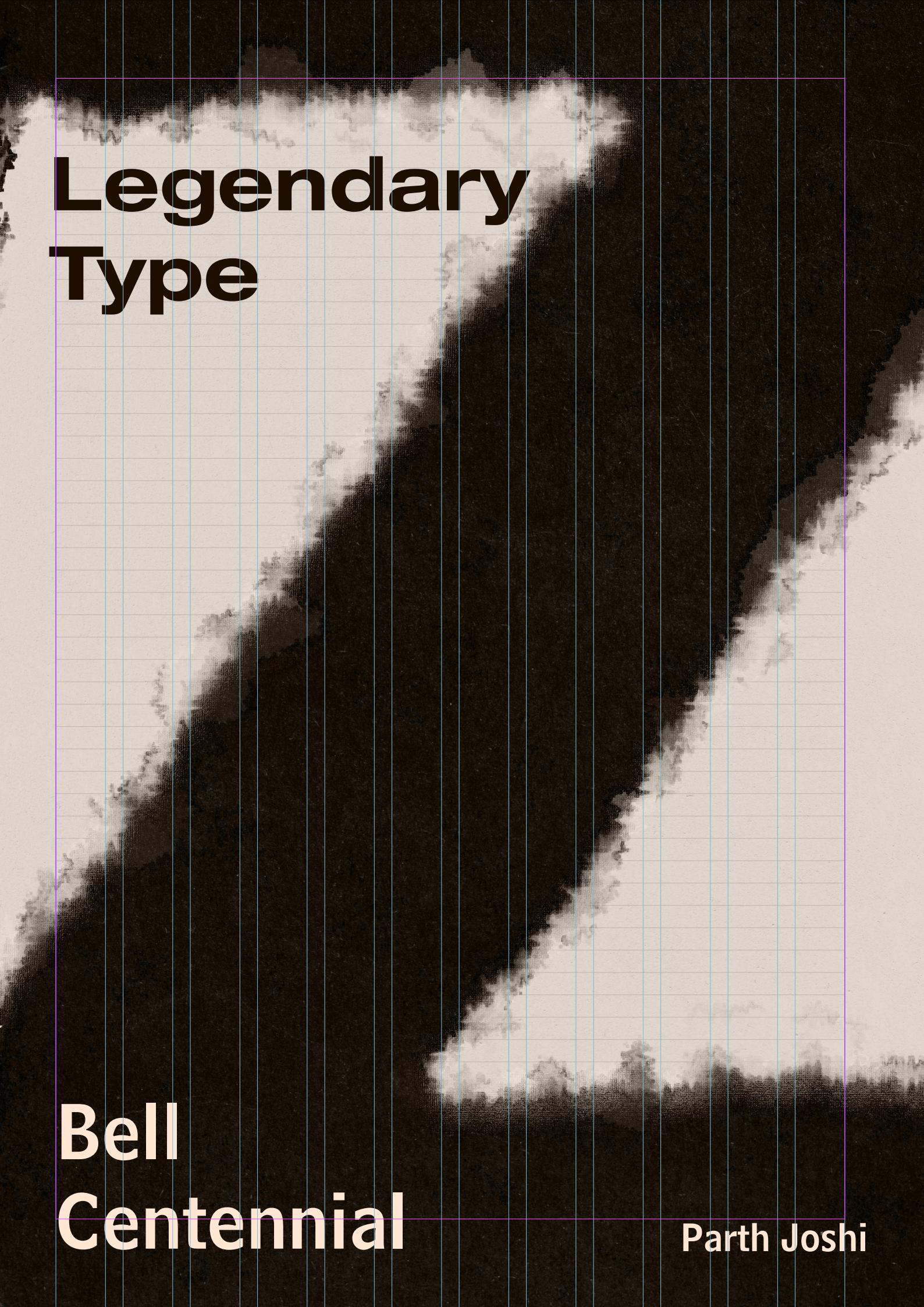


# **Explorations in 12 pages**

## **Helvetica 12pt**

**Parth Joshi  
MITU22BDES0168  
Bell Centennial**

# Legendary Type

A black and white photograph of a landscape. The top half shows a sky filled with large, billowing clouds. The bottom half shows a dark, textured ground surface, possibly a field or a forest floor. The overall mood is dramatic and atmospheric.

Bell  
Centennial

Parth Joshi

# BELL CENTENNIAL

Category: **Sans-Serif**

Bell Centennial

Bell Centennial

Classification: **Grotesque**

Address

Sub Caption

Designer: **Mathew Carter**

the quick brown  
fox jumps over  
the lazy dog

THE QUICK  
BROWN FOX  
JUMPS OVER  
THE LAZY DOG

the quick  
brown fox  
jumps over  
the lazy dog

THE QUICK  
BROWN FOX  
JUMPS OVER  
THE LAZY DOG

Commissioned: **AT&T**  
Foundry: **Mergenthaler  
Linotype**

Date created: **1975–1978**

Bell Centennial

Name & Number

the quick  
brown fox  
jumps over  
the lazy dog

THE QUICK  
BROWN FOX  
JUMPS  
OVER THE  
LAZY DOG

**BELL CENTENNIAL**  
**BOLD LISTING**

THE QUICK  
BROWN FOX  
JUMPS OVER  
THE LAZY  
DOG

THE QUICK  
BROWN  
FOX JUMPS  
OVER THE  
LAZY DOG

## Mathew Carter

List of Typefaces:

Matthew Carter CBE RDI (born 1 October 1937) is a British type designer. A 2005 *New Yorker* profile described him as ‘the most widely read man in the world’ by considering the amount of text set in his commonly used fonts.

Carter’s career began in the early 1960s and has bridged all three major technologies used in type design: physical type, phototypesetting and digital font design, as well as the design of custom lettering.

Carter’s most used fonts are the classic web fonts Verdana and Georgia and the Windows interface font Tahoma, as well as other designs including Bell Centennial, Miller and Galliard. He is the son of the English historian of printing Harry Carter (1901–1982) and cofounded Bitstream, one of the first major retailers of digital fonts. He lives in Cambridge, Massachusetts.

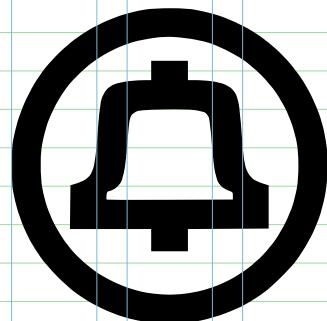
*Alisal*  
*Bell Centennial*  
*Verdana*  
*Big Caslon*  
*Big Figgins*  
*Big Moore*  
*Carter Sans*  
*Cascade Script*  
*Charter*  
*Cochin*  
*Elephant*  
*Fenway*  
*DTL Flamande*  
*ITC Galliard*  
*Gando*  
*Georgia*  
*Helvetica*  
*Compressed*  
*Helvetica Greek*  
*Mantinia*  
*Meiryo*  
*Miller*

# History

AT & T (American Telephone and Telegraph Company) is the first American telecommunications company, and the world's third largest telecommunications company, and the largest provider for mobile services in the U.S.

AT&T used to print and sell telephone directories. In 1894 they had switched from hand set type to the

Linotype compositor for their letterpress printing. And by 1915 they engaged "type experts" who worked with the Linotype company to develop typefaces. The vice president of the Typographic development at Mergenthaler Linotype, set out to create what, starting with Manhattan's Fall 1937 directory, would be the font used in phone books for the next 40 years: **Bell Gothic**.



AT&T logo 1969-1983

## Bell Gothic

Light

## Bell Gothic

**Bold**

## Bell Gothic

**Black**

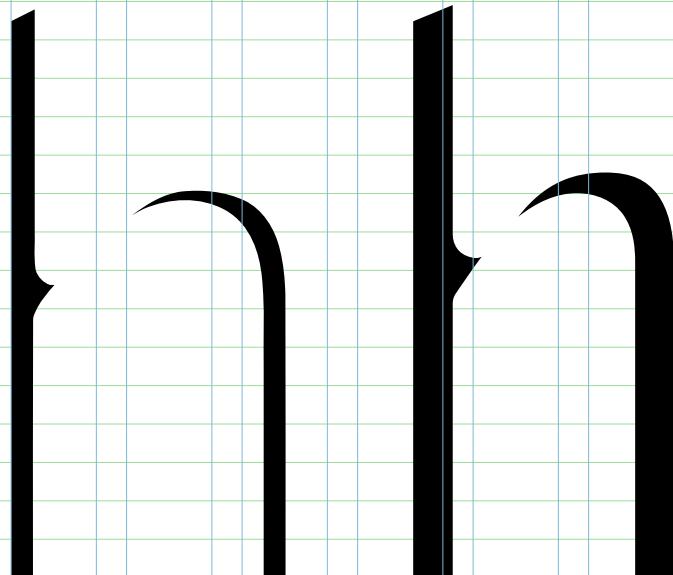
Bell Gothic consisted of two weights, each serving a different purpose: Bold was used to list subscribers' names and numbers, and Light was used for setting addresses.

Bell Gothic worked fine when the directories were still being composed in hot metal on a Linotype machine and printed on a letterpress, but

because it was designed for those production methods, it didn't hold up under the set of limitations presented by newer technologies.

Typographic composition was being done photographically with Cathode Ray Typesetting (CRT), and the printing done on high-speed offset lithography presses. These production methods greatly affected the typeface;

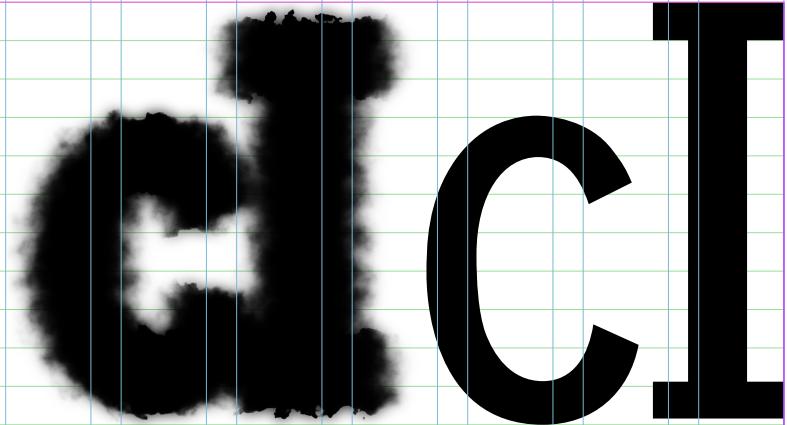
Letterforms (especially in the Light face) broke apart; its strokes became lighter, sometimes eroding completely at the intersections of straight and curved strokes.



