The title of this essay is ‘Typography: out of space’, and it would have been set here in a relatively large, light and plain serif typeface. Something like the chapter headings in the book, ‘Immutable’, written and designed by Chris Lee. The silvery form with the orange glow would not have needed to be there and the upper part of this page would generally have allowed for more unprinted space, creating a considered and orderly typographic impression. This text has seven sections, the first of these is subtitled

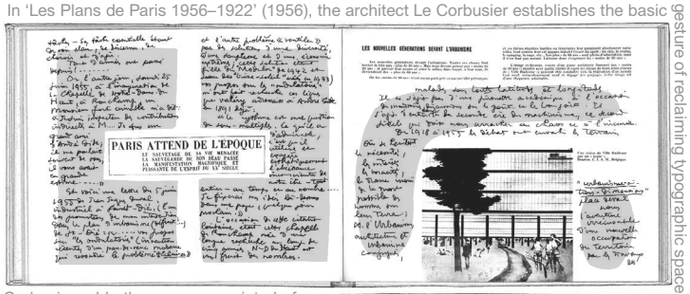
Fitting Predicament

Look, typography never knows unspoiled page again. Print’s virgin materials gone and got used up. Cut down. Its mythic whitespace depleted, typography must be done over. In awkward corners and crevices now. No sense reasoning with standardised surfaces, typography abandons its rectangular entitlements.

Generic affinities between format and content: forgotten. Novels are not portable, not for the pocket and not for the hand. Picture books are not for opening wide and flat. What fits on page fits where fit is found and how. Typography reverts to palimpsestic moves. Does adhoc. Inherits the pages that are and leaves none intentionally blank. Horror vacui chorus now.

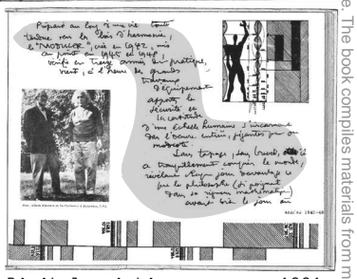
Typography has been out of space before. Libraries heaved, titles did double in a decade and again. Book stacks filling and spilling over. Too, too many pages.





In ‘Les Plans de Paris 1956–1922’ (1956), the architect Le Corbusier establishes the basic gesture of reclaiming typographic space. The book compiles materials from many other publications, preserving their original designs in simple arrangements on its pages.

Corbusier adds these green, painterly forms to define spaces between and around.



Digital printing	1991
Solid ink printing	1986
3D printing	1981
Thermal printing	c. 1972
Laser printing	1969
Risograph	1958
Dye-sublimation	1957
Inkjet printing	1951
Phototypesetting	1949
Xerography	1938
Dot matrix printing	1925
Spirit duplicator	1923
Screen printing	1911
Photostat and rectigraph	1907
Mimeograph	1886
Hot metal typesetting	1884
Offset printing	1875
Hectograph	1869
Rotary press	1843
Chromolithography	1837
Lithography	1796
Aquatint	1772
Mezzotint	1642
Etching	c. 1515
Printing press	c. 1440
Movable type	1040
Woodblock printing	200

HISTORY OF PRINTING

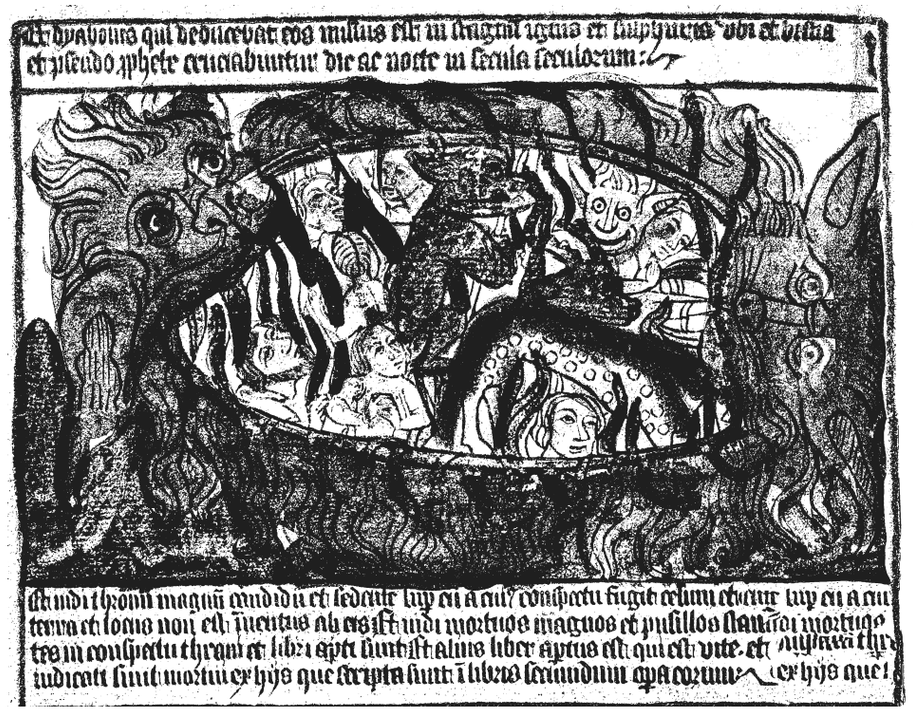
200 c. 1440 1991

Charts by André Fuchs, from ‘das NORMALE, das FADE, das IMMANENTE’ (2023). It is this acceleration, and its consequences, with which we are concerned here.

Solution: brevity. Curtail cryptic prose pleas. Economy of writerly expression called for. Words: simple, familiar. Sentence structures: logical, direct. Detail and digression: avoid. Edit!

