TYPE DESIGN
Catching up to the past

The typographer's goal is to provide the best possible reading experience for the reader. Thirty years of disruptive technologies have made this a greater challenge despite the overwhelming number of type designs available to us. Steve Matteson will give several historical and contemporary examples where fonts have been adapted or designed to meet constantly changing technological demands.

TYPE DESIGN
Catching Up to the Past

"Today's type designer ought to aim to design typefaces for specific needs."

—CHARLES BIGELOW

Today's type designer ought to design typefaces for specific needs. A quote from Chuck Bigelow who I met in 1987 when he received the Goudy Award at RIT. It was an epiphany for me as a student.
 I'd already fallen hopelessly in love with letters - typefaces, typography, lettering. I'd been steeped in letterforms but where did I fit in?

After all, as a student, you one can study 2k years of letterforms and think 'it's all been done' there's no way I can do better or improve on the achievements of the masters.

Typeface designs have evolved on a parallel course with changes in the way in which technology reproduces them. With each change in technology we, as type designers, have to think about what were the best examples of design using previous technologies. With this understanding we can improve upon designs for the future.

TWO THOUSAND YEARS OF LETTER DESIGN

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Two Thousand Years of Letter Design

Two Thousand Years of Letter Design

Two Thousand Years of Letter Design

Two Thousand Years of Letter Design

Lucida

Lucida

Lucida

Lucida

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Athens 18 at the perfect, original size.

Cream 12 at the perfect, original size.

London 18 at the perfect, original size.

Los Angeles 12 at the perfect, original size.

Los Angeles 24 at the perfect, original size.

San Francisco 18 at the perfect, original size.

Toronto 9 at the perfect, original size.

Toronto 12 at the perfect, original size.

Document10 - Microsoft Word

File Edit View Insert Format Tools Table Window Help Adobe PDF Acrobat Comments

Normal + Times   Times New Roman   18

This is Times New Roman (18pt)

This is Times New Roman (24pt)

This is Times New Roman (36pt)

This is Times New Roman (48pt)

This is Times New Roman (60pt)
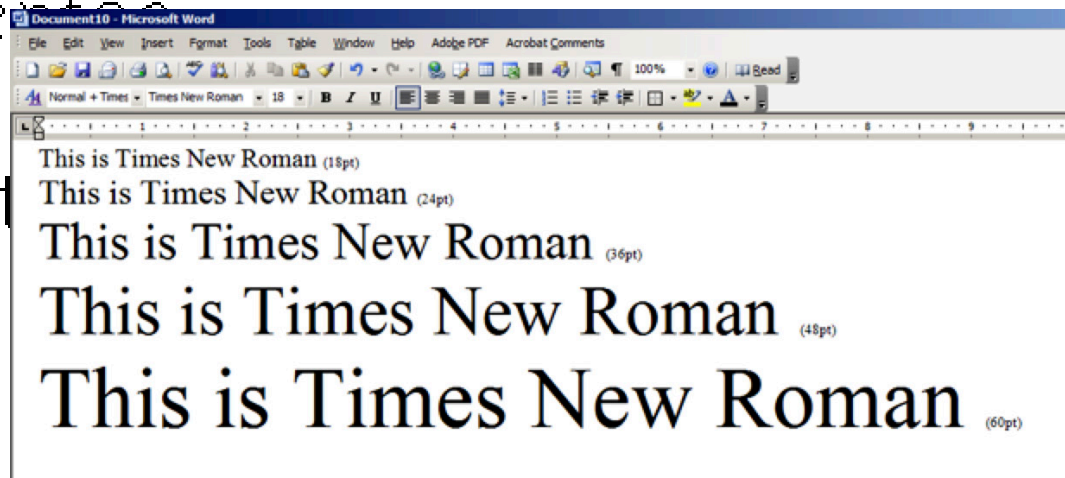
When I started working with the latest desktop publishing tools at school and in work - I could see that not all fonts could hold up to the limitations of resolution and imaging technologies. New typefaces could be designed like bitmap fonts —which were used for individual sizes – or scalable fonts like Lucida, a family of different styles which worked well together even for bad laser printer output.

I quickly found that Old typefaces were being adapted for new technologies like TrueType. When it came time for me to work on Microsoft's first TT fonts it was already the 3rd time in my short career that I'd be making this font family for a different technology.

Ligatures

Kerning

Imaging

I'm going to look at a few specific aspects of type design that are relevant today and challenge us type designers to come up often with old solutions to new problems   . Ligatures – connected letterforms which either correct for shapes that would otherwise collide or simply make a more elegant combination.

Kerning – the space between pairs of letters (different from tracking since kerning historically refers to the removing of material between letters to fit them closer together.

Finally Imaging – how do the letters reproduce under various conditions be it letterpress on dampened paper or shown through an RGB filter on a piece of glass and held in your hand.

All of these topics shown here on a page of printing that launched a hundred typeface interpretations. This is Jenson's typeface of 1470ish. Modeled on an advanced form of the calligraphic "humanist bookhand". This is my first reference to having to look to the past for guidance.

For our ligature example you see the ligated or 'connected' ct, long s t and ss ligatures.

Kerning (or lack thereof) can be spotted between Te. The process of hand setting text is already quite tedious, having to kern every gap in 12pt type would be beyond the pale.

While the Qu below LOOK like they were kerned they were likely cast as a single piece of type to allow the tail to tuck under the u. Given how common this combination is in Latin it was not an unusual practice.

Finally looking at the image quality achieved on this 550 y/o page one can see the letterforms hold up remarkably well in consistency and color. The variables of hand inking, uneven paper surface and the commonality of damaged pieces of type (highlighted here), viewing this at actual size demonstrates a remarkable achievement in letter design, type setting and printing.

Rimo proœmium. Se
tradēda sint. Tertio u
diātur. Quarto qua ra
& quæ tradēda sint. Q
grāmatici. Septimo a
rtium sciētia. Octauo de musica
na pronunciationis & gestus inst
mpore doceri prima ætas possit

Rimo procemium. Se
tradēda sint. Tertio u
diātur. Quarto qua ra
& quæ tradēda sint. Q
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PRimo procemium. Se[...]
tradēda sint. Tertio u[...]
diātur. Quarto qua ra[...]
& quæ tradēda sint. Q[...]
grāmatici. Septimo a[...]
[...]rtium sciētia. Octauo de musica[...]
[...]a pronunciationis & gestus inst[...]
[...]mpore doceri prima ætas possit[...]

Ligatures

Ligatures

One of the first things that strikes the learned observer of the Gutenberg bible is the beautifully aligned justified columns of text.

Gutenberg went to great lengths to make paper smooth enough to print on, ink black enough to look like the ink used by scribes and typeset so carefully in such a way that rubricators could hand color initial letters in red after the black ink was dry. On top of this he cast hundreds of additional special sorts - letter combinations connected in pairs or triples - varying in width and shape just enough to aid in justifying lines of text.

His font of type had about 290 sorts so if a line came out too long or short he had options to adjust the width of the line. Many remark that his columns line up as well as the scribes could do by hand.

Column 1

in die ire furoris sui. Mem De excelso misit ignem in ossibus meis: et erudivit me. Expandit rethe pedibus meis: convertit me retrorsum. Posuit me desolatam: tota die merore confecta. Nun Vigilavit iugum iniquitatum mearum in manu eius: convolute sunt et imposite collo meo. Infirmata est virtus mea: dedit me dominus in manu de qua non potero surgere. Samech Abstulit omnes magnificos meos dominus de medio mei: vocavit adversum me tempus: ut contereret electos meos. Torcular calcavit dominus virgini filie iuda. Ain Idcirco ego plorans et oculus meus deducens aquas: quia longe factus est a me consolator: convertens animam meam. Facti sunt filii mei perditi: quoniam invaluit inimicus. ffe Expandit syon manus suas: non est qui consoletur eam. Mandavit dominus adversum iacob in circuitu eius hostes eius: facta est iherusalem quasi polluta menstruis inter eas. Sade Iustus est dominus: quia os eius ad iracundiam provocavi. Audite obsecro universi populi: et videte dolorem meum. Virgines mee et iuvenes mei abierunt in captivitatem. Coph Vocavi amicos meos: et ipsi deceperunt me. Sacerdotes mei et senes mei in urbe consumpti sunt: quia quesierunt cibum sibi ut refocillarent animas suas. Res Vide domine quoniam tribulor: tribulatus est venter meus. Subvertitur est cor meum in memetipsa: quia amaritudine plena sum. Foris interficit gladius: et domi mors similis est. Sen Audierunt quia ingemisco ego: et non est qui consoletur me. Omnes inimici mei audierunt malum meum: letati sunt quia tu fecisti. Adduxisti diem consolationis: et fient similes mei. Tau Ingrediatur omne malum eorum coram te: et vindemia