For a time, printers tried to compensate for this erosion by over-inking the printing plates; while this helped to thicken the strokes, it brought up a whole new set of problems.

Legibility suffered as the already condensed letterforms closed in on themselves. The strokes of different characters ran into each other, making c and l become d, r and n became m; 3 looked like 8; 5 looked like 6.

Another problem with over-inking was that the presses had to be stopped frequently for additional cleaning which cost printing time and production money.



overinked plate

original

It was apparent that a new typeface had to be designed to work with the newer technologies instead of trying to force Bell Gothic to work here for which it was not designed.

# BELL CENTENNIAL

## Bell Centennial

## Bell Centennial

## Bell Centennial

Different widths, better hierarchy

The phone book's production methods greatly affected the design of Bell Centennial. To start with, CRT composition removed the limitation imposed by the Linotype requiring the same letter in different weights to be the same width i.e., the light M no longer had to be the same width as the bold M.

In 1976 AT&T commisioned the design of a new typeface specifically made for telephone directories.

Mathew Carter from Mergenthaler Linotype designed a typeface called Bell Centennial

The font named after the company's 100th anniversary, had 4 different weights each with a different purpose

**Bell Gothic Light**  
**Bell Gothic Bold**  
**Bell Gothic Black**

Equal width

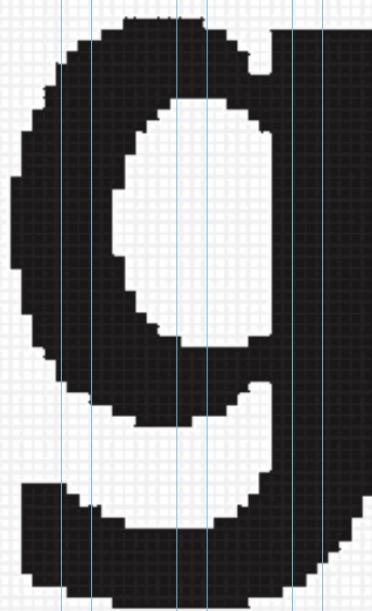
With this freedom, Carter was able to improve the clarity of visual hierarchy between all weights in the family. He made the Name & Number face heavier and wider, increasing its prominence over other information. Also, the width of the less prominent Address face was

decreased; a reduction that would more than make up for the added width of the Name & Number face. This allowed more information to fit in a small space, thus saving paper, print time, shipping, and consequently, huge amounts of money.

The CRT method of typesetting also required an increase in stroke width to prevent the letterforms from breaking apart. It was specified that “any individual lowercase character used for Name & Number shall have a vertical stem of no less than 0.008 inch”.

To maintain total control of the final rendering of his new typeface, Carter took on the laborious task of designing each character for the exact size (6 point) and resolution at which it would be ultimately produced. This involved creating every character, pixel by pixel, on quadrille grid paper. According to Carter, the presence or absence of one tile on the grid could greatly affect the perception of a curve’s shape or a stroke’s angle when viewed at the target size.

Since CRT rendered each letter at about 850 lines per inch, the strokes of the lightest characters varied between only 4 and 6 scan lines. This made every single scan crucial to the outcome of the letter, both regarding legibility and compensation for variations in production.



CRT Rendered Text

# Style & Form

AT&T wanted the new typeface to have more of a modern feel to it; one that would work well with Helvetica, the typeface used at the time in the AT&T corporate identity developed by Saul Bass (1920–1996).

Though formal changes were made to better match Bell Centennial with Helvetica (i.e., the slanted stroke ends in Bell Gothic became squared), the new face would not simply be an adaptation.

The main problem with Helvetica was that its forms lost some functionality at the small sizes due to its closed letter shapes. The new typeface, had to be very legible at small sizes especially the numbers. Carter emphasized counter space by using square cut terminals on letters with curved strokes; i.e. a, c, e, g, and s, increased white space by not using horizontal terminals, & straightening and shortening curves in characters like g, y, r, e, C, G, J, S, 3, 5, 6, and 9.

Unslanted stroke ends

Bell Gothic

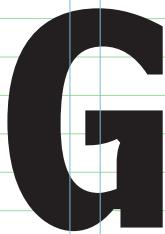
Helvetica

Square cut terminals

Bell Centennial

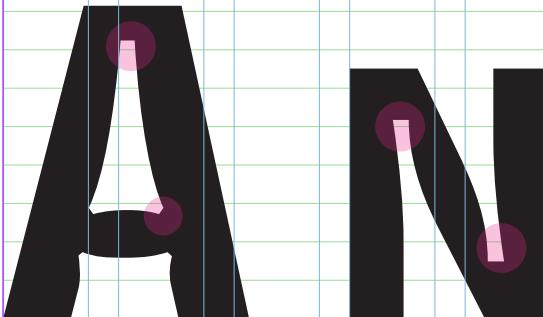
Helvetica

Maybe the most unique of Bell Centennial's forms are in place to solve problems during production. Since the phonebook is printed at high speeds and on low-quality paper, the ink has a tendency to spread out on the paper (this effect is called "dot gain"), as shown here, which made the text bolder.



Printed

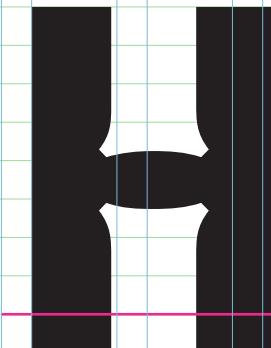
Original



Since the slightest spread greatly effects the shape of such small letterforms, Carter incorporated notches (called "ink traps") at the corners for compensation. These ink traps made it such that the effect would be lessened and text would be more legible even in the small phonebook size and bold text.

Bell Centennial introduced two new weights to the phone book, allowing more depth in hierarchy and opportunity to highlight special listings.

Predicting that advertisers would pay extra money for increased visibility, a Bold Listing weight was developed. It did not have lowercase characters and had an exaggerated capital height.



Baseline

The bold listing, sitting below the baseline and utilizing the space normally used by lowercase descenders

## Bell Centennial Address

## Bell Centennial Sub-Caption

## Bell Centennial Name & Number

It was apparent in test settings that Bold Listing required a companion font – one that was somewhere in between Address and Name & Number. Sub-Caption was developed, and proved helpful in giving some additional information about the advertisers or in listing entries for large institutions with multiple departments and numbers.

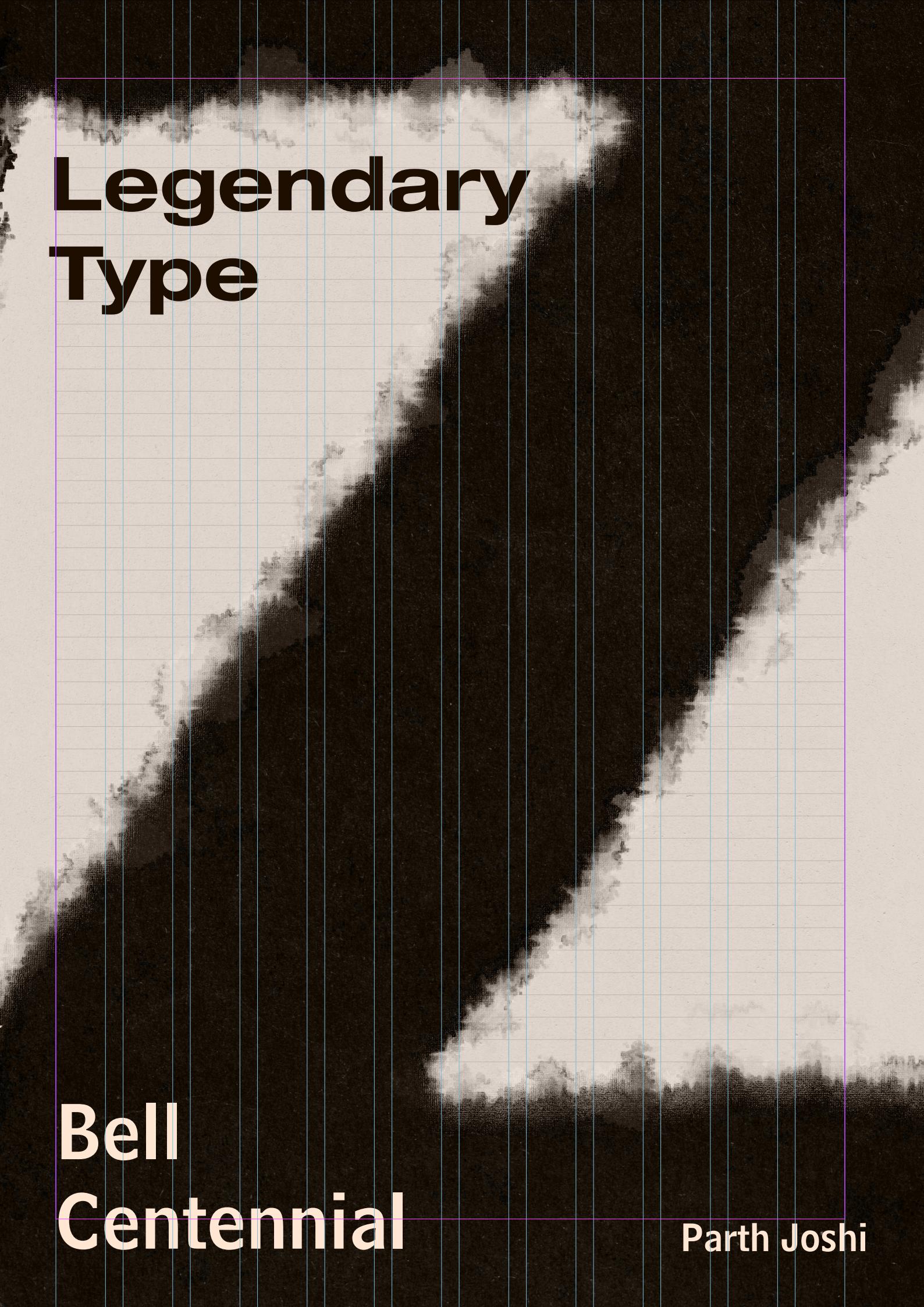
## BELL CENTENNIAL BOLD LISTING

Bold listing with small caps

Bell Centennial's weight system differs from other faces in that weights are named for their specific uses in telephone directories. The lightest weight, used for addresses, is called Bell Centennial Address; a slightly heavier book weight is called Bell Centennial Caption;

a demibold weight, used for the entry name and telephone number, is called Bell Centennial Name and Number. A heavier bold weight, drawn as large and small capitals, is called Bell Centennial Bold Listing.

