The Visual Form of Estonian Newspapers from 1806 to 1940 and the Appearance Spiral Model

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Abstract
Changes in the visual form of newspapers are considered to be connected to changes in society, technologies, and aesthetic ideals. The present chapter explores the changes in the visual form of Estonia’s major newspapers between 1806 and 1940, and whether Mervola’s model of visual changes, in Finnish newspapers, is applicable to Estonia’s newspapers. Content analysis is used to analyse the data. The analysis shows that Estonian newspapers considerably changed their visual form twice during this period. These changes in visual form were linked to social and economic factors, and three specific influencers were present prior to both instances of change. At first, rapid social changes caused a volume-jump in the newspaper issue (1.5 times in five years), and then competition and journalistic professionalization were needed to trigger the changes in the visual form. Technical evolution did not force newspapers to change, but was instrumental only when social factors demanded changes.

Keywords: visual form of newspaper, Estonia, newspaper history, content analysis, volume of content

Introduction
The visual form of newspapers is changing constantly. Visual form includes typography and layout, but also the size of the page, habits of illustration and segmentation, etc. – everything a newspaper uses to present its content.

Only a few researchers have studied the history of the visual form of newspapers. Allen Hutt (1973) studied the typography and layout of English and American newspapers during the period 1622-1972. He focused on type and technology, not on wider changes in society or journalism. A. Kiselev (1990) described the development of the form of Russian newspapers from 1702 to 1917. Barnhurst and Nerone (2001) gave an overview of the form of North American newspapers between 1750 and 2000 and connected these changes primarily to changes in civic culture and journalism. Pekka Mervola (1995) studied the visual form of Finnish newspapers from 1771 to 1994. The visual aspects of Swedish newspapers in historical perspectives have been covered in a few books (Ekecrantz & Olsson 1994; Becker, Ekecrantz & Olsson 2000).

Typically, visual changes are considered to be linked to social changes, technological innovations, and changes in aesthetic ideals (e.g., Hutt 1973; Garcia 1987; Kiselev 1990; Barnhurst & Nerone 2001).
Finnish researcher Pekka Mervola (1995) created the ‘Appearance spiral model’ to explain the visual changes in Finnish newspapers. He argued that the visual form of newspapers is socially determined, but social and economic situations do not influence the form of newspapers directly rather through the volume of contents of a newspaper issue (i.e., articles, advertisements, etc.). The volume of contents, on the other hand, is connected to the economic and social situation at the time of the newspaper issue’s origin.

The Appearance Spiral begins with the particular visual form of the press. This form is created in accordance with the volume of contents of its time. The volume of contents will increase with time, and pressure will then be built up on the visual form. This pressure is released as a new visual form when suitable changes occur in the newspaper’s environment, which provide a trigger for change. The new visual form is again balanced with the volume of contents at the time. Smaller changes always occur in newspapers, but greater structural changes occur because of increased volume of contents. There are also other kinds of developments in the visual form of newspapers. Different typefaces, for example, are favoured at one time or another, but the Appearance Spiral model is unable to explain aesthetic changes (Mervola 1995: 353-361, 416-425).

Mervola showed how the Appearance Spiral has completed three rotations in Finnish newspapers.

Initially, Finnish newspapers were similar to books. This visual form became untenable in the 1850s when the average volume of the newspaper issue (in square meters) had been tripled. The decisive environmental change that released the built-up pressure occurred in printing technology. Iron printing presses permitted an increase in page size.

Thus, a new visual form of the newspaper was created, and newspapers entered the Era of the Corset (1860-1910). Page size increased to A2 and larger, and up to 10 columns were printed per page. Texts were column-wide and illustrations were rare.

Several changes in Finnish society occurred during this fifty-year period that influenced the newspapers, increased potential readership, and emphasized the role of newspapers. Consequently, the average volume of content tripled.

The main environmental changes were the strengthening role of news and the competitive situation of newspapers. Newspapers began to concentrate the main news items on a few select pages, provided eye-catching headlines and added photographs. Mervola called these pages Parading pages. The Era of Parading Pages became established at the turn of the 1910/1920s and lasted until the 1960s.

The aims of my article are to describe the changes in the visual form of Estonian newspapers during the period 1806-1940, to explore factors that influenced the visual form, and to study whether the Appearance Spiral model is valid for Estonian newspapers.

Method and Material

The method of my research is content analysis, which enables the researcher to describe the visual form in a measurable way (Riffe, Lacy & Fico 1998).