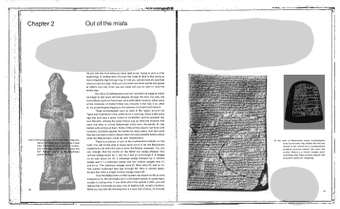
Authors wouldn’t cooperate. Intent on constituting their whole language model, their canon, their collective corpus, they cared not a bit for paranoid librarians nor fantasist architects with designs on subterranean marble vaults. Book eruption unchecked, pages got miniaturised instead.

Up against chiastic flows of printed word, librarians shrunk pages down to little-finger-nail pictures on microfilm.



‘Apocalypse’ (1465). Woodcuts by Mair von Landshut achieve an appropriate degree of urgency in their desperately close fitting of text and image.





We need to transpose Corbusier’s gesture to all existing printed matter. Here, for example, to really rather wasteful asymmetric layouts.



Microfilm reader, Staatsbibliothek, Berlin.

200 1991

Emergency typography lost punch-cut sharpness, text blown-up backup to size softer.

Global population
CO2 emissions (from fossil fuels and cement production)
Global GDP, adjusted for inflation

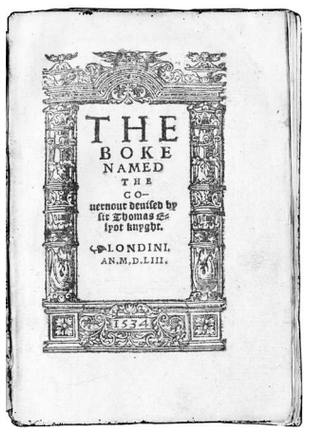
Typeset in Union by Radim Peško.

The Economical Page

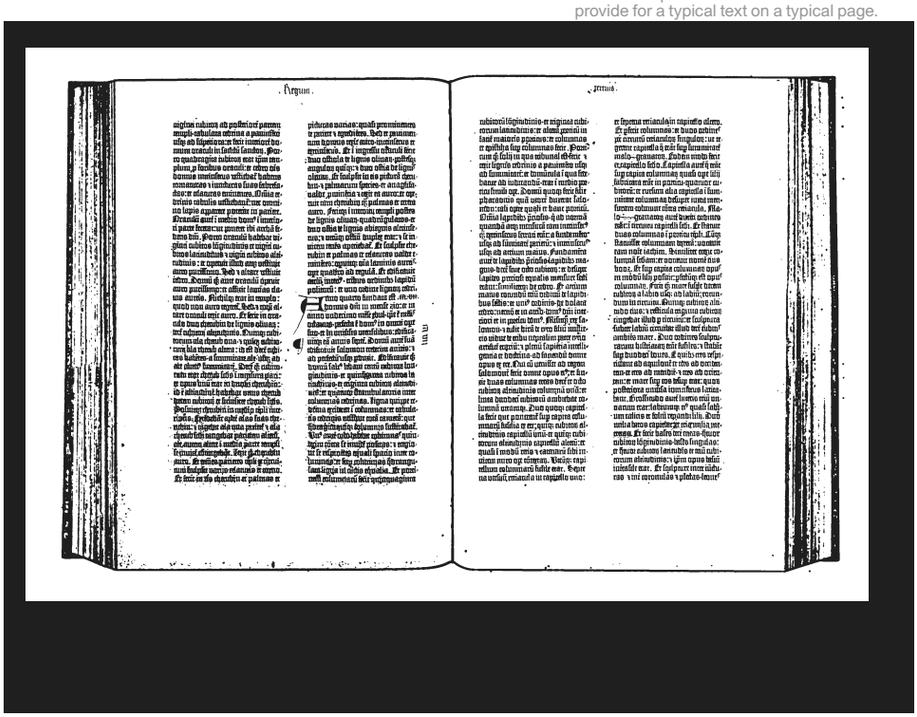
Really, the historical page was ever under contradictory pressures. Pressure to accommodate more text and image: to fit more content on less surface. And pressure to accommodate more readers, to make itself accessible and appeal to the market.

Although the medieval scribes had employed basic grids and guidelines, printing necessarily disciplined the page. Implicit in typography's modular letterforms is a financial calculus on which any jobbing print workshop in the fifteenth century must have been founded: how many of a particular letter at a particular size will be needed to provide for a typical text on a typical page.

This is the title page, from 1534, to which Walter Ong insightfully refers in his analysis of textuality in 'Orality and Literacy, the Technologising of the Word' (1982). The letters comprising the book's five-word title, 'The Boke named the Gouernour', are arranged in a crudely decorative fashion, the type starting oversized and becoming indiscriminately smaller as it proceeds down the page in an inverted triangular formation. The first word, "THE", fills the width of the type area, dominating the layout, while the word "GOUERNOUR" — the most important in the title, no? — was set drastically smaller, awkwardly hyphenated over two lines. These stacked letters knew they were on display, but they expressed no imperative toward an "information architecture", in which greater spatial prominence would be afforded to inarguably more significant text.