# Legendary Type

A black and white photograph of a landscape. The top half shows a sky filled with large, billowing clouds. Below the clouds, a dark, textured area suggests a forest or a field of tall grass. The overall mood is dramatic and atmospheric.

Bell  
Centennial

Parth Joshi

# BELL CENTENNIAL

Category	Sans-serif
Classification	Grotesque
Designer	Matthew Carter
Commissioned by	AT&T
Foundry	Mergenthaler Linotype
Date created	1975–1978

## Bell Centennial Address

0 1 2 3 4 5 6 7 8 9

the quick brown fox jumps over the lazy dog

THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG

## Bell Centennial Sub Caption

0 1 2 3 4 5 6 7 8 9

the quick brown fox jumps over the lazy dog

THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG

## Bell Centennial Name & Number

0 1 2 3 4 5 6 7 8 9

the quick brown fox jumps over the lazy dog

THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG

## BELL CENTENNIAL BOLD LISTING

0 1 2 3 4 5 6 7 8 9

THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG

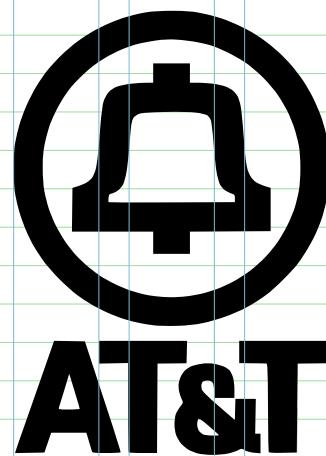
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# History

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AT&T logo 1969-1983

## Bell Gothic

Light

## Bell Gothic

Bold

## Bell Gothic

Black

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Carter's most used fonts are *Verdana* and *Georgia* and the Windows interface font *Tahoma*, as well as other designs including *Bell Centennial*, *Miller* and *Galliard*. He cofounded Bitstream, one of the first major retailers of digital fonts.

## List of Typefaces:

*Alisal*

*Bell Centennial*

*Verdana*

*Big Caslon*

*Big Figgins*

*Big Moore*

*Carter Sans*

*Cascade Script*

*Charter*

*Cochin*

*Elephant*

*Fenway*

*DTL Flamande*

*ITC Galliard*

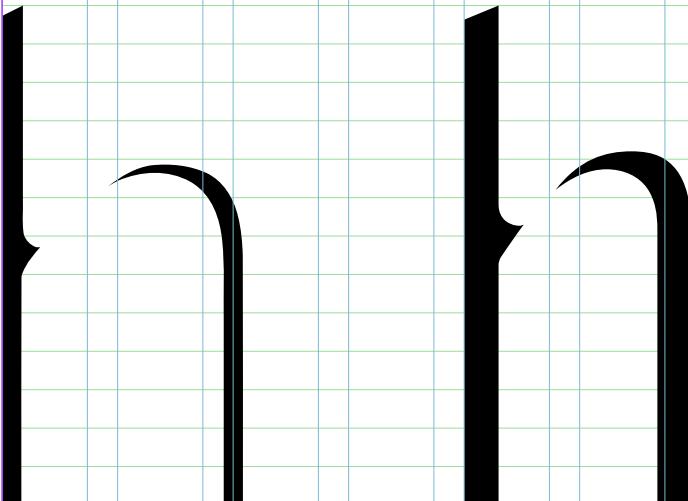
*Gando*

*Georgia*

*Helvetica*

*Compressed*

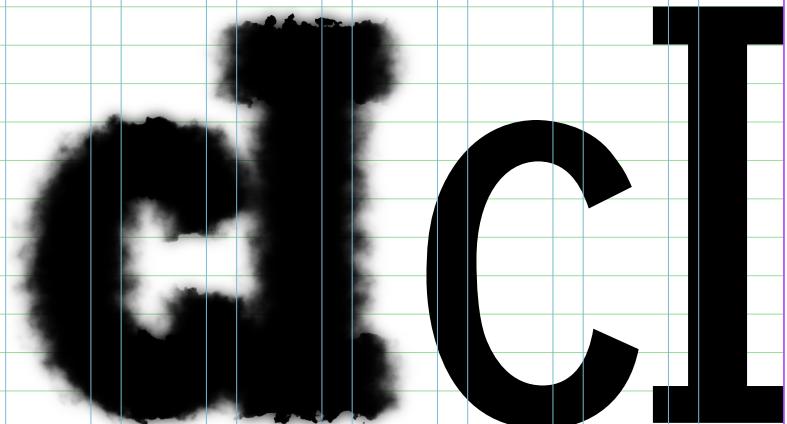
# Inking & Printing



Letterforms (especially in the Light face) broke apart; its strokes became lighter, sometimes eroding completely at the intersections of straight and curved strokes.

For a time, printers tried to compensate for this erosion by over-inking the printing plates; while this helped to thicken the strokes, it brought up a whole new set of problems.

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overinked plate

original

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**BELL CENTENNIAL**  
**Bell Centennial**  
Bell Centennial  
Bell Centennial

Different widths, better hierarchy

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**Bell Gothic Light**  
**Bell Gothic Bold**  
**Bell Gothic Black**

Equal width

# Cathode Ray Typesetting

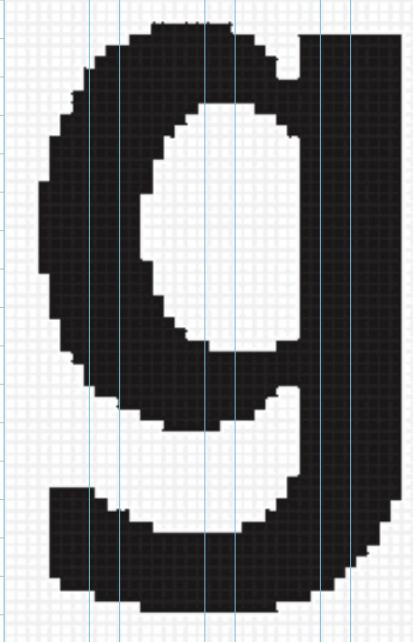
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CRT Rendered Text

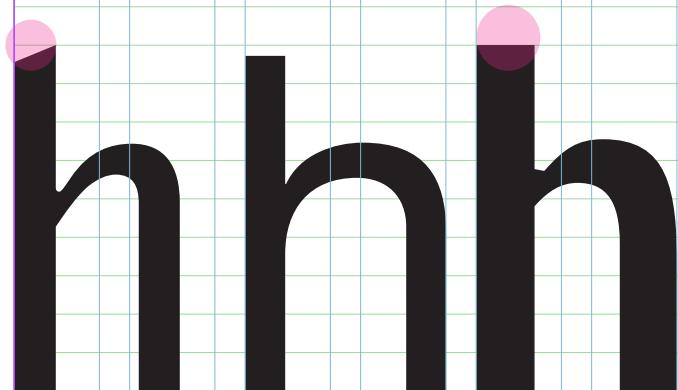
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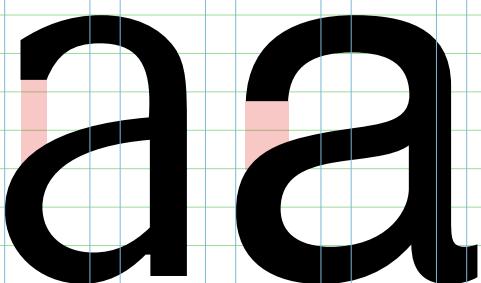
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Unslanted stroke ends



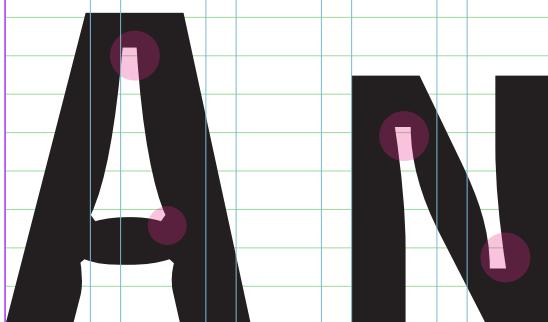
Bell Gothic      Helvetica      Bell Centennial

Square cut terminals

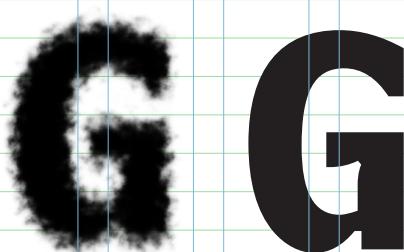


Bell Centennial      Helvetica

Maybe the most unique of Bell Centennial's forms are in place to solve problems during production. Since the phonebook is printed at high speeds and on low-quality paper, the ink has a tendency to spread out on the paper (this effect is called "dot gain"), as shown here, which made the text bolder.