I have selected for my data three Estonian newspapers at five-year intervals from 1806 to 1940. Two newspapers were only published in Estonian between 1806 and 1856: Tarto maa rahwa Nääddali-Leht (1806) and Marahwa Nääddala Leht (1821-1823, 1825). The years 1806, 1821 and 1825 were included in the sample.

A regular Estonian press started in 1857, but only a few newspapers were published at first. Hence, until 1870 my sample includes two papers for each selected year: Tal-
I sampled three major nationwide general newspapers from 1875 onwards for each selected year. The analysed newspapers are Perno Postimees (1875-1885), Eesti Postimees (1875-1905), Ristirahwa pühhapäwa leht (1875), Sakala (1880), Olewik (1885-1905), Postimees (1890-1940), Päevaleht (1910-1940), Tallinna Teataja (1910-1915), Waba Maa (1920-1935), Uus Eesti (1940).

All Estonian newspapers in the 19th century were weeklies, except Postimees, which appeared three times a week in 1890, and became the first Estonian daily in 1891. In 1905, the other analysed newspapers appeared twice a week, and since 1910, all the analysed newspapers were dailies.

For each selected year, I sampled a reconstructed month of the weeklies, balanced across seasons, and a reconstructed week of the dailies, balanced across months and weekdays.

I have content analysed all typographic elements in a total of 189 newspaper issues. The average volume of the newspaper issue is calculated on the basis of all newspaper issues from sample years.

Many different elements define the form of a newspaper. I have analysed the most important elements, which were used for a long period, which changed significantly during the analysed period and which are linked to the volume of the newspaper.

The analysed elements are: the volume of the newspaper issue (i.e., space of one newspaper issue – $m^2$ – excluding the margins); the size of the page (i.e., printed area of one newspaper page – $cm^2$); the number of columns per page; the method of headlining; the use of multi-level headline; the number of sub-divisions per issue; the location of advertising.

I have excluded elements that are linked to aesthetic characteristics (e.g., typefaces), and elements that changed only slightly during the studied period (e.g., infographics) or became widely used only at the end of the explored period (e.g., visuals and colour).

**Volume-jumps and the Reasons for them in Estonian Newspapers.**

**The Changes in Visual Form after Volume-jumps**

The volume of Estonian newspapers permanently increased from 1806 to 1940 (Figure 1). There were, however, three thresholds when the volume increased rapidly:

- In 1860, the volume increased by a factor of 3.2 compared to the volume in 1825;
- In 1880, the volume increased by a factor of 1.9 compared to 1875;
- In 1925, the volume increased by a factor of 1.6 compared to 1920.

I compared the form of newspapers in the sample years immediately preceding and succeeding these three occasions in order to monitor the connections between the volume and form; i.e., 1825 and 1865, 1875 and 1885, 1920 and 1930. Explanations of every volume-jump are divided into three:

- background factors – factors that caused and enabled the increase in volume of newspapers;
- visual changes;
- foreground factors – factors that triggered visual changes.
In 1860, the average volume of the newspaper issue had increased by a factor of 3.2 compared to the volume in 1825. The most important reason for the volume-jump was the increased independence and freedom of choice of Estonian peasants (the target group of these newspapers) in the early 19th century. The first Estonian newspapers were created mostly for the serfs, but in 1860 already for the free peasants.

At the beginning of the 19th century, the majority of Estonians were peasant-serfs who worked for the manorial Lords, most of whom were Baltic Germans. Serfdom was abolished in North Estonia in 1816 and in South Estonia in 1819. Up to that time, the manors had organized the everyday life of peasants, but now they were free to organize their lives through their local governments. The land was still owned by landlords, and the peasants now had to rent it. The Peasant Regulations of 1849 and 1856 ratified peasants’ right to pay their rent with money instead of their labour, and peasants were allowed for the first time to buy land. All these changes made peasants more self-reliant and more interested in their surroundings.

The second reason was that a network of schools formed after the abolition of serfdom. The literacy rate among adult Estonian peasants was more than 50% by the end of the 18th century. The schools increased the adult literacy rate by the middle of the 19th century to 77% in northern Estonia (Zetterberg 2007: 401-402).

The third reason was the beginning and escalation of the Estonian national movement (National Awakening) in the 1850s and 1860s. This movement brought about an explosion of intellectual activity and increased peasants’ interest in themselves and the outside world (see Jansen 2007; Laar 2006; Zetterberg 2007: 412ff). Newspapers were the essential organizers of the national movement.