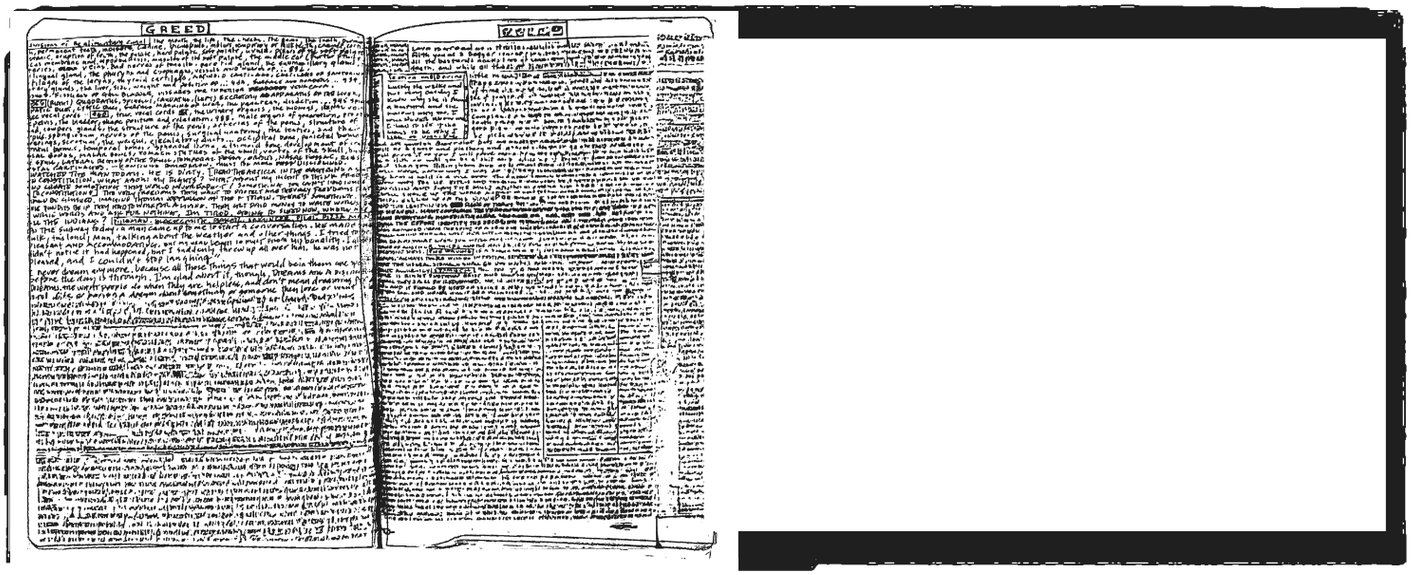
Following the medieval scribe prayerbook, the print factory's economical thinking did compress mise-en-page: reduced type size, reduced space between lines, reduced margins. Newly-literates pushed back and out: demanding spaces between words, punctuation, broad margins for note-taking; a justly apportioned page.



The dexterity of human labour arbitrated these pressures. Yes, the factory desired to fit more on less, but within reason! No way it would do microscopic typographics, fiddling little letters, impossible to take between numb thumbs and swollen fingers.

They might've gotten ten thousand titchy miniscules per page but it would've taken forever and nobody would've read it and that's not what backers with capital were after. A reasonable, even-handedness needed to prevail. The scribes had already embodied it, their ergonomy of the page measured by grip, by wrist, elbow, shoulder, and eye. With a few adjustments this happy medium, this practicable typography, acceptable to printer and public, got metered-out, tooled-up, and learned.

Automation came, created unprecedented forms of typographic labour, and installed the economical page in enduring machine protocols. An ogre of an English Foreman would coordinate a vast workforce looking down on the shop floor. Probably at school you saw images of them sat atop their Adobe Paragraph Composer console.



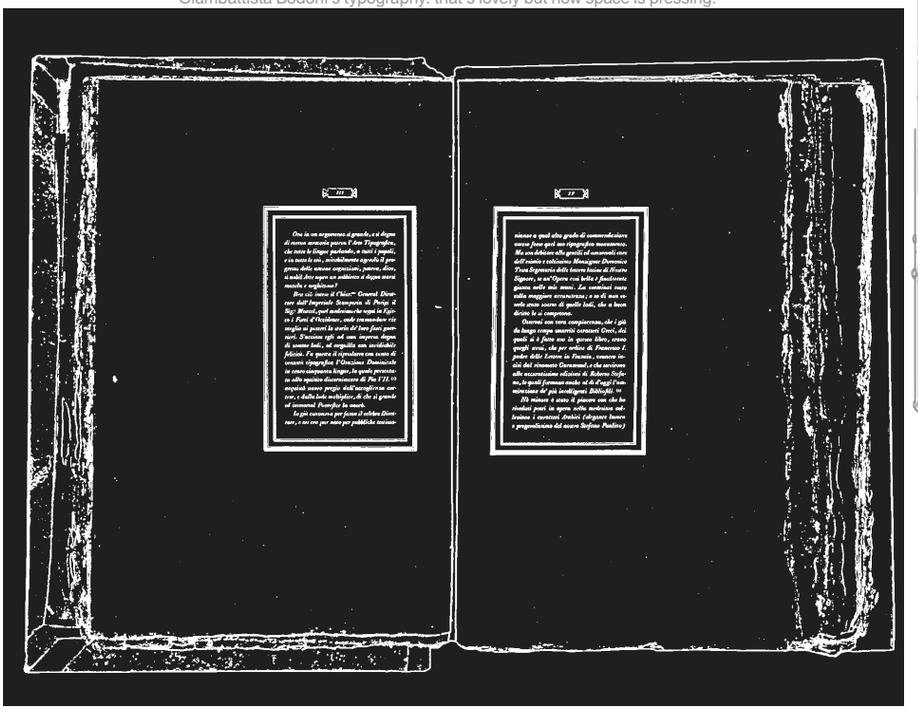
In the 1995 Hollywood horror film 'Se7en', densely-packed notebook page props are instrumental in communicating the protagonist's extreme psychosis. The suggestion is clear: a certain amount of text-per-page is well-behaved and socially well-adjusted, but beyond that lies madness and murderous mayhem.