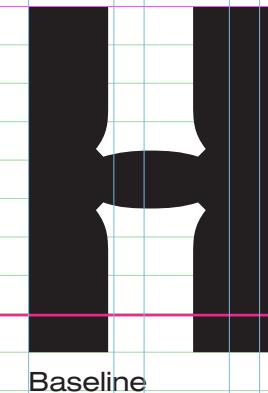


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The bold listing, sitting below the baseline and utilizing the space normally used by lowercase descenders

# Weights

Bell Centennial  
Address

Bell Centennial  
Sub-Caption

Bell Centennial  
Name & Number

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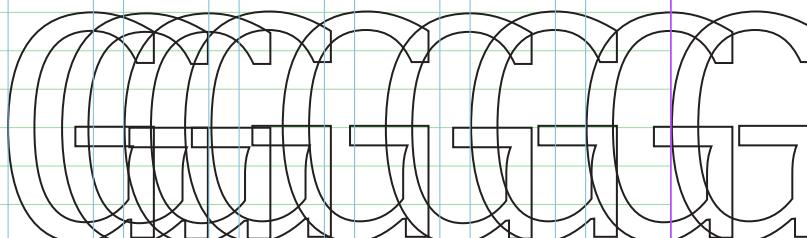
**BELL CENTENNIAL  
BOLD LISTING**

Bold listing with small caps

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a demibold weight, used for the entry name and telephone number, is called Bell Centennial Name and Number. A heavier bold weight, drawn as large and small capitals, is called Bell Centennial Bold Listing.

Though Carter designed all of Bell Centennials forms, a man named Alex Kaczun (profile) is attributed to wrapping the shapes with bezier curves to create the vector-based font in use today.



Cover

**Explorations in  
4 pages**

**Fira Sans 10pt**

letter  
lore

BELL  
CENTENNIAL

# BELL CENTENNIAL

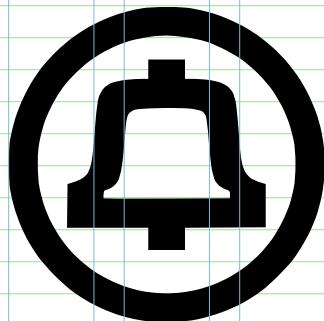
<b>Category</b>	Sans-serif	tall x-height	Mazda UK used Bell Centennial at huge sizes to striking effect in a mid-1990s ad campaign, as did the English National Opera to advertise their production of Katya Kabanova.
<b>Classification</b>	Grotesque	square dot over the letter i	
<b>Designer</b>	Mathew Carter	double-storey a; single-storey g	
<b>Commissioned by</b>	AT&T	narrow t and f	
<b>Foundry</b>	Mergenthaler Linotype	dropped horizontal element on A	
<b>Date created</b>	1975–1978	horizontal top serif of 1	

## History

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**AT&T**

AT&T logo 1969–1983

**Bell Gothic**

*Light*

**Bell Gothic**

*Bold*

**Bell Gothic**

*Black*

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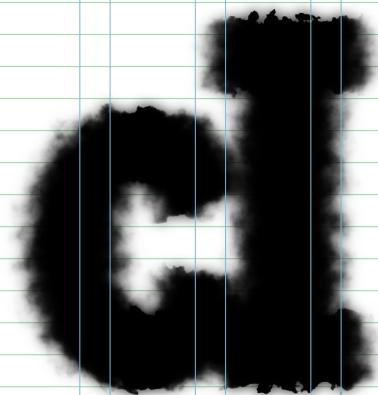
### List of Typefaces:

Monticello	Nina
Olympian	Rocky
Alisal	Roster
Bell Centennial	Shelley Script
Verdana	Sitka
Big Caslon	Snell
Big Figgins	Roundhand[1]
Big Moore	Skia
Carter Sans	Sophia[67]
Cascade Script	Stilson[68]
Charter	Tahoma
Cochin	Van Lanen[37]
Elephant	[69]
Fenway	Verdana[58]
DTL Flamande	Vincent
ITC Galliard	Walker[71]
Gando	

# Inking & Printing

nlh

While using Bell Gothic Letterforms (especially in the Light face) broke apart; its strokes became lighter, sometimes eroding completely at the intersections of straight and curved strokes.



For a time, printers really tried to compensate for this erosion by over-inking the printing plates; while this helped to thicken the strokes, it brought up a whole new set of problems.

Legibility suffered as the already condensed letterforms closed in on themselves. The strokes of different characters ran into each other, making c and l become d, r and n became m; 3 looked like 8; 5 looked like 6.

CI

*overinked plate*

*original*

Another problem with over-inking was that the presses had to be stopped frequently for additional cleaning which cost printing time and production money. It was apparent that a new typeface had to be designed to work with the newer technologies instead of trying to force Bell Gothic to work here for which it was not designed.

## BELL CENTENNIAL

Bell Centennial

Bell Centennial

Bell Centennial

Different widths, better hierarchy

The phone book's production methods greatly affected the design of Bell Centennial. To start with, CRT composition removed the limitation imposed by the Linotype requiring the same letter in different weights to be the same width i.e., the light M no longer had to be the same width as the bold M.

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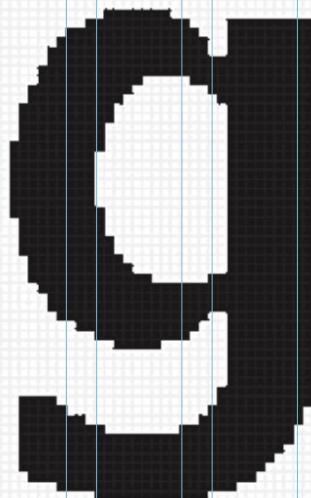
## Bell Gothic Light Bell Gothic Bold Bell Gothic Black

*Equal width*

Also, the width of the Address face was decreased. This allowed more information to fit in a small space, thus saving paper, print time, shipping, and consequently, huge amounts of money.

## Bell Centennial Address Bell Centennial Name & Number

# Cathode Ray Typesetting



CRT Rendered Text

The CRT method of typesetting also required an increase in stroke width to prevent the letterforms from breaking apart. It was specified that "any individual lowercase character used for Name & Number shall have a vertical stem of no less than 0.008 inch".

Since CRT rendered each letter at about 850 lines per inch, the strokes of the lightest characters varied between only 4 and 6 scan lines. This made every single scan crucial to the outcome of the letter, both regarding legibility and compensation for variations in production.

To maintain total control of the final render of his new typeface, Carter took on the laborious task of designing each character for the exact size (6 point) and resolution at which it would be ultimately produced. This involved creating every character, pixel by pixel, on quadrille grid paper. According to Carter, the presence or absence of one tile on the grid could greatly affect the perception of a curve's shape or a stroke's angle when viewed at the target size.

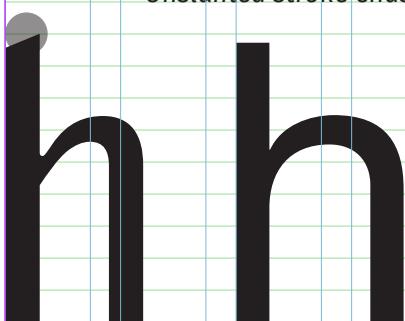
## Style & Form

AT&T wanted the new typeface to have more of a modern feel to it; one that would work well with Helvetica, the typeface used at the time in the AT&T corporate identity developed by Saul Bass (1920–1996).

Though formal changes were made to better match Bell Centennial with Helvetica (i.e., the slanted stroke ends in Bell Gothic became squared), the new face would not simply be an adaptation.

The main problem with Helvetica was that its forms lost some functionality at the small sizes due to its closed letter shapes. The new typeface, had to be very legible at small sizes especially the numbers. Carter emphasized counter space by using square cut terminals on letters with curved strokes; i.e. a, c, e, g, and s, increased white space by not using horizontal terminals, & straightening and shortening curves in characters like g, y, r, e, C, G, J, S, 3, 5, 6, and 9.

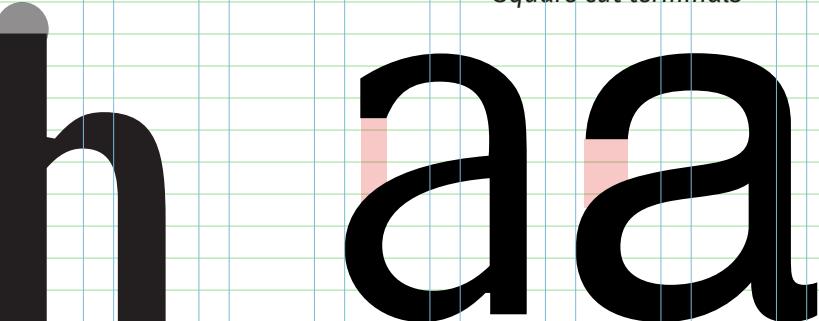
Unslanted stroke ends



Bell Gothic

Helvetica

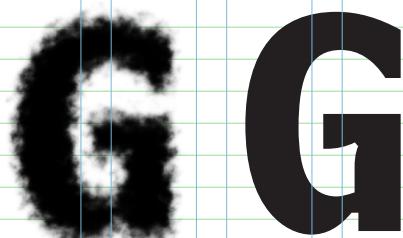
Square cut terminals



Bell Centennial

Helvetica

Maybe the most unique of Bell Centennial's forms are in place to solve problems during production. Since the phonebook is printed at high speeds and on low-quality paper, the ink has a tendency to spread out on the paper (this effect is called "dot gain"), as shown here, which made the text bolder.



Printed

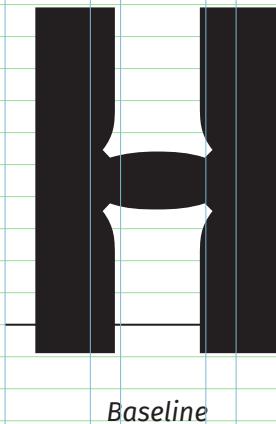
Original

A and N from the Bell Centennial font, showing the unique notched corners.

Bell Centennial introduced two new weights to the phone book, allowing more depth in hierarchy and opportunity to highlight special listings.

Predicting that advertisers would pay extra money for increased visibility, a Bold Listing weight was developed. It did not have lowercase characters and had an exaggerated capital height.

Since the slightest spread greatly effects the shape of such small letterforms, Carter incorporated notches (called "ink traps") at the corners for compensation. These ink traps made it such that the effect would be lessened and text would be more legible even in the small phonebook size and bold text.