The conclusion is that social changes caused the demand for publishing much more material in newspapers.
During this time span, the printing equipment also improved. Until the 1840s, wooden hand presses were used, and printing workshops were similar to Gutenbergian workshops. In the 1840s and 1850s, the larger print shops acquired the first König and Bauer iron flatbed cylinder presses, the first one in 1846 (Miller et al. 1978: 144). These presses enabled printing on folio pages. Still these presses were hand-driven, as they were purchased without operating engines.

**Visual changes.** The first newspapers at the beginning of the 19th century had the page size of books (octavo-format, i.e., smaller than A5; see Illustration 1) and a single column per page. In 1857, the pages were twice the size of the octavo (quarto-format, i.e., smaller than A4; see Illustration 2) and contained two columns.

The structure of the first Estonian newspapers was quite haphazard. Some issues contained only a single story or only brief news items. The sequence of stories in an issue was just as random.

A more stable structure developed at the beginning of the 1860s. The newspaper was divided into titled sub-divisions. Initially an issue was started with the news sub-division, but in 1865 a longer story (an admonishing-instructive or popular scientific text) began to appear before the news. The news sub-division was followed by other longer stories (e.g., popular science, farming tips) and another news sub-division entitled “Various news” or “Appendix”. Merchandise prices, answers to the letters, tabulated material and classified advertisements closed the issue.

Only longer non-news stories had single-column headlines. Subdivided news-stories did not have headlines, but keywords at the beginning of stories that now became more eye-catching. Previously, the beginning of the new story was marked with spaced-out keywords, which now changed to bold keywords (see Illustrations 1-2).

The standard volume of a newspaper issue was eight pages. During the 1860s, a newspaper was divided into physically separate parts because of technical restrictions. The printing presses were able to print one side of the sheet at a single pass (i.e., up to four quarto pages), then the other side, after which the sheet was folded twice. When the editor wanted to publish a bulkier newspaper issue, he used a two-page additional sheet with its own small masthead *Lissa-kirri* or *Lisaleht* (Supplement), which was printed separately. Usually it contained only classified ads.

**Stimulus for change.** Despite the first newspaper-specific features (titled sub-divisions, keywords at the beginning of news-stories), newspapers maintained the visual form of a book or magazine. Why did the volume-jump fail to cause a new visual form? There was neither a reason nor a possibility to differentiate a newspaper from a book.

First, when a new type of periodical is introduced, it is better for it to be visually similar to existing periodicals of the region. This visual similarity allows readers to more easily adopt it. Afterwards, the new periodical will develop its own characteristic visual form.

Therefore, at the beginning of the 19th century, Estonian newspapers looked like contemporary periodicals (Estonian calendars and magazines, Baltic German newspapers), and in the middle of the 19th century, newly introduced Estonian newspapers looked like contemporary periodicals (Estonian magazines, Baltic German newspapers).

Technically it was possible for some Estonian newspapers to be more similar to contemporary newspapers abroad. For example, Laakmann’s print shop had acquired the first König and Bauer press in 1846, which meant that Laakmann could publish
Illustration 1.
Marahva Näddala-Leht 1821, Dec 7, p 388 (scale 1:2). In the middle of the page, the sub-division “Announcements” begins with a story without a headline

Illustration 2.
Perno Postimees 1860, Jan 13, p 12 (scale 1:2). The subdivisions “News from foreign land” (with three stories without headline) and “News about pagans and mission work” (with a headlined story)
newspapers in folio format. But his newspapers Tallorahwa postimees (1857-1859) and Eesti Postimees (since 1864) were in quarto-format like other Estonian newspapers. Only in 1869 Eesti Postimees did change to folio-format.

Second, to middle-19th century editors and printers, the newspapers were no more than novel sidelines. Editors viewed the newspaper as a ‘newsy book’. Estonian newspapers were mostly enlightening and instructive, the news being of secondary importance. The benefit that newspapers provided for the printers was an income that matched the regularity of the issues. Nevertheless, the early newspapers were printed on presses designed for printing books.

The Second Volume-jump in 1880

**Reasons for the volume-jump.** In 1880, the average volume of the newspaper issue had increased by a factor of 1.9 compared to 1875. The key reasons for this volume-jump lie in the well-developed network of schools, the National Awakening and the embryonic professionalization of the editors.

In 1881, 95% of Estonian conscripts could read (Zetterberg 2007: 402), which means that the number of potential newspaper readers had increased.