Column 2

eos sicut vindemiasti me propter omnes iniquitates meas. Mului enim gemitus mei: et cor meum merens. Aleph Quomodo obtexit caligine in furore suo dominus filiam syon. Proiecit de celo in terram inclitam israel: et non est recordatus scabelli pedum suorum in die furoris sui. Beth Precipitavit dominus nec pepercit omnia speciosa iacob: destruxit in furore suo munitiones virginis iuda: et deiecit in terram: polluit regnum et principes eius. Gimel Confregit in ira furoris sui omne cornu israel: avertit retrorsum dexteram suam a facie inimici: et succendit in iacob quasi ignem flamme devorantis in gyro. Deleth Tetendit arcum suum quasi inimicus: firmavit dexteram suam quasi hostis: et occidit omne quod pulchrum erat visu. In tabernaculo filie syon effudit quasi ignem indignationem suam. He Factus est dominus velut inimicus: precipitavit israel. Precipitavit omnia menia eius: dissipavit munitiones eius: et replevit in filia iuda humiliatum et humiliatam. Vau Et dissipavit quasi ortum tentorium suum: demolitus est tabernaculum suum. Oblivioni tradidit dominus in syon festivitatem et sabbatum: et in opprobrium et in indignatione furoris sui regem et sacerdotem. Zai Repulit dominus altare suum: maledixit sanctificationi sue: tradidit in manus inimici muros turrium eius. Vocem dederunt in domo domini: sicut in die solenni. Beth Cogitavit dominus dissipare murum filie syon: tetendit funiculum suum et non avertit manum suam a perditione. Luxitque antemurale: et murus pariter dissipatus est. Teth Defixe sunt in terra porte eius: perdidit et contrivit vectes eius: regem eius et principes eius in gentibus. Non est lex: et prophete eius non invenerunt

Column 3

visionem a domino. Ioth Sederunt in terra: conticuerunt senes filie syon: consperserunt cinere capita sua. Accincti sunt ciliciis: abiecerunt in terra capita sua virgines iherusalem. Caph Defecerunt pre lacrimis oculi mei: conturbata sunt viscera mea. Effusum est in terra iecur meum super contritione filie populi mei: cum deficeret parvulus et lactens in plateis oppidi. Lameth Matribus suis dixerunt ubi est triticum et vinum: cum deficerent quasi vulnerati in plateis civitatis: cum exhalarent animas suas in sinu matrum suarum. Mem Cui comparabo te: vel cui assimilabo te filia iherusalem? Cui exequabo te: et consolabor te virgo filia syon? Magna enim velut mare contritio tua. Quis medebitur tui? Nun Prophete tui viderunt tibi falsa et stulta: nec aperiebant iniquitatem tuam: ut te ad penitentiam provocarent. Viderunt autem tibi assumptiones falsas et eiectiones. Samech Plauserunt super te manibus omnes transeuntes per viam: sibilaverunt et moverunt caput suum super filiam iherusalem: hecine est urbs dicentes perfecti decoris: gaudium universe terre. Ain Aperuerunt super te os suum omnes inimici tui: sibilaverunt et fremuerunt dentibus suis: et dixerunt devorabimus. Ain Ista est dies quam expectabamus: invenimus: vidimus. ffe Fecit dominus que cogitavit: complevit sermonem suum quem preceperat a diebus antiquis. Destruxit et non pepercit: levificavit super te inimicum: et exaltavit cornu hostium tuorum. Sade Clamavit cor eorum ad dominum: super muros filie syon. Deduc quasi torrentem lacrimas per diem et noctem: non des requiem tibi: neque taceat pupilla oculi tui. Coph Consurge: lauda in nocte in principio vigiliarum: effunde sicut aquam cor tuum ante conspectum domini.

Column 4

leva ad eum manus tuas pro anima parvulorum tuorum: qui fame perierunt in capite omnium compitorum. Res Vide domine et considera: quem vindemiaveris ita. Ergo ne comedent mulieres fructum suum: parvulos ad mensuram palme? Si occiditur in sanctuario domini sacerdos et propheta? Sen Iacuerunt in terra foris puer et senex: virgines mee et iuvenes mei ceciderunt in gladio: interfecisti in die furoris tui: percussisti: nec misertus es. Tau Vocasti quasi diem solennem qui terrerent me de circuitu: et non fuit in die furoris domini qui effugeret et relinqueretur. Quos educavi et enutrivi: inimicus meus consumpsit eos. Aleph Ego vir videns paupertatem meam: in virga indignationis eius. Aleph Me minavit et adduxit in tenebris: et non in lucem. Aleph Tantum in me vertit: et convertit manum suam tota die. Beth Vetustam fecit pellem meam et carnem meam: contrivit ossa mea. Beth Edificavit in gyro meo: et circumdedit me felle et labore. Beth In tenebrosis collocavit me: quasi mortuos sempiternos. Gimel Circumedificavit adversum me ut non egrediar: aggravavit compedem meum. Gimel Sed et cum clamavero et rogavero: exclusit orationem meam. Gimel Conclusit vias meas lapidibus quadris: semitas meas subvertit. Deleth Ursus insidians factus est michi: leo in absconditis. Deleth Semitas meas subvertit et confregit me: posuit me desolatam. Deleth Tetendit arcum suum: et posuit me quasi signum ad sagittam. He Misit in renibus meis filias pharetre sue. He Factus sum in derisum omni populo meo: canticum eorum tota die. He Replevit me amaritudinibus: inebriavit me absinthio. Vau Et fregit ad numerum dentes

Almost 300 characters including ligatures to mimic handwritten justification

Johann Gutenberg: The Man and His Invention by Albert Kapr (Aldershot [England]: Scolar Press, 1996), p. 160.

Jump forward 100 years and we see another example of ligatures mimicking handwriting - in this case the Greek script. Christopher Plantin's polyglot bible shows here, when viewed in detail, ligatures of common combinations of two and three letterforms cast together as one piece of metal type.

ξηρά. καὶ ἐγένετο οὕτως· καὶ συνήχθη τὸ ὕδωρ τὸ ὑποκάτω

10 εἰς τὰς συναγωγὰς αὐτοῦ, καὶ ὤφθη ἡ ξηρά. καὶ ἐκάλεσεν ὁ
ξηράν, γῆν· καὶ τὰ συστήματα τῶν ὑδάτων ἐκάλεσε θαλάσ-

11 δεν ὁ θεός, ὅτι καλόν· καὶ εἶπεν ὁ θεός, βλαστησάτω ἡ γῆ β
χόρτον σπεῖρον σπέρμα κατὰ γένος καὶ καθ' ὁμοιότητα, καὶ
καρπιμον ποιοῦν καρπόν· οὗ τὸ σπέρμα αὐτοῦ ἐν αὐτῷ κατὰ

12 ἐπὶ τῆς γῆς· καὶ ἐγένετο οὕτως. καὶ ἐξήνεγκεν ἡ γῆ βοτάνην
σπεῖρον σπέρμα κατὰ γένος καὶ καθ' ὁμοιότητα, καὶ ξύλον
μον ποιοῦν καρπόν· οὗ τὸ σπέρμα αὐτοῦ ἐν αὐτῷ κατὰ γένος

13 τῆς γῆς· καὶ εἶδεν ὁ θεὸς ὅτι καλόν. καὶ ἐγένετο ἑσπέρα καὶ

14 πρωῒ, ἡμέρα τρίτη· καὶ εἶπεν ὁ θεός, γενηθήτωσαν φωστῆρες
ἐν τῷ στερεώματι τοῦ οὐρανοῦ ὡς τε φαίνειν ἐπὶ τῆς γῆς, οὗ διαχ...
ναμέσον τῆς ἡμέρας καὶ ἀναμέσον τῆς νυκτός· καὶ ἔστωσαν εἰς ση

15 καὶ εἰς καιρὰς, καὶ εἰς ἡμέρας, καὶ εἰς ἐνιαυτούς· καὶ ἔστω
φάδιν ἐν τῷ στερεώματι τοῦ οὐρανοῦ, ὡς τε φαίνειν ἐπὶ τ-

16 ἐγένετο οὕτως. καὶ ἐποίησεν ὁ θεὸς τὰς δύο φωστῆρας τὰς μεγ
τὸν φωστῆρα τὸν μέγαν εἰς ἀρχὰς τῆς ἡμέρας· καὶ τὸν φωσῆ-

17 ἐλάσσω εἰς ἀρχὰς τῆς νυκτός· καὶ τοὺς ἀστέρας· καὶ ἔθετο αὐ-

18 θεὸς ἐν τῷ στερεώματι τοῦ οὐρανοῦ· ὡς τε φαίνειν ἐπὶ τῆς γ

Christopher Plantin's Greek of ~1560 mimics handwriting with ligatures and multiple shapes

For the Latin alphabet - post Gutenberg - we have a more basic set of ligatures. The characters which are problematic – like the Qu combination in the Jenson example but more notably in the f and long s.

In this slide you can see how a type founder could cast the type so that it would overhang onto the shoulder of the following letter. This allowed for elegant f shapes – but would cause awkward situations like the dot of the 'eye' or the ascenders of h, l etc.

The solution was to create a new sort with a specially designed pair of letters.

When the Lino machine was invented the graceful overhang of f had to be tempered for the sake of mechanization. Ligatures could be added in manually - as shown in this slide - but were often just left out.

