figures 1–4*.

Table 1: Sizes of measured typographic elements in year of changes

Size (pt)	Year of newspaper design changes					
	1873	1885	1894	1904	1905	1926
Format height	1001	1194	1194	1269	1293	1301
Format width	674	797	792	868	890	876
Layout height	906	1085	1153	1217	1185	1229
Layout width	591	672	674	807	834	810
Head height	95	113	113	132	126	66
Head width	354	636	636	807	559	626
Column width	194	217	217	217	204	198
Size of body text	10	10	10	10	10	10
Leading	11	12	12	12	12	10
Size of titles	14	14	14	22	30	20

Table 2: Difference of typographic elements in year of changes

Page design	Year of newspaper design changes					
	1873	1885	1894	1904	1905	1926
No. of columns	3	3	3	3	4	4
Typestyle of body text	modern	modern	modern	modern	modern, transitional	modern, old-style
Typestyle of title	modern	modern	modern	decorative	decorative	lineal, decorative

The first substantial change occurred in 1905 when the modern typeface was in some types of text replaced with a transitional one and then in 1926, when an old-style typeface was used for the body text in some types of text. The only change in the number of columns appeared in 1905, while the newspaper format and layout was changing constantly. There was no change in the size of body text, whereas the leading altered twice.



Figure 1: Part of first newspaper page in 1873



Figure 2: Part of first newspaper page in 1894



Figure 3: Part of first newspaper page in 1905

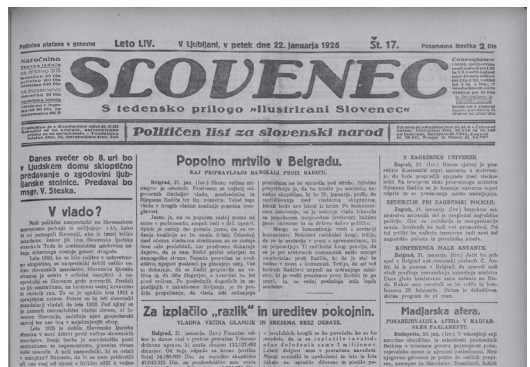


Figure 4: Part of first newspaper page in 1926

At each redesign, the head of the newspaper differed in the type style and almost every time in the size. Very often, the change of the editor resulted in a redesign of the newspaper.

4.2. "New" newspaper (1991–1996)

The data about the "new" newspaper design are in Tables 3 and 4. A part of the first page of the newspaper from the first year of revived publishing (1991) and from the year 1994 can be seen in Figures 5 and 6. The most widely used typestyle in the "new" newspaper was transitional and was used for most titles and subtitles, sometimes being replaced by lineal and seldom by slab serif typestyles (e.g. in the culture section).

Table 3: Sizes of measured typographic elements in year of changes

Size (pt)	Year of newspaper design changes			
	1991	1992	1993	1994
Format height	1172	1182	1195	1188
Format width	792	810	796	799
Layout height	1084	1100	1116	1121
Layout width	740	740	735	745
Head height	60	62	72	76
Head width	580	555	492	486
Column width	112	113	112	114
Size of body text	9	10	9	9
Leading	10	10	9.33	9.33
Size of titles	28	36	36	36

The size of the body text changed twice, while the size of titles only once.

The newspaper format and layout were constantly changing, whereas the number of columns did not change at all.

It can be seen in the "new" newspaper that the design of the head followed the last head redesign in 1926 and stayed unchanged until the end of the publishing of the newspaper.

There was only a minor difference in size, the letters got a shadow from 1992 onwards and became three-dimensional, and since 1993, the letters were slightly condensed.

Table 4: Difference of typographic elements in year of changes

Page design	Year of newspaper design changes			
	1991	1992	1993	1994
No. of columns	6	6	6	6
Typestyle of body text	transitional	transitional	transitional	transitional
Typestyle of title	lineal	transitional	transitional	lineal

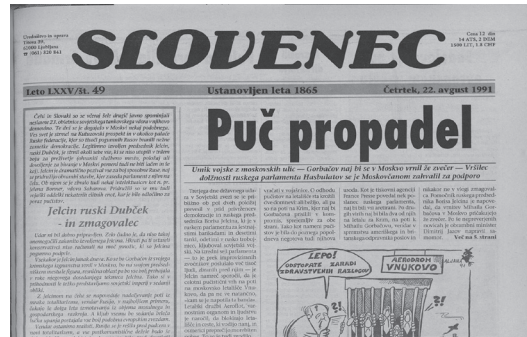


Figure 5: Part of first newspaper page in 1991



Figure 6: Part of first newspaper page in 1996

5. Conclusion

The design changes in the newspaper Slovenec were made in 1885, 1894, 1904, 1905, 1926, and later in 1992, 1993 and 1994.