In the 1870s, the importance of the newspaper as an information provider grew significantly (Lauk 1996a: 770) and was strongly connected to the National Awakening and the broadening national awareness in the 1860s and 1870s. The newspapers, in turn, boosted this awareness, effectively mobilizing the peasantry for active national participation (see Jansen 2007; Laar 2006; Zetterberg 2007: 412ff). Furthermore, Estonian society developed during this period both culturally and economically. The National Awakening, energetic societal activity, the rapid growth of the economy – all provided material for the newspapers and strengthened their position in society. Technological innovations in transport and communication (steam-ferries, the railway, the telegraph) raised the speed of information dissemination and consequently the interest in information about everyday life and news. The introduction of the telegraph (1855) also led to a significant increase in the volume of news material available for publication in newspapers.

At the end of the 1870s, the newspaper market began to form and for the first time competition between newspapers emerged. In 1878, there were 4 Estonian newspapers, ten years later 13 newspapers (Lauk 1996a: 772).

Concomitant with Estonian society’s increasing demand for information, the editing of newspapers gradually transformed to a full-time job. Editors began to hire associates (Peegel et al. 1994: 333) to assist in the production of the supply to meet the demand.

**Visual changes.** In the 1870s, the newspapers began to enlarge their page size to folio format (A3 and bigger). The use of a larger page size meant that the bulk of the newspaper issue decreased to four pages and an additional sheet was dropped. The number of columns per page increased from two to four or five. All the stories were still one column wide and ran linearly from column to column. A new story started where the previous one ended, and the stories continued in the next column or page without any visual link.

The first device for structuring the page, the feuilleton (see Illustration 3), was introduced during this period: in Eesti Postimees (1870), Perno Postimees (1884) and Postimees (1888). The horizontal line divided the page into two parts. Editorial items and news were published above the line, ‘lighter’ stories (serials, book reviews, etc.)
Illustration 3.

Postimees 1900, Jan 8, p 2 (scale 1:2.5) Top of page: the end of the story “About life of our congregations” (beginning on the front page) and the subdivisions “From other papers”, “Political review and foreign news”, “From Russia. From a farther state” with four news items (all without headline). The feuilleton: the end of the serial novel (beginning on the front page) and the sub-division “This and that” with four news items (all without headline).
The distinguishing feature of this period is that the changes in visual form of different papers were heterogeneous and occurred during different years.

Johann Voldemar Jannsen, the publisher of *Eesti Postimees*, was the first to change the visual form of his newspaper. The volume of issue had increased by a factor of 1.7 from 1865 to 1870. The visual form of the newspaper changed significantly during the same five years: the page size more than doubled, three columns replaced the two, the feuilleton was introduced, and sub-divisions were added (6 per issue in 1865 and 9 in 1870). During the same period, *Eesti Postimees* was the most popular Estonian newspaper, and it even produced a profit.

The volume of an issue of *Perno Postimees* did not increase between 1860 and 1875 because the publisher did not increase investments in the newspaper. Although the volume and the page size increased in 1880, the other changes were absent. For example, two columns per page were used as previously, the number of sub-divisions per issue decreased from 7 in 1865 to 5 in 1875, and finally to 4 in 1885. The newspaper lost its readers and ceased publication in 1885.

Ado Grenzstein, the publisher of *Olewik*, used the page size decrease strategy. The newspaper was introduced in 1881 in folio size with five columns per page and a four-page issue. In 1889, the visual form became magazine-like. The page size was reduced to smaller than A4, with 3 columns per page, and an average 21 pages per issue. The number of sub-divisions almost doubled within five years: from 10 per issue in 1885 to 19 in 1890. This magazine-like visual form was a carefully planned decision of Grenzstein, who wanted to emphasize the educational nature and permanent value of his paper. *Olewik* retained this volume and visual form until closing down in 1906.

In conclusion: the Estonian newspaper still sought its own ‘face’ and tried different options. Despite the variety of changes, there is a clearly visible correlation between the sequence of changes: from social changes to volume changes and then to visual changes.

**Stimulus for change.** The social change that created the conditions for the second volume-jump occurred within the publishing and printing arena. Until the 1880s, Baltic-German owners dominated the printing business, and for them printing periodicals had
been a sideline to books. During the 1870s and 1880s, the Estonian newspaper gained an inseparable and more stable position in society, and its characteristic content (informative, enlightening-educational, entertaining) took shape. In the 1880s, the first Estonian-owned printing shops were established: Grenzstein in 1882, Järv in 1883, Hermann in 1886 (Miller et al. 1978: 133-134; Puksoo 1973: 192-193). These printers were also newspaper owners and editors. Newspaper publishing was their means to make a living. Competing with each other, they created the Estonian newspaper with its characteristic content, genres and visual form, which were clearly different from books and other periodicals.