The release of the Monotype keyboard and caster 13 years later reintroduced ligatures to the mechanized work flow. An operator could keyboard ligatures directly in the flow of text. For this and other reasons the Monotype machine was preferred for fine book publishing. Again looking to the past to restore lost aesthetics.
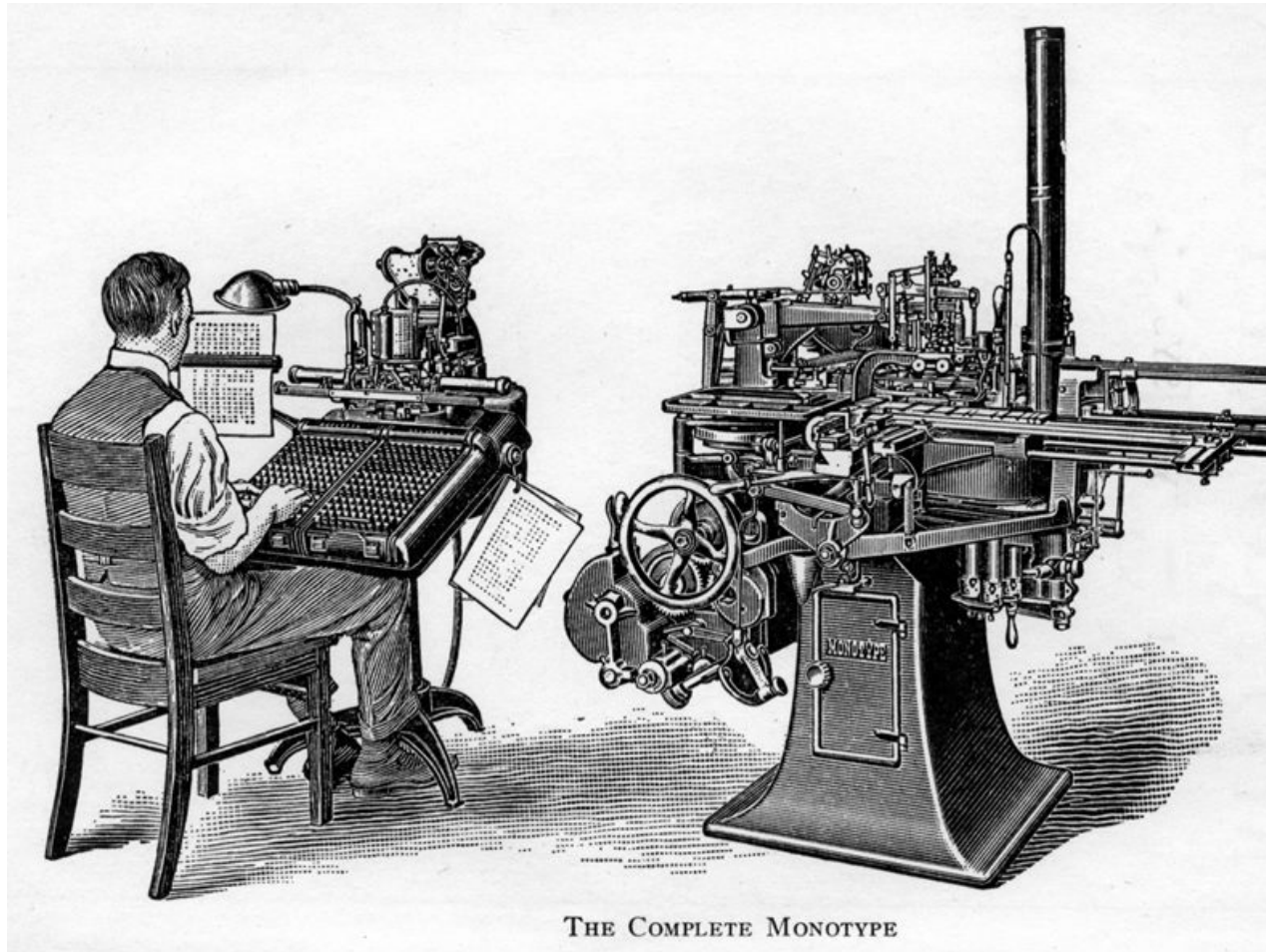
fr fi fi

Foundry Type

nfrn

nfin nfin

Linotype Machine 1884

THE COMPLETE MONOTYPE

Monotype Machine 1897

Two contemporary examples bring us back to Platin's and Gutenberg's attempts at mimicking handwriting through the use of ligatures (among many other design tricks of course). John Hudson's tour de force, Gabriola has over 4500 characters to include latin, Greek and Cyrillic. But it is unique in its extensive collection of ligatures. I think there are 100 f-ligatures alone. The beautifully comprehensive Greek is similar to Plantin's with as many as 3 chars joined as though they were written by hand.

Herman Zapf's Zapfino has less than half the characters but only supports Latin characters. Naturally a connected typeface such as this requires a huge number of special combinations to help fool the reader into thinking that a document was written specifically for him or her. Who better to concoct such a scheme than a master calligrapher such as the late professor.

Gabriola

ffi ffij ffk ffk | gg tt | σγ θὴ σψα πᾱς

Zapfino

Th ff ft tt th gg ʄ ph

Kerning

Kerning

As I alluded to with the Jenson example, Kerning was once a physical and time consuming process. To cut the wood or lead shoulder away from two letters so they fit together neatly required a steady hand and a good saw and file. I experienced this first-hand in our once-great letterpress lab at RIT when, just as our professor walked in, there was a loud 'Ping' sound as a piece of type ricocheted out of a power saw. A lab assistant was then admonished for attempting to miter a small piece of metal type and had lost his grip but luckily not any fingers.

This lovely example from Starshaped press, used in an article 'let's hear it for the kern', shows the amount of material that would have to be removed to fit the AV in this font. It also shows that, while the 2nd line is kerned it's not really much better given the resulting uneven spacing. The I and L would also need to be spaced apart with spacing material to reflect the openness of the AVA combination.

Kerning, as often as not, could make things worse in display typography where not every piece of type is notched. Here the un-kerned word Talking looks better than the kerned result below. Leaves becomes 3 fake French words: le av es.
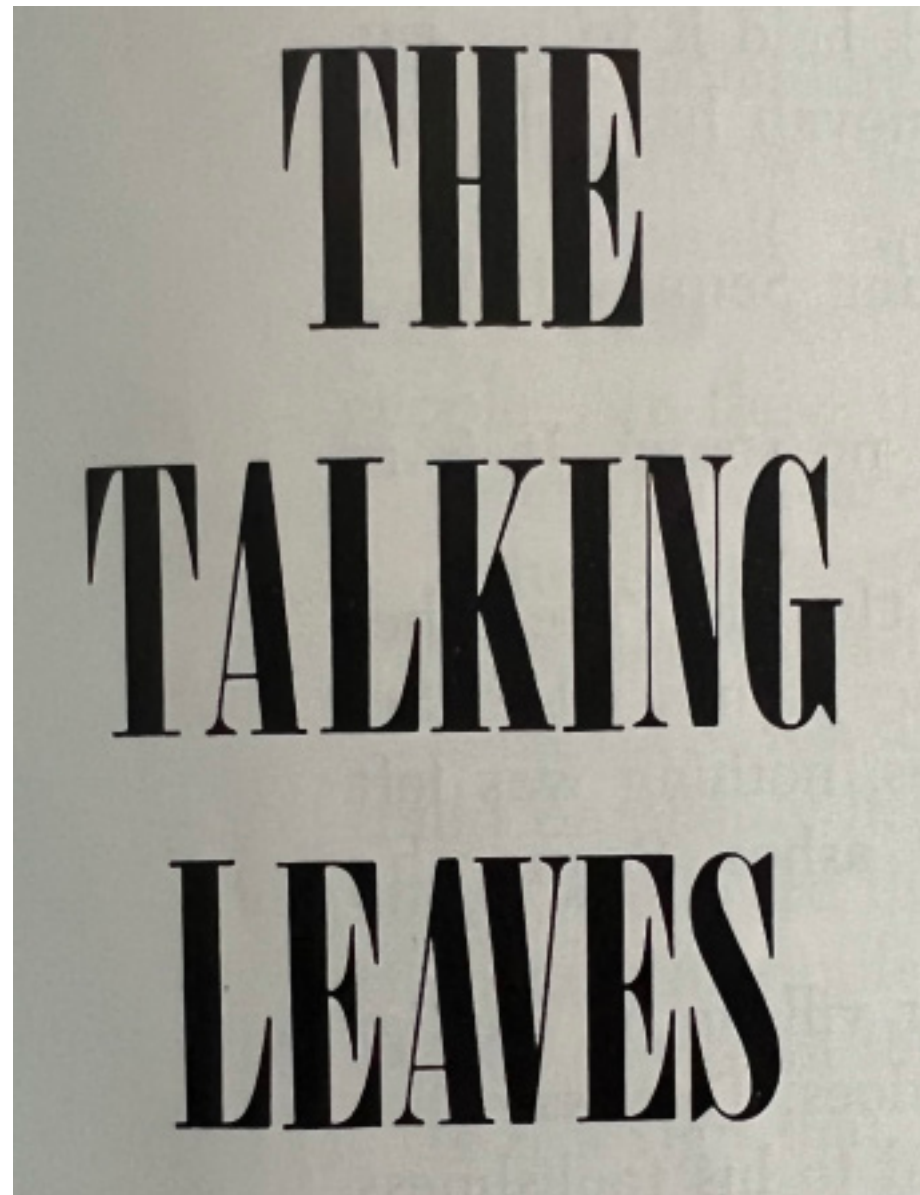
180pt Kerned (left) – 16pt Unkerned (right)

Courtesey of StarshapedPress.com

THE TALKING LEAVES

The Talking Le av es

hings quickly changed with photo typesetting - where it was comparatively very easy to kern. Just reverse or advance the filmstrip, expose a character and move on. No risk of losing a finger. "Tight not touching" one descriptor of this style of typography. Some called it sexy spacing. Whatever you called it this style dominated the scene for easily 2 decades. Now I call it kerning and not tracking because the people that were really good at this were not just entering a negative spacing value for whole lines of text - they carefully adjusted each letter combination in each word for the greatest effect.