The bold listing, sitting below the baseline and utilizing the space normally used by lowercase descenders

# Weights

**Bell Centennial Address**

**Bell Centennial Sub-Caption**

**Bell Centennial Name & Number**

**BELL CENTENNIAL BOLD LISTING**

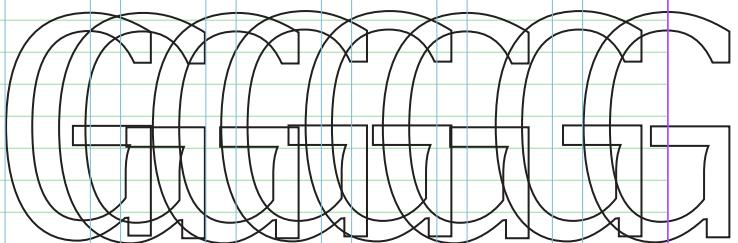
*Bold listing with small caps*

Bell Centennial's weight system differs from other faces in that weights are named for their specific uses in telephone directories. The lightest weight, used for addresses, is called Bell Centennial Address; a slightly heavier book weight is called Bell Centennial Caption;

It was apparent in test settings that Bold Listing required a companion font – one that was somewhere in between Address and Name & Number. Sub-Caption was developed, and proved helpful in giving some additional information about the advertisers or in listing entries for large institutions with multiple departments and numbers.

a demibold weight, used for the entry name and telephone number, is called Bell Centennial Name and Number. A heavier bold weight, drawn as large and small capitals, is called Bell Centennial Bold Listing.

Though Carter designed all of Bell Centennials forms, a man named Alex Kaczun is attributed to wrapping the shapes with bezier curves to create the vector-based font in use today.



**Cover**

**Explorations in  
2 pages**

**Fira Sans 10pt**

letter  
lore

BELL  
CENTENNIAL

# BELL CENTENNIAL

<b>Category</b>	Sans-serif	tall x-height	Mazda UK used Bell Centennial at huge sizes to striking effect in a mid-1990s ad campaign, as did the English National Opera to advertise their production of Katya Kabanova.
<b>Classification</b>	Grotesque	square dot over the letter i	
<b>Designer</b>	Mathew Carter	double-storey a; single-storey g	
<b>Commissioned by</b>	AT&T	narrow t and f	
<b>Foundry</b>	Mergenthaler	dropped horizontal element on A	
<b>Date created</b>	Linotype 1975–1978	horizontal top serif of 1	

## History

AT&T used to print and sell telephone directories. In 1894 they had switched from hand set type to the Linotype compositor for their letterpress printing. And by 1915 they engaged “type experts” who worked with the Linotype company to develop typefaces. The vice president of the Typographic development at Mergenthaler Linotype, set out to create what, starting with Manhattan’s Fall 1937 directory, would be the font used in phone books for the next 40 years: **Bell Gothic**.

Bell Gothic consisted of two weights, each serving a different purpose: Bold

## Bell Gothic

was used to list subscribers' names and numbers, and Light was used for setting addresses.

Bell Gothic worked fine when the directories were still being composed in hot metal on a Linotype machine and printed on a letterpress, but because it was designed for those production methods, it didn't hold up under the set of limitations presented by newer technologies.

Typographic composition was being done photographically with Cathode Ray Typesetting (CRT), and the printing done on high-speed offset lithography

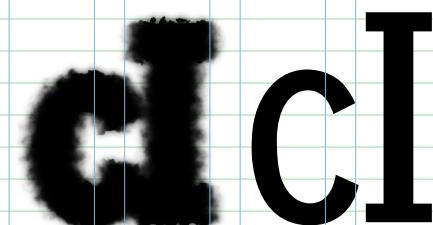
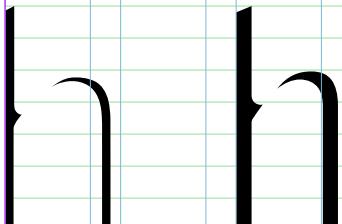
presses. These production methods greatly affected the typeface;



AT&T logo  
1969–1983

## Inking & Printing

While using Bell Gothic Letterforms (especially in the Light face) broke apart; its strokes became lighter, sometimes eroding completely at the intersections of straight and curved



overinked plate

original

strokes. For a time, printers really tried to compensate for this erosion by over-inking the printing plates; while this helped to thicken the strokes, it brought up a whole new set of problems. Legibility suffered as the already condensed letterforms closed in on themselves. The strokes of different characters ran into each other

Another problem with over-inking was that the presses had to be stopped frequently for additional cleaning which cost printing time and production money. It was apparent that a new typeface had to be designed to work with the newer technologies instead of trying to force Bell Gothic to work here for which it was not designed.

In 1976 AT&T commissioned the design of a new typeface specifically made for telephone directories. Mathew Carter from Mergenthaler Linotype designed a typeface called Bell Centennial.

The font named after the company's 100th anniversary, had 4 different weights each with a different purpose.

The phone book's production methods greatly affected the design of Bell Centennial. To start with, CRT composition removed the limitation imposed by the Linotype requiring the same letter in different weights to be the same width i.e., the light M no longer had to be the same width as the bold M.

With this freedom, Carter was able to improve the clarity of visual hierarchy between all weights in the family. He made the Name & Number face heavier and wider, increasing its prominence over other information. Also, the width of the Address face was decreased. This allowed more information to

fit in a small space, thus saving paper, print time, shipping, and consequently, huge amounts of money.

## BELL CENTENNIAL

**Bell Centennial**

Bell Centennial

Bell Centennial

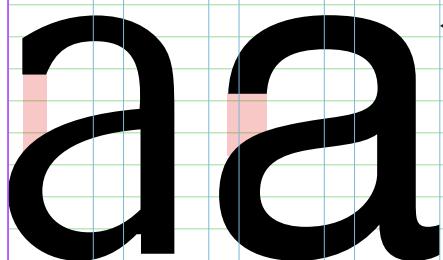
Different widths, better hierarchy

Bell Gothic Light

Bell Gothic Bold

**Bell Gothic Black**

Equal width



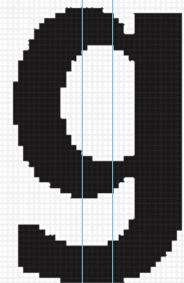
## Ink Traps

Maybe the most unique of Bell Centennial's forms are in place to solve problems during production. Since the phonebook is printed at high speeds and on low-quality paper, the ink has a tendency to spread out on the paper (this effect is called "dot gain"), as shown here, which made the text bolder.

## Cathode Ray Typesetting

The CRT method of typesetting required an increase in stroke width to prevent the letterforms from breaking apart. Since CRT rendered each letter at about 850 lines per inch, the strokes of the lightest characters varied between only 4 and 6 scan lines. Carter took on the laborious task of designing each

character for the exact size (6 point) and resolution.



CRT Rendered Text

## Style & Form

AT&T wanted the new typeface to have more of a modern feel to it; one that would work well with Helvetica. The main problem with Helvetica was that its forms lost some functionality at the small sizes due to its closed letter

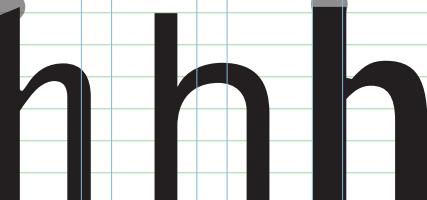
### ◀ Square cut terminals

shapes. The new typeface had to be very legible at small sizes especially the numbers. Carter emphasized counter space by using square cut terminals on letters with curved strokes; i.e. a, c, e, g, and s, increased

Bell Gothic

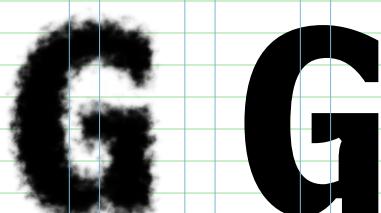
Helvetica

Bell Centennial



Unslanted stroke ends

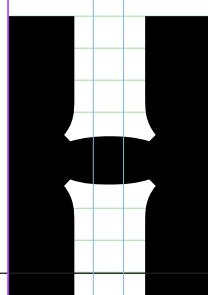
white space by not using horizontal terminals, & straightening and shortening curves in characters like g, y, r, e, C, G, J, S, 3, 5, 6, and 9.



Printed

Original

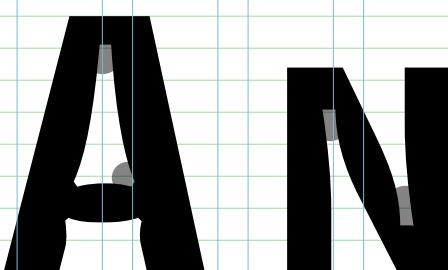
Since the slightest spread greatly effects the shape of such small letterforms, Carter incorporated notches (called "ink traps") at the corners for compensation. These ink traps made it such that the effect would be lessened and text would be legible even in the small phonebook size and bold text.



Baseline

The bold listing, sitting below the baseline and utilizing the space normally used by lowercase descenders

Though Carter designed all of Bell Centennials forms, a man named Alex Kaczun is attributed to wrapping the shapes with bezier curves to create the vector-based font in use today.



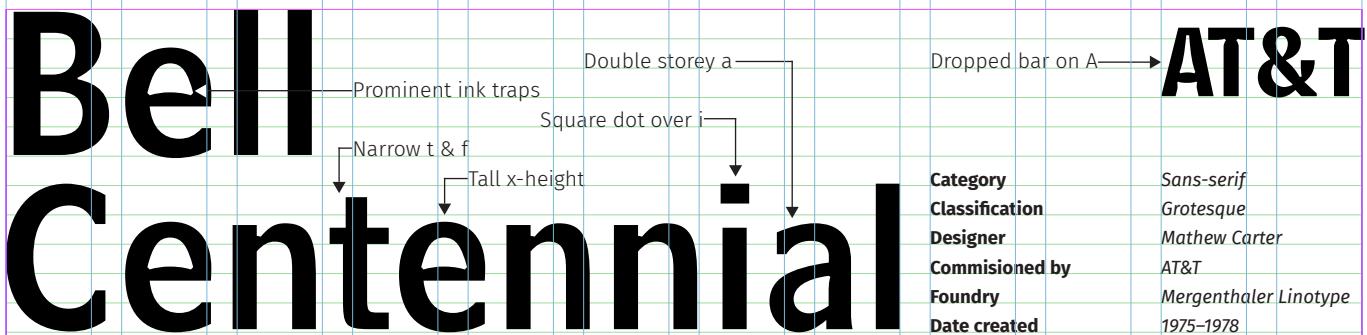
**Cover**

**Explorations in  
2 pages**

**Fira Sans 9pt**

letter  
lore

BELL  
CENTENNIAL



<b>Category</b>	Sans-serif
<b>Classification</b>	Grotesque
<b>Designer</b>	Mathew Carter
<b>Commissioned by</b>	AT&T
<b>Foundry</b>	Mergenthaler Linotype
<b>Date created</b>	1975-1978

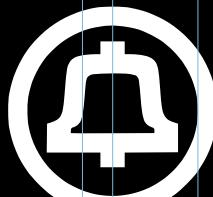
## History

AT&T used to print and sell telephone directories. In 1894 they had switched from hand set type to the Linotype compositor for their letterpress printing. The vice president of the Typographic development at Mergenthaler Linotype, created a typeface for the Fall 1937 directory which would be used in phone books for the next 40 years.