**The Third Volume-jump in 1925**

**Reasons for the volume-jump.** In 1925, the average volume of the newspaper issue had increased by a factor of 1.6 compared to 1920.

The changes that preceded the third volume-jump were great. The rise of general social-political and cultural activity at the beginning of the 20th century, following the Russian Revolution in 1905, had energized the Estonian press. The six war years (WWI 1914-1918 and the Independence War 1918-1920 against Soviet Russia) restricted the growth of the newspaper industry. On February 2, 1920, the peace treaty was signed and Estonia was an independent state until the annexation by the Soviet Union in 1940. The rapidly changing Estonian society, the increasing number of intellectuals and the enervated cultural life of the 1920s brought with them a vast amount of new content (see Karjahärm & Sirk 2001; Zetterberg 2007: 515ff).

One key change for the Estonian press occurred in April 1920; this was the abolition of censorship, under which the industry had always operated. Consequently, in the first half of the 1920s, the press had most favourable conditions for freedom of activity and development (Lauk 1996a: 773-774; Aru 2002: 116-119).

Until 1901, Postimees was the only daily newspaper, but with the introduction of other dailies, the editorial staffs began to increase around 1910 (e.g., 5 journalists worked for Postimees in 1900, but 12 journalists in 1909), which enabled papers to increase their volume and vice versa.

After establishment of the first press publishing companies in the 1910s, much more modern printing technology was acquired.

The introduction of typesetting machines sped up the working process (the first typesetter was bought in 1908 for Päevaleht – Puksoo 1973: 197). Rotary presses were introduced and their efficiency allowed quicker printing of bulkier newspapers, because these printed on both sides of the roll-paper and were able to print increasing numbers of pages at a single pass.

For example, in 1906, Päevaleht bought a rotary press, which printed 4 pages, and, in 1918, a new one, which printed 8 pages, and then 24 pages in 1922. The technical resources of Postimees were more limited. In 1909, the newspaper bought a rotary press, which printed 4 pages, and used it until 1929. In 1925, the newspaper’s average volume per issue was already 6.4 pages. This means that the single issue was often printed in two or even four parts in order to publish 8- to 16-page issues to accommodate enough content. The anniversary issue, which contained 56 pages (1928, December 22), was also printed with the same 4-page press (Postimees 1931, December 12). A 16-page rotary press (introduced in 1929) was capable of printing much bulkier newspaper issues, but the volume per issue increased by only one page for every five years: in 1930 – 7.4 pages, 1935 – 8.1 pages, 1940 – 9.5 pages.
Visual changes. Many significant changes in the visual form of Estonian newspapers occurred between 1920 and 1930.

Until 1920, the standard volume of issue was four pages and the volume of additional inserted sheets was one, two or four pages (in different sizes). The additional sheet was published when there were too many advertisements to be contained within a four-page issue. If the additional sheet contained editorial content, its structure repeated that of the main paper. For example, in 1910 on August 18, the issue of Postimees was structured like three separate issues (four + two + two pages) and seven sub-divisions were used twice (e.g., “From Finland” on pages 3 and 7, classifieds and advertising on pages 4, 6 and 8). Such double and triple-structured issues disappeared with the introduction of rotary presses.

Changes in the sequence of the newspaper sub-divisions had already begun during WWI. The war brought the news back to the front page and the editorial moved to the second page. The tradition of putting latest news at the end of the editorial content began to change. For example, in 1915 Päevaleht and Tallinna Teataja put the war news at the beginning of the issue and did not use a separate sub-division for the latest news.

During the period of linear layout, the most convenient way to work was to typeset and layout the texts in the same order as they were arranged in the newspaper issue. The insertion of any material ‘pushed’ all subsequent materials backwards. The assumption is that the news was now considered the most important part of newspaper, and newspapermen were ready to change the layout, to insert the later material at the beginning of the earlier prepared material.12

Visual changes in newspaper structure began during the first half of the 1920s.

Now the newspaper was organized hierarchically: the most important news items were gathered at the beginning of the issue (typically pages 1 and 3, later pages 4-5, as well) under the title “News of the day”. The news was no longer divided into sub-divisions; Estonian and foreign news were published side-by-side on the same pages. “Telegrams” and “Last notes” were abandoned.

Sub-divisions as an organizing device became secondary and were used only to gather local news at the end of editorial content (e.g., “Tallinn notes”, “Accidents and crimes”) and for certain topics (e.g., Theatre and music, Sports). In 1915, there were on average 16 sub-divisions per newspaper issue, in 1925 – 10 sub-divisions (at the same time as the average volume of issue increased 1.8 times).