The master of this style was Herb Lubalin. As a lettering artist he really knew what he was doing when it came to interlocking and fitting letters. In the case of his Avant Garde typeface he nudged letters so close together he needed a huge set of ligatures of overlapping shapes to get the effect he wanted. Sexy spacing indeed.

In the late '70s and early '80s
"Tight but not touching"
was the art director's mantra
for headline typography.

(Some touching may have taken place anyway.)

AVANT GARDE 8

PICASSO'S EROTIC GRAVURES

THIS SPECIAL ISSUE OF AVANT-GARDE IS DEVOTED ENTIRELY TO ONE SUBJECT: A SERIES OF EROTIC GRAVURES, OR ENGRAVINGS, BY PABLO PICASSO, THE PRE-EMINENT ARTIST OF OUR TIME. THEY ARE INTENDED TO STAND, AS PICASSO HIMSELF HAS SAID, "AS AN ABIDING CELEBRATION OF LIFE ITSELF."

Herb Lubalin

By the time desktop publishing was taking off the sexy spacing schtick was overdone - even farcical. Got a long headline? Just keep hitting the minus button. Never mind using a condensed typeface or just a smaller size.

Out of curiosity I googled Kerning and found 4.4 million hits. Mostly it seems by people who never actually designed a typeface in their lives. All these rules and steps written by people with, perhaps, no practical experience at all. Thank you internet.

My favorite - and probably best piece of advice - kerning is not always a good thing. A title for a *Communication Crts* article that I haven't actually read but the title gives me some hope.

When you need a change of face.

You bought ATM™ to clean up your text; now add TypeAlign to throw your text a curve — or give it a new slant. And do it so intuitively, you'll wonder why everyone doesn't do it our way.

TypeAlign is incredibly easy to use — no special draw-

Since TypeAlign is a desk accessory, you install it once in your Macintosh® computer, then use it in just about any application. And you can print your creation on any ATM-supported printer or other device, including Apple® ImageWriters,® LaserWriters® and Hewlett-Packard® Desk-

Some Idiot with PageMaker.

What is kerning?
How to kern like a designer
Kerning 2020 update
Kerning text simply
Art of kerning
New rules for kerning
Mathematical route to kerning
10 simple steps to kerning
13 tips to avoid bad kerning
30 kerning fails
Kerning: It's not always a good thing

As far as my own thoughts and approaches for kerning - I go in with the understanding that it is not a cure-all. You can kern to improve the basic rhythm in a typeface but it is impossible to solve the balance of every imaginable scenario – even my own name. In fact I vividly remember my first kerning assignment in school where I was given a 72 pt drawer of type and told to typeset my name in all caps. The instructor said to me 'ooo you're going to have fun with this' referring to the big white gap caused by the TT combination.

Today's big advantage with kerning is the fact that we can consistently space every re-occurrence of a letter shape. Accented letters and punctuation can all be adjusted to fit together the same way a scribe would combine them by hand.

AVA no kern

VAV over-kern

AVAILABLE just right

MATTESON → MATTESON

AVA ÅVÅ ÁVÁ ÄVÄ ÂVÂ
Avin Åvin Ávin Ävin Âvin
"A" "Å" "Á" "Ä" "Â"
Ta Tả Tá Tä Tâ Ţa Ťả Ŧá Ţä . . .

Imaging

Finally I'll discuss Imaging of type and how it's effected type design.
We've already had a good look at Jenson and Gutenberg so let's jump ahead a bit to 1501. When one speaks of beautiful books - and beautiful typography it's pretty easy to get swept away with Aldus Manutius' Virgil and Horace. This is the first use of italic types in print - they were cut by Francesco Griffo and based on pre-Carolinian calligraphic hands like the work of Giovani Tagliente.

Calligraphic Italics were very popular in the Italian Renaissance and reproduced as types allowed more lines to fit per page and gave these books the fashionable look of the day.

Printed on smooth vellum the meticulous details of this gorgeous type hold up beautifully. Thin strokes are not too thin, the rhythm instilled by the italic slant is very regular and even in color.

In 1788 Giambatista Bodoni printed his specimen of typefaces – about 140 individually cut sizes of types. The Manualle as it's called clearly shows the contemporary fashion of upright stress and extremely fine hairlines. But it also illustrates an important reality that people in today's digital type world forget. Each size is a slightly different design, cut by hand for maximum style, legibility and proportion.

P. V. M. MANTVANI BV
COLICORVM
TITYRVS.

Melibœus. Tityrus.

Tityre tu patulæ recubás sub
tegmine fagi
Siluestrem tenui musam meditaris
auena.
Nos patriæ fines, et dulcia linqui
mus arua,

Me.

Nos patriam fugimus, tu Tityre lentus in umbra
Formosam resonare doces Amaryllida syluas.
O Melibœe, deus nobis hæc ocia fecit·
Namq; erit ille mihi semper deus, illius aram
Sæpe tener nostris ab ouilibus imbuet agnus.
Ille meas errare boues, ut cernis, et ipsum
Ludere, quæ uellem, calamo permisit agresti.
Non equidem inuideo, miror magis, undiq; totis
Vsque adeo turbatur agris· en ipse capellas
Protinus æger ago, hanc etiam uix Tityre duco·
Hic inter densas corylos modo nanq; gemellos,
Spem gregis ah silice in nuda connixa reliquit·
Sæpe malum hoc nobis, si mens non leua fuisset,
De cœlo tactas memini prædicere quercus.
Sæpe sinistra caua prædixit ab ilice cornix.
Sed tamen, iste deus qui sit, da Tityre nobis.
Vrbem, quam dicunt Romam, Melibœe putaui
Stultus ego huic nostræ similem, quo sæpe solemus

Ti.

Me.

Ti.

a ii

QVINTI HORATII FLACCI CARMI
NVM LIBER PRIMVS.

AD MOECENATEM, ALIVM ALIO
STVDIO TENERI, SE VERO
SCRIBENDORVM LY
RICORVM VER
SVVM.

ODE · I.   Monocolos.

Moecenas atauis edite regi
bus
Oe præsidium, et dulce decus
meum,
Sunt quos curriculo puluerem
olympicum
Collegisse iuuat, metáq; feruidis
Euitata rotis, palmáq; nobilis
Terrarum dominos euehit ad deos.
Hunc si mobilium turba Quiritium
Certat ter geminis tollere honoribus,
Illum si proprio condidit horreo
Quicquid de libycis uerritur areis
Gaudentem patrios findere sarculo
Agros, attalicis conditionibus
Nunquam dimoueas, ut trabe cypria
Myrtoum pauibus nauta secet mare·
Luctantem Icareis fluctibus aphricum
Mercator metuens, ocium, et oppidi
Laudat rura sui, mox reficit rates

a ii

Aldus Manutius' Virgil and Horace printed in 1501

PAPALE
tondo

Quousq; tandem abutêre, Catilina,

SALUZZO

PARANGONE

Quousque tandem abutêre, Catilina, patientiâ nostrâ? quamdiu etiam furor iste tuus nos eludet? quem ad finem sese effrenata jactabit audacia? nihilne te nocturnum præsidium Palatii, nihil urbis vigiliæ, nihil timor populi, nihil concursus bonorum omnium, nihil hic munitissimus habendi se-

MARCUS TULL. CICERO

ORATOR ATQUE PHILOSOPHUS.

CHERASCO

To illustrate – what we expect today is for the same typeface to work at every size we select. 4 or 400 point – same letter just a different size. If this were really meant to be, Bodoni's largest most contrasting size for display would be difficult to read in text. The left you can see the condensed forms and somewhat wobbly rhythm compared to a true - text cut on the right.

Conversely if you were to set the text size as big as the display you'd see how heavy the hairlines are in order that they hold up in small size. ITCs Bodoni claims to be entirely accurate to the type punches that Bodoni cut for 6, 12 and 72pt. I remain a bit dubious about this though I haven't had the pleasure of going to Parma Italy to see for myself.

Another quick example of using a display face for text. Walbaum's extreme hairlines are beautiful and elegant in the intended size but blow out in text. This may remind some of things like the Vogue magazine logo whose hairlines are so thin they'd never print well for anything smaller than a logo

Display

Text Size With infinite complacency men went to and fro over this globe about their little affairs, serene in their assurance of their empire over matter. It is possible that the infusoria under the microscope do the same. No one gave a thought to the older worlds of space as sources of human danger, or thought of them only to dismiss the idea of life upon them as impossible or improbable. It is curious to recall some of the mental habits of those departed days. At most terrestrial men fancied there might be other men upon mars, perhaps inferior to themselves and ready to welcome a missionary enterprise. Yet across the gulf of space, minds that are to our minds as ours are

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Scalable Type Expectations

6pt Bodoni

12pt Bodoni

72pt Bodoni

1994 ITC Bodoni

Display

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2019 Walbaum

Times New Roman - made by Monotype for casting metal newspaper type - had over 30 different master sizes created. Each unique in slightly different ways. When you look at the catalog you might be struck by how legible Times is at 5pt and how elegant it is at 72. This cannot be matched in digital unless different designs are created for this wide range of uses. The digital version of Times was based on the 14pt metal size drawings.

The idea being 14 was text-like enough for extended reading but delicate enough for large sizes. You could call it Times New 'Average'. It works reliably in text but struggles for the extreme small use. It looks ok in display but loses a great deal of its finesse.

The monotype archive has every drawing of every size of typeface. I found this lovely unique illustration of size overlays. This g from a typeface called Spectrum by Jan van Krimpen shows the nuanced changes from 6, 8, 12pt sizes. You can see slight adjustments to weight and the amount of prescribed spacing on each side.