## Bell Gothic

Bell Gothic consisted of two weights, each serving a different purpose: Bold was used to list subscribers' names and numbers, and Light was used for setting addresses.

Bell Gothic didn't hold up under the set of limitations presented by newer technologies printing done on high-speed offset lithography presses.

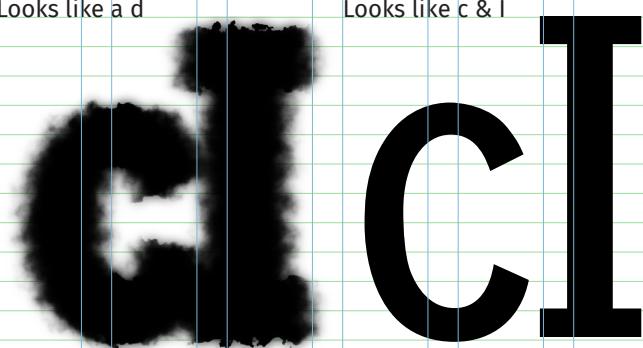
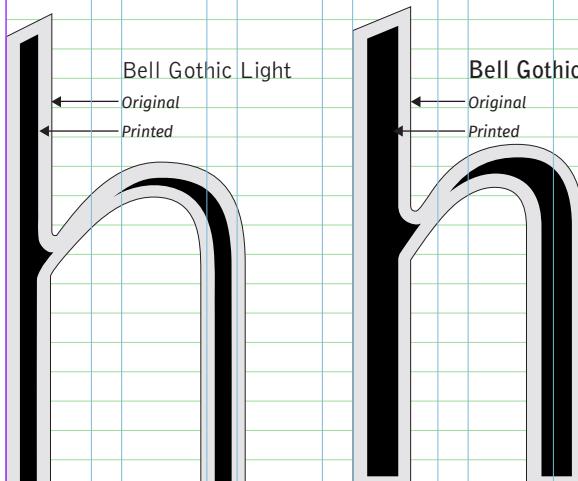


AT&T logo  
1969-1983

## Inking & Printing

While using Bell Gothic Letterforms (especially in the Light face) broke apart; its strokes became lighter, sometimes eroding completely at the intersections of straight and curved strokes.

Printers tried to compensate for this erosion by over-inking the printing plates which brought up a new set of problems. Legibility suffered as the already condensed letterforms closed in on themselves. The strokes of different characters ran into each other.



overinked plate      original

## Origins of Bell Centennial

In 1976 AT&T commissioned the design of a new typeface specifically made for telephone directories. Mathew Carter from Mergenthaler Linotype designed a typeface called Bell Centennial. The font named after the company's 100th anniversary. To start with, CRT composition removed the limitation imposed by the Linotype requiring the same letter in different weights to be the same width. Carter was able to improve the clarity of visual hierarchy between all weights.

in the family. He made the Name & Number face heavier and wider, increasing its prominence over other information. Also, the width the Address face was decreased. This allowed more information to fit in a small space, thus saving paper, print time, shipping, and consequently, huge amounts of money.

Bell Gothic Light  
Bell Gothic Bold  
**Bell Gothic Black**

Equal width

**BELL CENTENNIAL**  
**Bell Centennial**  
**Bell Centennial**  
**Bell Centennial**

Different widths, better hierarchy

Bold Listing

Name &amp; Number

Sub-Caption

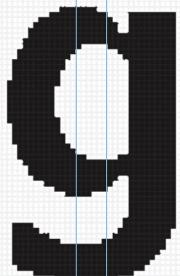
Address

## Cathode Ray Typesetting

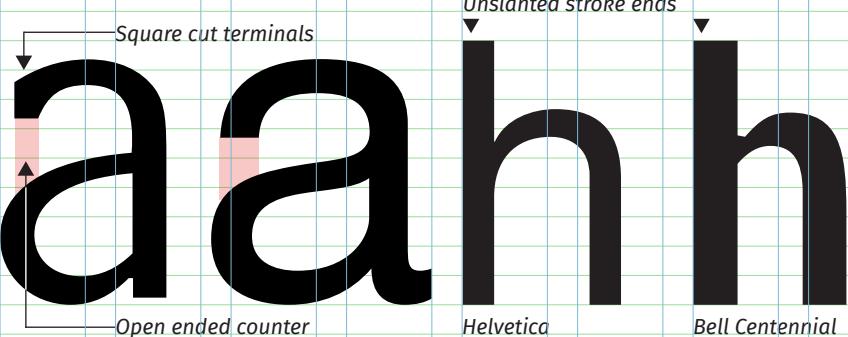
The CRT method of typesetting required an increase in stroke width to stop the letterforms from breaking apart. CRT rendered each letter at about 850 lines per inch, the strokes of the lightest characters varied between 4 and 6 scan lines. Carter took on the laborious task of designing each character for the exact size (6 point) and resolution.

here's some text in the size 6 pt  
here's some text in the size 6  
here's some text in the size  
**HERE'S SOME TEXT IN THE  
SIZE 6 PT**

CRT Rendered



## Style & Form



Unslanted stroke ends

Unslanted stroke ends

Helvetica

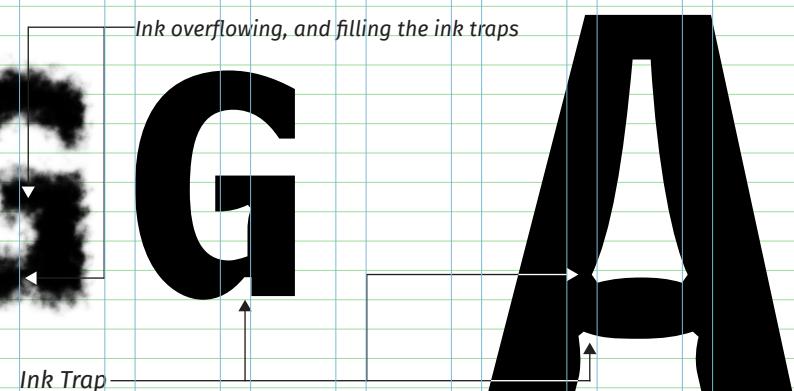
Bell Centennial

AT&T wanted the new typeface to have more of a modern feel to it; one that would work well with Helvetica. Helvetica's forms lost some functionality at the small sizes due to its closed letter shapes. The new typeface, had to be very legible at small sizes especially the numbers.

Carter emphasized counter space by using square cut terminals on letters with curved strokes; i.e. a, c, e, g, and s, increased white space by not using horizontal terminals, & straightening and shortening curves in characters like g, y, r, e, C, G, J, S, 3, 5, 6, and 9.

## Ink Traps

Since the phonebook is printed at high speeds and on low-quality paper, the ink has a tendency to spread out on the paper (this effect is called "dot gain"). Since the slightest spread greatly effects the shape of such small letterforms, Carter incorporated notches (called "ink traps") at the corners for compensation. These ink traps made it such that the effect would be lessened



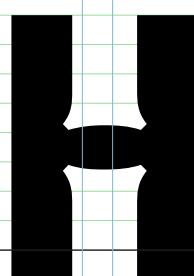
Ink Trap

You can see the dot gain observed here, making it difficult to read. Bell Centennial is easier to read compared to other fonts even with dot gain.

Though Carter designed all of Bell Centennials forms, a man named Alex Kaczun is attributed to wrapping the shapes with bezier curves to create the vector-based font in use today.

The bold listing, sitting below the baseline and utilizing the space normally used by lowercase descenders

Baseline



**Cover**

**Explorations in  
2 pages**

**Bell Centennial 9pt**

letter  
Lore

BELL  
CENTENNIAL

# Bell Centennial

Dropped bar on A → AT&amp;T

Category	Sans-serif
Classification	Grotesque
Designer	Matthew Carter
Commissioned by	AT&T
Foundry	Mergenthaler Linotype
Date created	1975–1978

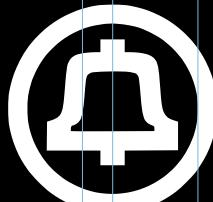
## History

AT&T used to print and sell telephone directories. In 1894 they had switched from hand set type to the Linotype compositor for their letterpress printing. Then Vice President of Typographic Development at Mergenthaler Linotype, set out to create what, starting with Manhattan's Fall 1937 directory, would be the typeface used in phone books for the next 40 years: **Bell Gothic**.

### Bell Gothic

Bell Gothic consisted of two weights, each serving a different purpose: Bold was used to list subscribers' names and numbers, and Light was used for setting addresses.

Bell Gothic didn't hold up under the set of limitations presented by newer technologies printing done on high-speed offset lithography presses.

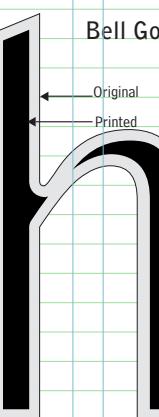
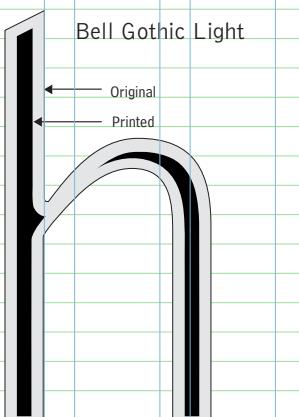


AT&T logo  
1969–1983

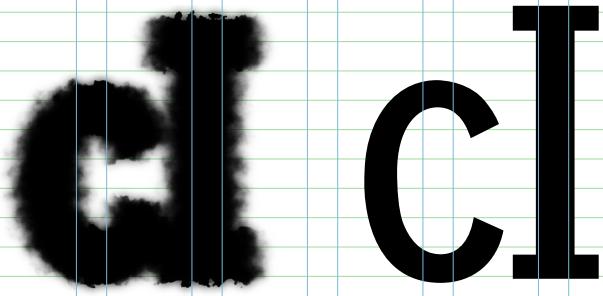
## Inking & Printing

While using Bell Gothic Letterforms (especially in the Light face) broke apart; its strokes became lighter, sometimes eroding completely at the intersections of straight and curved strokes.