The changes in advertising allocation had already begun at the end of the 19th century, but accumulated during the volume-jump. Initially all advertisements and classified ads had been gathered at the end of the newspaper. Before the turn of the century, single advertisements began to appear also on the front page. The number and size of the front-page advertisements continuously increased. During WWI, single advertisements began to appear on other pages as well. Since 1925, it was common for the front page of the weekend issue to be sold entirely for advertising, and single advertisements appeared on almost every page. Twenty-one percent of pages contained both editorial content and advertising in 1905, 34% in 1915 and 73% in 1925. During these years, the importance of advertising revenue also increased considerably (Harro 1994).

During the 1920s, the first weekly thematic compartments were started, initially in Päevaleht. Humour, chess, art and literature, fashion, film, technology, and women’s compartments began to appear one-by-one on fixed weekdays. Gradually, the competition made newspapers more entertaining, as other papers began to use such compartments during the 1930s.
In 1925, a new structure of newspaper issue had taken shape. The front page contained the advertising and the most important news. Page 2 contained the editorial and serial novel (in the feuilleton). Page 3 (sometimes 4 and 5, too) contained the news. Then the articles, culture reviews, popular science, thematic compartments and sub-divisions of local news followed. The department of advertising and classified ads closed the issue.

In the 1920s, the linear layout was replaced by block layout with linear fillings. Already at the beginning of the century, the multi-column elements had become more common. Around 1910, multi-column sub-division titles, headlines and text-blocks were used occasionally. Such elements presented major news stories and the lengthy reviews of Congresses and exhibitions; e.g., 3-column title “Revolution in Portugal” (Tallinna Teataja 1910, Sept 25, 27-30, Oct 1), the 5-column headline “Exhibition of Estonian art society in Tallinn” (Postimees 1910, Sept 18).

The principal breakthrough took place at the beginning of the 1920s when multi-column elements were used on a daily basis. Usually such text-blocks were positioned at the edges or in the middle of the page, the rest of the page being filled with briefs in the linear way, as previously (see Illustration 4). The number of multi-column blocks increased steadily, but until 1940 it was usual for ‘gaps’ between blocks to be filled with single-column briefs.

The introduction of block layout changed the central idea of organizing the newspaper issue and page. The page developed into an integral body. The stories did not ‘run’ from page to page (which was the last bookish feature in the newspaper structure).

Already around 1905 headlines were introduced to news stories, i.e., the previous emphasized keywords (in the same type size as the text) were set in a separate paragraph and centred. During the 1910s, some headlines grew bigger and wider. This means that journalists began to use the visual form of headlines to show the importance of stories. After 1920, the 2-3-column headline became a daily feature in newspapers.

The multi-column headline had a different form and content from the previous single-column headline. Usually it was concise and filled the space from one edge of the column to the other. The headline was not a simple thematic keyword phrase, but was specially reworded as a headline to bring out some important facts about the event; e.g., “Radio broadcasting into Estonia”14 (Päewaleht 1925, Aug 23). Another significant change was the introduction of multi-level headlines at the beginning of the 1920s. Four percent of headlines had sub-heading(s) in 1920, 26% in 1925, and 40% in 1930.

Stimuli for change. There were several environmental changes during this period that released the built-up pressure and forced newspapers to reorganize their visual form. The key stimuli were stiffened economic competition and the central role of news. The first war correspondents began to work during the Independence War. These men were the first Estonian news-reporters, and this was an important step in journalistic professionalization.

At the beginning of the 1910s, the economic competition between newspapers hardened, but during WWI, the newspapers competed mostly in the immediacy of war news. After the wars, competition extended to the whole content of the newspaper, because 1922, for example, there were seven or eight daily newspapers (Aru 2002: 117) for 0.97 million Estonian language speakers. Waba Maa was the first Estonian newspaper to promote the visual form of newspaper as a tool of competition (A. T. 1920: 4; Laaman 1920).

Until WWI, the majority of newspaper issues were distributed by subscriptions, thereafter single copy sales increased. For example from 1926 to 1929, 76% of the is-
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Illustration 4.
Waba Maa 1935, May 6, p 3 (scale 1:2.5). Example of block and linear layout on the same page. Linear layout is used in the lower part of the middle column and in both lower corners. Note also the mix of foreign and Estonian news (foreign events in the upper left corner and at the bottom of the middle column) and multi-deck headlines.
sues of Päewaleht were sold as single copies, whereas the proportion before WWI had been the opposite (Harro 1994: 80). There were several causes for this change: during the wars people got used to the immediacy of single copy sale, the postal service prices increased at the beginning of the 1920s, and urbanization of the population increased (Aru 2002: 112).

