

6TH  
EDITION

**typo**  
**graphic**  
**de**  
**sign:**

Rob Carter  
Philip B. Meggs  
Ben Day  
Sandra Maxa  
Mark Sanders

FORM AND COMMUNICATION

WILEY



# typographic design:

FORM AND COMMUNICATION

6TH  
EDITION



Saint Barbara.  
*Polychromed walnut  
sculpture, fifteenth-  
century German or  
French. The Virginia  
Museum of Fine Arts.*

6TH  
EDITION

# typographic design:

FORM AND COMMUNICATION

Rob Carter  
Philip B. Meggs  
Ben Day  
Sandra Maxa  
Mark Sanders

WILEY

Cover design: Sandra Maxa and Mark Sanders

This book is printed on acid-free paper.

Copyright © 2015 by John Wiley & Sons, Inc. All rights reserved

Published by John Wiley & Sons, Inc., Hoboken, New Jersey

Published simultaneously in Canada

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8600, or on the web at [www.copyright.com](http://www.copyright.com). Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at [www.wiley.com/go/permissions](http://www.wiley.com/go/permissions).

**Limit of Liability/Disclaimer of Warranty:** While the publisher and author have used their best efforts in preparing this book, they make no representations or warranties with the respect to the accuracy or completeness of the contents of this book and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives or written sales materials. The advice and strategies contained herein may not be suitable for your situation. You should consult with a professional where appropriate. Neither the publisher nor the author shall be liable for damages arising herefrom.

For general information about our other products and services, please contact our Customer Care Department within the United States at (800) 762-2974, outside the United States at (317) 572-3993, or fax (317) 572-4002.

Wiley publishes in a variety of print and electronic formats and by print-on-demand. Some material included with standard print versions of this book may not be included in e-books or in print-on-demand. If this book refers to media such as a CD or DVD that is not included in the version you purchased, you may download this material at <http://booksupport.wiley.com>. For more information about Wiley products, visit [www.wiley.com](http://www.wiley.com).

***Library of Congress Cataloging-in-Publication Data:***

Carter, Rob.

Typographic design : form and communication / Rob Carter, Ben Day, Philip Meggs, Sandra Maxa, Mark Sanders. -- Sixth edition.

pages cm

Includes bibliographical references and index.

ISBN 978-1-118-71576-5 (paperback) -- ISBN 978-1-118-71581-9 (pdf) -- ISBN 978-1-118-71579-6 (epub)

1. Graphic design (Typography) I. Day, Ben. II. Meggs, Philip B. III. Maxa, Sandra. IV. Sanders, Mark (Mark Allen) V. Title.

Z246.C217 2015

686.2'2--dc23

2014012636

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

“The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the Author.”

*Thomas James Cobden-Sanderson*

<i>Foreword</i> , Rob Carter	viii		
<i>Introduction</i>	ix		
<b>1 The Evolution of Typography</b>	<b>1</b>	<b>5 Syntax and Communication</b>	<b>85</b>
From the origins of writing to Gutenberg's invention of movable type	2	Typographic syntax	86
Typography from Gutenberg to the nineteenth century	7	Typographic space	96
The nineteenth century and the Industrial Revolution	12	Visual hierarchy	100
Typography in the twentieth century	18	ABA form	106
A new century and millennium begin	27	<b>6 The Typographic Message</b>	<b>111</b>
<b>2 The Anatomy of Typography</b>	<b>31</b>	A multidimensional language	112
Letterforms analyzed	32	Verbal/visual equations	114
The typographic font	35	Function and expression	118
Historical classification of typefaces	38	<b>7 The Evolution of Typographic Technology</b>	<b>121</b>
Typographic measurement	42	Hand composition	122
The type family	45	Machine composition	123
<b>3 Legibility</b>	<b>49</b>	Phototypesetting	125
Basic principles of legibility	50	Digital typesetting	128
Legibility and digital typography	60	Screen-based typography	131
Typographic details	62	<b>8 Typography on Screen</b>	<b>133</b>
<b>4 The Typographic Grid</b>	<b>65</b>	Rendering type on screen	134
Background	66	Reading on screen	137
Structure and space	67	Selecting typefaces	138
Proportion	68	Legibility factors for on-screen typography	141
The square	69	Web design technology	145
Single column grids	71	Structuring web pages	146
Multicolumn grids	74	Case studies	148
Modular grids	78	<b>9 Typography in Time and Motion</b>	<b>155</b>
Improvisational structures	84	Background	156
		Using type in time-based media	159
		How type changes and moves	163
		Legibility factors	167
		Expression	169



<b>10 Case Studies in Typographic Design</b>	<b>171</b>
Integrating type and image in poster design	172
The U.S. National Park Service Unigrid system	176
Book design: <i>VAS: An Opera in Flatland</i>	179
Typographic film titles	183
Buenos Aires Underground (Subte)	186
Information design: <i>Metropolitan World Atlas</i>	190
A typographic program for the 17th Street Farmers' Market	194
<b>11 Typographic Design Education</b>	<b>197</b>
Letter/digit configurations	198
Urban letterform studies	198
Flowering typography	199
Inventing sign systems	199
Comparative relationships: type and image	200
Sequential typographic forms in space	201
Typography and image transformations	201
Unity of form and communication	202
Syntactic explorations using onomatopoeic terms	203
Visual structure motion studies	204
Type chronology booklet	205
Typographic hierarchy	206
Calendar deconstruction	207
Experimental compositions with found typography	208
Directional poster: from your house to the university	209
Visual organization and grid structures	209
<i>New York Times</i> grid analysis	210
Environmental grids	211
Banknote design	212
Observing systems in our surroundings	213
Typographic cubes	214
Blending Latin and non-Latin typographic forms	214
Type and image in the third dimension	215
Typezine: my favorite typeface	216
Typeface design: mind/machine	217
Experimental typographic system	218
Expressive typography: form amplifies message	219
Type as metaphor	219
Form and counterform, scale and proportion: "Ne var, ne yok?"	220

---

<b>12 Typographic Design Process</b>	<b>221</b>
A traditional model	222
Exploring typographic permutations	229
Exploring typographic transformation	234
Ludd: a typographic expedition	241
Composites	249
<b>13 Type Specimens</b>	<b>255</b>
Old Style	256
Garamond	258
Additional Old Style fonts	264
Sans serif	266
Franklin Gothic	268
Univers	274
Meta	280
Futura	286
Additional sans serif fonts	292
Transitional	294
Baskerville	296
Additional transitional fonts	302
Modern	304
Bauer Bodoni	306
Additional Modern fonts	312
Egyptian	314
Serifa	316
Additional Egyptian fonts	322
Selected Decorative fonts	324
<i>Glossary</i>	326
<i>Bibliography</i>	332
<i>Credits</i>	334
<i>Index</i>	338

During the late 1970s and early 1980s, I was a youthful assistant professor of graphic design and typography at Virginia Commonwealth University. At that time, typography held special significance in the graphic design curriculum, and faculty spent much effort writing content for the typography courses. With perhaps the exception of Emil Ruder's *Manual of Typographical Design*, a masterful book based on Ruder's philosophy and typographic instruction during the 1960s at Basel School of Design, my colleagues Philip Meggs, Ben Day, and I could not find a text that moved typography beyond what was generally considered a technical discipline. Our concern was to teach typography as both a technical and theoretical discipline, one that focused on form (syntax) and communication (semantics). Finally, during a meeting sometime in 1982, we made a decision to write our own typography textbook, based on our collections of notes from our classes.

While the three of us shared a passion for typography and a commitment to typographic education, each of us also brought our own unique vision, which produced a synergistic and dynamic interaction. Researching, articulating, and blending ideas did not come easily. During weekends and long into countless nights, we struggled to invent a vocabulary and approach to typographic education that would move the discipline forward and provide students with a text that not only covered basics but also presented information within a much-needed theoretical and historical framework.

Three years later, the first edition of *Typographic Design: Form and Communication* was published. The book, with its gray cover and elemental *TD*, was eventually referred to as the "Carter, Day, Meggs" book, or simply "the gray book." It soon became a classic, one that has inspired, enlightened, and educated thousands of students over thirty years.

I am proud and grateful that my former graduate students Sandra Maxa and Mark Sanders have taken up the mantle of authorship for this, the sixth edition of *Typographic Design: Form and Communication*. As articulate and committed design educators and practitioners, they have preserved the spirit of previous editions while brilliantly introducing vital new content. Readers who thoughtfully enter into this volume will gain the knowledge necessary for an informed and inspired typographic design practice.

Rob Carter

Typography is a constantly evolving discipline, and this book aims to provide a concise yet comprehensive overview of the information, vocabulary, tools, and methods used in effective typographic-design practice. Included in the following chapters are the history and anatomy of typography; principles of visual organization and legibility; a study of the intersection of form, meaning, and media; projects that explore a variety of contexts; and case studies devoted to traditional and nontraditional typographic design processes.

This book's sixth edition reflects a view of typography that transcends specific technologies or media. A knowledge of typographic fundamentals is key to communicating in all environments—static, dynamic, or kinetic—and the first few chapters address the basics of form, syntax, how type communicates, and its potential for expression. Current typographic design practice can be better understood if one understands the evolution of earlier typesetting processes, and Chapter 7 provides that background for new designers, many who will work primarily in digital environments. Chapters specific to on-screen and kinetic typography provide the designer with an expanded awareness of legibility factors and enable compelling new ways to communicate. Case studies in applied problem solving are meant to inspire and show readers how to use their newfound knowledge to communicate visually. Theoretical and structural problem-solving approaches, evolved by design educators, reinforce the underlying concepts in this book. An understanding of typographic classification and subtlety of form is gained from the study of type specimens.

Through the thirteen chapters of this book, the authors share a compilation of information and examples with practitioners and students. It yields both insights and inspiration, bringing order to the complex and diversified subject of typographic design.



Typography is an evolution of the written word, and as such it participates in a history of visual communication extending thousands of years. That evolution is presented here in the form of a timeline that traces a development from hand, to mechanical, to digital practice, in the context of world-historical and art-historical events.

The history treated in the first section of the timeline predates typography. It begins with the invention of writing over five thousand years ago and ends with the invention of movable type in Europe during the middle of the fifteenth century. The second section covers the long era of the handpress and hand-set metal types. This period, from Gutenberg's invention of movable type to the end of the eighteenth century, lasted about 350 years. In the third section, the Industrial Revolution and nineteenth century are revealed as an era of technological innovation and an outpouring of new typographic forms. The fourth section begins with the year 1900 and covers the twentieth century, a time when type was shaped by the aesthetic concerns of modernism, the need for functional communication, technological progress, and the digital revolution in typography. The final section showcases typographic design in the twenty-first century, as it expands to mobile devices and embraces the many possibilities afforded by digital production.

**From the origins of writing to Gutenberg's invention of movable type: 3150 BCE-1450 CE**

**c. 3150 BCE**

**1-1**

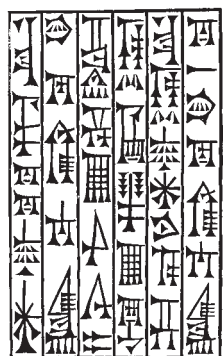


**1-1 c. 3150 BCE:** The earliest written documents, impressed clay tablets from Sumer. The impressions represent clay tokens, which were used for record keeping before the invention of writing.

**1-2 c. 3000 BCE:** Cuneiform, a very early writing system utilizing wedge-shaped marks on clay tablets, was invented by the Sumerians.

**c. 2500 BCE:** Egyptians begin to make papyrus, a new writing material derived from the stems of the papyrus plant.

**1-2**



**1-3**



**1-4**



**1-6**



**1-3 c. 2600 BCE:** Completion of the pyramids at Giza, Egypt.

**1-6 c. 1800-1400 BCE:** Stonehenge, a megalithic monument of 30-foot-tall stones set into circular patterns.

**1-8**



**1-8 c. 1450 BCE:** Detail, The Book of the Dead of Tuthmosis III, hieroglyphic writing on papyrus.

**1-4 c. 2400 BCE:** False-door stele inscribed with hieroglyphic writing, from Old Kingdom Egypt.

**1-5 c. 2100 BCE:** Cuneiform tablet listing expenditures of grain and animals.

**1-5**



**1-7 c. 1570-1349 BCE:** Polychromed wood sculpture from New Kingdom Egypt, with hieroglyphic inscriptions.

**1-7**



ΥΡΕΙΡΙΑΙΤΕΝΑΕΞΕ  
 ·ΕΗΒΑΝΝΕΑΝΠΟ  
 ΑΣΟΥΤΙΜΠΥΡΟΞΔΕΑ

1-11

c. 1500 BCE

1-9

𐤀 𐤁 𐤂 𐤃 𐤄 𐤅  
 𐤆 𐤇 𐤈 𐤉 𐤊 𐤋 𐤌  
 𐤍 𐤎 𐤏 𐤐 𐤑 𐤒  
 𐤓 𐤔 𐤕 𐤖 𐤗 𐤘

1-12



1-12 448–432 BCE: The Parthenon, temple of the goddess Athena, on the Acropolis in Athens, Greece.

1-14

MARTISQ'DOLO

1-15



1-16

CONNERTANTIRIA  
 SINMANIBUSUESTR  
 VLTRONSIAMMAGNO

1-9 c. 1500 BCE: The twenty-two characters of the Phoenician alphabet.

c. 800 BCE: Homer writes the *Iliad* and the *Odyssey*.

540 BCE: The first public library is established in Athens, Greece.

1-10 389 BCE: Inscription in the Phoenician alphabet on a fragment of a marble bowl.

1-11 Fourth century BCE: Greek manuscript writing.

1-13 414–413 BCE: Fragment of a Greek record of sale, carved on stone.

c. 160 BCE: Parchment, a new writing material made from animal skins, is developed in the Greek state of Pergamum.

44 BCE: Julius Caesar is murdered.

1-14 c. 50 BCE–500 CE: Roman square capitals (*capitalis quadrata*) were carefully written with a flat pen.

c. 33 CE: Crucifixion of Christ.

1-15 c. 79 CE: Brush writing from a wall at Pompeii, preserved by the volcanic eruption of Vesuvius.

105 CE: Ts'ai Lun invents paper in China.

150 CE: The Roman codex, with folded pages, begins to be used alongside the rolled scroll.

1-16 c. 100–600: Roman rustic writing (*capitalis rustica*) conserved space by using condensed letters written with a flat pen held in an almost vertical position.



1-10



1-13

118 CE

1-17



1-17 118–25: The Pantheon, Rome.



1-19

1-19 312–15: Arch of Constantine, Rome. Carved into marble, monumental Roman capitals survived the thousand-year Dark Ages.

325: Emperor Constantine adopts Christianity as the state religion of the Roman Empire.

452: Attila the Hun invades and ravages northern Italy.

476: Emperor Romulus Augustulus, last ruler of the western Roman Empire, is deposed by the Ostrogoths.



1-20

1-21

MUSADQUEQUAMUISCONSCI  
MITATISNOSTRAETREPIDATIO  
MUR·TAMENFIDEIÆSTUINCIT

1-20 533–49: Church of Sant'Apollinare in Classe, Ravenna, Italy.

1-18 Undated: The fluid gestural quality, harmonious proportions, and beautiful forms of Roman writing are effectively translated into the permanent stone carving of monumental capitals (*capitalis monumentalis*).

c. 400–1400: During the thousand-year medieval era, knowledge and learning are kept alive in Christian monasteries, where manuscript books are lettered in scriptoria.

1-18



1-21 Third–sixth centuries: Uncials are rounded, freely drawn majuscule letters.

1-22 Third–ninth centuries: Half-uncials, a lettering style of the Christian Church, introduce pronounced ascenders and descenders.

1-23 Sixth–ninth centuries: Insular majuscules, a formal style with exaggerated serifs, are developed by Irish monks from the half-uncials.

1-22

monuauuiscm

1-23

magnum quod erit





1-24

**1-24 c. 800:** Portrait of Christ from the Book of Kells, a Celtic manuscript.

**868:** The earliest extant printed text, of the Diamond Sutra, is printed in China.

nostro qui sedet super thronum et agno. Et omnes angli stabant i circuitu throni ⁊ ceciderunt ⁊ adora uerunt deum dicentes. amen. Bn dicio ⁊ claritas ⁊ sapientia ⁊ gra rum actio. honoꝝ ⁊ uirtus ⁊ fortitu to deo nro in sela scloꝝum. amen

1-31

**1-26 c. Eleventh century:** Round tower on the Rock of Cashel, county Tipperary, Ireland, a lookout and refuge against Viking invaders.

**1-28 1163–1250:** Construction of Notre Dame Cathedral, Paris.

**1-30 Twelfth century:** Bronze and copper crucifix from northern Italy.

**1215:** The Magna Carta grants constitutional liberties in England.



1-32

**1-32 Thirteenth century:** Byzantine school, *Madonna and Child on a Curved Throne*.

**732:** The Battle of Tours ends the Muslim advance into Europe.

**800:** Charlemagne is crowned emperor of the Holy Roman Empire by Pope Leo III.

**1-25 Tenth century:** High Cross at Kells, Meath County, Ireland.



1-25

**1-27 Eighth–twelfth centuries:** Caroline minuscules become the standard throughout Europe after Charlemagne issues his reform decree of 796, calling for a uniform writing style.

**1034:** Bi Sheng (Pi Sheng) invents movable type in China.

**1096–99:** The First Crusade.

est quia utem super p

1-27

**1-29 Eleventh–twelfth centuries:** Early Gothic lettering, a transitional style between Caroline minuscules and Textura, has an increased vertical emphasis.

**1-31 Thirteenth–fifteenth centuries:** Gothic Textura Quadrata, or Textura, the late-Gothic style with rigorous verticality and compressed forms.

**1347–51:** First wave of the Black Death, a plague that decimates the European population.

1-28

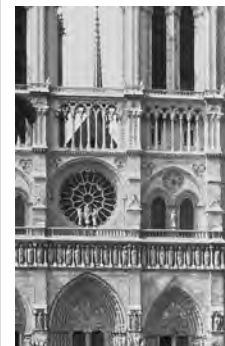
1-30

1-26



1-29

early gothic



c. 1200



1-35

1-33

# Rotunda

1-35 1420–36:

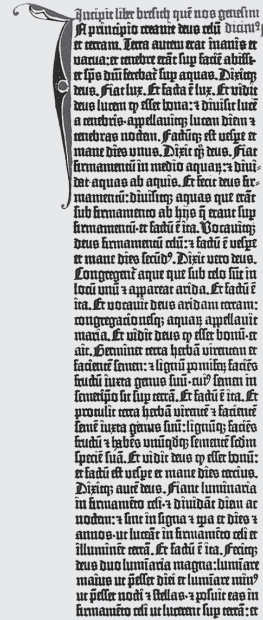
Filippo Brunelleschi, dome of Florence Cathedral.

1-34 Fourteenth century: Lippo Memmi, *Saint John the Baptist*.

1431: Joan of Arc is burned at the stake.

1-38

# GENESIS



1-37 Fra Filippo Lippi, *Madonna and Child*.

Johann Gutenberg invents movable type in Mainz, Germany.

1-40 The cathedral in the medieval city of Mainz, Germany.

1-33 Thirteenth–fifteenth centuries: Rotunda, a more rounded Gothic letter, flourishes in southern Europe.

1-36 Fifteenth century: First page of a block book, the biblical book of Apocalypse. Woodblock printing probably appeared in Europe before 1400.



1-36

1-38 c. 1450–55: Page from Gutenberg's forty-two-line Bible, the first European typographic book.



1-37

1-39 Woodblock print of the hand printing press, with compositors setting type from a typecase in the background.



1-39

1-34



1-40



**Typography from Gutenberg to the nineteenth century: 1450–1800 CE**

The humanist philosophy that flowered during the Renaissance embraced the study of classical literature, a belief in human dignity and worth, a spirit of individualism, and a shift from religious to secular concerns.

**1465**

*bar ille ihesus: q̄ quom̄ pm̄u aules uocaret̄ moises figurā p̄sentiens iussit eū ihesum uocari: ut dux militiē delectus esset aduersus amalech qui oppug- nabant filios israhel: et aduersariū debellaret p̄ nois figuram: et populū in*

**1-41**

*esse sensum femital queritur. tanq̄ illi ad cogitandum rheda & quadrigis opul̄ eēt. Democritus quasi in puteo quodam sic alto ut fundus sit nullus: ueritatem iacere demersam nimirum stultce*

**1-42**

*ab omnipotenti deo missus deus uerbum quasi lucis ifi cunctis annūciat. Non hinc aut alunde: sed undiq; cun ad deum uerum: gr̄acos simul et barbaros omnem̄ sexū*

**1-43**

**1-41 1465:** Germans Konrad Sweynheym and Arnold Pannartz design the first type in Italy. It had some Roman features.

**1-42 1467:** Konrad Sweynheym and Arnold Pannartz, the first truly Roman-style type, influenced by Roman inscriptional capitals and manuscripts written in Caroline minuscules.

**1-44**

*In the tyme of p̄ troublous warldy/ and of the fions byng and wygnyng as well in the rop englondey andy fraunce as in all other places vn*

**1-43 1470:** Nicolas Jenson, early Venetian roman typeface.

**1-46**

**1-44 1475:** William Caxton, typography from the first book printed in the English language.

**1-45** c. 1485: Filippino Lippi, *Portrait of a Youth*.



**1-45**



**1-47**

**1-46 1486:** Erhard Ratdolt, the earliest known specimen sheet of printing types. **1492:** Christopher Columbus lands in America.

**1-47 c. 1494:** Scholar and printer Aldus Manutius established the Aldine Press in Venice to publish works by the great Greek and Roman thinkers. **1-48 1495:** Francesco Griffo (punch cutter for Aldus Manutius), roman type first used in *De aetna* by Pietro Bembo.

**1-48**

*lud admirari, quod uulguſolet: magnuſ eſſe ſcilicet tantas flammās, tam immenſoſ igneſ poſt hominū memoriām ſem*

T.O.N-IN PRIMVM GEORGICORVM,  
ARGVMENTVM.

Quid faciat letas, fegies, quae sydere fruct  
A gricola, ut facilem terram profundat aratri,  
S emina quo iacienda modo, cuiusq; locorum  
E docuit, mihi ses magno olim favore reddi.

P.V-M-GEORGICORVM LIBER PRI  
MVS AD MOECENATEM.