They would take in a text of a morning, shouting its anticipated specifications down: "Octavo! Long-form, single column, margins at 5 pica!" "Come on you bone-idle, we'll start this'un at 10 on 12 point!" And the typesetters would lurch into action, wouldn't they, with their conversion charts and their compositing sticks, frantically putting down letters and lines and pages and in just a few moments the Foreman, bellicose, would see it come out at 201 pages, each with 40 lines of type. But that would not do. Redo for reasons of economy and right away. Needs to fit 192 pages, gathered in 16s and no waste. 40 lines: thousands of line breaks across the whole document. In an instant, the Foreman would select the entire text with a keyboard shortcut and change its type size to 9.85 point — probably that would do it, they reasoned — and the typesetters, the workers, would have to take up the type and melt it down and cut thousands and thousands of new letters, only for the Foreman, with the overview, to find that it's 194 pages now and scream down again and have all the type taken off again and melted down and recut again, raging now, recut again at 9.75 point, 193 pages now, and recut again at 9.723 point, and finally it fits. The workers, tormented, communicated these millions of parallel computations like a swarm, each interdependent taking cues from the slightest movement of the next, only a few ever directly acting on the calls of the Foreman. In the background, the furnace, the engine, the press running hot and ready for these pages.

Whitespace Sickos

Overtime, over centuries, protagonists and patrons of the page factionalised. Signalling designerly distaste at the economical page's pokey packed-in passages, its miserly typography of impoverishment, a wealthy whitespace kink set itself apart. Gratuitous graphic space sicko fetish just because. Bo Doni was the prime mover of them, set sweet text blocks in acres of page more unprinted than printed and had trees cut down for the hell. Bo did personally oversee the clearing of many a peaceful European valley orchard at sunset, insisting the workers rev their chainsaws harder and louder. Bo had paper sent from the mill to the print factory carelessly slung on open carts, unsecured, getting crumpled, taken by the wind, spoiled by the rain.

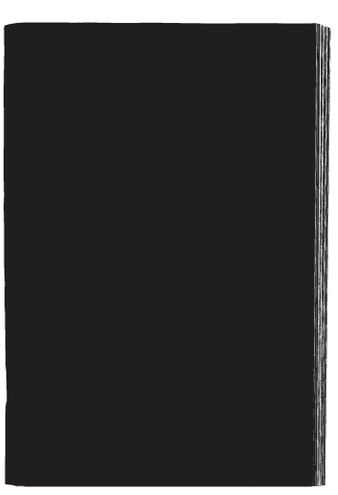
Giambattista Bodoni's typography: that's lovely but now space is pressing.

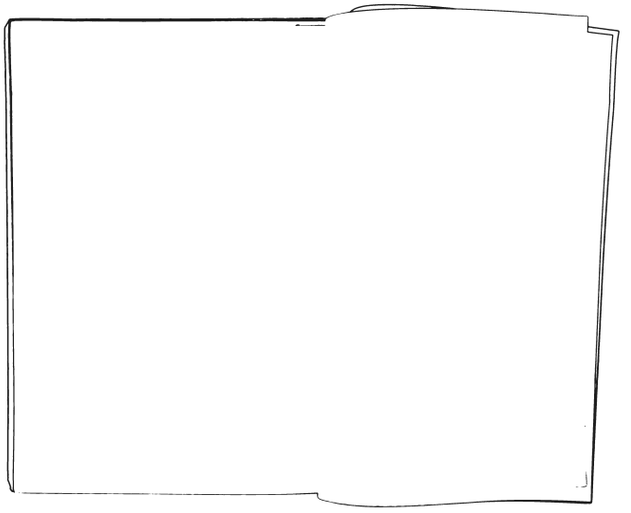


A sheet which did arrive presentably to the press travelled through the machine's innards for nothing, for no reason, no ink, finally to become an empty page facing another almost like it; that one, though, with two tiny words printed in black in its upper left corner. Two words: the name of some artist or author of Bo's ilk, presented without qualification. Half-title. Then again on the next page, only a fraction larger. And perhaps with a tiny ornamental flourish. A graphic petal, say. Bo would proclaim the quintessential elegance of these arrangements unreservedly.

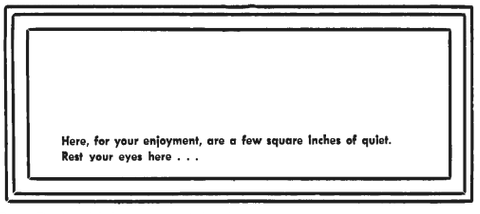
Plenty more discontented pages followed. Uninked pages. As "front matter". Opposite images. Between chapters. Bo would start the next chapter not right there on the adjacent, available recto — "crude, hurried!" — but on the following one. Even start it half way down that page Bo would, the upper half remaining empty, or graced with a chapter number, small, refined, delightful: "5". "Ah, this is chapter five now", readers were supposed to say to themselves, feeling reinvigorated and prepared to go on. Bo had influence, too. Sicko Bo customers mythologised whitespace as metaphorical typographical air.

I placed these two images here when this page was first overprinted in November 2024. I hadn't written this essay then. I anticipated that I would want to refer to these images — and I do — but now, in April 2025, their placement is inopportune. They belong with the section Sentence Rearchitects, on page 15. Above: Lillian Lieber, 'The Education of T. C. MITS' (1942). Below: Robert Andrews presents his 'square-span' typography on the front page of the 'Dallas Daily Times Herald' of Monday, July 11, 1949.





A whole subcult got enchanted by airy whitespace headspace, venturing higher, up into the mountains, up above the poor masses squinting at their over-inked newsprint. For those up top, whitespace was a chef's kiss of a graphic device.