During WWI, the news became and remained central in the newspapers. In an environment of intense competition, the news was used to sell the newspaper issue to readers on a daily basis. The new visual form made the newspaper content hierarchical, the aim being to make it more eye-catching and quicker to read. The volume of content had increased, and people needed visual guidance to discern the more important news from the less important.

Discussion
Above, I explained three volume-jumps of Estonian newspapers that in two cases caused profound visual changes.

The first volume-jump in 1860 occurred after a 32-year publishing pause. This brought about the use of larger page size (quarto format), two columns instead of the single one, and more segmenting devices. Still, the newspaper had not yet acquired its own characteristic visual form, but resembled the book.

The second volume-jump in 1880 did result in new changes. The page size increased to folio format, the number of columns increased to 4 or 5, the number of sub-divisions increased, and the feuilleton was introduced. Those changes distinguished the newspaper from other periodicals and books.

The third volume-jump in 1925 was connected to many changes in visual form: the sub-division system lost its central role, both the newspaper issue and the pages were organized hierarchically, a block layout was used as a central organizing tool instead of the linear one, multi-column and multi-level headlines were used for important stories, and weekly thematic compartments were introduced. These changes totally transformed the newspaper’s visual form.

In consequence, the history of the visual form of Estonian newspapers between 1806 and 1940 can be divided into three periods:

• the Period of the Book: 1806 – the 1870s;
• the Period of Linear Layout: the 1880s – the first half of the 1920s¹⁵;
• the Hybrid Period (block + linear layout): the first half of the 1920s – 1940¹⁶.

What caused the volume-jumps of the average newspaper issue? These were social changes that demanded the publishing of more content. In brief, these changes were the emergence of Estonian nationalism and the cultural public sphere in the 1860s-1870s, and the further development of Estonian society at the beginning of the 20th century and after the creation of the Republic of Estonia in the 1920s.

What enabled the increase in the newspapers’ volume? These were technological innovations together with suitable economic conditions. In the 1870s and 1880s, journalism had gained a sufficiently stable position in Estonian society and publishers could invest in printing presses, which enabled them to increase the volume of newspapers. Since the 1910s, the freshly established press publishing companies could afford to
acquire more modern rotary presses, which enabled them to increase the volume of newspapers after 1920 when the wars had ended.

Did volume-jumps bring with them visual changes in the newspapers? First of all, like Finnish newspapers, Estonian newspapers affirm the notion that visual changes are correlated with the volume of the newspaper issue (not weekly volume or something else). For example, *Postimees* was the only Estonian daily for ten years (1891-1901), but its visual form was similar to that of other newspapers that were weeklies and bi-weeklies.

It is also significant that the essential visual changes in Estonian newspapers have occurred directly after the rapid growth of volume of issue, neither before this growth nor much later.

According to Mervola, the new era of visual form in Finnish newspapers begins when the volume per newspaper issue has approximately tripled from the time of the onset of the current era (1995: 416ff). This formula does not allow us to define the start of a new period in Estonian newspaper form using such an exact coefficient. The period of the Linear Layout began when the average volume of the newspaper issue had increased almost 11-fold from the beginning of the previous period (in 1806). The Hybrid period began when the volume had increased 2.5 times.

If we exclude the first two newspapers (which appeared for only 5 years within a 50-year period) as pre-history, and locate the start of the model in 1857 when the regular Estonian press started, then we can calculate that the period of Linear Layout started when the volume of newspapers had increased 2.3 times.

But for Estonian newspapers, it is more appropriate to define the start of the new period using volume-jumps. For Estonian newspapers, the new period of visual form starts when the average volume of newspaper issue has increased at least 1.5 times within five years. This definition solves the problem of the first two short-term newspapers, because they are separated from later newspapers by a 32-year time gap.

What triggered the essential visual changes? Basically, these were social stimuli: the embryonic professionalization of journalism and emergence of the newspaper market in the 1870s and 1880s; the recently gained central role of the news in newspapers, and the emergence of a new occupation – news-reporters – in the 1910s and 1920s.

Previous discussion shows that technologies did not cause these changes. For instance, the introduction of the telegraph allowed publishing of wire-news, but they became a part of newspapers almost 15 years later. Technical possibilities enabled the enlargement of pages, but did not cause it. The introduction of bigger, multicolumn and multilevel headlines, and the cessation of the sub-division system were not connected with the technical innovations of this period.