Vid faciat letas fegies, quo sydere  
erram,

¶ Vertere Maeanas, submissq; adim  
gere nites,  
Conueniat, quae astr a bonum, quis  
oculus habendo

S it peori, atq; a pibus quanta experientia parcis,  
Hinc canere incipiam. Vo; o clarissima mundi  
Lumina, labentem caelo quae ducitis annum  
Liber, et alma Ceres, uestro simnere tellus  
C haoniam pingui glandem mutauit arista,  
P ocolaq; inuentis Acheloi m fuitis uuis,  
E t uos agrestum praesentia numina Fatui,  
F erite simul, Faunusq; pedem, Dryadi; q; puella,  
Munera uestra ceno, iugis, o cui prima frequentem  
F udit equum magno tellus per ossa tridentem  
N eputane, ee cultor nemorum, cui pinguis Cae  
T erantum uicini tondent dumetum uena,  
I pse nemus liquens patrum, salusq; Licei

1501

1-49

1-50 Home of Albrecht  
Dürer, Nuremberg,  
Germany.

1-55



1-56



1-55 1519–47: Pierre  
Nepveu, château of  
Chambord, France.

1-49 1501: Francesco  
Griffo, the first italic  
typeface, based on  
chancery script  
handwriting.

1-51 Woodblock  
initial by Geoffroy  
Tory, who returned to  
France from study in  
Italy in 1505, inspired  
by Roman letterforms  
and Renaissance design  
ideals.

1517: Martin Luther  
posts his ninety-five  
theses on the door  
of Wittenberg Castle  
Church, launching the  
Reformation.

1-52 1523: Lodovico  
Arrighi, an Italian writing  
master, introduces his  
formal chancery italic  
type.

1-53 1525: Albrecht  
Dürer, construction of the  
letter B.

1-54 1529: Geoffroy  
Tory, construction of the  
letter B.

1-56 c. 1480–1561:  
Claude Garamont,  
outstanding designer  
of Old Style typefaces  
during the French  
Renaissance.

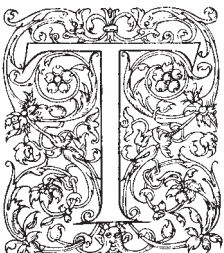
*Dele uarie sorti de littere poi, che in questo Trattatello trouerai se io ti uoleffi ad una per una descriuere*

1-52

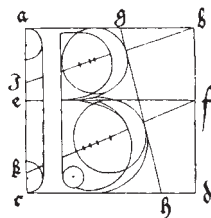
1-50



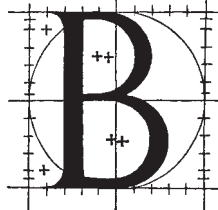
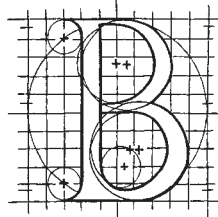
1-51



1-53



1-54



1-59

c. 1540



1-57

1-57 c. 1540: Titian, portrait, *Cardinal Pietro Bembo*.

1543: Nicolaus Copernicus publishes his theory of the heliocentric solar system.

LIVRE PREMIER DE  
 Poliphile rassemble comme il luy fut aduis en songe qu'il dormoit, & en dormant se trouuoit en une uallez fermee d'une grand closture en forme de pyramide, sur laquelle estoit eslys un obelisque de mercurielle haulteur, qu'il regarda songneusement, & par grande admiration.

A forest espouventable aiant esté par moy passé, & apres auoir delaisse ceste premiere region par le doux sommeil qui m'auoit lors espris, ie me trouuay tout de nouueau en vn lieu beaucoup plus delectable que ie premier, car il estoit bordé & environné de plaitans cotaulx verdoians, & peuplez de diuerses manieres d'arbres, comme chelines, faux, planes, ormes, fraiches, charmes, tilleulz, & autres, plantez selon l'aspect du lieu. & abas atraners la plaine, y auoit de peutz buyfons d'arbrisseaux fauluaiges, come geneletz, geneuriers, bruyeres, & tamarins, chargez de fleurs. parmy les prez croissoient les herbes medicinales, a frauoit les trois consolides, enule, cheurefeuil, branque vrine, liuelche, persil de macedoine, puoyne, guymauues, plantain, betoyne, & autres simples de toutes fortes & especes, plusieurs delquelles m'estoient incogneues. Vn peu plus auant que le mylieu de ceste plaine, y auoit vne fablonniere meslée de petites mottes verdes, & pleine d'herbe menesete, & vn petit boys de palmiers, equelz les Egyptiens cueillent pain, vin, huille, vellement, & meism pour balir. leurs fucilles embloient lames d'epées, & estoit chargées de fruct: il y en auoit de grandes, moyennes, & petites, & leur ont les anciens donné

1-60



1-60 After 1577: El Greco, *Saint Martin and the Beggar*.

1582: Pope Gregory XIII initiates the Gregorian calendar, which is still in use.

1584: Sir Walter Raleigh sends explorers to the North American coast.

1-62



1-62 1607: Carlo Maderna, façade of St. Peter's, the Vatican.

1609: Regular weekly newspapers appear in Strasbourg, Germany.

1-58 1544: Simone de Colines, title page with woodcut border.

1-59 1546: Jacques Kerver, typography, illustration, and decorative initials, which were combined with rare elegance during the French Renaissance.

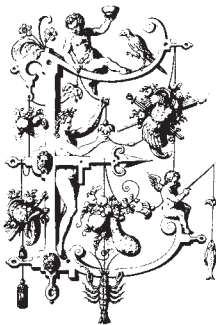
1-58

ORONTII  
 FINAEI DELPHINATIS,  
 REGII MATHEMATI-  
 CARVM LVTETIAE  
 PROFESSORIS,  
 In sex prioribus libris Geometricorum  
 elementorum Euclidis Megarensis demonstratio-  
 nes, Recens aucta, & emendata: vna cum ipsius  
 Euclidis textu graeco, & interpretatione  
 latina Bartholamæi Zambergi Ve-  
 neti. Omnia ad fidem geome-  
 tricam, per eundem Orontium recognita.

LVTETIAE PARISIORVM,  
 Apud Simonem Colinaeum.  
 1544.  
 Cum priuilegio Regis.  
 Virescit Vallere Virtus.

1-61 1595: Johann Theodor de Bry, illustrative initial E.

1603: William Shakespeare writes *Hamlet*.



1-61

1-63 1621: Jean Jannon, typefaces upon which twentieth-century Garamonds are based.

1-64 1628: The Vatican Press, specimen of roman capitals.

La crainte de l'Eternel est le chef de science: mais les fols mesprisent sa piéce &

1-63

FRANCISCVS

1-64

During the eighteenth century, type design went through a gradual transition from Old Style to Modern Style fonts designed late in the century.

1-67



Ad me profectam esse aiebant. D. quid  
Quæso, igitur commorabare, ubi id

1-68

1-67 c. 1664: Jan Vermeer, *Woman Holding a Balance*.

1-69 1675–1710: Sir Christopher Wren, St. Paul's Cathedral, London.

1666: The Great Fire of London.

1667: Milton publishes *Paradise Lost*.

1700: The emergence of the Rococo style.

1-71



1-71 1709: Matthaus Poppelmann, Zwinger Palace, Dresden, Germany.

1709: England adopts the first copyright law.

1632

1-65



1-66 c. 1630: Sir Anthony van Dyck, portrait, *Henri II de Lorraine*.

1639: The first printing press in the British Colonies is established in Massachusetts.

1657: First fountain pen is manufactured, in Paris.

1-65 1632–43: The Taj Mahal, India.

1-68 c. 1670: Christoffel van Dyck, Dutch Old Style type.

1686: Sir Isaac Newton sets forth his law of gravity.

1-70 1702: Philippe Grandjean (punch cutter), Romain du Roi, the first transitional face.

1-69



1-72 1720: William Caslon, Caslon Old Style types, which from this date were used throughout the British Empire.

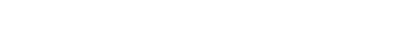
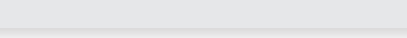
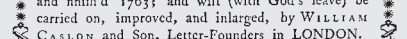
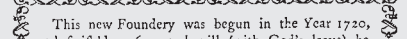
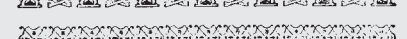
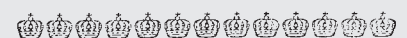
1-66



sa doctrine et de ses lois. Après, il nous fait voir tous les hommes renfermés en un seul homme, et sa femme même tirée de lui; la concorde des mariages et la

ABCDEFGHIJKLMN  
OPQRSTUVWXYZJ

Quousque tandem abutere,  
Catilina, patientia nostra? qu  
Quousque tandem abutere, Ca-  
tilina, patientia nostra? quam-



This new Foundery was begun in the Year 1720, and finish'd 1763; and will (with God's leave) be carried on, improved, and enlarged, by WILLIAM CASLON and Son, Letter-Founders in LONDON.

1-70

10

1-72

1-75



1722

1-76



1-77



1-73

1-73 1722: Castletown, near Dublin, Ireland.

1738: First spinning machines are patented in England.

1-75 1750: François Boucher, *The Love Letter*.

1-74 1744: Benjamin Franklin, title page using Caslon type.

1-76 1750s: John Baskerville creates extraordinary transitional typefaces.

1-74

M. T. CICERO'S  
*CATO MAJOR,*  
OR HIS  
DISCOURSE  
OF  
*OLD-AGE:*

With Explanatory NOTES.

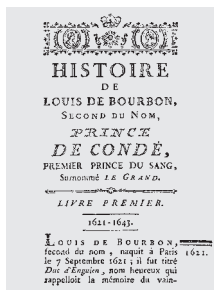


PHILADELPHIA:  
Printed and Sold by B. FRANKLIN,  
MDCCXLIV.

1-77 1765: Thomas Cottrell introduces display types two inches tall (shown actual size).

1-78 1768: Pierre Simon Fournier le Jeune, ornamented types.

1-79 1773: Johann David Steingruber, letter A from *Architektonisches Alphabet*.



1-78

1-80 1774: John Holt, broadside of the American revolutionary era, using Caslon type.

1775: James Watt constructs the first efficient steam engine.

1776: American Declaration of Independence is signed.



1-79

1-81 1784: François Ambroise Didot, the first true Modern Style typeface.

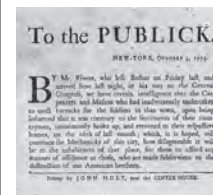
1789: The fall of the Bastille launches the French Revolution.

1791: American Bill of Rights guarantees freedoms of religion, speech, and the press.

1793: French King Louis XVI and Marie Antoinette are sent to the guillotine.

1796: Aloys Senefelder invents lithography.

1799: Nicolas-Louis Robert invents the papermaking machine.



1-80

LA  
DIVINA  
COMMEDIA

DI  
DANTE ALIGHIERI

CON  
ILLUSTRAZIONI

TOMO I.

PISA  
DALLA TIPOGRAFIA  
DELLA SOCIETÀ LETTERARIA  
MDCCCIV.

1-82

lumes in-4° sur papier-vélin de la fabrique de messieurs Matthieu Johannot pere et fils, d'Annonai, premiers fabricants de cette sorte de papiers en

1-81

**The nineteenth century and the Industrial Revolution: 1800-1899 CE**

The Industrial Revolution had a dramatic impact upon typography and the graphic arts. New technology radically altered printing, and designers responded with an outpouring of new forms and images.

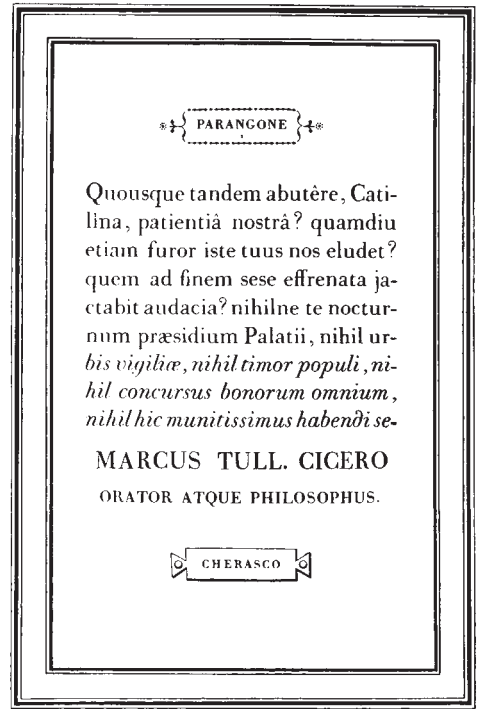
**1803**



**1-84 1812:** Jacques-Louis David, *Napoleon in His Study* (detail).

**1814:** Friedrich Koenig invents the steam-powered printing press.

**1-88**



**1-89**

# Manchester

**1-83**

# R. THORNE

**1-83 c. 1803:** Robert Thorne designs the first fat face.

**1804:** Napoleon Bonaparte crowned emperor of France.

**1808:** Ludwig van Beethoven composes his Fifth Symphony.

**1-85 1815:** Vincent Figgins shows the first Egyptian (slab-serif) typefaces.

**1-86 1815:** Vincent Figgins shows the earliest shaded type.

**1-87 1816:** William Caslon IV introduces the first sans serif type.

**1-88 1818:** Page from *Manuale Tipographico*, which presented the lifework of Giambattista Bodoni.

**1-89 1821:** Robert Thorne, Tuscan style with splayed serifs.

**1-85**

**ABCDEFGHIJK**

**1-86**

**ABCDEFGHIKLM**

**1-87**

**LETTERFOUNDER**



1822

1-90 1822: Thomas Jefferson, rotunda of the University of Virginia in the neoclassical style based on Greek and Roman architecture.

1822: Joseph-Nicéphore Niépce produces the first photographic printing plate.

1-91



1-94

THEATRE-ROYAL, NORWICH.

FOR THE BENEFIT OF

**R. Batley,**  
FUNDRAISER.

On THURSDAY, 12th May, 1836,  
Will be performed the POPULAR PLAY, of The

**CASTLE SPECTRE.**

Earl Oswald... Mr. MADDOCKS  
Reginald... Mr. HAMBERTON  
Earl Percy... Mr. NICHOLS  
Father Philip... Mr. GRAY  
Matley... Mr. GILL

Kentie... Mr. G. SMITH  
Sally... Mr. HARRISON  
Malay... Mr. BRYAN  
Hans... Mr. NASTZ.

Angel... Mrs. G. SMITH  
Alice... Mrs. WATKINSON | Evlina... Miss HONEY.

END OF THE PLAY.

**A COMIC SONG**  
BY MR. MARTIN.

To conclude with the NAUTICAL DRAMA, of The

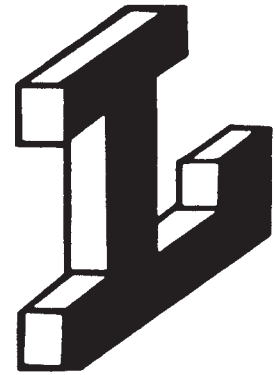
**PILOT,**  
OR, A  
**STORM AT SEA!**

The Pilot, Mr. MADDOCKS  
Barnstable, Mr. G. SMITH—Captain Berrisford, (a regular Yankee), Mr. GILL  
Long Tom Coffin, Mr. NASTZ  
Captain of the Albatross, Mr. HAMBERTON—Colonel Howard, Mr. GRAY  
Lieutenant Griffith, Mr. TAYLOR—Sergeant Drill, Mr. NICHOLS

Sailors, Soldiers, &c.  
Kate Plowden, Mrs. FLEMING—Cecilia, Miss HONEY  
Irish Woman, Mrs. WATKINSON.

DAVY & BERRY, PRINTERS, ALBION OFFICE.

1-95



1-91 c. 1826: Bower, Bacon and Bower, early reversed type entitled White.

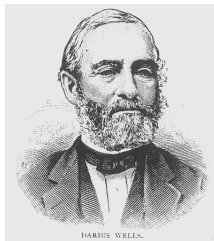
1826: Joseph-Nicéphore Niépce takes the first photograph from nature.

1-90



1-92 1827: Darius Wells invents the mechanical router, making the manufacture of large display wood types possible.

1-92



1-93 1833: Vincent Figgins introduces outline types.

1-94 1836: Davy and Berry, poster printed with wood type.

1830s–80s: Wood-type posters and broadsides flourish in America and Europe.

1-93

HOUSEHOLD FURNITURE,  
PLATE, CHINA-WARE, JEWELS,  
WATCHES

1-95 1836: Vincent Figgins, perspective type.

1-96 1837: Handbill set in fat face.

1837: Victoria crowned queen of England.

**Working Men, Attention!!**

Global Office  
Saturday, November 26, 1837

It is your imperious duty to drop your *Hammers and Sledges!* one and all, to your post repair, **THIS AFTERNOON**, at **FIVE** o'clock P. M. and attend the

**GREAT MEETING**

called by the papers of this morning, to be held at the **CITY HALL**, then and there to co-operate with such as have the **GREAT GOOD OF ALL THEIR FELLOW CITIZENS at Heart.** Your liberty! yea, your **LABOUR!!** is the subject of the call: who that values the services of **HEROES** of the *Revolution* whose blood achieved our Independence as a Nation, will for a moment doubt he owes a few hours this afternoon to his wife and children?

**HANCOCK.**

1-96

1840s: Ornamented type becomes increasingly important.

**1840**

1-97



**1-97** c. 1840–52:  
Sir Charles Barry and  
A. W. N. Pugin, Houses  
of Parliament, London,  
inspiration for the Gothic  
Revival.

**1-98** c. 1841: Wood and  
Sharwoods, ornamental  
type.

**1-99** 1845: Robert  
Besley, the first  
Clarendon style.

1848: The California  
Gold Rush begins.

1851: Joseph Paxton  
designs the Crystal  
Palace.

1-98

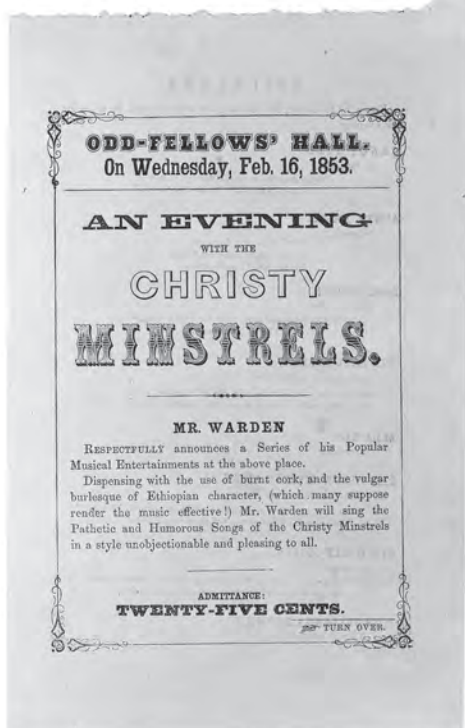


audacia tua? nihilne te noc  
dium palatii, nihil urbis vigi

1-99

**1-100** 1853: Handbill  
combining Egyptian,  
outline, and decorative  
types.

**1-100**



**1-101** 1854: Broadside  
using elongated fat face  
fonts.

1854: The United States  
makes its first treaty with  
Japan.

1856: Sir Henry  
Bessemer develops  
process for converting  
iron to steel.

1-102



**1-102** 1859: William  
H. Page and Company,  
Ornamented Clarendons.

1859: Charles Darwin  
publishes *Origin of  
Species by Means of  
Natural Selection.*

1-101

May 30, 1854.

# PRES'T. MADISON'S LIBRARY, AT AUCTION.

AT Orange Court House, Virginia, on Tuesday the 27th day of June, prox., being the day after the County Court of Orange in that month; I shall sell at public auction, to the highest bidder, that part of the Library of the late James Madison, which, in a recent division of his books with the University of Virginia, fell to the share of my testator; and at the same time I will sell other books, the property of my said testator. In all there are some

## SEVEN OR EIGHT HUNDRED VOLUMES,

among which are many very rare and desirable works, some in Greek, some in Latin, numerous others in French, and yet more in English, in almost all the departments of Literature; not a few of them being in this manner exposed to sale only because the University possessed already copies of the same editions. The sale beginning on the day above mentioned, will be continued from day to day till all the books shall have been sold, on the following terms:

Cash will be required of each purchaser whose aggregate purchases shall amount to no more than Five dollars; those whose purchases shall exceed that amount, will have the privilege either to pay the cash or to give bond with approved security, bearing interest from the date, and payable six months thereafter.

ELHANON ROW, Administrator,  
with the will annexed of John P. Todd, dec'd.

1860

1-104



**1-104 c. 1865:** Honoré Daumier, *The Third-Class Carriage*.

**1866:** The first successful transatlantic cable is laid.

**1861–65:** American Civil War.

**1863:** Abraham Lincoln signs the Emancipation Proclamation.

**1867:** Alfred Nobel invents dynamite.

**1867:** Christopher Sholes constructs the first practical typewriter.

1-105



**1-105 1868:** Currier & Ives, *American Homestead Winter*.

**1-107 1883:** The Brooklyn Bridge is opened to traffic.

**1883:** William Jenney designs the first skyscraper, a ten-story metal-frame building in Chicago.



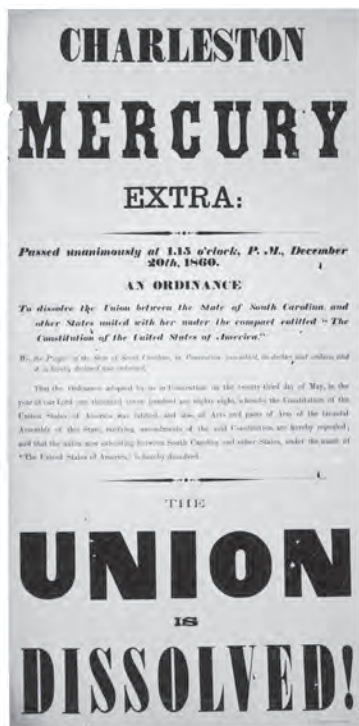
1-109

1-110



**1-103 1860:** Charleston Mercury, broadsheet announcing the dissolution of the Union.

1-103



1-106

**1-106 c. 1875:** J. Ottmann, chromolithographic card for Mrs. Winslow's Soothing Syrup.

**1876:** Alexander Graham Bell invents the telephone.

**1877:** Thomas Edison invents the phonograph.

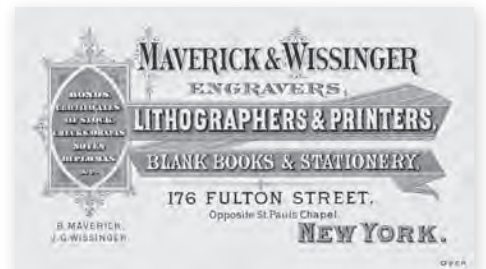
**1879:** Thomas Edison invents the electric lightbulb.