Bern Porter: high on mountain air.

Sickos welcomed the advent of neue techniques for letterspace tightening, marvelling immediately at their own word mark: Typo, its y squeezed in under the wing of its T, its p and o almost touching, precision engineered for fit like a first class watch movement. It was felt quite the mark of designerly refine to be concerned with fractions of a square millimetre between letters while reams of surrounding page went begging.

Sentence Rearchitects

"after a short time

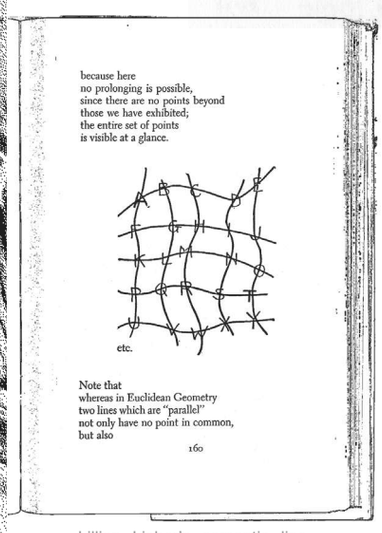
Square-span, as proposed by Robert Andrews, here demonstrated by Herbert Bayer in a 1961 monograph.

	you will	in easily	groups of
	begin	understood	words
	thinking		
you will	confusing	with	and
automatically	your	complicated	unnecessary
stop	sentences	phrases	words"

Stefan Themerson's internal vertical justification, from the novel 'Bayamus' (1965). (HEXAGONAL, below, too.)

Let us determine the place
of
our
meeting which
shall
continue for a period of time
greater
than
every
assignable
quantity

Expanded muglyphs use more than one size of type.



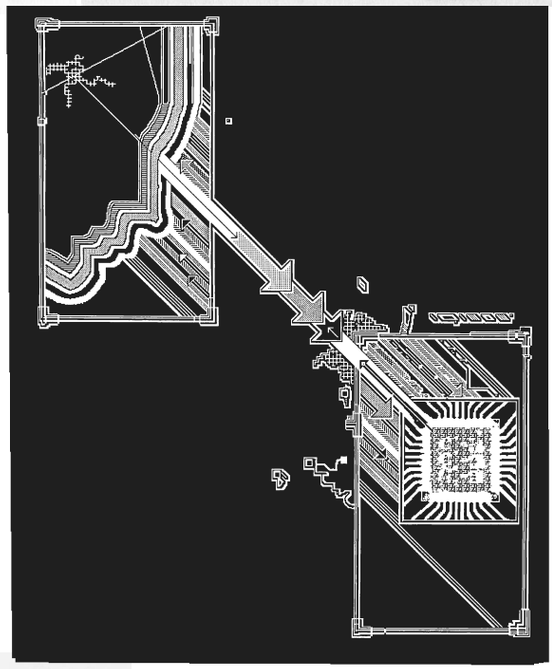
because here
no prolonging is possible,
since there are no points beyond
those we have exhibited;
the entire set of points
is visible at a glance.

etc.

Note that
whereas in Euclidean Geometry
two lines which are "parallel"
not only have no point in common,
but also

160

Lillian Lieber's semantic line-breaks (1942).



Large muglyphs can be seen more easily

if they are expanded like this

than when a single type size is used.

This is an example of the square-span style of presentation



Mu-man

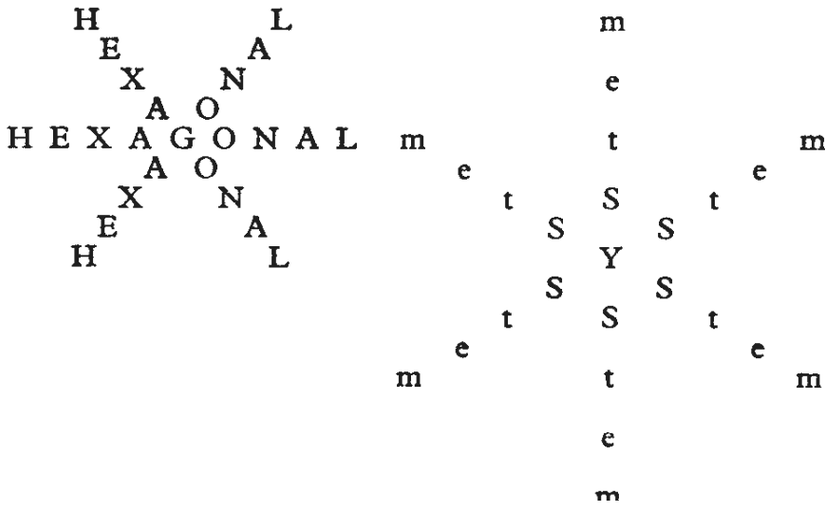
Expanded muglyphs conform better

to the variations in visual acuity

of the human visual field.

Technologised typographers unboxed their new tablets and computer screens, intoxicated by polystyrene packaging's vaporous emanations. Thousand-nit displays shone like beacons, leading these conspirators over dark, deforested plains, toward an awakening: endless page as far as the eye could see.

The historical, prosaic paragraph of linear typography did dis-integrate in their GUIs, its traditional weave pulled apart by them, and tumbling out came not itty bitty metal letters but words, whole sensible words to be taken up and composed with. Sentences, each as special as a snowflake, should never again be brute-forced along indifferent factory lines by bean-counting misers, proclaimed these radical rearchitects. They envisioned text organised from the inside out, for the pure stimulation of human faculties.