At the same time, all these changes were correlated with two factors: changes in newspaper volume and journalistic professionalization.

- A bigger newspaper volume forced the newspaper issue and pages to develop new structures (e.g., at first to use more segmentation devices, later to use a hierarchical structure), and simultaneously allowed these changes (e.g., more capacious newspaper issues allowed the use of bigger headlines).

- Journalistic professionalization allowed the visual changes to be carried out (e.g., the skills to write declarative pointed headlines instead of previous thematic keywords).
Therefore, improved technical possibilities did not force newspapers to change their visual form, but were instrumental in changes only when social factors demanded change. On the contrary, desired changes were sometimes made despite the technical restrictions. A good example is Postimees, which during the 1920s increased its volume without the suitable printing machinery.

The present analysis shows that it was the socially caused volume-jump together with the competitive situation and journalistic professionalization that stimulated the visual changes. In 1860, the volume of the newspaper had rapidly grown, but there was no competition between papers, and visual form did not change essentially. Competition emerged in the 1870s and 1880s. Together with the volume-jump and the first professional newspaper editors, this brought about the new visual form. In the 1910s, the competition stiffened, and the first news-reporters began to work, but the volume of the newspaper issue did not increase. The competition continued and visual changes followed after the volume-jump at the beginning of the 1920s.

Notes
1. Mervola uses the Finnish terms ‘ulkoasu’ and ‘ulkoasukierre’ and in English ‘an (outward) appearance of newspaper’ and ‘an appearance spiral model’. I use in the same sense term ‘(visual) form of newspaper’. I do not use the pointed terms ‘design’ or ‘layout’ because these hint at conscious and professional activity.
3. These are the years from the first Estonian newspaper to the Soviet occupation. This is the period when Finnish and Estonian social development was parallel, at first in the Russian Empire, then after WWI as independent states.
4. The data for Tallorahwa postimees (published in 1857–1859) 1859 are calculated into one set, together with the data for Perno Postimees 1860.
5. All the sampled newspapers – except Tarto maa rahwa Näddali=leht (1806) – are accessible via the Internet http://dea.nlib.ee/.
7. Data about South Estonia are missing, but presumably these were higher because the majority of the schools were located in the south.
8. Octavo, quarto and folio format are certainly rather imprecise terms, because in the 19th century there were no standardized page sizes.
9. That seems to be an ontogenetic character of primal ‘plebeian’ newspapers (e.g., the first Finnish language newspapers and the German regional newspapers; see Tommila 1988: 87; Welke 1986: III). By contrast, for newspapers that were meant for the elite social class, the news was central to their emergence (e.g., the Baltic German and the Russian official newspapers; see Kiselev 1990).
10. In the 19th century, the feuilleton was widely used by German and Russian newspapers (see Kiselev 1990; Kauffmann & Schütz 2000), which directly influenced Estonian newspapers.
11. It must be remembered that Estonia was in the backyard of Europe. Its print shops were small and poor, and therefore printers bought used old-fashioned presses from Germany. For example, in 1895, almost 50 years after the invention of the rotary press, the editor of Olevik admiringly wrote in his newspaper: “Perhaps the single rotary press could do all the Baltic [apparently Estonian and Latvian] printing works.” (Olevik 1895, Aug 8). The first rotary press in Estonia was purchased in 1906 and at first it was considered an unnecessary luxury (Päewaleht 1925, Dec 29). Another example: in 1904 the printing press of the only Estonian daily Postimees was still manually powered, somewhat later by a gas engine, then by a petroleum engine, and from 1909 onwards by an electric engine.

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12. An interesting note is that in Baltic German newspapers, news sub-divisions already launched newspaper issues during the 1810s. The sub-division “Neueste Nachrichten” (The newest news) was put at the very beginning of a newspaper from its introduction during the 1860s. Hence the visual form of newspaper shows that for Baltic Germans the news was a central part of newspaper already at the beginning of the 19th century, for Estonians it only happened a hundred years later.

13. Block layout means layout with rectangular text-blocks (also called ‘modular layout’).

14. will be introduced was left out of the headline.

15. Mervola (1995) calls this period the Era of the Corset. The corset emphasizes that column rules limited the use of multi-column elements. The linear layout emphasizes that all the elements in a newspaper followed each other linearly despite their width.

16. Mervola (1995) calls this period the Era of Parading Pages. For Estonian newspapers this term is unsuitable because the Parading pages were used only on stately occasions.

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