**1-108 c. 1885:** Maverick & Wissinger, engraved business card.

**1-109 c. 1880s:** Lettering printed by chromolithography.

1-107



1-108

**1-110 1886:** Ottmar Mergenthaler invents the Linotype, the first keyboard typesetting machine.

1887



1-112

1-112 1889: Alexandre Gustave Eiffel, the Eiffel Tower.



1-114

1-114 1892: Paul Gauguin, *By the Sea*.

1-115

This is the Golden type.  
This is the Troy type.  
This is the Chaucer type.



1-116

1-111 1887: Advertisement for Estey Organ.

1887: Tolbert Lanston invents the Monotype machine.

1-113 c. 1890s: Coca-Cola syrup jug.



1-115 William Morris' typeface designs: 1890, Golden; 1892, Troy; 1893, Chaucer.

1-116 1891-98: William Morris' Kelmscott Press launches a revival of printing and typography.

1-117 1892: William Morris, page from *News from Nowhere*.

1-117

Afloat again

CHAPTER XXIV. UP THE THAMES. THE SECOND DAY.

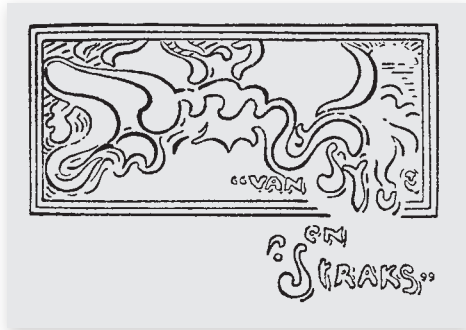


HEY were not slow to take my hint; & indeed, as to the mere time of day, it was best for us to be off, as it was past seven o'clock, & the day promised to be very hot. So we got up and went down to our boat; Ellen thoughtful and abstracted; the old man very kind and courteous, as if to make up for his crabbedness of opinion. Clara was cheerful & natural, but a little subdued, I thought; and she at least was not sorry to be gone, and often looked shyly and timidly at Ellen and her strange wild beauty. So we got into the boat, Dick saying as he took his place, "Well, it is a fine day!" and the old man answering "What! you like that, do you?" once more; and presently Dick was sending the bows swiftly through the slow weed-checked stream. I turned round as we got into mid-stream, and waving my hand to our hosts, saw Ellen leaning on the old man's shoulder, and caressing his healthy apple-red cheek, and quite a keen pang smote me as I thought how I should never see the beautiful girl again. Presently I insisted on taking the sculls, and I rowed a good deal that day; which no doubt accounts for the fact that we got very late

1-111



1893



1-118

**1-118 1893:** Henri van de Velde, title page for *Van Nu en Straks*.

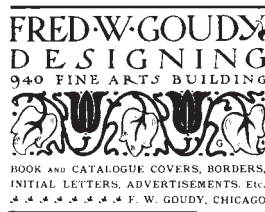
**1895:** The Lumière brothers give the first motion-picture presentation.

1-119



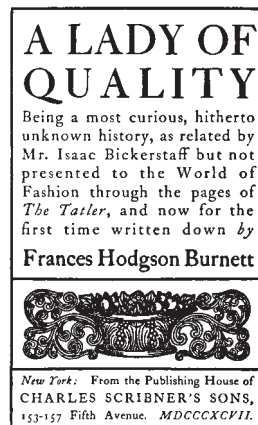
**1-119 1897:** Edmond Deman, title page in the curvilinear art nouveau style.

1-120



**1-120 1890s–1940s:** Inspired by Kelmscott, Americans Frederick Goudy and Bruce Rogers bring renewed excellence to book and typeface design.

1-121



**1-121 1897:** Will Bradley, title page in his “chap book” style, reviving Caslon type and colonial woodcut techniques.  
**1899:** Construction begins on the first zeppelin airship.



1-123

**1-123 1898–1902:** Hector Guimard, entrance to a Paris Métro station.

**1-122 1899:** Josef Hoffmann, catalog cover for a Vienna Secession exhibition.

1-122



**Typography in the twentieth century: 1900-2000**

The twentieth century was a period of incredible ferment and change. Unprecedented advances in science and technology, and revolutionary developments in art and design left their marks on typography.

**1900**

**1-124**



**1-124 1900:** Peter Behrens, dedication page from *Feste des Lebens und der Kunst*.

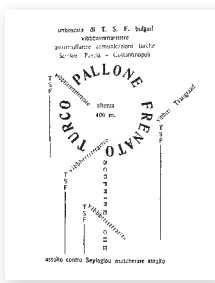
**1903:** The Wright brothers achieve the first powered flight.

**1905:** Albert Einstein proposes his theory of relativity.



**1-126**

**1-125**



**1-125 1909:** Filippo Marinetti founds Futurism, experiments with typographic form and syntax.

**1-126 c. 1910:** German sans serif "block style."

**1-128**



**1-127**

**1-127 1913:** Wassily Kandinsky, *Improvisation 31 (Sea Battle)*.

**1914-18:** World War I.

**c. 1915:** Kasimir Malevich, painting shown at the 0.10 group exhibition launching Suprematism.

**1-128 c. 1916:** Bert Thomas, British war bonds poster.

**1917-20:** The Dada movement protests the war and conventional art.



**1-129**

**1-129 1917:** John Heartfield, Dadaist advertisement.



**1-130**

**1-130 1917:** Vilmos Huszar, *De Stijl* magazine cover.

**1918:** Czar Nicholas II and his family are executed.

**1-131**



**1-131 1919:** Raoul Hausmann, Dada poem.

**1920:** Women's suffrage is granted in the United States.

**1920:** Bolsheviks triumph in the Russian Revolution.

1921

1-132



1-132 1921–25: Piet Mondrian, *Diamond Painting in Red, Yellow, and Blue*.

1-134



1-134 1924: Gerrit Rietveld, Schroeder house.



1-137 1925: Constantin Brancusi, *Bird in Space*.

1-139



1-133 c. 1923: Alexander Rodchenko, Russian Constructivist poster.

1924: Surrealist manifesto.

1-133



1-135 1925: El Lissitzky, title page.

1-136 1925: Herbert Bayer, universal alphabet.

1-138 1925: Jan Tschichold, title page for his article "Elementary Typography."

1-139 1926: Piet Zwart, N.K.F. advertisement. 1927: Charles Lindbergh makes the first solo nonstop transatlantic flight.

1-140 1928: Piet Zwart, N.K.F. advertisement.

1929: The stock market crashes and the Great Depression begins.

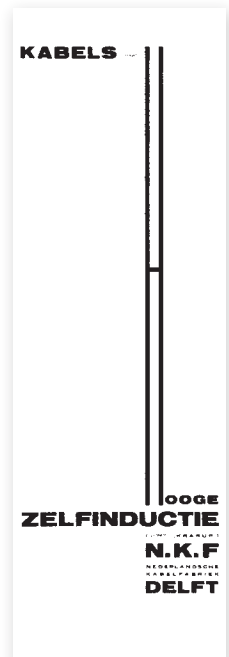
1-140

# bauhaus

1-135



1-138



1930

1-141



1-141 1930: Paul Renner, prospectus for Futura.

1-142



1-143

1-142 1930: Chrysler Building, an example of art deco decorative geometric style.

1-143 1931: Max Bill, exhibition poster.

1-144 c. 1932: Alexey Brodovitch, exhibition poster.

1933: Adolf Hitler becomes chancellor of Germany.



1-144



1-145

1-146



1-145 1936: Walker Evans, photograph of sharecropper family.

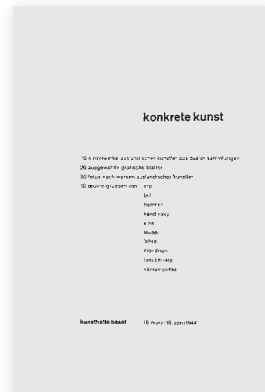
1939: Germany invades Poland; World War II begins.

1-146 1942: Jean Carlu, advertisement.

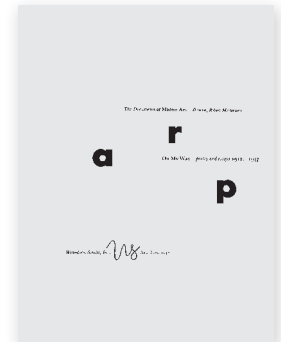
1-147 1944: Max Bill, exhibition poster.

1945: Atomic bombs destroy Hiroshima and Nagasaki; World War II ends.

1-148 1948: Paul Rand, title page.



1-147



1-148



1948



1-149

1-149 Willem de Kooning, *Painting*.

1-151 Le Corbusier, Notre Dame de Haut.

School segregation is declared unconstitutional by the U.S. Supreme Court.

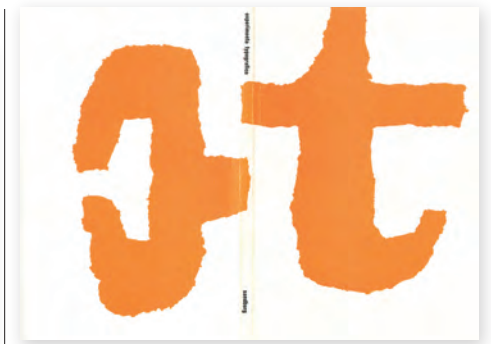


1-152

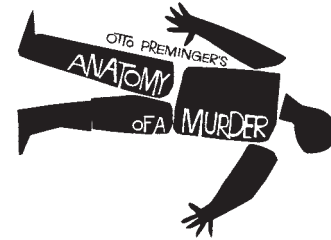
1-152 1952: Henri Matisse, *Woman with Amphora and Pomegranates*.



1-154



1-155



1-156



1-157

1-157 1959: Frank Lloyd Wright, Guggenheim Museum, New York.

1-150 1950: Ladislav Sutnar, book cover for *Catalog Design Progress*.

1950: North Korea invades South Korea.

1-150



1-153 Josef Müller-Brockmann, concert poster.

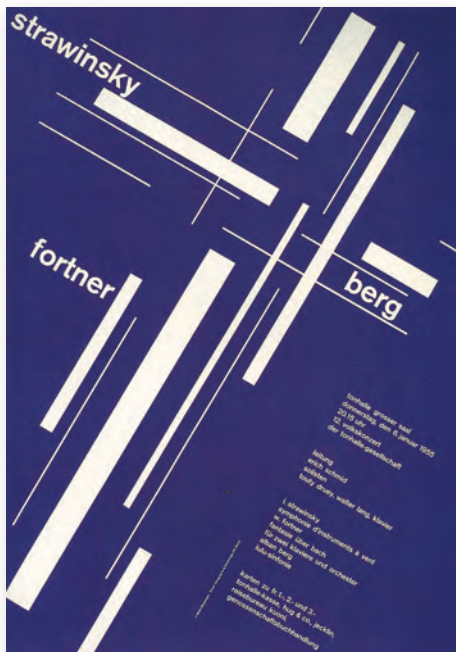
1-154 1956: Saul Bass, advertisement for Container Corporation of America.

1-155 Willem Sandberg, book cover for *experimenta typografica*.

Russia launches *Sputnik I*, the first Earth satellite.

1-156 1959: Saul Bass, film title.

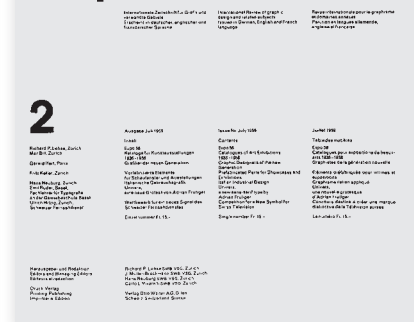
1-158 : Carlo L. Vivarelli, magazine cover.



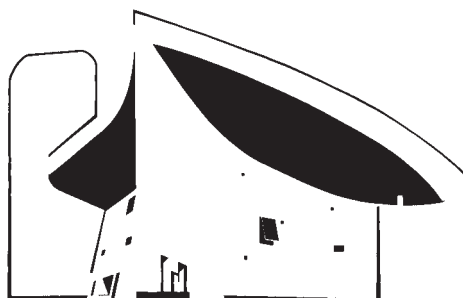
1-153

1-158

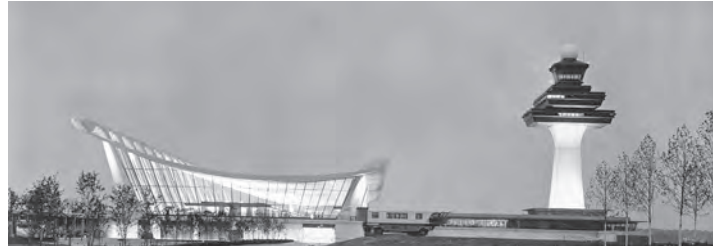
Neue Grafik  
New Graphic Design  
Graphisme actuel



1-151



lokal  
national  
international  
National  
Neitung



1-162

1-165

1959



1-159

1-159 1959: Henry Wolf, magazine cover for *Harper's Bazaar*.

1-160 c. 1959: Gerald Holton, "peace symbol."



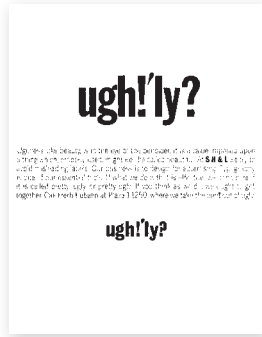
1-160

1-161 1959: Otto Storch, figurative typography.

DIVINE TO EAT, EASY TO MAKE, AND BEAUTIFUL TO LOOK ON: ELEGANT PARFAITS. THERE ARE TWO TYPES: THE FRENCH, WHICH IS A CREAMY, DELICATE COOL (BUT NOT ICY) MIXTURE WITH A BASE OF SUGAR, EGGS, CREAM, FRUIT AND/OR FLAVORINGS; AND THE AMERICAN, MADE WITH COMMERCIAL ICE CREAMS OR SHERBETS OR BOTH WITH A SURPRISE INGREDIENT, SUCH AS FRUITS, CORDIALS, COGNAC, NUTS, SAUCES (SEE McCALL'S FINE SAUCE RECIPES ON PAGE 60). WITH AMERICAN PARFAITS, YOUR IMAGINATION CAN HAVE FREE REIN. WITH THE FRENCH, HOWEVER, YOU MUST FOLLOW RECIPE DIRECTIONS TO THE LETTER. PARFAIT MEANS, OF COURSE, PERFECT. AND WE CAN IMAGINE FEW MORE PERFECT DESSERTS, ESPECIALLY IF YOU WANT TO SHOW OFF. FOR THESE ARE TRULY SHOW-OFF RECIPES! FROM THE COOK'S STANDPOINT, THERE IS A REAL ADVANTAGE IN SERVING FROZEN DESSERTS. FOR THE OBVIOUS REASON, THEY MUST BE MADE WELL AHEAD AND REFRIGERATED. THUS, THE BIG DESSERT PROBLEM IS OUT OF THE WAY WHEN IT'S TIME TO PREPARE THE MAIN PART OF THE MEAL. AT FAR RIGHT, YOU SEE AN AMERICAN PARFAIT, VANILLA ICE CREAM LAYERED WITH PISTACHIO AND TOPPED WITH WALNUTS AND WHIPPED CREAM. THE STRAWBERRY AND APRICOT PARFAITS ARE BOTH CLASSIC FRENCH. FOR THE RECIPES, TURN TO PAGE 60, WHERE YOU WILL FIND THE FRENCH AS WELL AS GOOD VARIATIONS OF THE QUICK AND POPULAR AMERICAN PARFAITS. THEN, PLAN A PARTY.

1-161

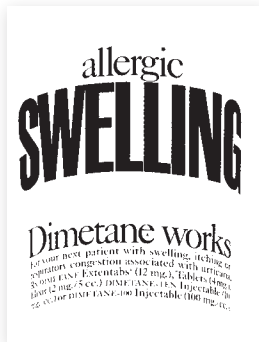
1-162 1960: Karl Gerstner, advertisement.



1-163

1-163 c. 1960: Herb Lubalin, advertisement.

1-164 c. 1961: George Lois, pharmaceutical advertisement.



1-164

1-166



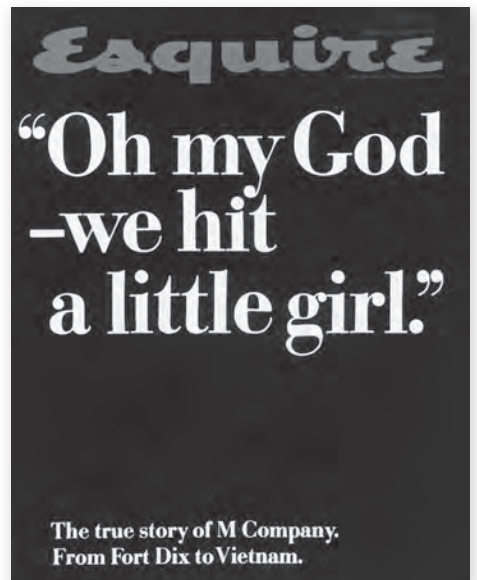
1-165 1962: Eero Saarinen, Dulles International Airport.  
1963: President John F. Kennedy is assassinated.

1-166 1965: Seymour Chwast and Milton Glaser, poster.

1965: The U.S. Marines land in force in Vietnam.

1-167 1966: George Lois, magazine cover for *Esquire*.

1-167



1968

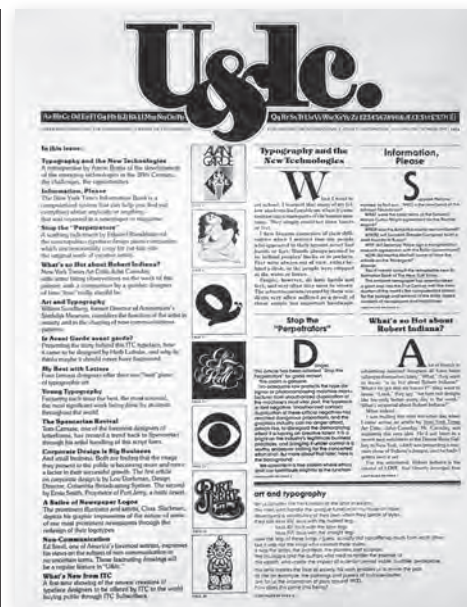
1-168



1-169 1968: R. Buckminster Fuller, American Pavilion, Montreal World's Fair.

1-171

1-171 1969: First Moon walk, by Neil Armstrong.



1-173

1-174



1-175



1-168 c. 1968: Seymour Chwast and Milton Glaser, poster.

1-170 c. 1967: Symbol for the environmental movement.



1-169



1-170

1-172 1972: Wolfgang Weingart, typographic interpretation of a poem.

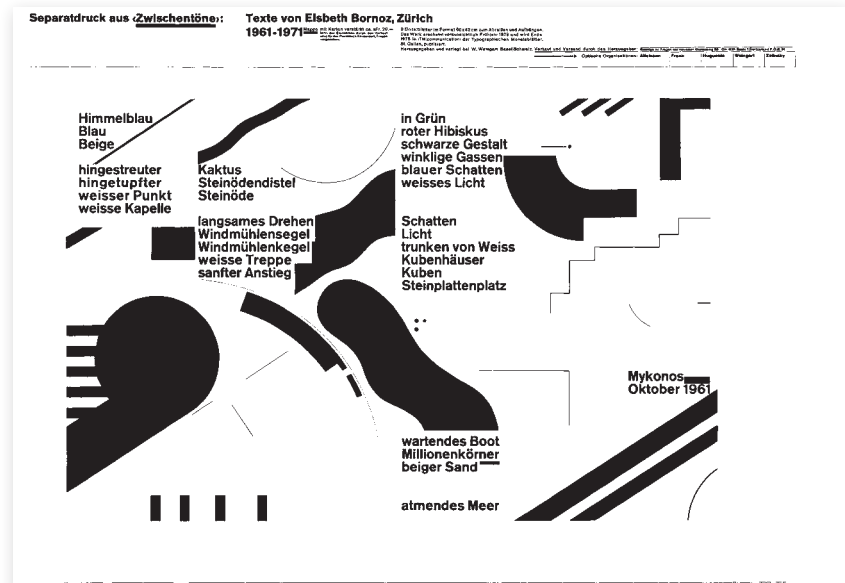
1-173 1974: Herb Lubalin, newspaper cover for U&Lc.

1-174 1974: Cook and Shanosky, standard symbol signs.

1975: The Vietnam War ends.

1-175 1976: American Revolution bicentennial, symbol design by Bruce Blackburn.

1-172





1-177



1-180



1-181

1977



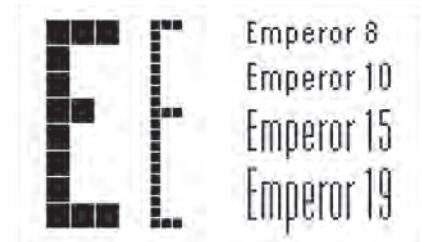
1-176

1-176 1977: Pompidou National Center of Arts and Culture, Paris.

1-178



1-183



1-181 1983: Michael Graves, Portland, Oregon, city hall.

1-177 1977: Bill Bonnell, RyderTypes trademark.

1-178 Willi Kunz, poster design.

1-179 1979: Richard Greenberg, film titles. 1979: Soviet troops invade Afghanistan.

1980s: Digital typography and computer technology impact typographic design, leading to electronic page design by the end of the decade.

1981: Bitstream founded; first independent digital type foundry.

1-180 1982: Pat Gorman and Frank Olinsky, Manhattan Design, MTV logo.

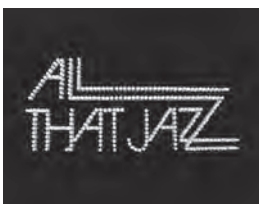
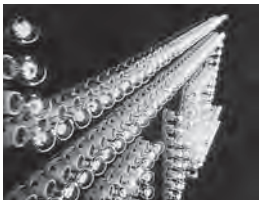
1-182 1984: Warren Lehrer, page from *French Fries*.

1984: Apple Macintosh computer, first laser printer, and PageMaker page layout software are introduced.

1-183 1985: Zuzana Licko, Emperor, early bitmapped typeface designs.

1986: Fontographer software makes possible high-resolution font design on desktop computers.

1988: Tiananmen Square massacre.



1-179

1-182



1990

1-184



1-184 1990: David Carson, page from *Beach Culture*.

1-185 1991: Ted Mader + Associates, book jacket.

1990: Reunification of Germany.

1-185



1-185

1-186

ABCDEFGHIJK

1-187

ABCDEFGHIJKLM

1-188

EXCESSIVE?

1-189

MetaMetaMetaMeta

1991: Fall of Communism in Russia; apartheid ends in South Africa.

1-188 1993: Jonathan Hoefler, HTF Fetish No. 338.

1-189 1991: Erik Spiekermann, Meta (FontShop).