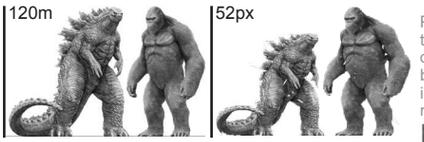
Wayne Reed Porter's Mutypography. Porter developed an extensive vision for a dynamic typography based on the concept of a Meaning Unit — a sensible chunk of text which a reader could rapidly comprehend in a single fixation. Porter's vision fell into an untimely technological inertia in the second half of the twentieth century — too early for the developments in VR which would make his proposed Telereader's retinal typographic projections possible, and at odds with the anachronism of mainstream graphic design's computerisation of conventional linear typography.

At first, the 120fps page knew no constraints other than cognitive. Free to tune itself to the saccades and fixations of the eye, delivering content to cortex at optimal informational rates. Sentences tried on Semantic Line-breaks, Internal Vertical Justifications, danced the Boustrophedon, the Square-span, the MuGlyph, all in pursuit of literacy utopia.

Graphic scarcity was thought to be at an end. The heavy hardware of the press, the luggage of the line, the pressure of the pricey paper page, banished from advanced typotalk. Rare earth metals and distant cloud compute left unspoken too: out of sight, out of mind. Pages on screen were windows, viewpoints onto rent-free typographic vistas, where words were seen animating, stacking, diagramming, branching, and performing their meanings quite determinedly.

1234 1234

Four figures, each with the same surface area; and each with their surface area in relative proportion to their denominations.



Pages often privilege images in their own aspect ratio. Construed computationally, images can be equalised by surface area, in pixels, irrespective of any rectilinear framing.



The advent of unbound graphic space and novel semantic typographies exposed deeper, multi-syllabic problems dating way back. Typographers noticed themselves maintaining uncool practices and it was time to ask why.

Drilling down through old ways of the page their inquisition came to the bottom of the stack of customs and inheritances, arrived at the big question: “Why, oh forefathers, was the size of text determined by the height of x and not by the dimensions of actual, literal, words?” What was this historic x calculus? Most words appeared not to contain any. X formula had apparently got lost.

Heading
Longer heading

A modernist psychophysical cult of digital proportionalists put forward their counter: the size and significance of words shall be a function of the number of letters they contain. A commendably substantive, erudite, and laudatory word typically has a lot of letters, at least six, while lowly grunts: ughs, oofs — three, four at most. They ought to be sized accordingly!



2500px



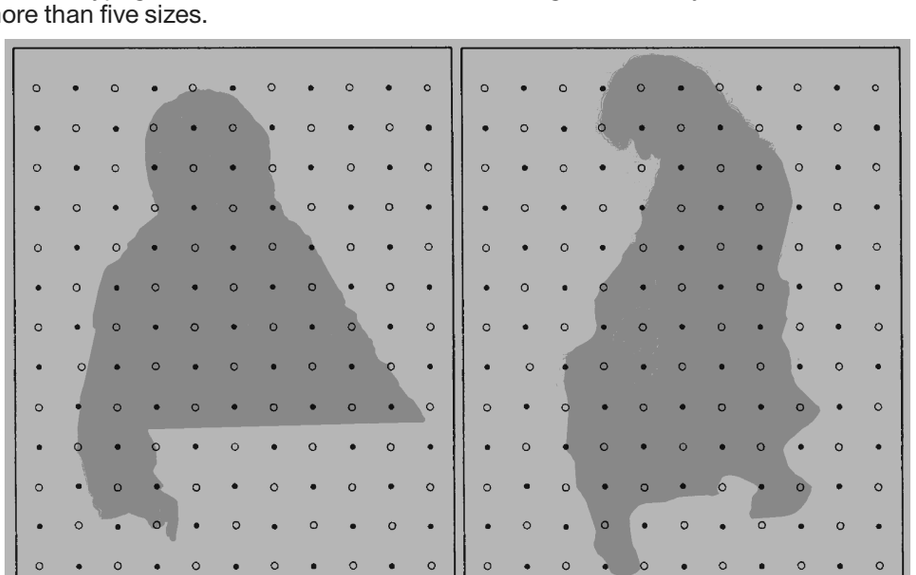
2500px



2500px

In the canonical typographical manuals of previous ages had been formulated precise protocols for how type size was to be used to categorise text depending on the kind of attention readers were expected to give it. Most biblical, Jan T’s ‘Ye Nu Typografie’ did command that a text be organised — by divine decree — into ideally three and not more than five sizes.

This principle of so-called “typographic hierarchy” was passed down through generations as lore and upheld as law. Proportionalists pitched instead a typography of surface area. Digitally native, it spoke the language of computation. Did away with inscrutable x and acted on the size of the words which the text actually meant to say. Two words could be sized equally by surface area. Paragraphs allotted page space by fractions of the whole. Page real estate got its agents. And yet, despite the computational novelty, this was in fact an elemental and righteous way of doing things. A painting was dug out from a pile of rubble which was seen to anticipate the surface area schemes of the proportionalists. It depicted a group of typographers seated for their last meal. Heading the table was cheeky old Jan T, while at the foot sat a plucky underdog, made to appear criminally inferior, but given the same graphic significance by an artist of prophetic compositional guile.



The compositional surface area of the two central protagonists compared using a dot planimeter technique. By imposing a dot grid and counting the number of dots covered by an irregular shape it is possible to estimate its area. Alternating the count — including the open dots and excluding the closed dots — smooths out the calculation, compensating for the curving path of the outline.



Master of the Housebook, ‘The Last Supper’ (1480).