The most substantial change in the design can be noticed on the first pages of the newspaper, especially in the newspaper head of the "old" editions. The changes in the newspaper format and layout were typical of both editions of Slovenec. Between the "old" and the "new" newspaper, the differences in the used type size for body text are not significant, while the sizes of titles are very different. The "new" newspaper had many more columns (six) than the "old" one (three or four). For the body text, the transitional typestyle was used in the revival of the newspaper, as it was found in the first biggest redesign of the newspaper in 1905. The modern typestyle, which was mostly used in the "old" newspaper, was probably not used in the revival of the newspaper, as it was established in the 20th century that this typestyle is

less legible than the transitional or the old-style one. The design of the "old" newspaper somehow followed the common European newspaper design, especially in the 19th and at the beginning of the 20th century, while in the "new", modern newspaper, the design could not be detected; it seems as if the newspaper wanted to show its historical connection with the "old" newspaper. Therefore, the respect and cultural heritage of the "old" newspaper was lost.

6. Reference

- [1] Berčič, B.: TISKARSTVO NA SLOVENSKEM, ODBOR ZA PROSLAVO 100-LETNICE GRAFIČNE ORGANIZACIJE NA SLOVENSKEM, LJUBLJANA, (1968)
- [2] Moravec, D.: NOVI TOKOVI V SLOVENSKEM ZALOŽNIŠTVU, DZS, ISBN 86-341-1245-4, LJUBLJANA, (1994)
- [3] Dular, A.: ŽIVETI OD KNJIG: ZGODOVINA KNJIGOTRŠTVA NA KRANJSKEM OD ZAČETKA 19. STOLETJA, ZVEZA ZGODOVINSKIH DRUŠTEV SLOVENIJE, ISBN 961-90803-5-1, LJUBLJANA, (2002)
- [4] Možina, K.: KNJIŽNA TIPOGRAFIJA, UNIVERZA V LJUBLJANI, ISBN 961-237-044-3, LJUBLJANA, (2003)
- [5] Jurač, J.: VONJ TISKARSKIH BARV, SPLOŠNO ZDRUŽENJE GRAFIČNE, GRAFIČNOPREDELOVALNE INDUSTRIJE, ČASO-PISNE IN ZALOŽNIŠKE DEJAVNOSTI TER KNJIGOTRŠTVA SLOVENIJE, LJUBLJANA, (1989)
- [6] Amon, S.: VLOGA SLOVENSKEGA ČASOPISJA V ZDRU-ŽEVANJU IN LOČEVANJU SLOVENSKE JAVNOSTI OD 1797 DO 1945, JAVNOST, VOL. 15 (2008), PP. S9–S24, ISSN 1318-3222
- [7] White, J.: EDITING BY DESIGN, R. R. BOWKER, ISBN 0-8352-1508-3, NEW YORK, (1982)
- [8] McWade, J.: BEFORE & AFTER PAGE DESIGN, PEACHPIT PRESS, ISBN 0-201-79537-X, BERKELEY, (2003)
- [9] Felici, R.: THE COMPLETE MANUAL OF TYPOGRAPHY, PEACHPIT PRESS, ISBN 0-321-12730-7, BERKELEY, (2003)
- [10] Bringhurst, R.: THE ELEMENTS OF TYPOGRAPHIC STYLE, HARTLEY & MARKS, ISBN 0-88179-206-3, VANCOUVER, (2005)
- [11] Gordon, B.: MAKING DIGITAL TYPE LOOK GOOD, THAMES AND HUDSON, ISBN 0-500-28313-3, LONDON, (2001)
- [12] McLean, R.: THE THAMES AND HUDSON MANUAL OF TYPOGRAPHY, THAMES AND HUDSON, ISBN 0-500-68022-1, LONDON, (1996)
- [13] Campbell, A.: THE DESIGNER'S LEXICON, CASSELL & CO., ISBN 0-304-35505-4, LONDON, (2000)

Flexographic ink composition and its wetting influence on flexo printing plate and printed substrate (PE FOIL)

Sandra DEDIJER¹, Magdolna APRO¹, Zivko PAVLOVIC¹, Tomislav CIGULA²,
Boris OBRENOVIC¹

¹Faculty of Technical Sciences, Department of Graphical Engineering and Design,
Trg Dositeja Obradovica 6, Novi Sad, Serbia

²Faculty of Graphic Arts University of Zagreb, Getaldiceva 2, Zagreb, Croatia

Abstract

Surface topography of the printing plate and substrate and the printing ink composition are factors which highly influence ink transfer during flexographic printing process. Consequently, their influence on final imprint quality is certainly not in question. The research presented in this paper was aimed on determination of wetting characteristics of the printing plate and printing substrate, depending on printing ink composition, as well as their surface topography. Samples of printing ink were made with vary-

ing solvent and varnish concentration. Evaluation of the printing ink was made by measuring viscosity and the characterisation of surface topography of printing plate and PE foil was made by measuring roughness parameters. To determine wetting characteristics of the prepared ink samples on the used solids measurements of contact angle were performed. Obtained results showed that the ink composition has significant influence on the printing ink viscosity and on the wetting of the printing plate but on the printing substrate as well. The contact angle