Column 1

*4¼ PT. (4D) 5½ SET LINE M·1231
U.A. 325

WHEN JOBS HAVE TYPE SIZES FIXED
MARGINS OF ERROR WIDEN UNLESS ALL OF THE
When jobs have type sizes fixed quickly
margins of error widen unless the determining
calculations are based upon factual rather
than hypothetical figures. No variation in the
When jobs have type sizes fixed quickly
margins of error widen unless the determining
ABCDEFGHIJKLMNPQRSTUVWXYZ

*4¼ (LONG DESC.) ON 4¾ PT. (4½D)
5½ SET U.A. 325 LINE M·1231

WHEN JOBS HAVE TYPE SIZES FIXED
margins of error widen unless the determining
calculations are based upon factual rather
than hypothetical figures. No variation in the
amount of copy can affect the degree of error
once that error has been made. If instead of

5 PT. (4½D) 6¼ SET LINE M·1210
U.A. 325

WHEN JOBS HAVE TYPE SIZES FIXED
QUICKLY MARGINS OF ERROR WIDEN
When jobs have type sizes fixed quickly
margins of error widen unless all the
determining calculations are based on
factual rather than hypothetical figures
When jobs have their type sizes fixed
quickly margins of error widen unless the
ABCDEFGHIJKLMNPQRSTUVWY

5D ON 5½ PT. 6½ SET LINE M·1268
U.A. 325

WHEN JOBS HAVE TYPE SIZES FIXED
QUICKLY MARGINS OF ERROR WIDEN
When jobs have type sizes fixed quickly
margins of error widen unless all the
determining calculations are based on
factual rather than hypothetical figures
When jobs have type sizes fixed quickly
margins of error widen unless all the
ABCDEFGHJKLMNPQRSTUVWY

5½ PT. (5D) 6½ SET LINE M·1239
U.A. 325

WHEN JOBS HAVE TYPE SIZES FIXED
QUICKLY MARGINS OF ERROR WIDEN
When jobs have type sizes fixed quickly
margins of error widen unless all the
determining calculations are based on
factual rather than hypothetical figures
When jobs have type sizes fixed quickly
margins of error will widen unless the
ABCDEFGHJKLMNPQRSTUVWY

6¼ PT. (6D) 7¼ SET U.A. 325 LINE M·1250

WHEN JOBS HAVE TYPE SIZES FIXED QUICKLY MARGINS OF ERROR
When jobs have type sizes fixed quickly margins of error
widen unless the determining calculations are based upon
factual rather than hypothetical figures. No variation in the
When jobs have type sizes fixed quickly margins of error widen
unless the determining calculations are based upon factual
ABCDEFGHIJKLMNPQRSTUVWXYZ*ABCDEFGHIJK*

7 PT. (7D) 7¾ SET U.A. 325 LINE M·1268

WHEN JOBS HAVE TYPE SIZES FIXED QUICKLY MARGINS OF
When jobs have type sizes fixed quickly margins of error
widen unless the determining calculations are based upon
factual rather than hypothetical figures. No variation in
When jobs have type sizes fixed quickly margins of error
widen unless the determining calculations are based upon
ABCDEFGHIJKLMNOPQRSTUVWXYZ*ABCDEFG*

7 (LONG DESC.) ON 7½ PT. (7D) 7¾ SET U.A. 325 LINE M·1268

When jobs have type sizes fixed quickly margins of error
widen unless the determining calculations are based upon
factual rather than hypothetical figures. No variation in
When jobs have type sizes fixed quickly margins of error
widen unless the determining calculations are based upon

Column 2

10 (LONG DESC.) ON 11

This "perfect new
Corporation for
much prelimina
showed that by
strokes, instead
over the design,
legible letter resu
duced quite gen
nomical in set. T
of New York, in
to the U.S.A. as
heaven-sent med
these words by
every month. T
VALUE for work
class books to s
It quite justifies
most important t

Combinable

ABCDEFGHIJ
ABCDEFGH
abcdefghijk
ABCDEFGHIJ
abcdefghijk
1234567890 .,:;!
1234567890 F476

Column 3

9 PT. (8D) 9 SET U.A. 325 LINE M·I

WHEN JOBS HAVE THE TYPE SIZES FIXED QUICK
MARGINS OF ERROR WIDEN UNLESS DETERMIN
When jobs have type sizes fixed quickly margi
of error widen unless the determining calculatio
are based upon factual rather than hypothetic
When jobs have type sizes fixed quickly margins
error widen unless the determining calculations a
ABCDEFGHIJKLMNOPQRSTUVWXYZ*AB*

9 (LONG DESC.) ON 10 PT. (10D) 9 SET U.A. 325 LINE M·I

When jobs have type sizes fixed quickly margi
of error widen unless the determining calculatio
are based upon factual rather than hypothetic
When jobs have type sizes fixed quickly margins
error widen unless the determining calculations a
ABCDEFGHJKLMNOPQRSTUVWXYZ

10 PT. (10D) 9¾ SET U.A. 325 LINE M·I

WHEN JOBS HAVE TYPE SIZES FIXED QUICKL
MARGINS OF ERROR WIDEN UNLESS ALL TH
When jobs have type sizes fixed quickly t
margins of error widen unless all determini
calculations are based upon factual rath
When jobs have type sizes fixed quickly margi
of error will widen unless all the determini
ABCDEFGHJKLMNOPQRSTUVWXYZ

SEE CENTRE PANEL OVERLEAF FOR 10 (LONG DESC.) ON 11 PT. S

11 PT. (10D) 10½ SET U.A. 325 LINE M·I

WHEN JOBS HAVE TYPE SIZES FIXED QUICKI
MARGINS OF ERROR WIDEN UNLESS ALL TH
When jobs have their type sizes fixe
quickly margins of error widen unless t
determining calculations are based upo
When jobs have the type sizes fixed quick
margins of error widen unless determini
ABCDEFGHJKLMOPQRSTUVWXY

16 PT. (16D) 15¼ SET LARGE COMPOSITION U.A. 42

When jobs have their type siz
ABCDEFGHIJKLMNOPQ

14 PT. DISPLAY MATRICES

THE FEW MIXED BLOCKS OF VARY
Expect equal workings of demy
Dexterity must be gained by quie
ABCDEFGHJKLMNOPQRST

16 PT. DISPLAY MATRICES

People often read a book
realizing all the principles i

Column 4

18 (LONG DESCENDERS) ON 20 PT. DISPLAY MATRIC

Works by the great Va
Mixed blocks of varyi

20 PT. DISPLAY MATRICES

So we expect full pa
Zeal for a type design
ABEFGHJKMNQI

22 PT. DISPLAY MATRICES

The bank now reco
our claim as quite
I have equalized m
ABDEGHIJKMN

30 PT.

We have equ
The few mixe
ABCDEGHJ

36 PT.

Works by t
Type with q
ABEGHIJ

42 PT.

Dexterity

Column 5

48 PT.

abcdefghij

abcdefghij

ABDEGH

60 PT.

abcdefg

abcdefg

ABDEG

72 PT.

abdefg

abdefg

ABDE

Metal
Times New Roman

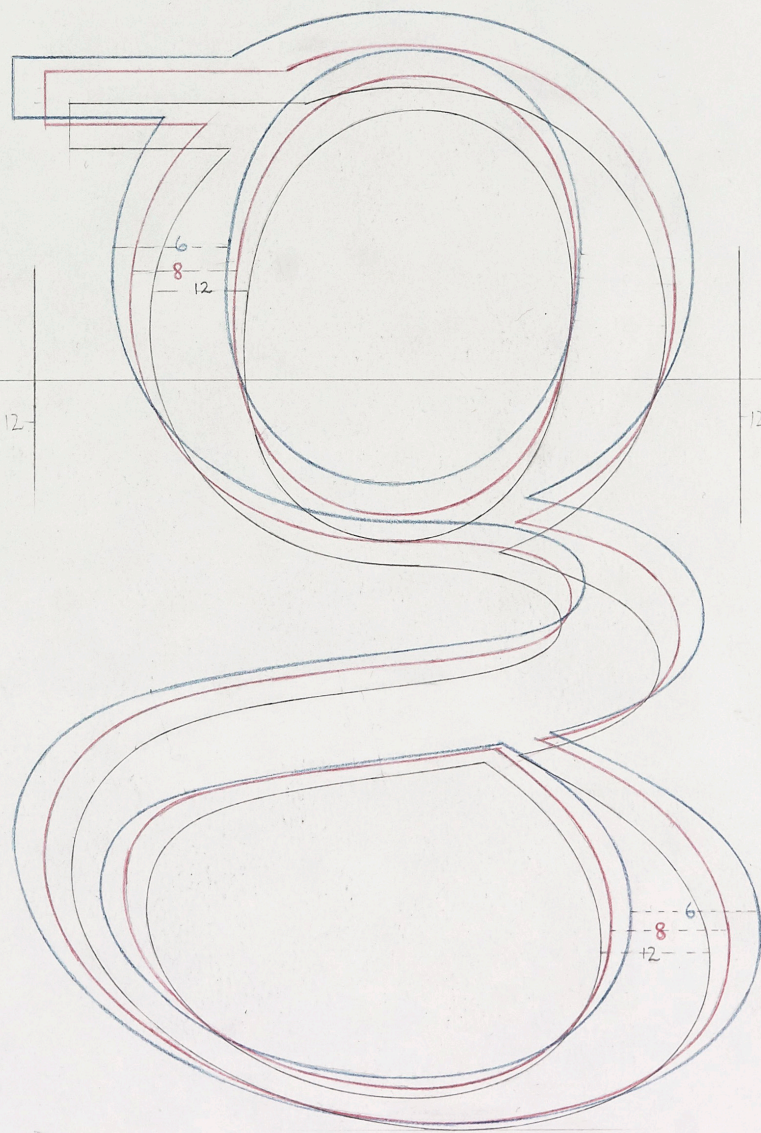30pt

abcdefgh.