M M M M M M M  
 M M M M M M M  
 M M M M M M M  
 M M M M M M M  
 M M M M M M M  
 M M M M M M M  
 M M M M M M M  
 M M M M M M M  
 M M M M M M M  
 M M M M M M M

1-190

1-190 1992: Robert Slimbach and Carol Twombly, Myriad, Adobe's first multiple master typeface.

1-191 1992: Ron Kellum, Topix logo.

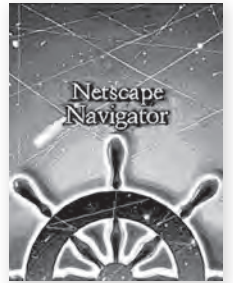
1-191



1-192



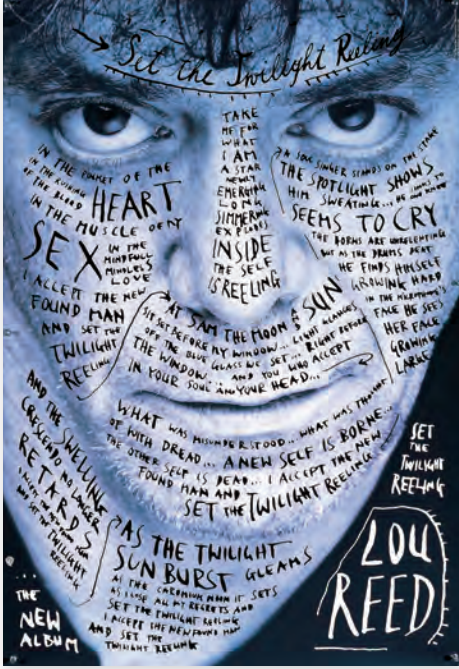
1-193



1-193 1994: Netscape founded, early Web browser.

1994

1-196



1-199

# Adobe Garamond

1-200

# ITC Bodoni Roman

1-201

# Mrs Eaves Roman



1-197

1-197 1997: Frank Gehry, Guggenheim Museum, Bilbao, Spain.

1997: Dolly the sheep, first adult animal clone.

1-194 1994: Matthew Carter, Walker typeface with "snap-on" serifs.



1-194

1995: Landor Associates, Xerox Corporation logo.

1-196 1996: Stefan Sagmeister, poster.



1-198

1-198 1997: Paula Scher and Keith Daigle, book jacket.

1-199 1989: Robert Slimbach, Adobe Garamond.

1-200 1994-95: Janice Fishman, Holly Goldsmith, Jim Parkinson, and Sumner Stone, ITC Bodoni.

1-201 c. 1996: Zuzana Licko, Mrs Eaves roman.

1-202 1998: Neville Brody, conference poster.

1-202

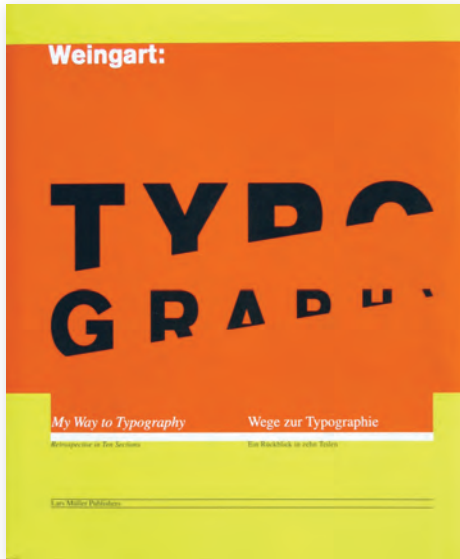


1-195



**A new century and millennium  
begin: 2000 CE**

2000



1-203

**1-203 2000:** Wolfgang Weingart, book cover.

2001: Al-Qaeda terrorists attack the World Trade Center towers and Pentagon.

**1-204 2001:** Jennifer Sterling, calendar page (detail).

**1-205 2001:** Jim Sherraden, book cover for *Hatch Show Print*.



1-204

1-205



1-206

1-207



**1-206 2002:** Emil Ruder, new edition of *Typographie*.

**1-207 2002:** Irma Boom, telephone card. 2003: The United States invades Iraq.



1-208



1-209

**1-208 2003:** Philippe Apeloig, poster.

2004: A powerful earthquake in Southeast Asia causes a tsunami, killing more than 200,000 people in a dozen countries.

**1-209 2003:** Max Kisman, typeface poster.

2003: Design Observer is founded. This website is devoted to a range of topics focused on graphic design, communication arts, print, typography, and criticism.

**1-210 2004:** Jianping He, page from Hesign International, GmbH, website.

1-210



2004

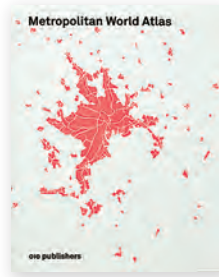


1-211

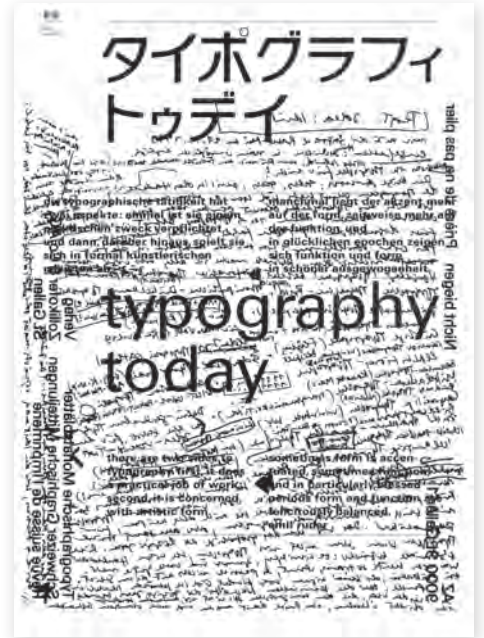
1-211 2004: Brian MacKay-Lyons, Bryan Anderson, and participants in Ghost Lab 6, Kingsburg, Nova Scotia.



1-213



1-216



1-217



1-214

1-212 2005: Lawrence Weiner, typographic installation.

1-213 2005: Mevis & Van Deursen, book cover. 2005: Death of Pope John Paul II marks end of an era for the Roman Catholic Church.

1-214 2005: Jean-Benoît Lévy, Swiss Einstein stamp.

1-215 2005: Martin Venezky, spread from his book, *It Is Beautiful... Then Gone*.

1-216 2005: Joost Grootens, book design for the *Metropolitan World Atlas* (see Chapter 10).

2006: North Korea tests its first nuclear weapon.

2007: *Harry Potter and the Deathly Hallows* is released, selling over 11 million copies in the first 24 hours and becoming the fastest-selling book in history.

1-217 Helmut Schmid, new edition of *Typography Today*.

1-218 2007: Experimental Jetset, poster for the documentary film *Helvetica*, by Gary Hustwit.

1-212



1-215



1-218





2007



1-221



1-223



1-224

**1-223** 2010: Stephen Vitiello, *The Sound of Red Earth*, sound installations for the Kaldor Public Art Project, Sydney, Australia.

**1-225** 2010: Doug and Mike Starns, sculptural *T* for the *New York Times Magazine*.

**1-219** Lanny Sommese, poster for the Central Pennsylvania Festival of the Arts.

**1-220** 2008: Ed Fella, promotional flyers.

**1-221** 2009: Harmen Liemburg, poster for *Ultralight*, a traveling exhibition.

**1-222** 2010: Mirko Ilić Corp., typographic illustration for the *New York Times*.

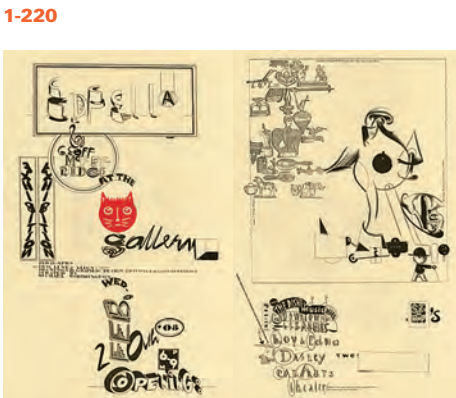
**1-224** 2010: Skolos and Wedell, poster for an AIGA Boston event honoring Matthew Carter.



1-219



1-222

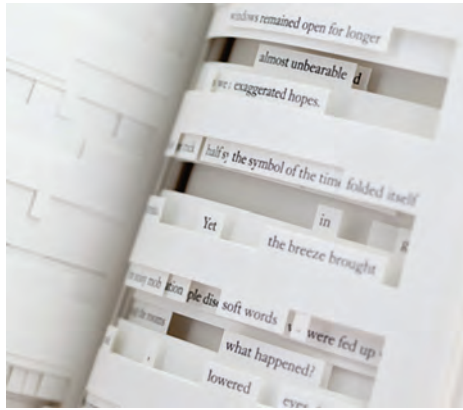


1-220

1-225



2010



1-226

1-226 2010: Sara De Bondt Studio, book design; Jon Gray, cover design. Jonathan Safran Foer's *Tree of Codes*.

1-227 2011: Thirst (Bud Rodecker, designer), poster for *Showboat*, Lyric Opera of Chicago.



1-227

1-228



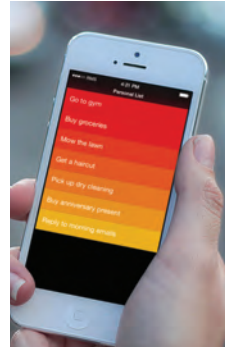
1-229

1-228 2012: Studio Dumbar, visual identity for Alzheimer Nederland.

1-229 2012: Antonio Alcalá, art director, and Michael Dyer, designer, *Waves of Color U.S.* postage stamps.



1-230



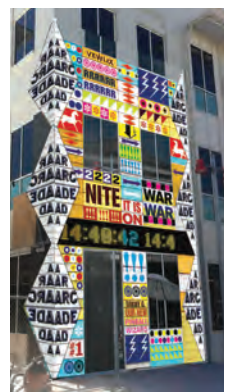
1-230 2012: Clear (Realmac, designer), checklist app with gesture-only interface.

1-231 2013: Experimental Jetset, Whitney Museum of American Art dynamic identity.



1-231

1-232 2013: Martin Venezky and Facebook Analog Research Lab, Facebook "arcade" signage.



1-232

Typographic design is a complex human activity, requiring a broad background for informed practice. This chapter explores the basic language of typography. Letterforms, the fundamental components of all typographic communications, are carefully examined. Nomenclature, measurement, and the nature of typographic font and family are presented.

The alphabet is a series of elemental visual signs in a fixed sequence, representing spoken sounds. Each letter signifies only one thing: its elementary sound or name. The twenty-six characters of our alphabet can be combined into hundreds of thousands of words, creating a visual record of the spoken language. This is the magic of writing and typography, which have been called “thoughts made visible” and “frozen sounds.”



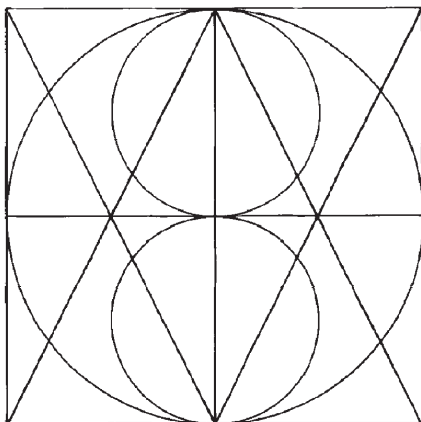
**2-1** Strokes made with a reed pen (top), with a brush (middle), and with a chisel (bottom).

The four timelines in Chapter 1 graphically present the evolution of letterforms and typographic design from the beginning of writing to the present. Our contemporary typographic forms have been forged by this historical evolution. Typography evolved from handwriting, which is created by making a series of marks by hand; therefore, the fundamental element constructing a letterform is the linear stroke. Each letter of our alphabet developed as a simple mark whose visual characteristics clearly separated it from all the others.

The marking properties of brush, reed pen, and stone engraver's chisel influenced the early form of the alphabet (Fig. 2-1). The reed pen, used in ancient Rome and the medieval monastery, was held at an angle, called a cant, to the page. This produced a pattern of thick and thin strokes. Since the time of the ancient Greeks, capital letterforms have consisted of simple geometric forms based on the square, circle, and triangle. The basic shape of each capital letter can be extracted from the structure in Figure 2-2, which is composed of a bisected square, a circle, a triangle, an inverted triangle, and two smaller circles.

The resulting vocabulary of forms, however, lacks several important attributes: optically adjusted proportions, expressive design properties, and maximum legibility and readability. The transition from rudimentary marks to letterforms with graphic clarity and precision is a matter of design.

Because early capital letters were cut into stone, these letters developed with a minimum number of curved lines, for curved strokes were difficult to cut (Fig. 2-3). Lowercase letters evolved with reed-pen writing. Curved strokes could be written quickly and were used to reduce the number of strokes needed to write many characters.



**2-2**



**2-3** Capital and lowercase letterform construction.

**The parts of letterforms**

Over the centuries, a nomenclature has evolved that identifies the various components of individual letterforms. By learning this vocabulary, designers and typographers can develop a greater understanding of and sensitivity to the visual harmony and complexity of the alphabet.

In medieval times, horizontal guidelines were drawn to contain and align each line of lettering. Today, letterforms and their parts are drawn on imaginary guidelines to bring uniformity to typography. All characters align optically on the baseline. The body height of lowercase characters aligns optically at the x-height, and the tops of capitals align optically along the capline. To achieve precise alignments, the typeface designer makes optical adjustments.

Figures 2-4 to 2-12 identify the major components of letterform construction.

**2-4**



**Capline:** An imaginary line that runs along the tops of capital letters and the ascenders of lowercase letters.

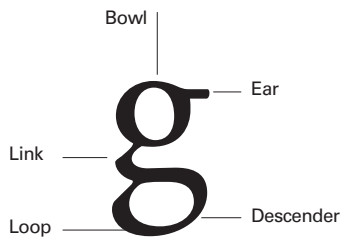
**Meanline:** An imaginary line that establishes the height of the body of lowercase letters.

**x-height:** The distance from the baseline to the meanline. Typically, this is the height of lowercase letters and is most easily measured on the lowercase x.

**Baseline:** An imaginary line upon which the base of each capital rests.

**Beard line:** An imaginary line that runs along the bottoms of descenders.

2-5



**Bowl:** A curved stroke enclosing the counterform of a letter. An exception is the bottom form of the lowercase roman g, which is called a loop.

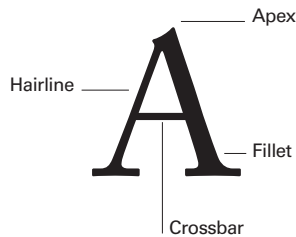
**Ear:** A small stroke that projects from the upper right side of the bowl of the lowercase roman g.

**Link:** The stroke that connects the bowl and the loop of a lowercase roman g.

**Descender:** A stroke on a lowercase letterform that falls below the baseline.

**Loop:** See Bowl.

2-6



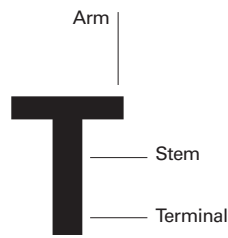
**Apex:** The peak of the triangle of an uppercase A.

**Hairline:** The thinnest stroke within a typeface that has strokes of varying weights.

**Fillet:** The contoured edge that connects the serif and stem in bracketed serifs. (Bracketed serifs are connected to the main stroke by this curved edge; unbracketed serifs connect to the main stroke with an abrupt angle without this contoured transition.)

**Crossbar:** The horizontal stroke connecting two sides of the letterform (as in e, A, and H) or bisecting the main stroke (as in f and t).

2-7

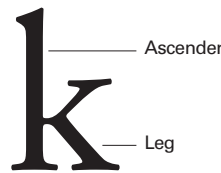


**Arm:** A projecting horizontal stroke that is unattached on one or both ends, as in the letters T and E.

**Stem:** A major vertical or diagonal stroke in the letterform.

**Terminal:** The end of any stroke that does not terminate with a serif.

2-8



**Ascender:** A stroke on a lowercase letter that rises above the meanline.

**Leg:** The lower diagonal stroke on the letter k.

2-9

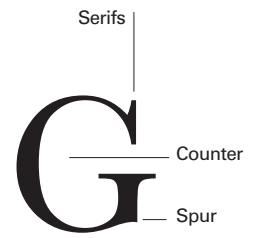


**Shoulder:** A curved stroke projecting from a stem.

**Stroke:** Any of the linear elements within a letterform; originally, any mark or dash made by the movement of a pen or brush in writing.

**Tail:** A diagonal stroke or loop at the end of a letter, as in R or j.

2-10



**Serifs:** Short strokes that extend from and at an angle to the upper and lower ends of the major strokes of a letterform.

**Counter:** The negative space that is fully or partially enclosed by a letterform.

**Spur:** A projection smaller than a serif that reinforces the point at the end of a curved stroke, as in the letter G.

2-11

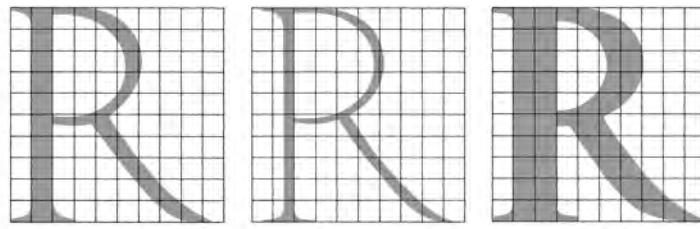


**Spine:** The central curved stroke of the letter S.

2-12



**Eye:** The enclosed part of the lowercase e.



2-13

### Proportions of the letterform

The proportions of the individual letterform are an important consideration in typography. Four major variables control letterform proportion and have considerable impact upon the visual appearance of a typeface: the ratio of letterform height to stroke width; the variation between the thickest and thinnest strokes of the letterform; the width of the letters; and the relationship of the x-height to the height of capitals, ascenders, and descenders.

**Stroke-to-height ratio.** The roman letterform, above, has the stroke-width-to-capital-height proportion found on Roman inscriptions (Fig. 2-13). Superimposition on a grid demonstrates that the height of the letter is ten times the stroke width. In the adjacent rectangles, the center letter is reduced to one-half the normal stroke width, and the letter on the right has its stroke width expanded to twice the normal width. In both cases, pronounced change in the weight and appearance of the letterform occurs.

**Contrast in stroke weight.** A change in the contrast between thick and thin strokes can alter the optical qualities of letterforms. The series of *O*'s in Figure 2-14, shown with the date of each specimen, demonstrates how the development of technology and printing has enabled typeface designers to make thinner strokes.

In the Old Style typography of the Renaissance, designers attempted to capture some of the visual properties of pen writing. Since the writing pens of the period had a flat edge, they created thick and thin strokes. *Stress* is the term used to define

this thickening of the strokes, which is particularly pronounced on curves. Note how the placement of weight within the Old Style *O* creates a diagonal axis. As time has passed, type designers have been less influenced by writing.

By the late 1700s, the impact of writing declined, and this axis became completely vertical in many typefaces of that period. In many of the earliest sans serif typefaces, stress disappeared completely. Some of these typefaces have a monoline stroke that is completely even in weight.

### Expanded and condensed styles.

The design qualities of a typographic font change dramatically when the widths of the letterforms are expanded or condensed. The word *proportion*, set in two sans serif typefaces, demonstrates extreme expansion and condensation (Fig. 2-15). In the top example, set in Aurora Condensed, the stroke-to-height ratio is 1 to 9. In the bottom example, set in Information, the stroke-to-height ratio is 1 to 2. Although both words are exactly the same height, the condensed typeface takes up far less area on the page.

**x-height and proportion.** The proportional relationship between the x-height and capital, ascender, and descender heights influences the optical qualities of typography in a significant way. The same characters are set in 72-point type using three typefaces with widely varying x-heights (Fig. 2-16). This example demonstrates how these proportional relationships change the appearance of type. The impact of x-height upon legibility will be discussed in Chapter 3.



1499 Old Style



1757 Baskerville



1793 Bodoni



1816 First sans serif



c. 1928 Ultra Bodoni



1957 Univers 55

2-14

**PROPORTION PROPORTION**

2-15

2-16 On the same-size body (72 point), the x-height variation between three typefaces—Garamond 3, Bodoni, and Univers—is shown. The proportion of the x-height to the point size significantly affects the appearance of type.



72 points

A font is a set of characters of the same size and style containing all the letters, numbers, and marks needed for typesetting. A typographic font exhibits structural unity when all the characters relate to one another visually. The weights of thick and thin strokes must be consistent, and the optical alignment of letterforms must appear even. The distribution of lights and darks within each character and in the spaces between characters must be carefully controlled to achieve an evenness of tone within the font.

In some display faces, the font might include only the twenty-six capital letters. In a complete font for complex typesetting, such as for textbooks, it is possible to have nearly two hundred characters. The font for Adobe Garamond (Fig. 2-17) includes the following types of characters:

2-17

abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 1234567890& 1234567890& 1234567890&  
 1/4 1/2 3/4 1/8 3/8 5/8 7/8 1/3 2/3 0/00 1234567890/1234567890-

ffiffiffi Æ CE ß R p æ œ √ π = ± + ÷ ∞ ° - - -  
 Â Ã Ä Å Ç È Ì Í Î Ï Ñ Ò Ó Ô Ù ( , ; : ' " ! ? ^ ˇ ˘ ˙ ˚ ˛ ˜ ˝ ˞ ˟ ˠ ˡ ˢ ˣ ˤ ˥ ˦ ˧ ˨ ˩ ˪ ˫ ˬ ˭ ˮ ˯ ˰ ˱ ˲ ˳ ˴ ˵ ˶ ˷ ˸ ˹ ˺ ˻ ˼ ˽ ˾ ˿ ˿  
 á é í ó ú ä å ã ä ö ü à è ì ò ù â ê î ô û ø Á É Í Ó Ú Å Ä Æ Ï Ö  
 ™ © ® @ # \$ % & ' ( ) \*  
 { } [ ] ; ¢ § ¶ • † ‡

**Lowercase:** The smaller set of letters, so named because in metal typesetting these were stored in the lower part of a type case.

**Capitals:** The set of large letters that is used in the initial position.

**Small caps:** A complete set of capital letters that are the same height as the x-height of the lowercase letters. These are often used for abbreviations, cross-references, and emphasis.

**Lining figures:** Numbers that are the same height as the capital letters and sit on the baseline.

**Old Style figures:** A set of numbers that are compatible with lowercase letters; 1, 2, and 0 align with the x-height; 6 and 8 have ascenders; and 3, 4, 5, 7, and 9 have descenders.

**Superior and inferior figures:** Small numbers, usually slightly smaller than the x-height, used for footnotes and fractions. Superior figures hang from the capline, and inferior figures sit on the baseline.