Printers tried to compensate for this erosion by over-inking the printing plates which brought up a new set of problems. Legibility suffered as the already condensed letterforms closed in on themselves. The strokes of different characters ran into each other.



Looks like a d



overinked plate

Looks like c & I

original

## Origins of Bell Centennial

In 1976 AT&T commissioned the design of a new typeface specifically made for telephone directories. Matthew Carter from Mergenthaler Linotype designed a typeface called Bell Centennial named on the company's 100th anniversary. Carter was able to improve the clarity

of visual hierarchy between all weights in the family. He made the Name & Number face heavier and wider, increasing its prominence over other information thus saving paper, print time, shipping, and consequently, huge amounts of money.

Bell Gothic Light  
Bell Gothic Bold  
Bell Gothic Black

Equal width  
Intro

**BELL CENTENNIAL**  
**Bell Centennial**  
**Bell Centennial**  
**Bell Centennial**

Different widths, better hierarchy

Bold Listing

Name & Number

Sub-Caption

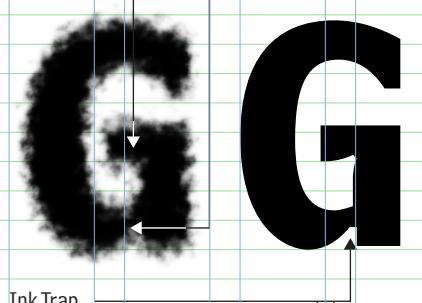
Address

You can see the dot gain observed here, making it difficult to read  
Bell Centennial is easier to read compared to other fonts even with dot gain

## Ink Traps

The most unique of Bell Centennial's forms are in place to solve problems during production. Since the phonebook is printed at high speeds and on low-quality paper, the ink has a tendency to spread out on the paper (this effect is called "dot gain"). Since the slightest spread greatly effects the shape of such small letterforms, Carter incorporated notches (called "ink traps") at the corners for compensation. These ink traps made the effect less prominent.

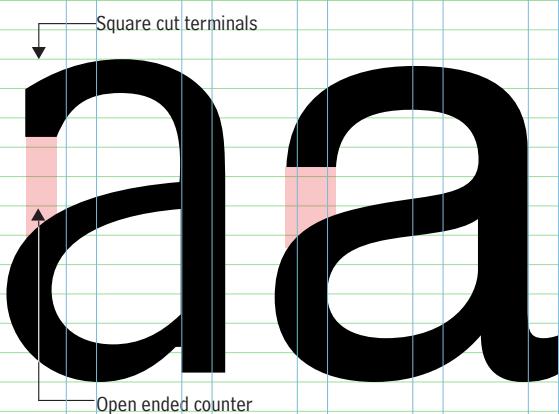
Ink overflowing, and filling the ink traps



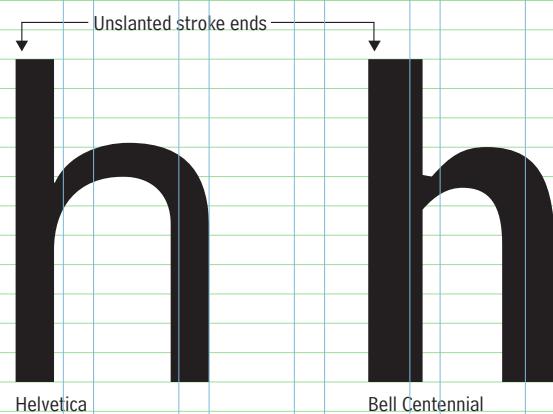
## Bell Centennial in use

Although intended for small print and lists, Mazda UK used Bell Centennial at huge sizes to striking effect in a mid-1990s ad campaign, as did the English National Opera to advertise their production of Katya Kabanova.

## Style & Form

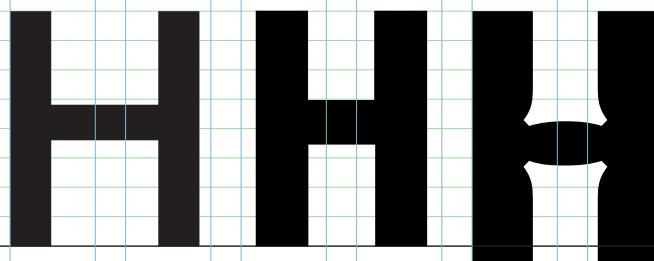


AT&T wanted the new typeface to have more of a modern feel to it; one that would work well with Helvetica. Helvetica's forms lost some functionality at the small sizes due to its closed letter shapes. The new typeface, had to be very legible at small sizes



especially the numbers. Carter emphasized counter space by using square cut terminals on letters with curved strokes; i.e. a, c, e, g, and s, increased white space by not using horizontal terminals, & straightening and shortening curves in characters like g, y, r, e, 9.

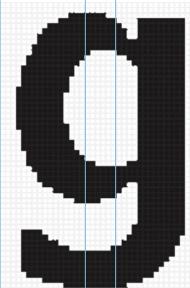
The bold listing, sitting below the baseline and utilizing the space normally used by lowercase descenders



## Cathode Ray Typesetting

The CRT method of typesetting required an increase in stroke width to stop the letterforms from breaking apart. CRT could render each letter at about 850 lines per inch, the strokes of the lightest characters varied between 4 and 6 scan lines. Carter took on the laborious task of designing each character for the exact size (6 point) and resolution.

CRT Rendered



**Cover**

**Explorations in  
2 pages**

**Bell Centennial 9pt  
FINAL FINAL**

# Lette Lore

## BELL CENTENNIAL

By Parth Joshi

# BELL CENTENNIAL

Category	Sans-serif
Classification	Grotesque
Designer	Mathew Carter
Commissioned by	AT&T
Foundry	Mergenthaler Linotype
Date created	1975–1978

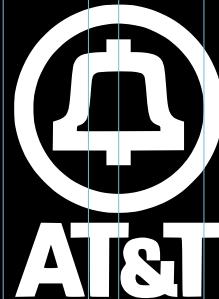
## History

AT&T used to print and sell telephone directories. In 1894 they had switched from hand set type to the Linotype compositor for their letterpress printing. then Vice President of Typographic Development at Mergenthaler Linotype, set out to create what, starting with Manhattan's Fall 1937 directory, would be the typeface used in phone books for the next 40 years: **Bell Gothic**.

## Bell Gothic

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Bell Gothic didn't hold up under the set of limitations presented by newer technologies printing done on high-speed offset lithography presses.

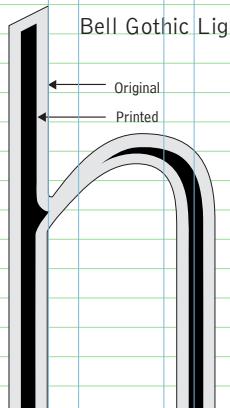


AT&T logo  
1969–1983

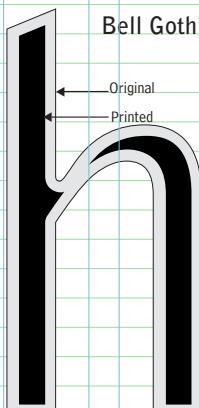
## Inking & Printing

While using Bell Gothic Letterforms (especially in the Light face) broke apart; its strokes became lighter, sometimes eroding completely at the intersections of straight and curved strokes.

Printers tried to compensate for this erosion by over-inking the printing plates which brought up a new set of problems. Legibility suffered as the already condensed letterforms closed in on themselves. The strokes of different characters ran into each other.

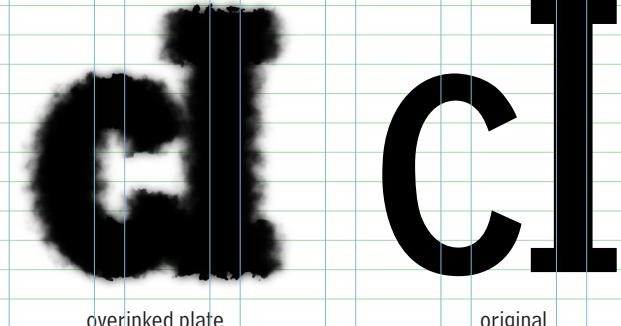


Bell Gothic Light



Bell Gothic Bold

Looks like a d



Looks like c & I

## Origins of Bell Centennial

In 1976 AT&T commissioned the design of a new typeface specifically made for telephone directories. Mathew Carter from Mergenthaler Linotype designed a typeface called Bell Centennial named on the company's 100th anniversary. Carter was able to improve the clarity

of visual hierarchy between all weights in the family. He made the Name & Number face heavier and wider, increasing its prominence over other information thus saving paper, print time, shipping, and consequently, huge amounts of money.

Bell Gothic Light  
Bell Gothic Bold  
Bell Gothic Black

Equal width

BELL CENTENNIAL  
Bell Centennial  
Bell Centennial  
Bell Centennial

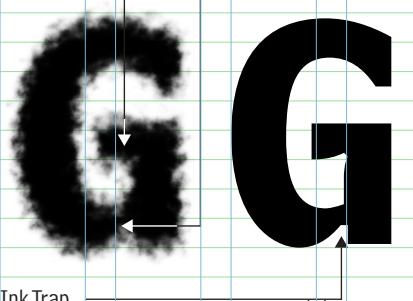
Different widths, better hierarchy

You can see the dot gain observed here, making it difficult to read  
Bell Centennial is easier to read compared to other fonts even with dot gain

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The most unique of Bell Centennial's forms are in place to solve problems during production. Since the phonebook is printed at high speeds and on low-quality paper, the ink has a tendency to spread out on the paper (this effect is called "dot gain"). Since the slightest spread greatly effects the shape of such small letterforms, Carter incorporated notches (called "ink traps") at the corners for compensation. These ink traps made the effect less prominent.