10pt

abcdefgh

5pt

ulation

a

a

a

6
8
12

12
6 8

12
8 6

6
8
+2

556-Series

his notion of making designs for specific sizes - or size ranges - is what drew me into the fray of the e-reader boom. Seeing how really well designed fonts that were made specifically for print were falling apart in digital products encouraged me to look at size masters for solutions.

The problem of e-Readers was not just of low resolution, the poor contrast of e-ink screens added to the deformation of letterforms. The magnetic disks that were supposed to flip to their black or white sides in the e-Reader hardware didn't always do so which added to the grey-cast of the screens. I think one engineer told me 'white' was actually about 70% grey in the best scenarios.

Amazon had chosen a pretty solid design for the Kindle. Thesis Serif by Lucas de Groot. It had humanist book proportions, was mono linear with sturdy serifs. Most designs of this ilk are not book proportioned – they're typically very geometric such as Rockwell or Stymie and not great for reading extended text.

When Barnes and Noble started developing their competing product - the Nook - I immediately suggested what I thought were outstanding low resolution text fonts – Lucida and Georgia. The results of both were quite bad and one could never have predicted how bad without actually seeing the product firsthand. Here you can see Georgia falling apart with the 4 bits of greyscale and low contrast causing many letter details to consistently drop completely out of sight. Unfortunately I don't have a picture of it but Lucida almost looked like a stencil design as hairlines simply looked detached from the stems.

I decided to try Monotype's Amasis family as a starting point – shown here with improved contrast but still not quite right. I made several edits to the design creating an "e-paper specific" version which bumped up the visual contrast by strengthening hairlines a bit further and increasing the xheight slightly - Just as one would do in making a small-size font master.
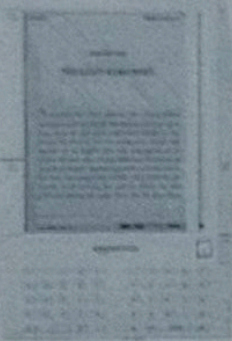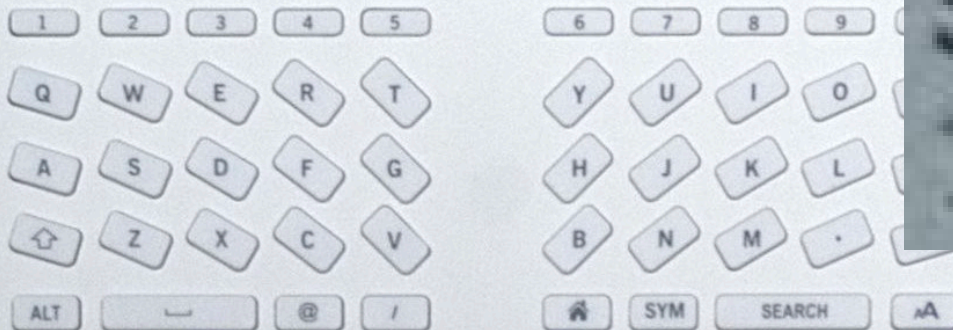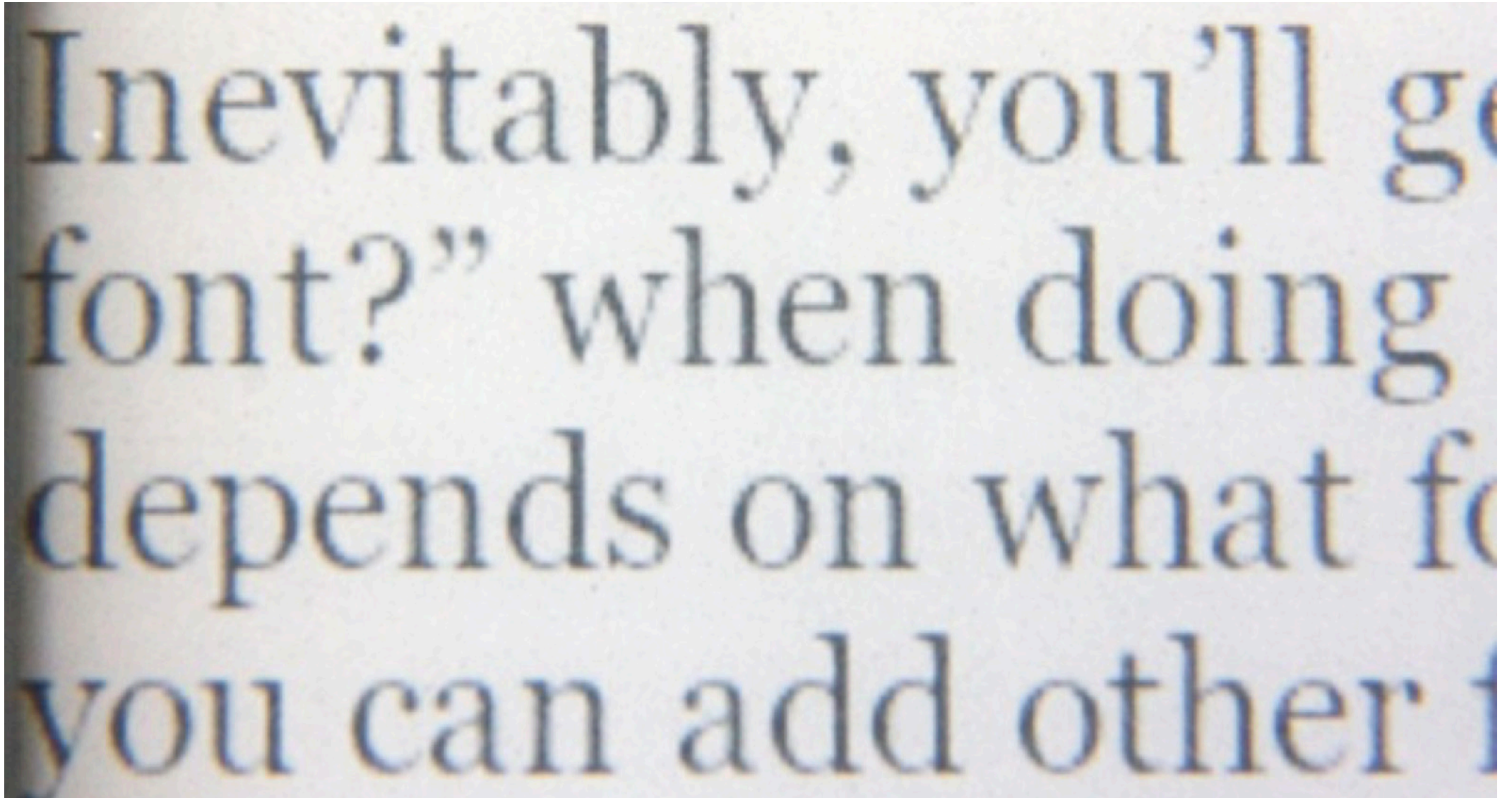
2007