**Fractions:** Common mathematical expressions made up of a superior figure, an inferior figure, and a slash mark. These are set as a single type character.

**Ligatures:** Two or more characters linked together as one unit, such as *ff*. The ampersand is a ligature originating as a letter combination for the French word *et* (and) in medieval manuscripts.

**Digraphs:** Ligatures composed of two vowels, which are used to represent a diphthong (a monosyllabic speech sound composed of two vowels).

**Mathematical signs:** Characters used to notate basic mathematical processes.

**Punctuation:** A system of standard signs used in written and printed matter to structure and separate units and to clarify meaning.

**Accented characters:** Characters with accents for foreign language typesetting or for indicating pronunciation.

**Dingbats:** Assorted signs, symbols, reference marks, and ornaments designed for use with a type font.

**Monetary symbols:** Logograms used to signify monetary systems (U.S. dollar and cent marks, British pound mark, and so on).

### Optical relationships within a font

Mechanical and mathematical letterform construction can result in serious spatial problems, because diverse forms within an alphabet appear optically incorrect. These letterform combinations show the optical adjustment necessary to achieve visual harmony within a font.

Pointed and curved letters (Fig. 2-18) have little weight at the top and/or bottom guidelines; this can make them appear too short. To make them appear the same height as letters that terminate squarely with the guidelines, the apexes of pointed letters extend beyond the baseline and capline. Curved letterforms are drawn slightly above and below these lines to prevent them from appearing too small.

In two-storied capitals and figures (Fig. 2-19), the top half appears too large if the form is divided in the mathematical center. To balance these letters optically, the center is slightly above the mathematical center, and the top halves are drawn slightly narrower than the bottom half.

Horizontal strokes (Fig. 2-20) are drawn slightly thinner than vertical strokes in both curved and straight letterforms. Otherwise, the horizontals would appear too thick.

Tight junctions where strokes meet (Fig. 2-21) are often opened slightly to prevent the appearance of thickening at the joint.

Letters combining diagonal and vertical strokes (Fig. 2-22) must be designed to achieve a balance between the top and bottom counterforms.

Strokes can be tapered slightly to open up the spaces, and adjustments in the amount of stroke overlap can achieve a harmony of parts. Letters whose vertical strokes determine their height (Fig. 2-23) are drawn slightly taller than letters whose height is determined by a horizontal stroke. Optically, they will appear to be the same height.

The stroke weight of compact letterforms (Fig. 2-24), such as those with closed counterforms, are drawn slightly smaller than the stroke weight of letterforms having open counterforms. This balances the weight optically.

Curved strokes are usually thicker at their midsection than vertical strokes, to achieve an even appearance (Fig. 2-25).

These adjustments are very subtle and are often imperceptible to the reader. However, their overall effect is a more ordered and harmonious appearance.



A E V O

2-18



H B E S K X 38

2-19



E T O

2-20



M

2-21



N K

2-22



H E

2-23



M B N B

2-24



O H Q

2-25



**2-26**

*Curved capitals share a common round stroke.*

DCGOQ

*The diagonal strokes of the A are repeated in V W M. Lowercase letters have common serifs.*

AVWM jiru

*F E B demonstrates that the more similar letters are, the more common parts they share. Repetition of the same stroke in m n h u t creates unity.*

FEB mnhut

*Likewise, the letters b d p q share parts. Capital serifs recur in similar characters.*

bdpq SCGH

BRKPR atfr

*Subtle optical adjustments can be seen. For example, the bottom strokes of the capital Z and L have longer serifs than the bottom stroke of the E. This change in detail compensates for the larger counterform on the right side of the first two letters.*

ZLE MYX

bq bhlk ceo

**Unity of design in the type font**

Tremendous diversity of form exists in the typographic font. Twenty-six capitals, twenty-six lowercase letters, ten numerals, punctuation, and other graphic elements must be integrated into a system that can be successfully combined into innumerable words.

Letterform combinations from the Times Roman Bold font (Fig. 2-26) demonstrate visual similarities that bring wholeness to typography. Letterforms share similar parts. Repeated curves, verticals, horizontals, and serifs are combined to bring variety and unity to typographic designs using this typeface. All well-designed type fonts display this principle of repetition with variety that is demonstrated in Times Roman Bold.

## HISTORICAL CLASSIFICATION OF TYPEFACES

An infinite variety of type styles is available today. Digital typography has made the entire array of typefaces developed over the centuries available for contemporary use. Numerous efforts have been made to classify typefaces, with most falling into the following major categories. Some classification systems add a decorative, stylized, or novelty category for the wide range of fanciful type styles that defy categorization. A selection of decorative typefaces appears on pages 324 and 325.

### Old Style

Old Style type began with designs of the punch cutter Francesco Griffo, who worked for the famous Venetian scholar-printer Aldus Manutius during the 1490s. Griffo's designs evolved from earlier Italian type designs. His Old Style capitals were influenced by carved Roman capitals; lowercase letters were inspired by fifteenth-century humanistic writing styles, based on the earlier minuscules. Old Style letterforms have the weight stress of rounded forms at an angle, as in handwriting. The serifs are bracketed (that is, unified with the stroke by a tapered, curved line). Also, the top serifs on the lowercase letters are at an angle.

### *Italic*

*Italic letterforms slant to the right. Today, we use them primarily for emphasis and differentiation. When the first italic appeared in the earliest "pocket book," printed by Aldus Manutius in 1501, it was used as an independent typestyle. The first italic characters were close-set and condensed; therefore, Manutius was able to get more words on each line. Some italic styles are based on handwriting, with connected strokes, and are called scripts.*

### Transitional

During the 1700s, typestyles gradually evolved from Old Style to Modern. Typefaces from the middle of the eighteenth century, including those by John Baskerville, are called transitional. The contrast between thick and thin strokes is greater than in Old Style faces. Lowercase serifs are more horizontal, and the stress within the rounded forms shifts to a less diagonal axis. Transitional characters are usually wider than Old Style characters.

### Modern

Late in the 1700s, typefaces termed Modern evolved from transitional styles. These typefaces have extreme contrasts between thick and thin strokes. Thin strokes are reduced to hairlines. The weight stress of rounded characters is vertical. Serifs are horizontal hairlines that join the stems at a right angle without bracketing. The uppercase width is regularized; wide letters such as *M* and *W* are condensed, and other letters, including *P* and *T*, are expanded. Modern Style typefaces have a strong geometric quality projected by rigorous horizontal, vertical, and circular forms.



*Garamond*



*Garamond Italic*



*Baskerville*



*Bodoni*

---

## Egyptian

In 1815, the English typefounder Vincent Figgins introduced slab serif typestyles under the name Antique. At the time, there was a mania for ancient Egyptian artifacts, and other typefounders adopted the name Egyptian for their slab serif designs. These typestyles have heavy square or rectangular serifs that are usually unbracketed. The stress of curved strokes is often minimal. In some slab serif typefaces, all strokes are the same weight.



*Serifa*

### Sans serif

The first sans serif typestyle appeared in an 1816 specimen book of the English typefounder William Caslon IV. The most obvious characteristic of these styles is, as the name implies, the absence of serifs. In many sans serif typefaces, strokes are uniform, with little or no contrast between thick and thin strokes. Stress is almost always vertical. Many sans serif typefaces are geometric in their construction; others combine both organic and geometric qualities. Sans serif typefaces can be further classified as described here.

---

## Grotesque

The earliest sans serif typestyle to be developed was Grotesque. In Grotesque, strokes have some varied contrast in width. Curves have a squareness, with curling, close-set jaws. The capital *R* often has a curled leg, and the capital *G* has a spur. Curved strokes are usually terminated obliquely, adding to the often idiosyncratic characteristics of Grotesque typefaces.



*Franklin Gothic*

## Neo-grotesque

As the name implies, Neo-grotesque typefaces are a further derivation of Grotesque. That said, they have less contrast in stroke width than Grotesque typefaces and are simpler in form and proportion. Curved strokes usually terminate as a horizontal. Higher x-heights and shorter descenders combine with wider openings between stroke terminations, giving letterforms a more uniform appearance and a more open form.



*Helvetica*

## Humanist

Instead of being derived from Grotesques, humanist typefaces share the proportions and pronounced stroke width variation of handwritten Roman capitals and of lowercase Caroline minuscules. Letterforms are more calligraphic than other sans serif typefaces and display some diagonal stress. The lowercase *a* and *g* are usually two-storied.



*Meta*

## Geometric

Geometric typefaces are composed of simple geometric shapes like circles and rectangles. To emphasize this simple form, stroke width variation is minimal. To strongly unify letterforms, many visual components and glyphs are shared. The lowercase *a* and *g* are single-storied.



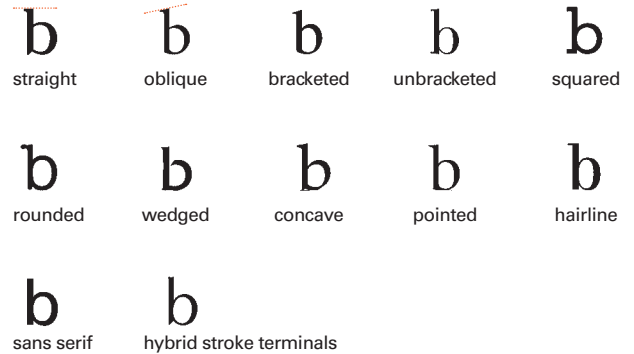
*Futura*

Digital technology has stimulated the design and production of countless new typefaces whose visual characteristics defy standard classification. The visual traits of these hybrid forms may fall into more than one of the historical classifications presented on the preceding pages. The following is a classification system derived from the visual features common to letters throughout the typeface kingdom. It may be used for comparative purposes to pinpoint the most dominant traits of specific typefaces. Type designers use these variations to create a family of typefaces. The type family is discussed on pages 45–48.

### Serifs

Serifs provide some of the most identifiable features of typefaces, and in some cases they reveal clues about their evolution. The serifs shown are those that appear most frequently in typefaces (Fig. 2-27).

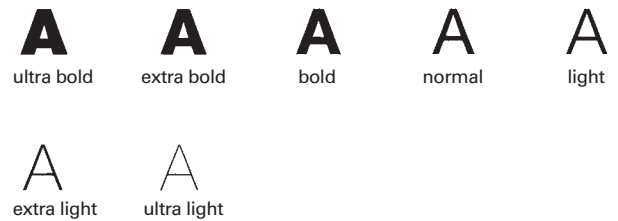
2-27



### Weight

This is a feature defined by the ratio between the relative width of the strokes of letterforms and their height. On the average, a letter of normal weight possesses a stroke width of approximately 15 percent of its height, whereas bold is 20 percent and light is 10 percent (Fig. 2-28).

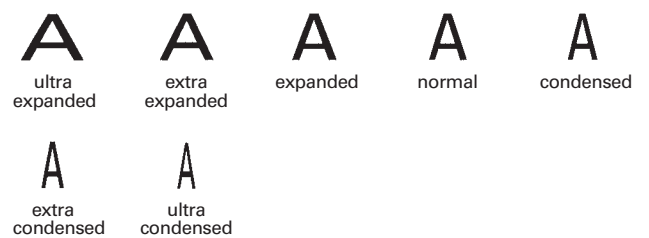
2-28



### Width

Width is an expression of the ratio between the black vertical strokes of the letterforms and the intervals of white between them. When white intervals appear larger, letters appear wider. A letter whose width is approximately 80 percent of its height is considered normal. A condensed letter's width is 60 percent of its height, and an expanded letter's width is 100 percent of its height (Fig. 2-29).

2-29

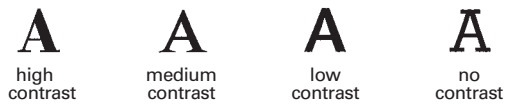


### Posture

Roman letters that slant to the right but are structurally the same as upright roman letters are referred to as oblique. Italic letters, which are based on handwriting, are structurally different from roman letters of the same type family. Italic letters with connecting strokes are called scripts. The angle of posture varies from typeface to typeface; however, a slant of approximately 12 percent is considered normal (Fig. 2-30).

2-30





2-31

**Thick/thin contrast**

This visual feature refers to the relationship between the thinnest parts of the strokes in letters and the thickest parts. The varying ratios between these parts produce a wide range of visual textures in text type (Fig. 2-31).



2-32

**x-height**

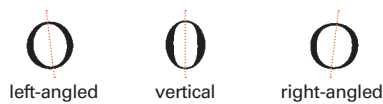
As it is based on the height of lowercase letters without ascenders or descenders, x-height can vary immensely in different typefaces of the same size. Typically, x-heights are considered “large” when they are at least two-thirds the height of capital letters. They are “small” when they measure one-half the height of capital letters (Fig. 2-32).



2-33

**Ascenders/descenders**

Ascenders and descenders may appear longer in some typefaces and shorter in others, depending on the relative size of the x-height. Descenders are generally slightly longer than ascenders among letters of the same typeface (Fig. 2-33).

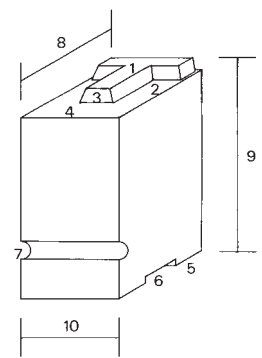


2-34

**Stress**

The stress of letters, which is a prominent visual axis resulting from the relationships between thick and thin strokes, may be left-angled, vertical, or right-angled in appearance (Fig. 2-34).

1. Face (printing surface)
2. Counter
3. Beard
4. Shoulder
5. Feet
6. Groove
7. Nick
8. Point size (body size)
9. Type-high (.918" height)
10. Set width



2-35

Our measurement system for typography was originally developed for the handset metal type invented by Johann Gutenberg around 1450. The rectangular metal block of type (Fig. 2-35) has a raised letterform on top, which was inked to print the image.

**Metal type measurement**

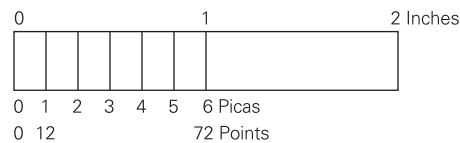
The small sizes of text type necessitated the development of a measuring system with extremely fine increments. There were no standards for typographic measurements until the French type designer and founder Pierre Simon Fournier le Jeune introduced his point system of measurement in 1737. The contemporary American measurement system, which was adopted during the 1870s, has two basic units: the point and the pica (Fig. 2-36). There are approximately seventy-two points in an inch (each point is 0.138 inches) and twelve points in a pica. There are about six picas in an inch.

Metal type exists in three dimensions, and an understanding of typographic measurement begins with this early technology. The depth of the type (Fig. 2-35, caption 8) is measured in points and is called the point size or body size. All metal type must be the exact same height (Fig. 2-35, caption 9), which is called type-high (0.918 inch). This uniform height enabled all types to print a uniform impression upon the paper. The width of a piece of type is called the set width (Fig. 2-35, caption 10) and varies with the design of each individual letter. The letters *M* and *W* have the widest set width; *i* and *l* have the narrowest. The length of a line of type is the sum of the set width of all the characters and spaces in the line. It is measured in picas.

Before the development of the point and pica system, various sizes of type were identified by names, such as *brevier*, *long primer*, and *pica*; these became 8-point, 10-point, and 12-point type. The chart in Figure 2-37, reproduced from a nineteenth-century printers' magazine, shows the major point sizes of type with their old names.

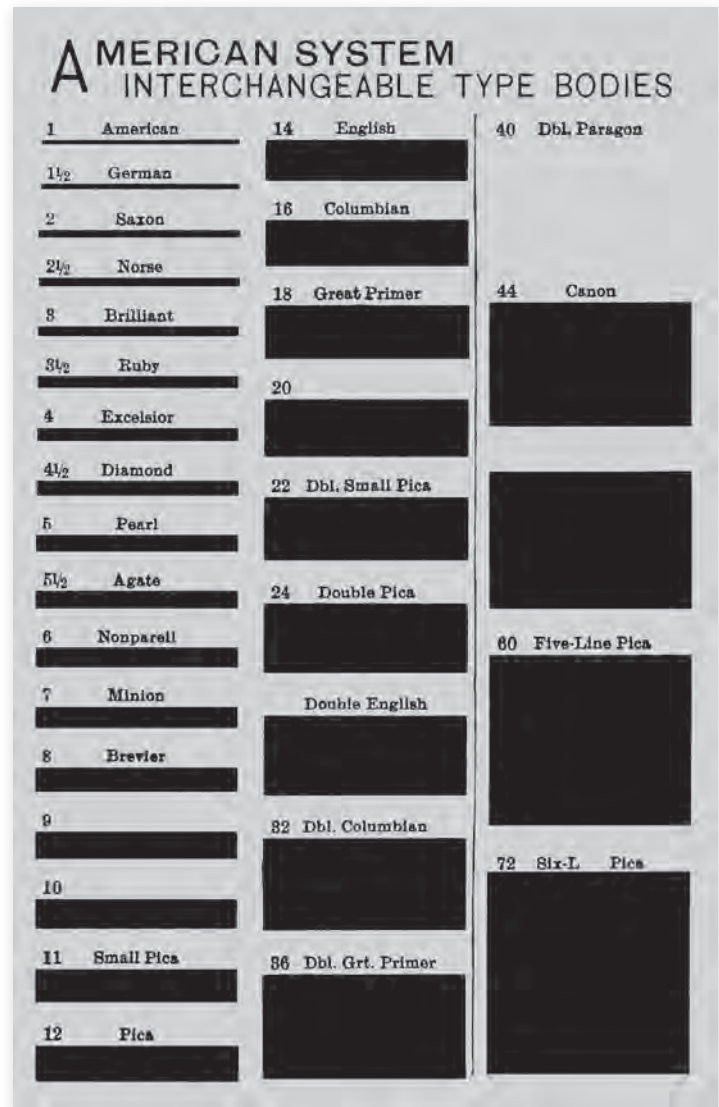
Type that is 12 point or less is called body type and is primarily used for paragraphs of text. Sizes above 14 point are called display type, and they are used for titles, headlines, signage, and the like.

Traditional metal type had a range of text and display sizes in increments from 5 point to 72 point (Fig. 2-38). The measurement of point size is a measurement of the metal block of type including space above and below the letters; therefore, one cannot measure the point size from printed letters themselves. This is sometimes confusing. Refer to the labels for x-height, cap height, and point size on Figure 2-38 and observe that the point size includes the cap height plus a spatial interval above and below the letters.

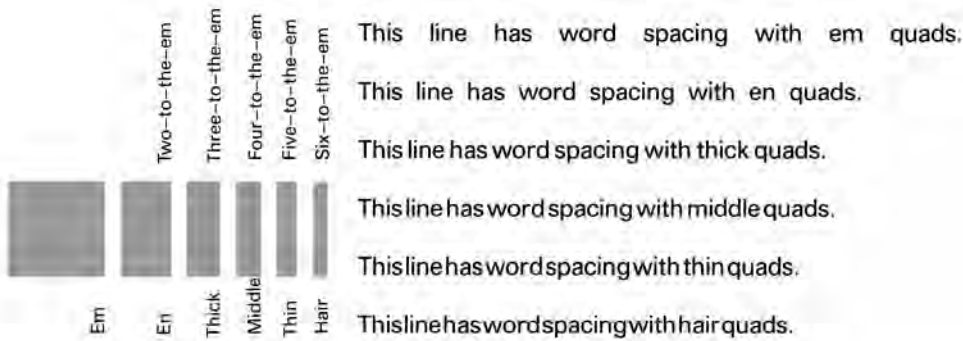


6 Picas = 1 Inch  
 12 Points = 1 Pica  
 72 Points = 1 Inch

2-36



2-37 Reproduced actual size from the Inland Printer, April 1885.

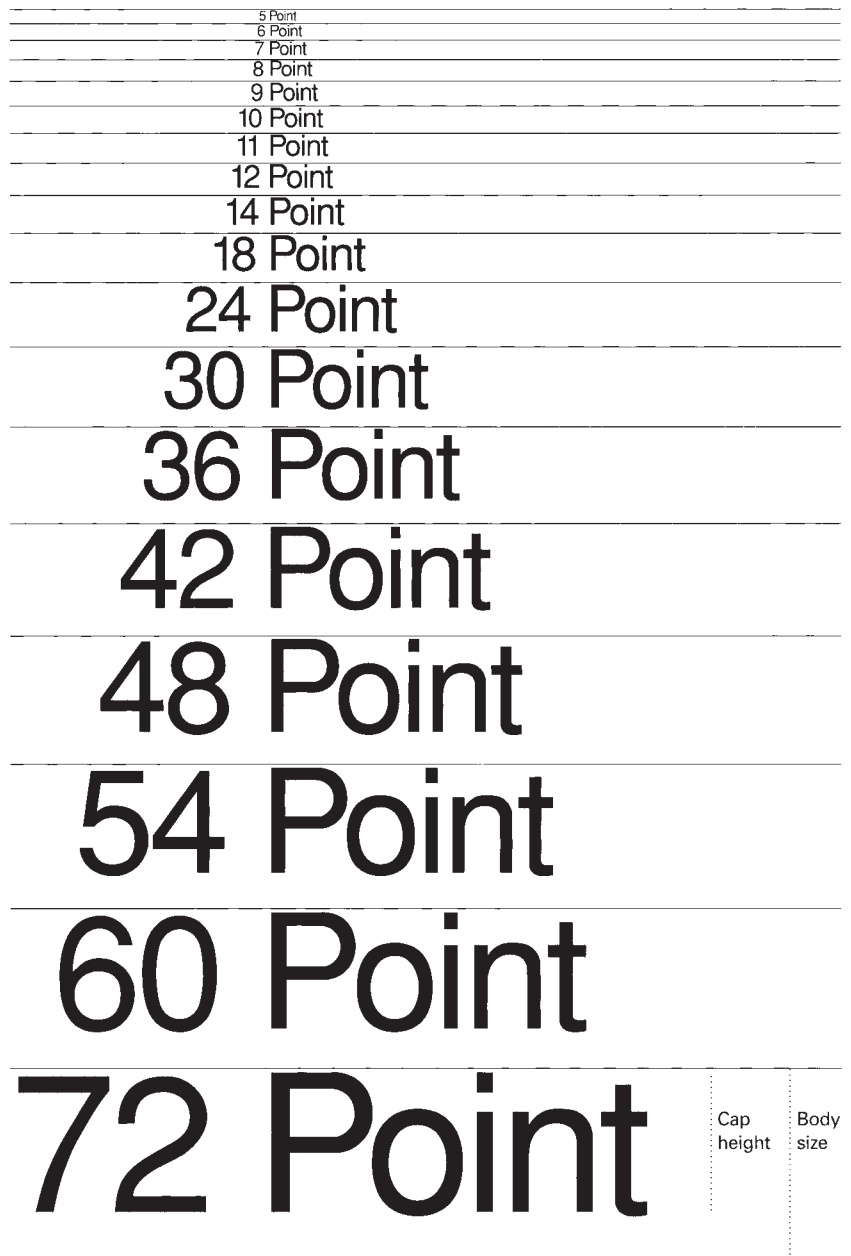


2-39

### Spatial measurement

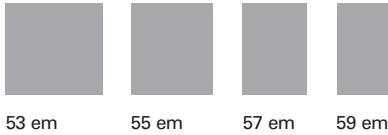
In addition to measuring type, the designer also measures and specifies the spatial intervals between typographic elements. These intervals are: interletter spacing (traditionally called letterspacing), which is the interval between letters; interword spacing, also called wordspacing, which is the interval between words; and interline spacing, which is the interval between two lines of type. Traditionally, interline space is called leading, because thin strips of lead are placed between lines of metal type to increase the spatial interval between them.