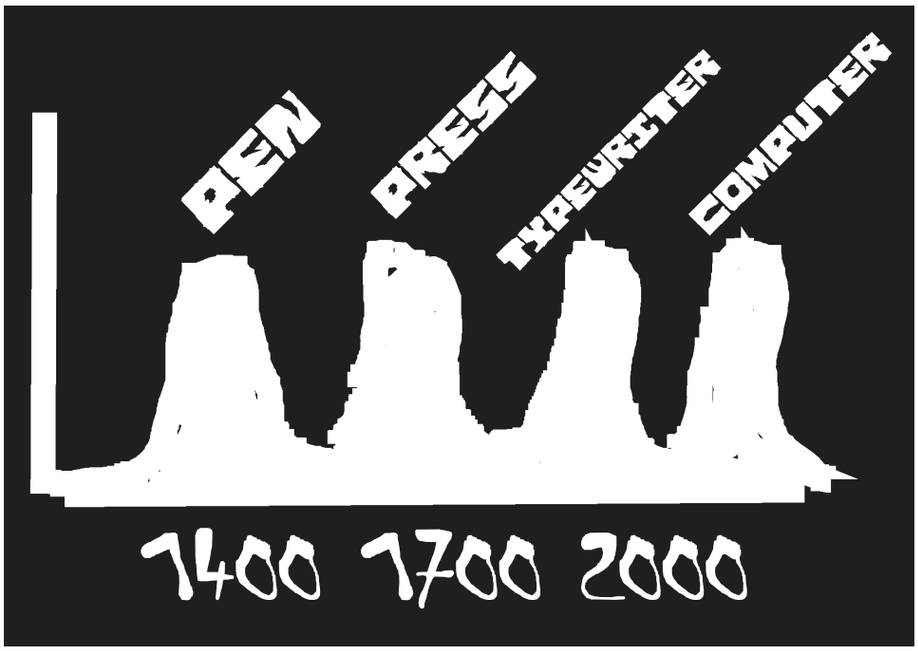
A similar composition used in ‘Der Schatzbehalter’ (1491).

continues on page 33

Proportional Graphics tools and fonts made with Simon Knebl and Thibeau Kindt.

Studio lights began to flicker, serious shortages of page were reported. Print persisted but now paper came packaged with provisos: “Please print double sided”. Text made its own shameful appeals: “Do you need to print this email?” Typographers rightly had to get radical and reconsider. Audits were carried out. International bicker. Wasteful Bo’s descendants were low hanging fruit. Cut it out, sickos.

The gendered tongues of old Europe were criticised, seen to be wasting space with pedantic distinctions between Leser and Leserin. Lingua franca was a talking point too. Urgent. Could be a bridge off this cursed planet. In any case, no future for polyglot pages.

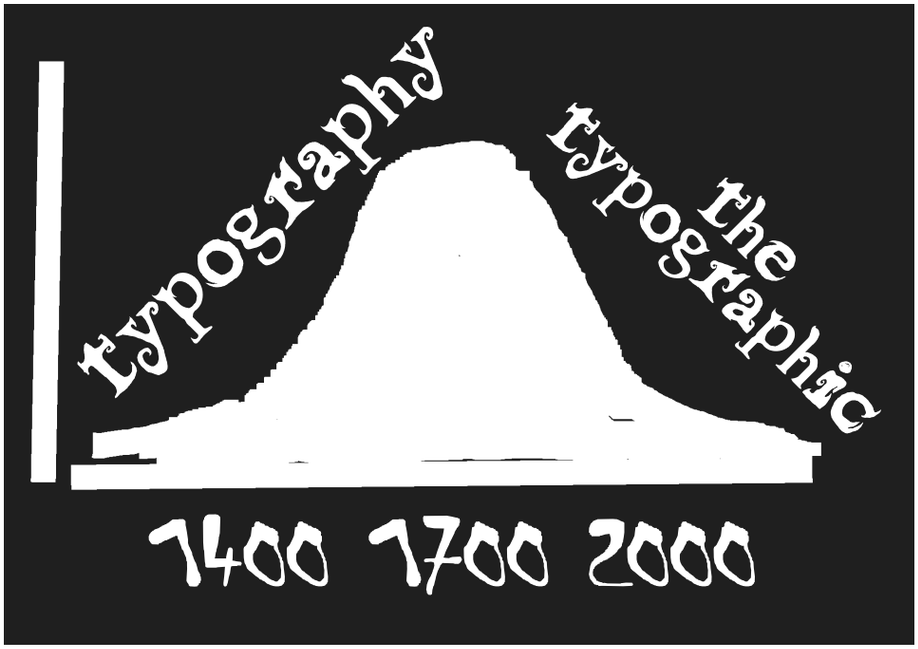


All novel typographies and all attempts to reappraise notions of typographic space are destined for obscurity. To explain why, I here misappropriate a familiar teleology of twentieth century media theory. In this diagram, the X-axis charts dates in the second millennium and the Y-axis is the life-cycle and influence of a series of media technologies. Each medium implies, or stimulates, or enforces a certain range of technical possibilities, and consequently each medium produces something like its own distinct imaginary. Its message, as Marshall McLuhan put it. Friedrich Kittler, in his book ‘Gramophone, Film, Typewriter’ (1986) discusses the typewriter’s influence on Friedrich Nietzsche’s writerly imaginary. “Our writing tools are also working on our thoughts,” Nietzsche had written, and Kittler notes how the machine changed the philosopher’s prose “from arguments to aphorisms, from thoughts to puns, from rhetoric to telegram style.”

As if any typographic superpower could administer such directives! For all the futurist rhetoric of sickos, sentence rearchitects, and proportionalists, historians were justified in pointing out that pages looked the same as they always had. What had actually been achieved in half a millennium was nothing but faster scribes.