E-Ink Screens

Inevitably, you'll g

Georgia, designed by Mattew Carter renders poorly on an early e-ink screen

Inevitably, you'll get the

Inevitably, you'll get the font?" when doing applic depends on what fonts c can add other fonts, and whatever needs the font
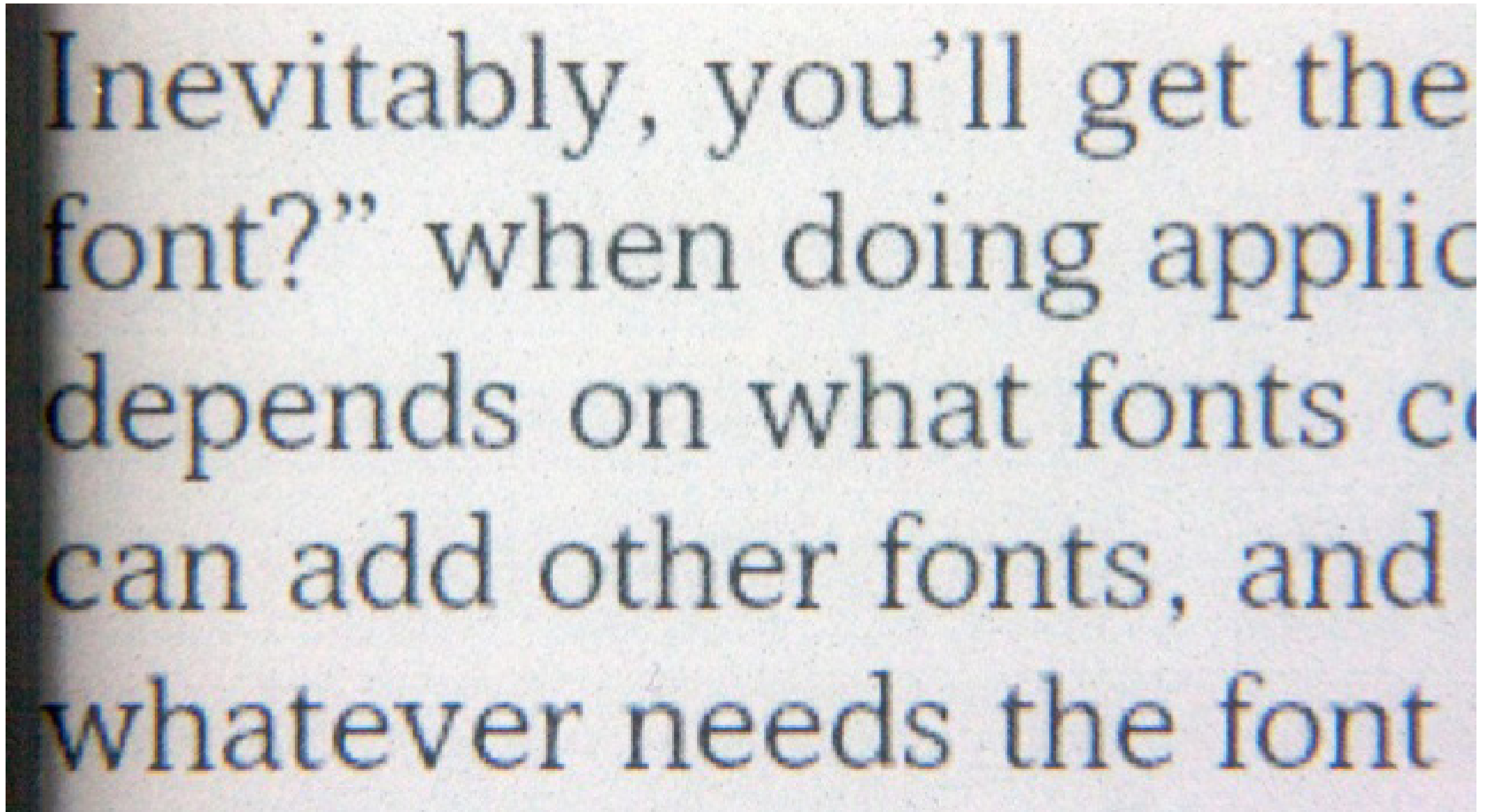
Monotype's Amasis typeface works better but still needs improvements.

be given—all serve to perpetuate in their own ways and for their own purposes the vitality of the ancient Greek tales of war and adventure, magic and miracles, love, jealousy, murder, rape, and re
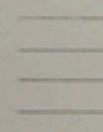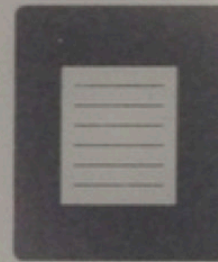
×

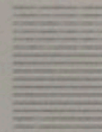SIZE

A A A A **A** A A A

FONT
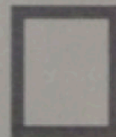
Georgia

Malabar

Amasis

Tipperary

Avenir Next

▸ Joanna Sans

LINE SPACING

MARGINS

Now, with e-paper's latest generation the resolution is 300dpi and the contrast closer to 90% white. The font menu is far more extensive as a result. The fonts still need more robust qualities than a many existing digital book faces but the options are far greater in number than when they started.

At the same time all of this was happening with e-paper LCDs were gaining in pixel density. LCD monitors, however, varied a great deal from one to another and to complicate things further every platform, browser and some apps all rendered type differently.

Interesting side note - E-reader or tablet companies would order screens, reject them based on some hardware flaws and they'd get sold to automotive companies for their navigation systems further degrading that sector for reading.

This image of different rasterizations of the same typeface - Verdana - illustrate really well the moving targets we faced in designing fonts for screen use. The Segoe typeface I designed for Microsoft's OS in 2004 was carefully analyzed with the ClearType rasterizer turned on. Now the technology has changed and resolution has improved I'm not sure what's being used but it still looks ok.
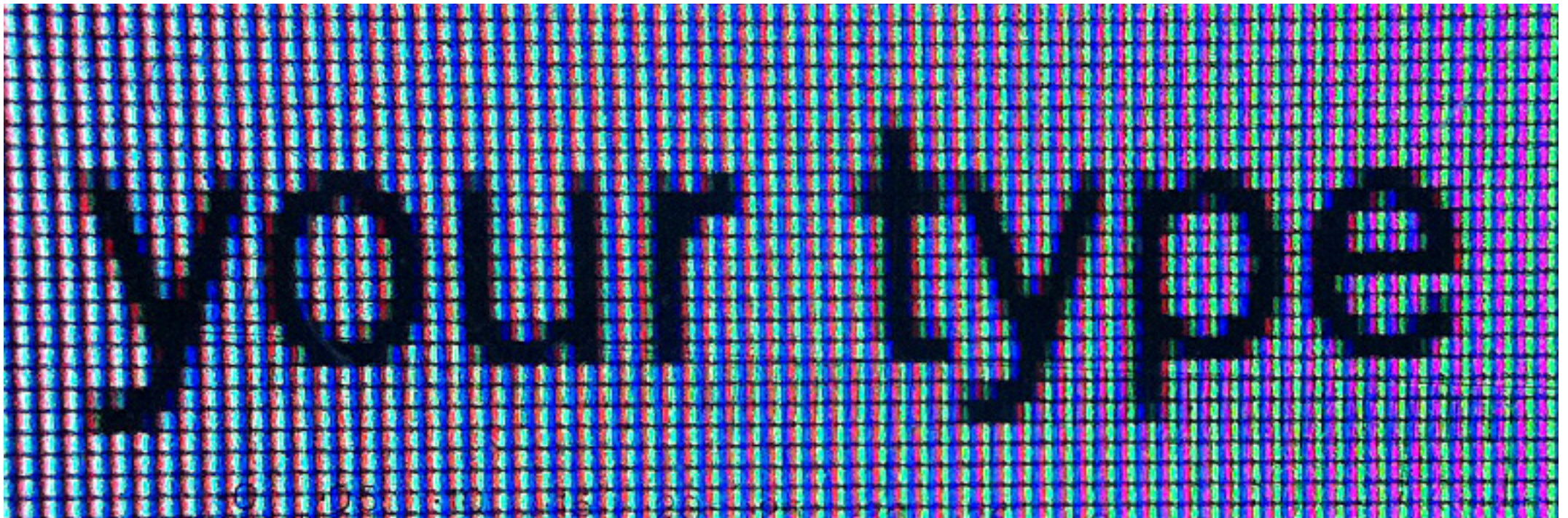
DWrite	*Rasterizer Specific*
ClearType	*Rasterizer Specific*
Greyscale (Anti Aliasing)	*Rasterizer Specific*
Safari (Anti Aliasing)	*Rasterizer Specific*

When the iPad came out Apple heralded their book app. They provided a menu of fonts chosen at random rather than by quality for reading on screen. Only Palatino was pleasant to read. They offered Monotype Baskerville but it looked delicate and wan on the iPad screen.

So I once again turned to size masters for the solution. The eText version of Baskerville is based on the 6pt drawings for metal. The serifs and hairlines are quite sturdy and the stems are darker for greater contrast. The height was larger to look 'bigger on the body' - becoming more legible in comparative text.

Alas as things go with Apple the advice to switch fonts fell on deaf ears. Fonts aren't as sexy as apps. Luckily both Amazon and BN picked up the design. Jeff Bezos, in an unprecedented nod to fonts, remarked with fascination that the font he was showing an audience was from the 18th century!

No one would have believed in the last years of the nineteenth century that this world was being watched keenly and closely by intelligences greater than man's and yet as mortal as his own; that as men busied themselves about their various concerns they were scrutinised and studied, perhaps almost as narrowly as a man with a microscope might scrutinise the transient creatures that swarm and multiply in a drop of water. With infinite complacency men went to and fro over this globe about their little affairs, serene in their assurance of their empire over matter. It is possible that the infusoria under the microscope do the same. No one gave a thought to the older worlds of space as sources of human danger, or thought of them only to dismiss the idea of life upon them as impossible or improbable. It is curious to recall some of the mental habits of those departed days. At most terrestrial men fancied there might be other men upon Mars, perhaps inferior to themselves and ready to welcome a missionary enterprise. Yet across the gulf of space, minds that are to our minds as ours are to those of the beasts that perish, intellects vast and cool and unsympathetic, regarded this earth with envious eyes, and slowly and surely drew their plans against

2010 iPad
132 dpi LCD Screens

n

Baskerville MT

n

Baskerville E-Text

ere but poor entertainment, and the
f one of the worst of men, among
h our Host made one, who, had he
udenter, would have outdone his
his I think is the most perplexed
1. From hence, Saturday, Dec. 23, a
ly day, after an Intolerable night's
forward only observing in our way
uated on a Navigable river wth in-
and people more refined than in
y towns wee had passed, tho' vicious
and Tavern being next neighbours.
difficult River wee come to Fairfield
d were much refreshed as well with
ch Latter I employed in enquiring
n and manners of the people, &c.
e town, and filled as they

could get nothing there but poor en
Impertinant Bable of one of the w
many others of which our Host ma
bin one degree Imudenter, woul
Grandfather. And this I think is
night I have yet had. From hence,
very cold and windy day, after a
Lodging, wee hasted forward only
the Town to be situated on a Na
diferent Buildings and people m
some of the Country towns wee ha
enough, the Church and Tavern be
Having Ridd thro a difficult River
where wee Baited and were much r
the Good things wch Latter I em
concerning the Town and manne
This is a considerable town, and fi

For all the work put into getting the fonts to look good we still have to put up with stultifying, dull, typography of e-readers. Horrible hyphenation/justification, feeble attempts at chapter navigation and the occasional flying drop capital

43
In the Libby library e-book application they have very few good type choices and pull out the oldest trick in the book saying they have a bold weight of a font but actually let the application alter the regular in a pseudo bold. Literally the rasterizer smears the bitmap in the x direction to appear a little darker. In this case the font gets tracked too - or spaced out in the process. This really gets messy in the word firefighter where the fi ligatures look tight while the rest of the word expands.