In traditional metal typography, interletter and interword spacing are achieved by inserting metal blocks called *quads* between the pieces of type. Because these are not as high as the type itself, they do not print. A quad that is a square of the point size is called an *em*. One that is one-half an em quad is called an *en*. In metal type, other smaller divisions of space are fractions of the em (Fig. 2-39). These metal spacers are used for letter- and wordspacing, paragraph indentions, and centering or justifying lines of type.



2-38

Univers



2-40

This line is set with plus ten units of interletter spacing.

This line is set with normal, unaltered interletter spacing.

This line is set with minus five units of interletter spacing.

This line is set with minus ten units of interletter spacing.

This line is set with minus twenty units of interletter spacing.

2-42

For design considerations, the em of a condensed typestyle can be narrower than a square, and the em of an expanded typestyle can be wider than a square. This is demonstrated by the em quads from four styles in the Univers family of typefaces (Fig. 2-40).

While *em* and *en* are still used as typographic terms, spacing in digital typesetting uses a unit system. The *unit* is a relative measurement determined by dividing the em (that is, the square of the type size) into equal vertical divisions. Different typesetting systems use different numbers of units; 16, 32, and 64 are common. Desktop publishing software permits adjustments in thousandths of an em. The width of each character (Fig. 2-41) is measured by its unit value.

During typesetting, the character is generated, then the software advances the number of units assigned to that character before generating the next character. The unit value includes space on each side of the letter for normal interletter spacing. Adding or subtracting units to expand or contract the space between letters is called *tracking*. Changing the tracking changes the tone of the typography (Fig. 2-42). Tracking influences the aesthetics and legibility of typesetting.

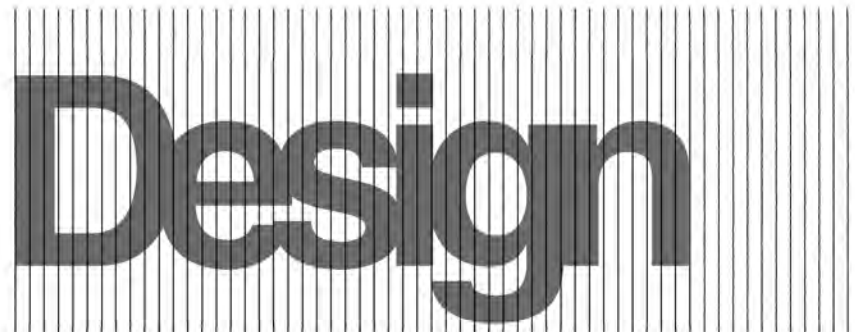
Some letter combinations, such as *TA*, have awkward spatial relationships. An adjustment in the interletter space to make the interval more consistent with other letter combinations is called *kerning*. In metal type, kerning was achieved by sawing notches in the type blocks. Contemporary typesetting software contains automatic kerning pairs, and the designer can manually change the kerning between characters when these awkward combinations appear.



The unit value of each letter in the word Design is shown.



In this setting, minus one unit is used for tighter interletter spacing.



In this setting, minus two units is used. The letters touch.

2-41



A type family consists of a group of related typefaces, unified by a set of similar design characteristics. Each face in the family is individual, and each has been created by changing visual aspects of the parent font. Early type families consisted of three fonts: the regular roman face, a bolder version, and an italic. The roman, bold, and italic fonts of the Baskerville family (Fig. 2-43) demonstrate that a change in stroke weight produces the bold version, and a change in stroke angle creates the italic. The bold font expands typographic possibilities by bringing impact to titles, headings, and display settings. Today, italics are primarily used for emphasis, by contrast with roman. In addition to weight and angle changes, additional members of a type family are created by changing proportions or by design elaboration.

**Weight changes.** By simply changing the stroke width relative to the height of the letters, a whole series of alphabets, ranging from extremely light to very bold, can be produced. In England, a classification standard has been developed that contains eight weights: extralight, light, semilight, medium, semibold, bold, extrabold, and ultrabold. Most type families do not, however, consist of eight weights. Four weights—light, regular or book, medium, and bold—are often sufficient for most purposes. In the Avant Garde family (Fig. 2-44), stroke weight is the only aspect that changes in these five fonts.

**Proportion.** Changing the proportions of a typestyle by making letterforms wider (expanded) or narrower (condensed), as discussed earlier, is another method for adding typefaces to a type family. Terms used to express changes in proportion include: ultraexpanded, extraexpanded, expanded, regular, condensed, extracondensed, and ultracondensed.

Sometimes confusion results because there is no standardized terminology for the variations in type families. For example, the regular face is sometimes called *normal*, *roman*, or *book*. Light weights are named *lightline*, *slim*, and *hairline*. *Black*, *elephant*, *massive*, *heavy*, and *thick* have been used to designate bold weights. Names given to condensed variations include *narrow*, *contracted*, *elongated*, and *compressed*. Expanded faces have been called *extended*, *wide*, and *stretched*.

Baskerville  
*Baskerville*  
 Baskerville

2-43

AVANT GARDE  
 AVANT GARDE  
 AVANT GARDE  
 AVANT GARDE  
 AVANT GARDE

2-44

*Futura Italic*  
*Baskerville Italic*  
*Bodoni Italic*

2-45



2-46 *Elaborations of Helvetica Medium.*

**Angle.** In our discussion about the basic classification of typefaces, italics were presented as a major independent category. They were first introduced four hundred years ago as a new style. Now italics serve as a member of type families, and they are used for contrast or emphasis. Italic fonts that retain curvilinear strokes inspired by handwriting are called cursives or scripts. In geometric typefaces constructed with drafting instruments, the italic fonts created by slanting the stroke angle are called obliques. Baskerville Italic (Fig. 2-45) is a cursive, demonstrating the influence of handwriting; Futura Italic is an oblique face; and Bodoni Italic has both cursive and oblique qualities. Although the Bodoni family was constructed with the aid of drafting instruments, details in the italic font (for example, some of the lower serifs) evidence a definite cursive quality.

**Elaboration.** In design, an elaboration is an added complexity, fullness of detail, or ornamentation. Design elaboration can be used to add new typefaces to a type family. These might include outline fonts, three-dimensional effects, and the application of ornaments to letterforms. Some of the variations of Helvetica (Fig. 2-46) that are available from the German firm of Dr. Boger Photosatz GmbH include outlines, inlines, perspectives, rounded terminals, and even a chipped antique effect.

While many elaborations are gaudy and interfere with the integrity and legibility of the letterforms, others can be used successfully.

Gill Sans Shadowed (Fig. 2-47) is based on Gill Sans. A black shape, suggesting dimensionality, is placed behind each letter.

Decorative and novelty typestyles should be used with great care by the graphic designer. At best, these can express a feeling appropriate to the content and can allow for unique design solutions. Unfortunately, the use of design elaboration is often a mere straining for effect.

**The Cheltenham family**

One of the most extensive type families is the Cheltenham series of typefaces (Fig. 2-48). The first version, Cheltenham Old Style, was initially designed around the turn of the century by architect Bertram G. Goodhue in collaboration with Ingalls Kimball of the Cheltenham Press in New York City. When this typeface went into commercial production at the American Type Founders Company, designer Morris F. Benton supervised its development. Benton designed about eighteen additional typefaces for the Cheltenham family. Variations developed by other typefounders and manufacturers of typesetting equipment expanded this family to more than thirty styles. The design properties linking the Cheltenham family are short, stubby slab serifs with rounded brackets, tall ascenders and long descenders, and a moderate weight differential between thick and thin strokes.

GILL SANS SHADOWED

2-47



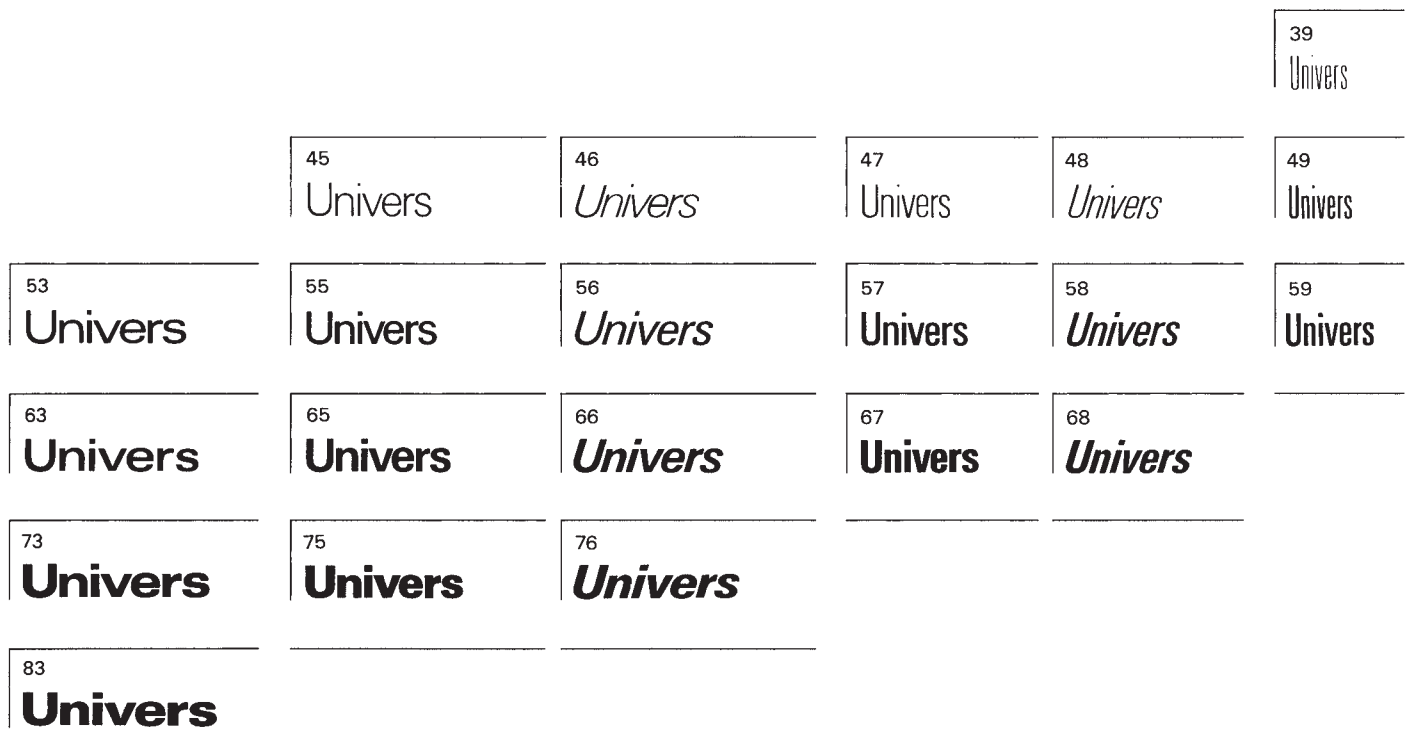
2-48

### The Univers family

A full range of typographic expression and visual contrast becomes possible when all the major characteristics—weight, proportion, and angle—are orchestrated into a unified family. An exceptional example is the Univers family (Fig. 2-49). This family of twenty-one typestyles was designed by Adrian Frutiger. Instead of the usual terminology, Frutiger used numerals to designate the typefaces. Univers 55 is the “parent” face; its stroke weight and proportions are the norm from which all the other designs were developed. The black to white relationships and proportions of Univers 55 are ideal for text settings. Careful study of Figure 2-49 reveals that the first digit in each font’s number indicates the stroke weight, 3 being the lightest and 8 the heaviest. The second digit indicates expansion and contraction of the

spaces within and between the letters, which results in expanded and condensed styles. Roman fonts are designated with an odd number, and oblique fonts are designated with an even number.

In the design of Univers, Frutiger sparked a trend in type design toward a larger x-height. The lowercase letters are larger relative to ascenders, descenders, and capitals; the size and weight of capitals are closer to the size and weight of lowercase letters. This creates increased harmony on the page of text. Because the twenty-one members of the Univers family share the same x-height, capital height, and ascender and descender length and are produced as a system, they can be intermixed and used together without limitation. This gives extraordinary design flexibility to the designer (Fig. 2-50).



Hear the

sledges with the

SILVER **Bells** - -

What a world of **merriment** their *melody* foretells!

How they *tinkle*,

*tinkle*,

While the stars that *tinkle*, in the icy air of night!

o v e r s p r i n k l e

All the heavens seem to **t**winkle

With a *crystalline* delight:

Keeping *time, time, time*,

In a sort of **Runic** rhyme,

To the **tintinnabulation** that so *musically* wells

From the *bells*,

bells,

Bells,

**BELLS,**

**BELLS** - -

From the *jingling* and the *tingling* of the bells,

**2-50** *Typographic interpretation of "The Bells," by Edgar Allan Poe, using the Univers family. (Designer: Philip Meggs)*



As signs representing sounds in spoken language, letters are basic to legible typography. The primary purpose of a letterform is to convey a recognizable meaning to the mind. Therefore, letterforms must be designed with clarity, each being distinct within the alphabet. The contrast among individual characters makes it possible for the reader to decipher written information without confusion.

The most legible typefaces are those timeless examples characterized by three qualities upon which legibility is dependent: contrast, simplicity, and proportion. These typefaces exemplify beautiful and functional letterforms. A close look at typefaces such as Garamond, Baskerville, and Bodoni will reveal why their forms are as vital now as when they were first designed. (See the type specimens in Chapter 13.) The use of well-designed typefaces, however, is no guarantee that typography will be legible. Effective typography depends upon such factors as the communications context and the subtle adjustment of letterforms and their spatial relationships, each of which may have an effect upon how easily typography is read. Making type legible is a masterful achievement, requiring a process of intelligent decision making.

In the strictest sense, legible typography is a means of communicating information objectively. However, typographic designers sometimes bend the traditional criterion of legibility for expressive purposes. Designers, with their instinctive curiosity, have experimented with typography, playing with forms, imposing new meaning, and changing the standards of typographic communication. Innovative typography poses original questions, challenges edicts of the past, and redefines the concepts of legibility and functionality.

This chapter approaches legibility as an art of spatial synthesis. As an art, it is not absolute. Therefore, information derived from legibility research should be considered only a guideline. The knowledge designers have of legibility is based upon a legacy of typographic history and a keen awareness of the visible world. This knowledge will continually evolve, creating new standards for readability and functional typography.

**Distinguishing characteristics of letters**

The alphabet consists of twenty-six letters, each of which has evolved over the centuries to a unique place within this system of signs. This evolution has occurred gradually. It is no accident that the individual shapes of letterforms have developed out of a need to improve the communication process. As the alphabet has evolved, it has become a flexible system of signs in which all letters are distinct, yet all work together harmoniously as visible language.

In spite of the innumerable variations of size, proportion, weight, and elaboration in letterform design, the basic structure of each letterform must remain the same. For example, the capital *A* always consists of two oblique strokes joined at the top and connected by a horizontal stroke at their midsection. Sufficient contrast must exist between the letters in a font so that they can be easily distinguished (Fig. 3-1).



**3-1** As the top stroke of the letter *a* rises to become the ascender of the *d*, intermediate forms are not easily deciphered by the reader.

Letters can be clustered into four groups, according to their contrasting properties. These are letterforms with strokes that are vertical, curved, a combination of vertical and curved, or oblique (Fig. 3-2). From these groupings, one notices not only that letters are similar in many ways but also that there are some important differences. Obviously, letters with similar characteristics are more likely to be confused, while letters with distinct qualities provide contrast within a word. Letters within a word are most legible when they are taken, in equal number, from each group.

**il**  
**acegos**  
**bdfhjmnprt**  
**kvwxyz**

**EFHILT**  
**COQS**  
**BDGJPRU**  
**AKMNVWXYZ**

**3-2** Four groupings show the structural relationships of all letters in the alphabet. The divisions are based on the dominant strokes of each letter.

**3-5** Words have a tendency to be misread and confused with one another when composed of letters of similar shape.

fail  
tail  
jail

**3-3** The upper halves of words are read with ease, while the lower halves are less legible.

I ECIRII ITV  
LEGIDILI I Y  
legihilitv  
legiiviiity

**3-4** More letters remain recognizable when only their right halves are exposed; however, there are exceptions (b,p).

cdo nr

A closer look at the alphabet reveals additional characteristics distinguishing letters. The upper halves of letters provide more visual cues for letter recognition than the lower halves (Fig. 3-3). Likewise, the right halves of letters are more recognizable than the left halves (Fig. 3-4). Dominant letters within the alphabet that aid in word recognition are those that have either ascenders or descenders. Through tests, researchers have contributed valuable information about the comparative legibility of each letter in the alphabet. Findings vary only slightly. Lowercase letters can be ranked according to their distinctiveness as follows: *d k m g h b p w u l j t v z r o f n a x y e i q c s*. This varies, however, with different typefaces.

The most frequently used letters, such as the vowels *a e i o u*, are among the most illegible, and *c g s x* are easily missed in reading. Other letters that often cause confusion and are mistaken for one another are *f i j l t*. For example, the words *fail*, *tail*, and *jail* each begin with letters of similar shape and could easily be misread. The eye could possibly perceive *f* as *t*, or *t* as *j* (Fig. 3-5). The designer should carefully study the words in display typography to identify such potential problems in legibility.

The perception of a letter is based upon the form/counterform relationship. Counterforms are as significant to legibility as the shapes of the letters themselves. This principle relates to all aspects of visual phenomena. A dancer manipulates space with the body, “making shape,” defining, and redefining space (Fig. 3-6). If the shape of a letter is changed, so is the way in which that letter is perceived. Letter shapes are cues that distinguish one letter in the alphabet from another (Fig. 3-7).



**3-6**

DANCER  
DANCER  
DANCER

G  
DANCER  
DANGER  
G

**3-6 and 3-7** As with the changing position of the dancer, subtle changes in the drawing of the forms and counterforms significantly affect perception.

Much controversy has surrounded the issue of the comparative legibility of serif and sans serif typefaces. One argument claims that serif text type is more readable because the serifs reinforce the horizontal flow of each line. Serif typefaces also offer more character definition: for example, the serif on the bottom horizontal stroke of a capital *E* accentuates the difference between it and a capital *F*. However, the relative legibility between serif and sans serif typefaces is negligible. Reader familiarity and the control of other legibility factors (to be discussed later) are far more significant than the selection of a serif or sans serif typeface. (See the type specimens in Chapter 13 to compare the legibility of serif and sans serif type.)

### The nature of words

While individual letters as discrete units, affecting all other spatial and aesthetic considerations, are the basis for a discussion of legibility, one reads and perceives words and groups of words, and not just letters. In discussing typographic legibility, Frederic Goudy observed that “a letter may not be considered apart from its kinsmen; it is a mere abstract and arbitrary form far remote from the original picture or symbol out of which it grew, and has no particular significance until it is employed to form part of a word.” There are two important factors involved in the reading process: word shape and internal pattern. Words are identified by their distinctive word shapes, strings of letters that are instantaneously perceived, permitting the reader to grasp content easily (Fig. 3-8). Counterforms create internal word patterns that provide cues for word recognition.

When these internal spaces are altered sufficiently, the perceptual clarity of a word may also be altered. The weight of letters is vital to word recognition and influences an adequate internal pattern. The combination of word shape and internal pattern creates a word structure, an all-inclusive term describing the unique composition of each word (Fig. 3-9).



shape



SHAPE

**3-8** Word recognition is based on word structure, a combination of word shape (defined by the contours of the letters) and internal word pattern. The word set in lowercase letters is more distinct than the word set in all capitals, because its irregular word shape makes it more recognizable.



O R D W  
R D W O  
D W O R  
R O W D  
W O R D  
O W R D

**3-9** Letters can be grouped in myriad combinations. Words that are perceived as having meaning are those with which we have become familiar over time. They form a distinct and familiar shape.

SPACING  
SPACING

**3-10** Misfit letter combinations and irregular spacing can be a problem, particularly for display type. Optical adjustments should be made to achieve spatial consistency between elements.



---

### Capital and lowercase letters

If text is set entirely in capital letters, it suffers a loss of legibility and the reader is placed at a significant disadvantage. Type set in this manner severely retards reading—more so than any other legibility factor. Figure 3-8 demonstrates that a word set in all capital letters is characterized by a straight horizontal alignment, creating an even word outline with letters of similar shape and size. A reader is not provided with the necessary visual cues that make words recognizable.

TEXT SET IN ALL CAPITAL LETTERS ALSO USES A SIGNIFICANTLY GREATER AMOUNT OF SPACE THAN TEXT SET IN LOWERCASE LETTERS OF THE SAME SIZE. AS MUCH AS 35 PERCENT MORE SPACE CAN BE CONSUMED WHEN USING ALL CAPITAL LETTERS.

On the other hand, text set in lowercase letters forms words that are distinct, based upon their irregular word shape and internal pattern. A variety of letter shapes, ascenders, and descenders provides rich contrasts that assure satisfactory perception. Once a specific word shape is perceived, it is stored in the reader's memory until the eye confronts it again while reading. A reader can become confused if a word takes on an appearance that differs from the originally learned word shape.

### Interletter and interword spacing

The spacing of letterforms has a significant impact on legibility. Most readers are unaware of the typographic designer's attention to this detail. Minute spatial relationships are controlled to create not only readable but beautiful and harmonious typographic communication. It takes great skill to specify spaces between letters and words, determining proper spatial relationships. Letters must flow rhythmically and gracefully into words, and words into lines.

Typographic texture and tone are affected by the spacing of letters, words, and lines. When the texture and the spatial intervals between typographic elements are consistent, the result is an easily readable text. Texture is also affected by qualities unique to the design of specific typefaces. Sometimes designers arrange type for specific spatial effects, sensitively balancing norms of legibility with graphic impact. (See the type specimens in Chapter 13.)