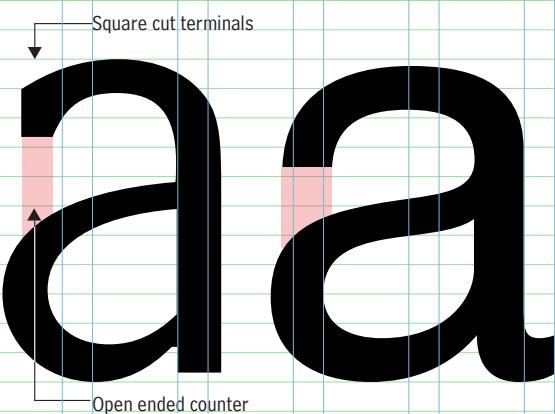
Ink overflowing, and filling the ink traps



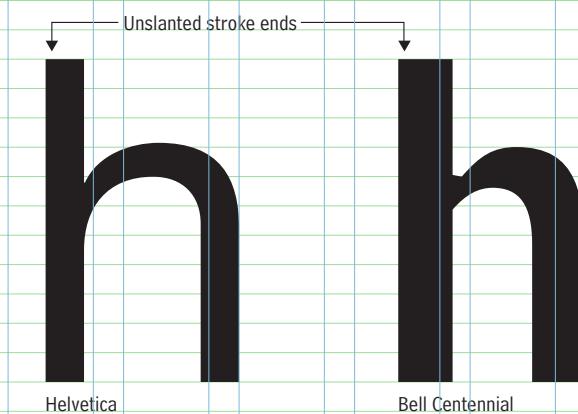
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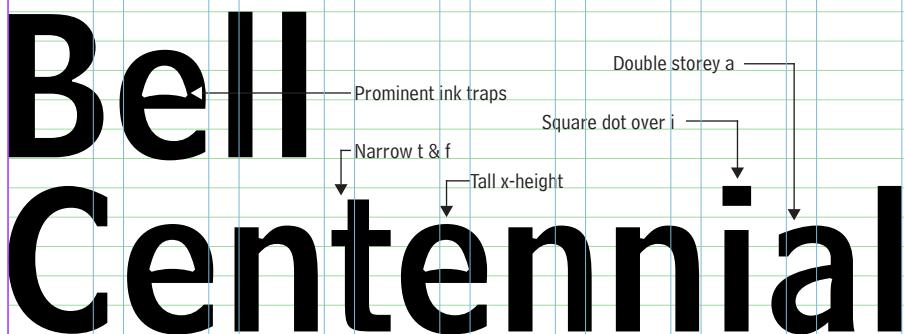
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AT&T wanted the new typeface to have more of a modern feel to it; one that would work well with Helvetica. Helvetica's forms lost some functionality at the small sizes due to its closed letter shapes. The new typeface, had to be very legible at small sizes



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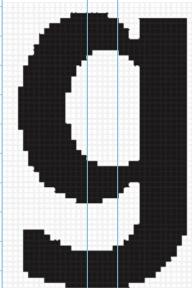


The bold listing, sitting below the baseline and utilizing the space normally used by lowercase descenders

## Cathode Ray Typesetting

The CRT method of typesetting required an increase in stroke width to stop the letterforms from breaking apart. CRT could render each letter at about 850 lines per inch, the strokes of the lightest characters varied between 4 and 6 scan lines. Carter took on the laborious task of designing each character for the exact size (6 point) and resolution.

CRT Rendered



here's some text in the size 6 pt  
here's some text in the size 6  
here's some text in the size  
**HERE'S SOME TEXT IN THE  
SIZE 6 PT**

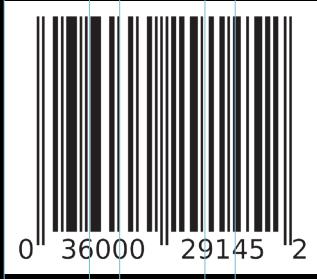


Baseline

# The process of crafting type

In this concise booklet, learn the history behind "Bell Centennial" by Mathew Carter.

BELL CENTENNIAL  
BELL CENTENNIAL  
BELL CENTENNIAL  
BELL CENTENNIAL



# Letter Lore

BELL  
CENTENNIAL

By Parth Joshi

# BELL CENTENNIAL

Category	Sans-serif
Classification	Grotesque
Designer	Mathew Carter
Commissioned by	AT&T
Foundry	Mergenthaler Linotype
Date created	1975–1978

## History

AT&T used to print and sell telephone directories. In 1894 they had switched from hand set type to the Linotype compositor for their letterpress printing. then Vice President of Typographic Development at Mergenthaler Linotype, set out to create what, starting with Manhattan's Fall 1937 directory, would be the typeface used in phone books for the next 40 years: **Bell Gothic**.

### Bell Gothic

Bell Gothic consisted of two weights, each serving a different purpose: Bold was used to list subscribers' names and numbers, and Light was used for setting addresses.

Bell Gothic didn't hold up under the set of limitations presented by newer technologies printing done on high-speed offset lithography presses.

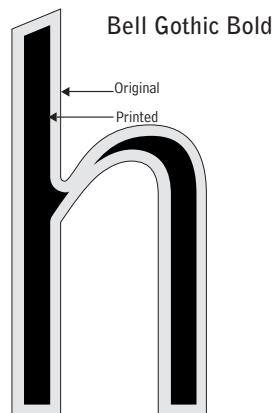
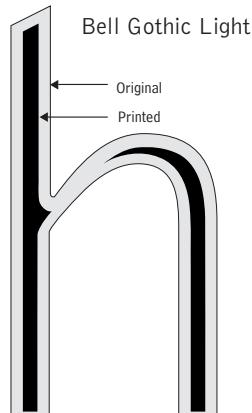


**AT&T**

AT&T logo  
1969–1983

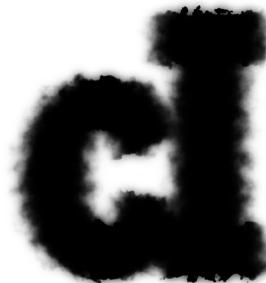
## Inking & Printing

While using Bell Gothic Letterforms (especially in the Light face) broke apart; it's strokes became lighter, sometimes eroding completely at the intersections of straight and curved strokes.



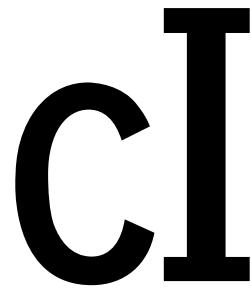
Printers tried to compensate for this erosion by over-inking the printing plates which brought up a new set of problems. Legibility suffered as the already condensed letterforms closed in on themselves. The strokes of different characters ran into each other.

Looks like a d



overinked plate

Looks like c & I



original

## Origins of Bell Centennial

In 1976 AT&T commissioned the design of a new typeface specifically made for telephone directories. Mathew Carter from Mergenthaler Linotype designed a typeface called Bell Centennial named on the company's 100th anniversary. Carter was able to improve the clarity

of visual hierarchy between all weights in the family. He made the Name & Number face heavier and wider, increasing its prominence over other information thus saving paper, print time, shipping, and consequently, huge amounts of money.

**Bell Gothic Light**  
**Bell Gothic Bold**  
**Bell Gothic Black**

Equal width

**BELL CENTENNIAL**  
**Bell Centennial**  
**Bell Centennial**  
**Bell Centennial**

Different widths, better hierarchy

Bold Listing

Name & Number

Sub-Caption

Address

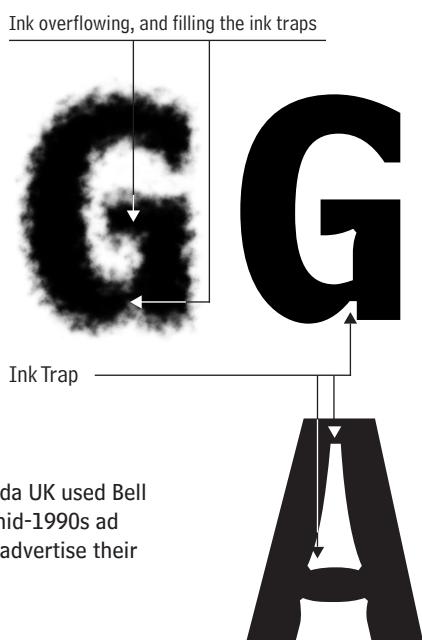
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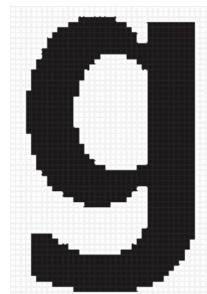


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here's some text in the size 6  
here's some text in the size  
**HERE'S SOME TEXT IN THE  
SIZE 6 PT**



## Style & Form

Square cut terminals



Open ended counter

Unslanted stroke ends

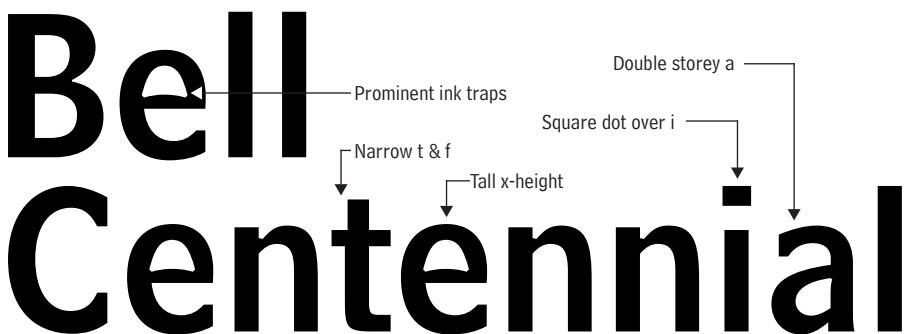


Helvetica

Bell Centennial

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Dropped bar on A → AT&T

The bold listing, sitting below the baseline and utilizing the space normally used by lowercase descenders



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