T

he day Thorvald's mother gav[...]
changed. Creidhe was weaving, ha[...]
flying, a fine web of blue and cr[...]
perfect pattern, testimony to the s[...]
her. So industrious was she, and s[...]
been forgotten. The bestowal of su[...]
was surely best suited to a mom[...]
Margaret spoke to her son quietl[...]
hearth. Creidhe could see them t[...]
weaving chamber. They did not ar[...]
in this most orderly of household[...]
door slam open, and she saw Thor[...]

switchboard. Within fifteen seconds every light was on.

"Our cameramen have taken film that has either been confiscated or deliberately exposed. Our reporters' stories have disappeared. Yet we *do* have film, ladies and gentlemen, and we have correspondents right here in the studio—not professional reporters, but eyewitnesses to what may be the greatest disaster this country has ever faced ... and I do not use those words lightly. We are going to run some of this film for you now. All of it was taken clandestinely, and some of it is of poor quality. Yet we here, who have just liberated our own television station, think you may see enough. More, indeed, than you might have wished."

He looked up, took a handkerchief from his sport-coat pocket, and blew his nose. Those with good color TVs could see that he looked flushed and feverish.

If You Answer the Door for Strangers...

You see it all the time on television. There's a knock at the front door. And, on the other side, someone is waiting to tell you the news that changes everything. On television, it's usually a police chaplain or a firefighter, maybe a uniformed officer from the armed forces. But when I open the door—when I learn that everything is about to change for me—the messenger isn't a cop or a federal investigator in starched pants. It's a twelve-year-old girl, in a soccer uniform. Shin guards and all.

"Mrs. Michaels?" she says.

I hesitate before answering—the way I often do when someone asks me if that is who I am. I am and I'm not. I haven't changed my name. I was Hannah Hall for the thirty-eight years before I met Owen, and I didn't see a reason to become someone else after. But Owen and I have been married for a little over a year. And, in that time, I've learned not to correct people either way. Because what they really want to know is whether I'm Owen's wife.

It's certainly what the twelve-year-old wants to know, which leads me to explain how I can be so certain that she is twelve, having spent most of my life seeing people in two broad categories: child and adult. This change is a result of the last year and a half, a result of my husband's daughter, Bailey, being the stunningly disinviting age of sixteen. It's a result of my mistake, upon first meeting

Regular   Answer

Fake Bold   **Answer**

Bold   **Answer**

What's Next?

44

For all the problems that crop up it's nice to know that companies like Microsoft still appreciate the value of good fonts. Last year they launched 5 new designs to augment their Office applications. And they're not just new fonts for the sake of new fonts. Their purpose is to expand their font menu into genres they didn't support well before.

45

Particularly great is their attention to purpose. Size specific designs are included in all of these families including my Bierstadt. Not only is there a display version of each (most useful for PowerPoint headlines) but a focus on things like width: how much information one can fit in an spreadsheet cell vs. how legible (or illegible) the design becomes.
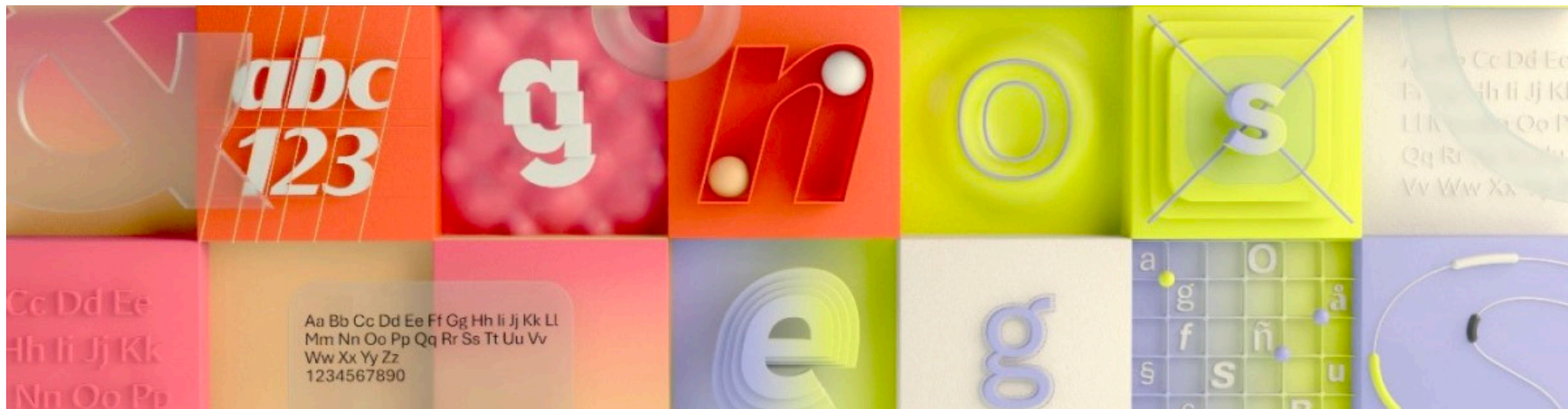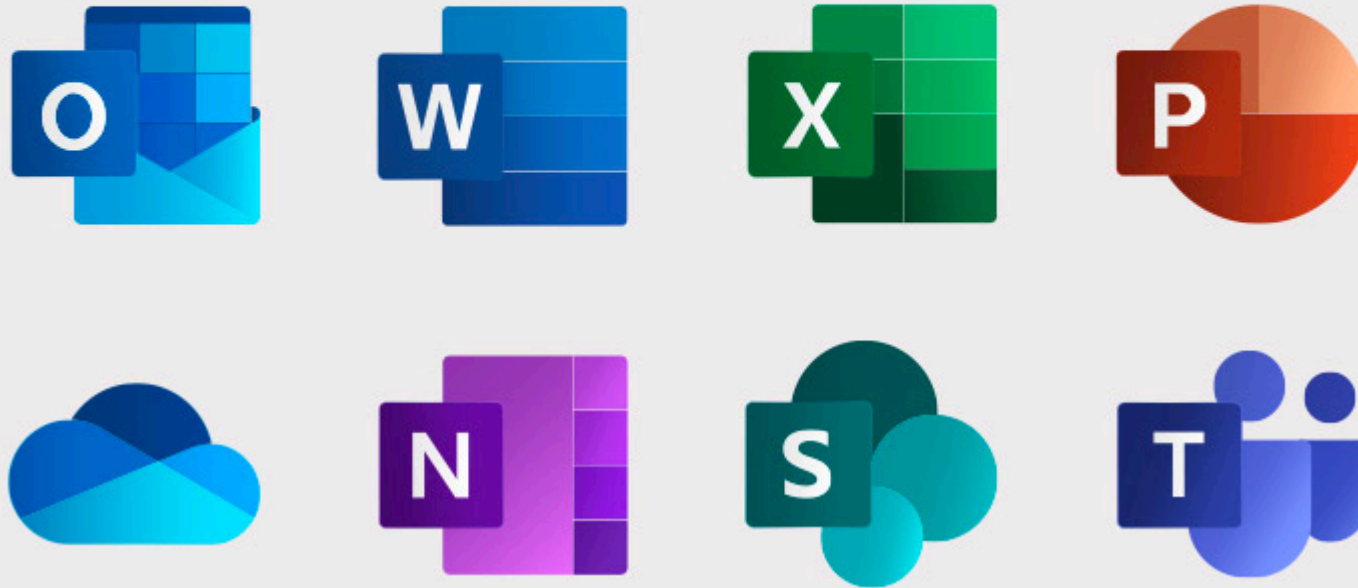
46

An example of PowerPoint with just one size font fits all - vs separate display and text versions to optimize the aesthetics of a PP presentation.

Microsoft: BEYOND CALIBRI

Bierstadt

Grandview

Seaford

Skeena

Tenorite

Size-specific fonts

– extended text vs headlines

– legibility vs quantity of information

– designed as families for continuity

48pt PowerPoint Bold Display

❶ 24pt Bullets using semibold

❷ Large sizes are more compact and impactful

❸ Smaller sizes are spaced for greater legibility

Effective PowerPoint Slides

❶ Legible sub-headings

❷ Simple but effective hierarchy

48pt PowerPoint Bold Display

❶   24pt Bullets using semibold

❷   Large sizes are more compact and impactful

❸   Smaller sizes are spaced for greater legibility

Effective PowerPoint Slides

❶   Legible sub-headings

❷   Simple but effective hierarchy

I'll leave you with this quote from Jan Tschichold. It is profound in many ways since type design is an aggregate of many many detailed decisions which all effect the performance of the type - be it legibility or fashion.

Though we may be armed with the most advanced fonts, and authoring tools ever known it still feels like a constant battle to raise the bar of quality, beauty and function.

With the technology landscape continually changing there will always be problems for type designers and typographers to overcome – I've barely scratched the surface here and I've not even mentioned other writing systems other than Latin.

The next generation of type designers can look at Mr Bigelow's words in 1987 and rest assured that their work is far from being finished.

"Everything that
counts in typography
is a subtlety."

—JAN TSCHICHOLD

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SteveMatteson1