### *Reading is disrupted by inappropriate wordspacing*

Too much or too little space between letters and words destroys the normal texture intended by the typeface designer. As you read this sentence, notice that the narrow letter- and wordspacing causes words to merge together visually. Likewise, the extremely wide letterspacing of this sentence is also disruptive for the reader.

There is often a danger of misfit letter combinations, which, in earlier typesetting systems such as Linotype, could not be easily corrected. (If the type size is small and the type is evenly textured, this is a minor problem.) With phototypesetting and digital typesetting, these details can be corrected easily. The kerning of specific letter combinations can be programmed into the typesetting system. As type is set, appropriate letterspacing appears automatically (Fig. 3-10).

Space between letters and words should be proportional to the width of letters. This proportion is often open to personal judgment (Fig. 3-11). With experience and practice comes an understanding of the spacing that is suitable to a particular design project.

---

EdwardoJohnston,oaocalligrapher,oadvocated  
aowordospaceoequalotoaalowercaseoo.

3-11

AaronrBurns,rarinfluentialrtypographer,  
suggestedrwordrspacingrequalrtorarlowercaserr.

An appropriate line length is essential for achieving a pleasant reading rhythm, allowing a reader to relax and concentrate on the content of the words. Overly short or long lines will tire a reader. Excess energy is expended when reading long lines, and it is difficult to find the next line. A short column measure requires the eye to change lines too often, and there is an inadequate supply of horizontal perceptual cues.

3-12

### **Type size, line length, and interline spacing**

Critical to spatial harmony and legibility is an understanding of the triadic relationship of type size, line length, and interline spacing. When properly employed, these variables can improve the legibility of even poorly designed letterforms, or enhance the legibility of those forms considered highly legible.

It is difficult to generalize about which sizes of type should be used, how long lines should be, or how much space should be inserted between lines. These decisions are based upon comparative judgments. The guidelines discussed in this section can never replace the type designer's sensitively trained eye for typographic detail. The normal reading distance for most printed matter is from twelve to fourteen inches, a fact to be kept in mind when making decisions about type size, since it affects the way in which a specific type size is perceived.

Text type that is too small or too large makes reading difficult. Small type reduces visibility by destroying counterforms, which affect word recognition, while large type can force a reader to perceive type in sections rather than as a whole. According to legibility research, the most legible sizes of text type at normal reading distances range from 9 to 12 point. This range results from the wide variation of x-height in different typefaces.

That is, when typefaces of the same point size are placed side by side, they may appear to be different sizes because their x-heights vary radically. This is important to keep in mind when selecting typefaces and sizes.

An interesting comparison is the relationship between Univers 55 and Baskerville. Univers 55 has a very large x-height, with short ascenders and descenders. It appears much larger than Baskerville set in the same size, which has a smaller x-height and large ascenders and descenders. (See the type specimens in Chapter 13.)

Type sizes larger than 12 point may require more fixation pauses, making reading uncomfortable and inefficient. A fixation pause occurs when the eye stops on a line of type during reading, actually perceiving the meaning of groups of words. When there are fewer fixation pauses, there is greater reading efficiency and comprehension. When text type is smaller than 9 point, internal patterns can break down, destroying legibility. The reading audience is also a major consideration. For example, children learning to read need large type sizes in simple formats, as do adults with poor eyesight.

An appropriate line length is essential for achieving a pleasant reading rhythm, allowing a reader to relax and concentrate on the content of the words. Overly short or long lines will tire a reader. Excess energy is expended when reading long lines, and it is difficult to find the next line. A short column measure requires the eye to change lines too often, and there is an inadequate supply of horizontal perceptual cues. Compare the legibility of this paragraph with the legibility of Figures 3-12 and 3-13.

Certainly, every typographic problem has its own legibility requirements. The following data can serve as a point of departure in determining how to create legible typography. Line length is dependent upon both the size of type and the amount of space between lines. When working with the optimum sizes of 9-, 10-, 11-, and 12-point text type, a maximum of ten to twelve words (or sixty to seventy characters) per line would be acceptable. This would equal a line length of approximately 18 to 24 picas. An optimum line length for the average 10-point type is 19 picas.

An appropriate line length is essential for achieving a pleasant reading rhythm, allowing a reader to relax and concentrate on the content of the words. Overly short or long lines will tire a reader. Excess energy is expended when reading long lines, and it is difficult to find the next line. A short column measure requires the eye to change lines too often, and there is an inadequate supply of horizontal perceptual cues.

3-13

The amount of interline spacing is dependent upon several factors. Generally, lines with no added space between them are read more slowly than lines with added space. Proper interline spacing carries the eye naturally from one line to the next. When there is inadequate space between lines, the eye takes in other lines as well. If lines are too widely spaced, a reader may have trouble locating the next line. As column measure increases, the interline spacing should also increase to maintain a proper ratio of column length to interline spacing.

Typefaces with larger x-heights need more interline spacing than those with smaller x-heights. Also, when working with display types, the frequency with which ascenders and descenders occur makes a difference. They can optically lessen the amount of white space between lines. Optical adjustments in display types should be made when spaces between lines appear inconsistent because of ascenders and descenders (Fig. 3-14). Generally, the maximum line length for text type with a small x-height—used without interline spacing—is about sixty-five characters. When text type with a large x-height is used without interline spacing, legibility is diminished when line length exceeds about fifty-two characters.

Research has shown that for the optimum sizes of text type (9, 10, 11, and 12 point), 1 to 4 points of interline spacing can be effectively added between lines to increase legibility. Remember, this is not to say that type set outside these optimum specifications will be illegible, for critical judgment can ensure legible typography without inhibiting fresh approaches.

### **Weight**

When considering the legibility of a typeface, the thickness (weight) of the strokes should be examined. A typeface that is too light or too heavy has diminished legibility. Light typefaces cannot be easily distinguished from their background, while a typeface that is too heavy has a tendency to lose its internal pattern of counterforms.

*Typefaces of median weight are most legible.*

**Weight can be used advantageously to provide contrast and clarity between typographic page elements such as titles, headlines, and subheads. A heavier or lighter weight can emphasize one piece of information over another, thereby making information more comprehensible.**

*In text type, weight change significantly affects legibility.*

**Extreme thick and thin strokes within letters of a particular typeface make reading more difficult, preventing smooth transitions from one word or group of words to the next. Thin strokes are less visible, creating confusion with letters of similar shape. When a typeface with extreme contrasts between thick and thin strokes is used in a text setting, a dazzle or sparkle effect is created. The reader begins to have difficulty distinguishing the words, and legibility decreases significantly.**

### **Character width**

The shape and size of the page or column can influence the selection of character width. For example, a condensed typeface might be selected for a narrow page or column, achieving proportional harmony and an adequate number of characters and words to the line.

*In text type, legibility is affected when condensed or expanded typefaces are used.*

The width of letters is also an important legibility factor. Generally, condensed type is more difficult to read. A narrower letter changes the form/counterform relationship, causing letters to have an extreme vertical posture that can alter eye movement and reading patterns, diminishing legibility.

### **Italics and Obliques**

*Similar to other situations where typeforms deviate from a reader's expectations, italics impede reading. An extreme italic slant can slow the reading process and is disliked by many readers. However, italic type can be very effective when used as a means of providing emphasis.*

3-14

---

# Interline spacing intervals

---

---

# Interline spacing intervals

---

### Legibility and color

Incorporating color into type significantly affects legibility, and the most important consideration when working with type and color is to achieve an appropriate contrast between type and its background. The degree of legibility sought depends entirely upon the intent of the designer and the nature of the content.

It has long been considered that black type on a white background is most legible. While this combination remains an excellent choice, other alternatives may offer equal if not improved legibility due to improved digital and printing technologies, and the fact that color is a relative phenomenon (Fig. 3-15). When applied to type, color should be evaluated in relationship to the conditions in which it is read. In print, for example, one should consider the specific nature of the paper. If the paper is white, is it a warm or cool white? Is the surface of the paper rough or smooth? Is it coated or uncoated? What typeface is being considered, and in what size will it appear?

Generally, all legibility guidelines related to working with color and type in print apply also to type appearing on a computer screen. However, the use of color and type on a screen should also take into consideration the conditions of screen resolution and luminescence, as well as whether the type is static or in motion. Digital technologies have vastly changed the way in which designers use color and type, making it possible to easily assign color from palettes containing millions of colors. Also, the range of typographic applications continues to expand, with type asserting a role not only in printed and environmental communications, but also in on-screen media such as the Internet.

Appropriate contrast between type and its background requires that designers carefully weigh the three basic color properties of hue, value, and saturation. By definition, *hue* and *tone* are simply more specific names for color. *Value* refers to the lightness or darkness of a color, and *saturation*—also called *chroma* or *intensity*—is the relative brightness of a color.

Black type on  
a light gray background

White type on  
a light gray background

Black type on  
a white background

White type on  
a dark gray background

White type on  
a light gray background

**3-15** Black type on a white background and on a light gray background prove highly legible. Legibility suffers as the contrast between type and its background diminishes. The color temperature of the paper upon which type is printed and the choice of typeface also have a relative effect upon legibility.

PMS Reflex Blue type on a  
PMS 021 Orange background

PMS 021 Orange type on a  
PMS Reflex Blue background

PMS Reflex Blue type on a  
50% tint of PMS 021 Orange  
background

PMS 021 Orange type  
on a dark blue background

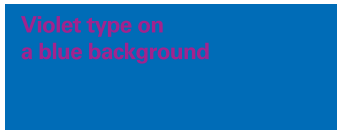
**3-16** Legibility is greatly compromised when type and background are assigned complementary colors. Adjusting the value of either color improves contrast and thus legibility. In this example, the orange background is lightened, and the blue background is darkened, in each case improving legibility.

Blue type on  
a green background

Blue type on  
a light green background

**3-17** The analogous hues yellow-green and blue are sufficiently different in value, resulting in an acceptable combination. A moderate adjustment of the yellow-green to a lighter value further improves legibility.

**3-18** Blue and violet hues exist very close to each other on the color wheel, and when used for type and background do not offer sufficient contrast. A tint or shade of one of the colors, however, improves legibility.



All colors possess characteristics of hue, value, and saturation. When combining color and type, balancing these properties is a critical legibility concern. For example, the highly saturated, complementary colors blue and orange offer maximum hue contrast, but when applied to type and background the effect is one of vibration that quickly tires the eye. These colors compete in brightness and vie for attention. If the type or background is lightened or darkened by selecting a tint or shade of the hue, legibility is improved (Fig. 3-16).

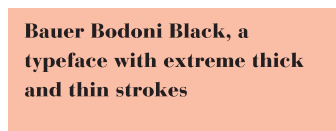
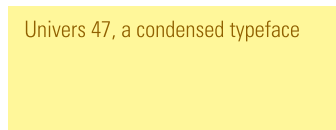
But not all fully saturated hues are of the same value. Two highly saturated, analogous colors, such as blue and green, provide sufficient contrast without a dizzying effect. (Analogous colors are those that appear in close proximity on a color wheel.) Because the green is actually lighter in value and brighter in saturation than the blue, there may be no need for further adjustment (Fig. 3-17). However, if analogous colors are too close to each other on the color wheel, adjustments in contrast will be necessary (Fig. 3-18).

Of all the contrasts of color, value affects legibility most significantly. Value contrasts effectively preserve the shapes and formal details of letters, thus making them more easily recognizable.

Typefaces possess unique shapes, proportions, and individual characteristics that should be taken into consideration when selecting color. A typeface with fine serifs, ultrathin strokes, small counters, or any number of other visual eccentricities may appear illegible if color is not carefully articulated. By turning value or intensity up or down in these situations, legibility can improve greatly (Fig. 3-19).

The type size is also an important consideration in the planning of color. At smaller sizes, type requires backgrounds that are significantly different in hue and/or value (Fig. 3-20).

**3-19** By scrutinizing the roles of value and hue contrast, the legibility of most typefaces can be improved. Typefaces that are visually challenging because of extreme proportions (heavy, light, wide, or thin) can be made more legible by assigning appropriate color combinations.



**3-20** The smaller and more delicate the type, the more contrast is needed to ensure adequate legibility.



If you find it necessary to present large amounts of text type in color, try increasing slightly the amount of space between lines. Even an additional point of space can make a significant difference, and a reader might be encouraged to continue rather than stop.

If you find it necessary to present large amounts of text type in color, try increasing slightly the amount of space between lines. Even an additional point of space can make a significant difference, and a reader might be encouraged to continue rather than stop.

**3-22** *The illusion of lighter or darker text is achieved with the introduction of additional interline spacing; in some situations, legibility is improved.*

Whether type is printed on paper or appears on screen, an optical effect referred to as *typographic color* occurs. Not to be confused with the particular hue of a typographic element, this effect is the result of the visual qualities inherent in individual typefaces and the spacing of letters, words, and lines of type (Fig. 3-21). Typographic color is an important tool, for it is an effective means by which hierarchical order and emphasis are achieved between different typographic elements. Also, if a large amount of text is set in an elaborate or unusual color setting, an increase in the space between lines can significantly improve legibility (Fig. 3-22).

The reading process can be severely retarded when reading type on textured or photographic backgrounds, for they potentially interfere with the internal patterns of words and their distinctive word shapes. This problem is further exacerbated when such backgrounds and the type appearing on them are incompatible in color for reasons stated earlier in this discussion.

*Compare the legibility of the justified and unjustified columns.*

*justified*

### **Justified and unjustified typography**

Traditionally, it was common practice to set type in a justified alignment. This was done for reasons of efficiency; in addition, it was more familiar and was considered more refined. In the 1920s, designers began to question this typographic convention and experiment with alternative text-setting styles. Unjustified and asymmetrical typography began to find widespread acceptance. Among experimental typographic designers was Herbert Bayer, who said, “I have long believed that our conventional way of writing and setting type could be improved for easier reading. In my first typographic works in the early twenties, I started to abandon the flush-left-and-right system for short lines of text and have introduced the flush-left system, leaving a ragged-right outline.”

There are appropriate reasons for setting either justified or unjustified typography, but type set flush left and ragged right promotes greater legibility. If properly used, flush-left, ragged-right typography provides visual points of reference that guide the eye smoothly down the page from line to line. Because each line is either shorter or longer than the next, the eye is cued from one line to another. In a justified setting, all lines are of equal length. Lacking are visual cues that promote easy reading.

With the use of unjustified typography, wordspacing is even, creating a smooth rhythm and a consistent texture. The indiscriminate placement of additional space between words in order to justify lines causes awkward gaps or “rivers” in paragraphs, which are disruptive to reading. Hyphenations at the end of lines should be used—but not overused—whenever possible to keep wordspacing consistent.

When setting ragged-right text, care should be taken not to rag the type too much. Uncontrolled line breaks of erratic rhythm can create awkward spaces that inhibit reading. In ragged-right type, care should be given to the

*unjustified (flush-left, ragged right)*

selection of interline spacing, for it influences legibility and appearance. Spatial consistency and rhythmic line breaks result from careful typographical decisions.

The breaking of lines can be determined by the author’s meaning rather than by appearance. This method, sometimes referred to as thought-unit typography, arranges lines into discrete parts related to the meaning of the text. Ragged-right lines may be of any length, with line breaks that are logical and focus on the intended message of the writer (Fig. 3-23).

### **Paragraphs and indentions**

An important goal for a designer is to distinguish typographically one thought from another, clarify content, and increase reader comprehension. Clear separation of paragraphs in a body of text is one way to accomplish this goal.

It is common practice in the design of books, magazines, and newspapers to indent each paragraph, usually with moderate indention of one to three ems. It is also typographic practice not to indent the first paragraph in an article, chapter, or advertisement so that the square corner of the first column can be maintained.

Paragraphs can also be separated by inserting additional space between them. This space should be proportional to the amount of interline spacing, which corresponds to the vertical measurement of the typographic grid. Paragraphs are often separated by one line space. This method should be avoided if the original copy is full of short, choppy paragraphs. Spaces between such paragraphs could be very disturbing, consuming too much space. Indentions and additional line spaces are also used to establish order within complex tabular matter, such as financial charts and scientific data.

color color  
color color  
color color

**3-21** *Words set in various typefaces appear different in typographic color. As interletter spacing increases, the words also appear lighter in tone.*

- 1:1 In the beginning  
God created the heaven and the earth.
- 2 And the earth was without form, and void;  
and darkness was upon the face of the deep.  
And the Spirit of God  
moved upon the face of the waters.
- 3 And God said,  
Let there be light:  
and there was light.
- 4 And God saw the light, that it was good:  
and God divided the light from the darkness.
- 5 And God called the light Day,  
and the darkness he called Night.  
And the evening and the morning  
were the first day.
- 6 And God said,  
Let there be a firmament  
in the midst of the waters,  
and let it divide the waters from the waters.
- 7 And God made the firmament,  
and divided the waters  
which were under the firmament  
from the waters  
which were above the firmament:  
and it was so.
- 8 And God called the firmament Heaven.  
And the evening and the morning  
were the second day.
- 9 And God said,  
Let the waters under the heaven  
be gathered together unto one place,  
and let the dry land appear:  
and it was so.
- 10 And God called the dry land Earth;  
and the gathering together of the waters  
called he Seas:  
and God saw that it was good.
- 11 And God said,  
Let the earth bring forth grass,  
the herb yielding seed,  
and the fruit tree yielding fruit after his kind,  
whose seed is in itself, upon the earth:  
and it was so.
- 12 And the earth brought forth grass,  
and herb yielding seed after his kind,  
and the tree yielding fruit,  
whose seed was in itself, after his kind:  
and God saw that it was good.

New legibility issues emerged when the digital revolution occurred in typography and design. This includes concerns relating to software, discussed in this section, and problems related to on-screen display, covered in Chapter 8. Digital typography offers designers more possibilities for type manipulation than ever before, resulting in an obligation to know more about the cultural and formal evolution of typography than in times past. Without adequate knowledge of typographic legibility, it is easy for designers to blindly follow fads, succumb to common visual clichés provided by software, or thoughtlessly yield to the built-in defaults of a computer application or coding framework. Legibility is a concern that should be continually addressed as technology changes. Because designers now work at a keyboard, they are directly responsible for composing legible type—a task once accomplished by sending specifications to a compositor at a typesetting firm.

As a result of desktop technology and type-design software, new typefaces and revivals of old typefaces are being released at an unprecedented rate. Some of these are well designed; others are not. Many typefaces from various digital foundries carry the same name, yet their design is far removed from the original (Fig. 3-24). It is not enough to make typeface selections on the basis of name alone; designers should make visual comparisons before deciding which typefaces are most suitable for a task.

Tools available in desktop software enable type to be outlined, stretched, rotated, skewed, mirrored, placed on a curved baseline, and manipulated in innumerable other ways. Upon determining the objectives, requirements, and limitations of the typographic problem at hand, designers can creatively employ these tools while also addressing legibility needs. These tools are best used to express visual ideas, rather than to merely embellish a page. Though type set on a curved baseline loses legibility compared to type set on a horizontal baseline, it can still be addressed by carefully spacing the letters and choosing an appropriate typeface.

Gross distortion of the optical relationships within a font occurs when only one axis, such as its width or height, is changed, as shown in Figure 3-25 and 3-26. Adobe introduced its multiple master font technology in 1991 to address the need to alter letterforms by changing more than one axis while maintaining their design integrity. Multiple master type is discussed in Chapter 7.

This is Garamond  
This is Garamond  
This is Garamond

**3-24** Three typefaces have the same name but significantly different properties. The size, weight width, and shape of characters differ.



**3-25** When letters are stretched horizontally or vertically on a computer to create condensed and expanded letterforms, their proportions change. The optical relationships of the original typeface design are destroyed.

DISTORT TYPE  
DISTORT TYPE  
DISTORT TYPE  
DISTORT TYPE

**3-26** The bottom letterforms have been stretched excessively, causing the optical relationships to become distorted. The crossbar of the T has become too thick; the S and O extend too far above and below the baseline.





Typographic experimentation allows designers to probe the relationships between type, space, and expression. Syntactic exploration reveals boundless potential to inform, amuse, and astonish. In recent years designers have extended their range of possibilities by approaching work as play and tools as toys. One example of the expressive potential of manipulated type is seen in a page from a series of experiments created to document wanderings in canyons of the Utah desert (Fig. 3-27).

### Typographic details

In typography, attention to detail is an ever-present need. Every letter, word, and line of type is a matter of detail, of which it is the designer's responsibility to be alert and aware. To those just learning the intricacies of typographic form and nuance, adherence to the following recommendations will be highly beneficial, and the practices they are meant to encourage will eventually become second nature.

These recommendations apply primarily to normative typography, typography charged with the task expressed by Thomas James Cobden-Sanderson in *The Book Beautiful*: "The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author." Expressive forms of typography may intelligently ignore these recommendations altogether.

**3-27** Experimental typography exploring manipulation of type. (Text: Ann Zwinger; Designer: Rob Carter)

*Recommended*

*Not Recommended*

*When working with typography, begin with the same typeface and type size. Add additional typefaces, sizes, and other variations such as type weight only as needed.*

The whole duty of typography, as with calligraphy, **is to communicate to the imagination**, without loss by the way, the thought or image intended to be communicated by the author.

The whole duty of typography, as with calligraphy, ~~is to communicate to the imagination~~, *without* loss by the way, the THOUGHT or image intended to be communicated by the **author**.

*Contrast is one of the most important principles in typographic design. Any shift in typeface, type size, or type weight should be emphasized.*

The whole duty of typography, as with calligraphy, **is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.**

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

*Interletter, interword, and interline spacing should be based on the spatial character of the typeface in use. This applies to both text and display settings.*

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

*Never place two word spaces after periods, commas, semicolons, question marks, and exclamation marks.*

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought.

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought.

*When setting flush-left, ragged-right or flush-right, ragged-left text, the effort to create pleasing, feathered rags will prevent text blocks from acquiring awkward shapes.*

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or

*Manually kern and letterspace display type settings. This is always an optical consideration, and the computer is no substitute for the trained eye.*

**The whole duty**

**The whole duty**

*Recommended*

*Not Recommended*

*Two forms of dashes are desirable: an en-dash, to connect numbers and an em-dash, to connect thoughts or phrases. Both are used without space before and after. Never use double dashes or hyphens.*

*Do not use dashes where hyphens are required.*

*A common mistake is to substitute double prime marks for quotation marks and primes for apostrophes. Prime marks are used to indicate inches and feet.*

*To achieve optical alignment, it is desirable to “hang” punctuation at the edge of text blocks.*

*Avoid typing three periods with spaces between to make an ellipsis. Ellipses can be made by typing option + semicolon. Alternately, use three periods separated by nonbreaking thin spaces between, with breaking thin spaces before and after.*

*It is not necessary to insert an additional word space between initial letters.*

The whole duty of typography—as with calligraphy—is to communicate to the imagination, without loss by the way, the thought or image

2011–2020

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

The whole duty of typography, as with calligraphy, is to “communicate” to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

“The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.”