If you ask me, the history of typography should properly be presented like this. The X-axis spans the same period of time, and the Y-axis would be labeled with a precise definition of typography as: “The investment of capital, ingenuity, and labour into the development of tools and practices for the economical mass production and distribution of formally consistent pages of text.” Instead of being marked by phases corresponding to distinct technological imaginaries, typography is defined by a single accumulation of techniques and products which a succession of after-the-fact technological advancements only serve more economically to automate. Typography as such ended around 1700, to misappropriate the argument of Robin Kinross’s book ‘Modern Typography’ (1992). What we do now is a simulation of typography which we should call “the typographic”. The typographic remediates and automates typography, technically abstracting craft from wood, metal, and human labour, while preserving its familiar visual products by default.

Pages. Filled with lines of text. Sickos might glorify whitespace! Sentence rearchitects might have located the resonant frequencies of human comprehension! Proportionalists might have made x redundant! All talk. When resources got tight they all pasted paragraphs into a text box and got Economical PageaaS, the same as the rest of us.



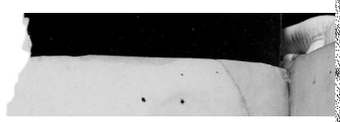
The whole time, for the entire very factual and exhaustive history of typography heretofore recited, the economical page had simply been pressing on. The economical page was lindy. A forever chemical detected in the minds of all typographers. Too big to fail.

When writing’s whole language model finally came online text went ballistic. So much text was being generated that it bypassed all typographic scrutiny. Page products went hockey stick. The economical page was the only option. And without even an amateur desktop publisher to authenticate, to confer typographic authority, readerly credulity collapsed. Page: exhausted. Reader: disenchanted. The end of print was cliche. This was the end of reading.

I owe ‘the typographic’ to Simon Dybbroe Møller’s concept of ‘the photographic’.

Designer Paragraph

Nobody read whole pages of text again after that.



Not in print: no gullible body looked at ten on fourteen point Bembo and presumed it the product of heartfelt human experience channeled through writing, refining, iterating, correcting, arbitrated by editorial and institutional actors and typographical rigour and manifested as a “paperback” and “recommended” by one human to another.

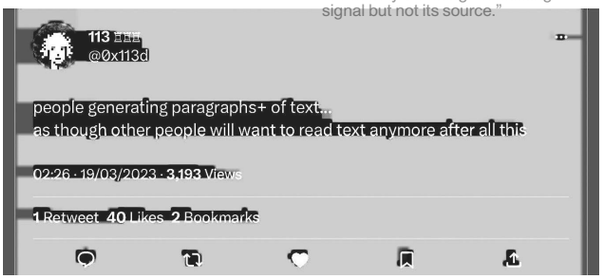
A recap: one day one human had once carved text out of stone at one word per hour, then one human had written text in ink on parchment at one thousand words per hour, then one human had set text in lines of metal type, by hand, and printed it at 100,000 words per hour, and later, with technical tweaks, at a trillion. Humans had copied and pasted text and text had spawned and respawned and generated at rates which were senseless to describe in terms of words or hours or minutes or writing or reading. Data: megaflops and more, pump-pumping now,

And not on screen: nobody read raw, unformatted text, in #A9A9A9 grey, animating, tumbling, word by word, into a text frame in a web browser following a prompt to a GPT, and believed themselves to be making contact with a noble chain of readers across time.



Joshua Citarella, in ‘How to Plant a Meme’: “Create the appearance that you are reposting someone else’s original content. Your images should contain artifacts to appear as if they are already in circulation elsewhere. They can even include the edges of the UI so they seem like a screenshot of someone else’s post. Crop tightly and poorly. To the outside observer, you are merely boosting an existing signal but not its source.”

slopping over, allover all conceivable sessions of human attention. Text not for a billion Librarians of Babel working in shifts ever to read but for more computerised agents to parse and recompose and repackage into little portions and parcels to serve to the paralysed and overwhelmed and uncritical. Regurgutating it all according to attention budgets and demographically inferred preferences. All text is “personalised” soon.



There was one last typography to speak of, though. The 512 × 512 pixel PNG was its preferred page. Fibrous paper texture, mock-up shimmer of protective polythene wrap, subtle effects of light and shadow on debossed lettering, crooked corners: once these had been print’s preserve, the pleasures of tactility pitted against undesignerly digitality. Now they were the signatures of “designer paragraphs”. Designer paragraphs were superpowered text fragments, human-curated, alloyed with valuable add-ons marking them out as worthy of eyeball. Designer paragraphs were gangsta bibliographer, Libgen.rs addicted, all blue messages, no green. Overprinted on a fragment of a rare book. Imbued with something in the process. Scanned and pre-aged. Screenshotted as if without a care, off-centre, bits of interface chrome, JPEGed to compression nirvana as if it’s been saved and reposted by, like, A LOT of readers. Friction dreams. Proof of pulse. There’s this really nice text but it’s printed on the back of the Declaration of Independence in invisible ink and can only be read with 3D glasses. This text? Yeh it can only be read on midsummer’s eve under a crescent moon. Oh you have to check this text: it can only be displayed when your device’s geotag pings at the following coordinates. No, no, it blocks VPNs, you really have to go there. This text will self-destruct in 10 seconds. Anything to arouse a reader from slop-stupor. Because otherwise it would just be, like, raw text. And that’s enough of that.



One of David Rudnick’s “lies”, a digital image template skilfully stylised to give the illusion of a printed surface.

Rudnick: “I no longer need to print a poster to present its documentation online, and my practice makes no distinction in its presentation of works realised physically and those that exist only as virtual images. Design’s terrain has been fundamentally shifted by the fact that online, for the viewer, no such distinction exists.”