The whole duty of typography... as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author...

**T.M.**

The whole duty of typography--as with calligraphy--is to communicate to the imagination, without loss by the way, the thought or image

2011 - 2020

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

The whole duty of typography, as with calligraphy, is to "communicate" to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

“The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.”

The whole duty of typography . . . as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author . . .

**T. M.**

*Recommended*

*Not Recommended*

*The first paragraph of a section, such as under a chapter title or heading, does not require indentation because it does not need to be distinguished from the paragraph above it.*

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

And the whole duty of beautiful typography is not to substitute for the beauty or

And the whole duty of beautiful typography is not to substitute for the beauty or

*Avoid using three or more consecutive hyphenations at the ends of lines, as they create a distracting pattern in text.*

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended by the author.

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the extraordinary thought or image intended by the author.

*Bullets are acceptable as the default device for distinguishing items within lists, but other symbols can integrate more effectively with text.*

- The whole duty of typography,
- as with calligraphy, is to communicate
- to the imagination, without loss by the way,
- the thought or image
- intended to be communicated by the author.

- The whole duty of typography,
- as with calligraphy, is to communicate
- to the imagination, without loss by the way,
- the thought or image
- intended to be communicated by the author.

*Using a baseline grid aids in aligning adjacent columns of text and in maintaining proportional harmony among individual text units.*

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

*When using contrasting type weights in the same size, reduce the size of heavier text to make it appear the same size as lighter text.*

**The whole duty of typography**, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

**The whole duty of typography**, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.

*Be careful not to overlook using appropriate accents and symbols in text.*

**sauté**

**saute**



The grid as we know it today is rooted in the earliest written forms, from columnar cuneiform tablets impressed by the Mesopotamians as early as 3000 BCE, to hieroglyphic writing on papyrus (see Figs. 1-5 and 1-8).

The mechanization of printing in Europe during the fifteenth century led to structural conventions and typographic principles that have survived for centuries. The architecture of movable type and the mechanics of letterpress printing yielded rectilinear structures—text set into blocks framed by margins. Gutenberg’s forty-two-line Bible was Europe’s first typographic book; other similarly structured books were created during the Renaissance in Germany, France, and Italy (see Figs. 1-38, 1-49, and 1-59).

The development of the modern grid cannot be attributed to a single individual or to an accidental discovery. It is the result of many pioneering efforts, including experiments by renegade designers associated with the movements of Futurism, Dadaism, Constructivism, and de Stijl, breakthroughs initiated at the Bauhaus, and the functionalist works and writings of Jan Tschichold (Fig. 4-1). The grid finally emerged as a programmatic system of mathematical precision in Switzerland during the 1950s. Among others, designer Max Bill embraced absolute order in his work. During the last half of the twentieth century, the typographic grid achieved universal acceptance as a visual organizational tool.

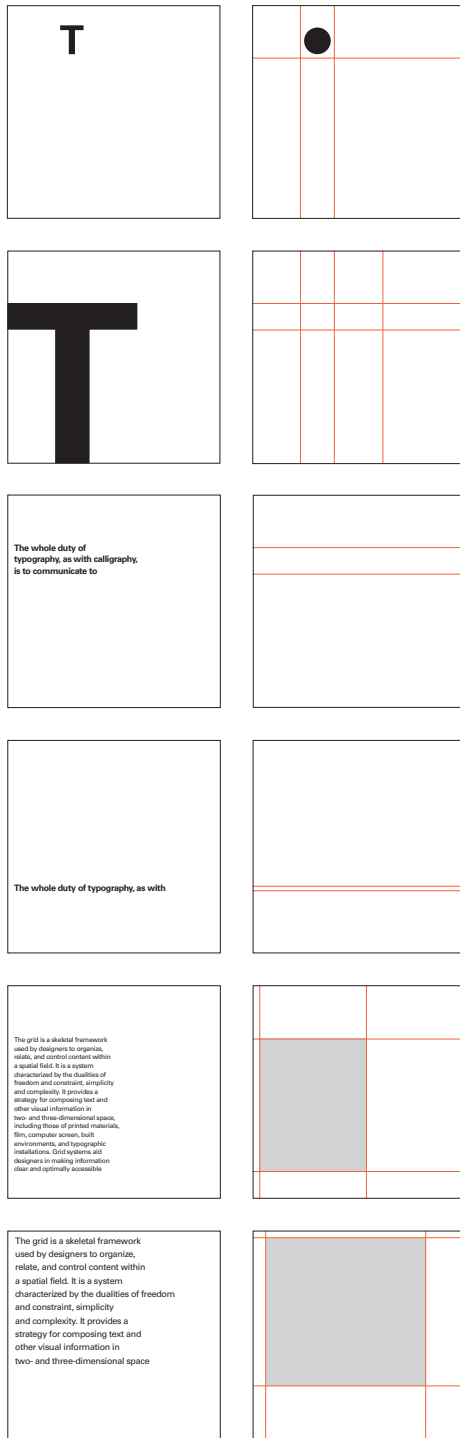
Now, grids are ubiquitous carriers of information, to the degree that we are not consciously aware of them on a daily basis. Yet the grid, artifice of time and space, is woven deeply into our subconscious. Grids serve as the underlying structure for modeling and archiving human thought, interactions, and events.



**4-1** In 1925, Jan Tschichold designed this cover for the journal *Typographische Mitteilungen*. His twenty-four-page insert for this journal presented and advocated asymmetrical typography to its readers. This marked a movement toward a new language of typographic form and structure. (Designer: Jan Tschichold)



**4-3** Letterforms gain velocity as they move toward the edges of space. Here, submitting to the force of gravity, the letter T appears to topple.



**4-2** The shapes of typographic elements have directional qualities that are echoed as implied spatial corridors. These divisions establish proportional relationships and give the space movement and kinetic energy.

Space is the common denominator for all typographic communication. When typographic elements are introduced into space, they create subliminal divisions, and these divisions create spatial structure. As typographic elements shift syntactically in size, weight, and position, new structures emerge (Fig. 4-2).

Another way of thinking about type and its relationship to space is to imagine a letterform as a point in space, the extension of a point as a line in space (line of text), and the extension of a line as a plane in space (text block). This analogy suggests that typographic elements are kinetic in nature, that they are in perpetual motion.

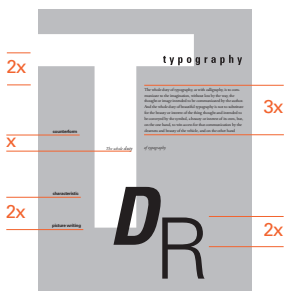
Consider the single letterform. When centered, it appears motionless. When placed off center, it appears to move, gaining velocity as it approaches the outermost boundaries of the space. Rotate the letter and it appears to tumble. Lines of type are put into motion from the direction of their origin (usually left to right) at the moment they are read. They suggest horizontal movement, unless of course they are positioned vertically or at an angle in space. The kinetic possibilities of typographic elements are potentially endless (Fig. 4-3).

Firmly grounded by gravity, we are oriented to the earth in terms of the horizontal and the vertical. We perceive the natural world according to these opposites, and we create the built environment in relationship to them. We are more comfortable with the horizontal—in this realm we feel safe. The vertical dimension is more challenging—we are afraid both of flying and of falling.

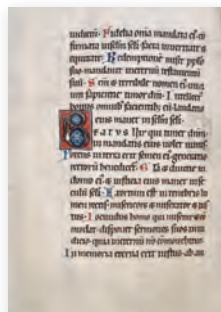
Divided space is perceived as a system of proportional relationships. To work effectively with the typographic grid is to understand that it also is a system of proportions. A grid ratio, which is a mathematical relationship between two or more grid measurements, governs the size and placement of typographic elements. The ratio X:2X (one unit to two units), for example, indicates the basic grid ratio. This stepped progression of X:2X establishes an underlying proportional system among the parts (Fig. 4-4).

Designers most often rely upon an innate sense of proportion. But it is helpful also to consider models that have been handed down over centuries. The most familiar of these is the golden section, which is a law of proportionality found frequently in nature and the human body, and used throughout centuries in art, architecture, design, and music. First developed by Vitruvius, the golden section is basically a relationship or ratio between two numbers (or objects) wherein the ratio of the smaller number to the larger number is the same as the sum of both numbers. The algebraic expression of this relationship is  $a:b = b:(a+b)$ . Stated numerically, the ratio is 1:1.618, and stated in percentages the ratio is 38 percent to 62 percent (Fig. 4-5). The golden section, which can easily be constructed from the square (Fig. 4-6), dominated as the proportional system for the design of medieval manuscripts (Fig. 4-7).

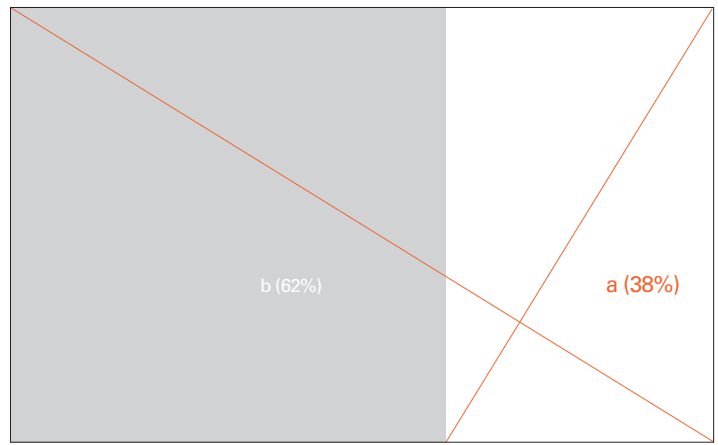
The Fibonacci sequence is another important proportional model. Closely related to the golden section, this is a mathematical sequence wherein a number is the sum of the two preceding numbers; in other words, you add the two current numbers to get the third number. The progressive series of mathematical relationships found in the Fibonacci sequence can be observed throughout nature, from seashells and pine cones to the arrangement of seeds on flowering plants (Fig. 4-8).



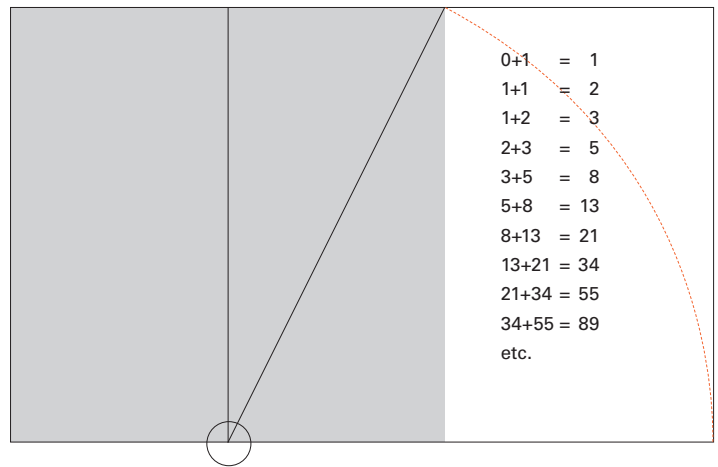
4-4 This exploratory composition exhibits modular relationships among elements. (Designer: Debra Thompson)



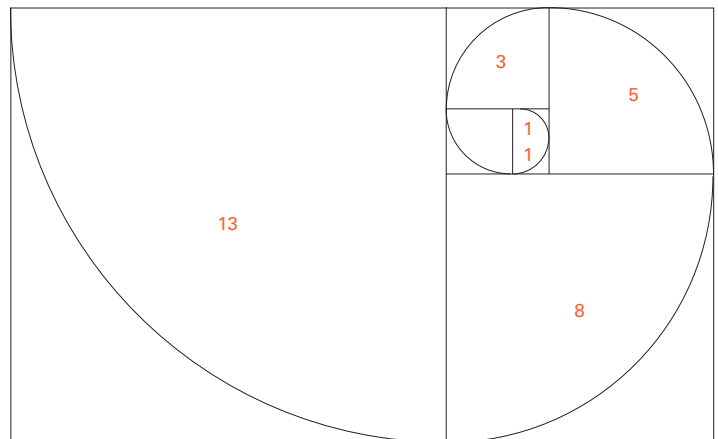
4-7 Medieval manuscript (psalterium) from the twelfth century. Shown is a page of text with three-line and one-line initials proportioned according to the golden ratio.



4-5 Removing the square from a golden rectangle leaves another golden rectangle.



4-6 The golden rectangle can be drawn by making a square, dividing it in half, and striking an arc from the half-point of one side of the square to the opposite corner of the square.



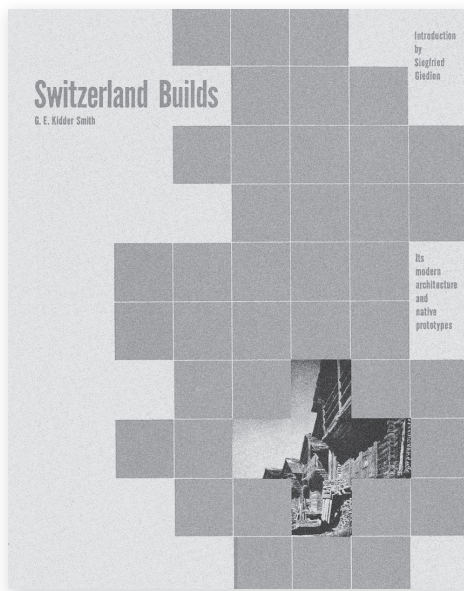
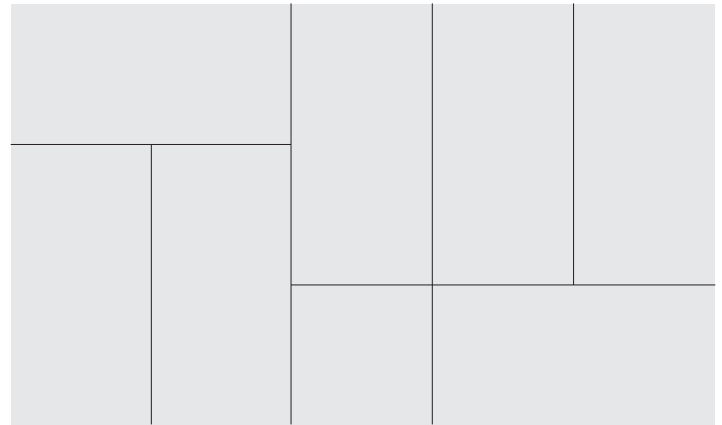
4-8 The golden spiral winds through a series of conjoined golden rectangles. The spiral is linked to many forms in nature and is related to the Fibonacci sequence.



A natural division of the golden section is the basic square. This archetypal form has influenced the development of the modern grid perhaps more than any other system of proportion. Squares in combination lend an infinite variety of visual patterns. In Japan, for example, the tatami mat, a straw floor covering based on double square modules, is a system for creating asymmetrical spaces in traditional Japanese homes (Fig. 4-9).

Paul Rand used squares as metaphorical building blocks and as an organizational strategy for a book cover. It appears as contemporary today as it was when it was created in 1955 (Fig. 4-10). The homepage for Martin Venezky's Appetite Engineers website utilizes squares for an animated marquee of type and image (Fig 4-11).

**4-9** An example of a tatami mat layout illustrates the flexibility and proportional beauty of this modular system.

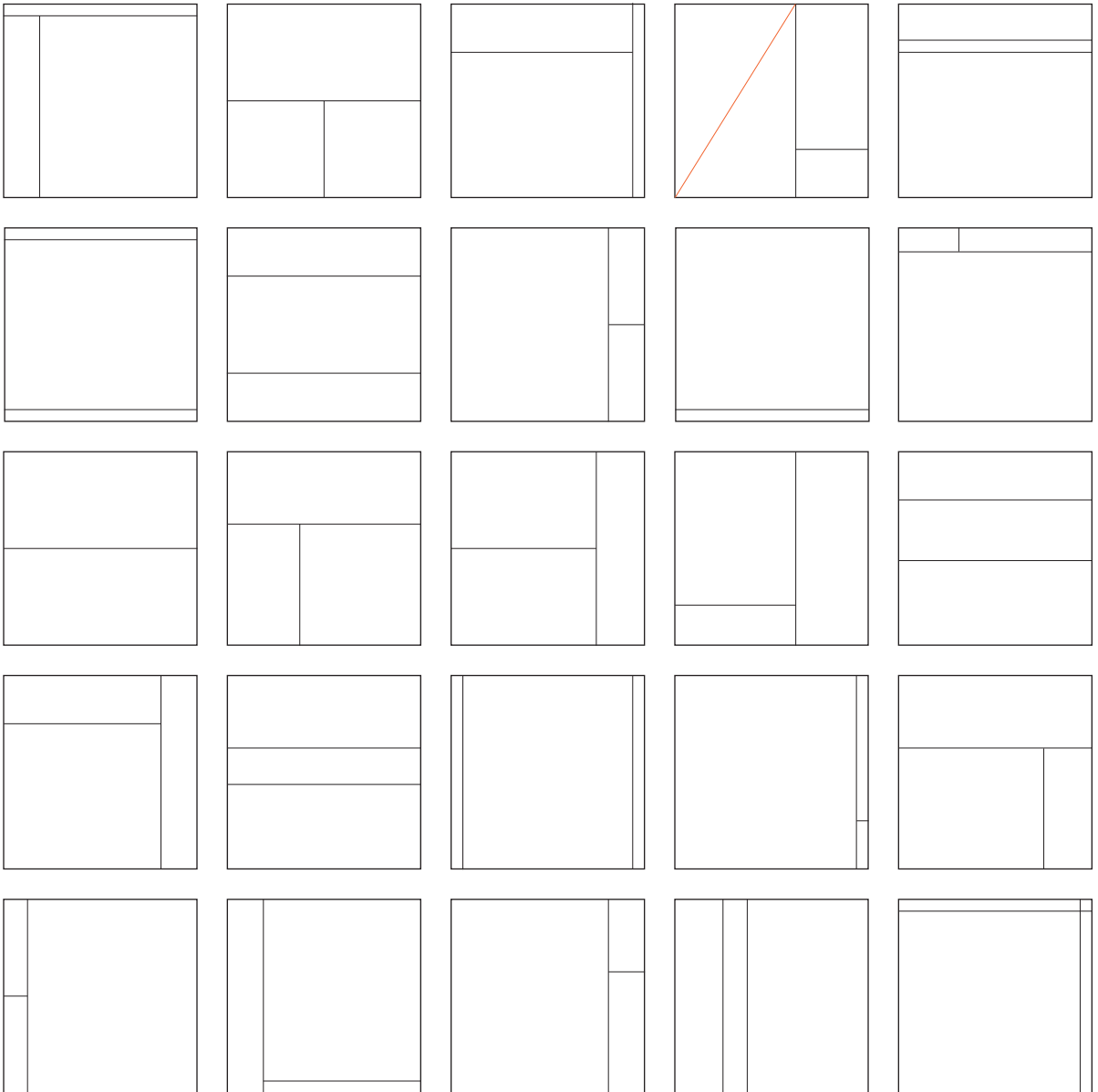
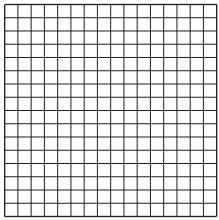


**4-10** A book cover divided into a grid of eighty squares is used as an organizational system. Five squares forming the Swiss cross provide a window into Swiss architecture. (Designer: Paul Rand)

**4-11** Located within assigned squares, animated shapes, words, and images entice users to explore the Appetite Engineers website. (Designer: Martin Venezky)



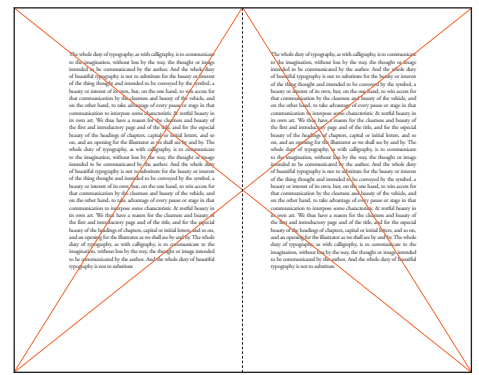
A square subdivided into a 256-unit grid of smaller squares displays an enormous range of proportional possibilities (Fig. 4-12). The language of the horizontal and the vertical was elevated to spiritual status by practitioners of the de Stijl movement. In his studied paintings, Piet Mondrian sought to reveal proportions of perfect harmony, proportions that could also be infused into the designs of everyday living (see Fig. 1-132).



**4-12** *Selectively removing lines from the grid to discover new spatial divisions is a process that trains the eye for proportional possibilities. The golden rectangle is revealed in the example with the diagonal orange line.*

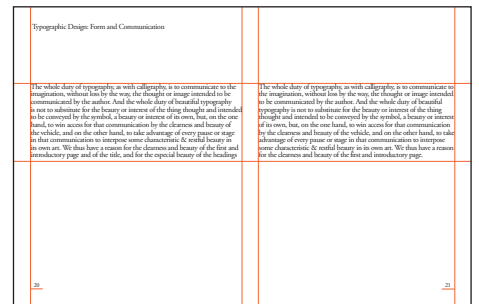
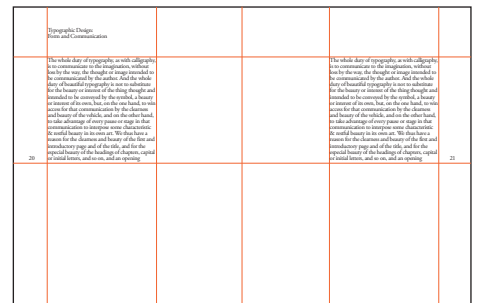
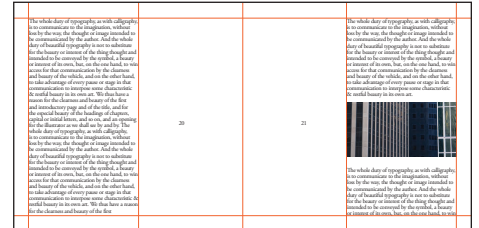
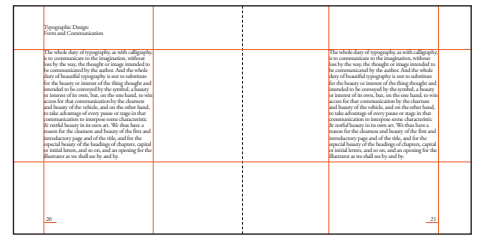
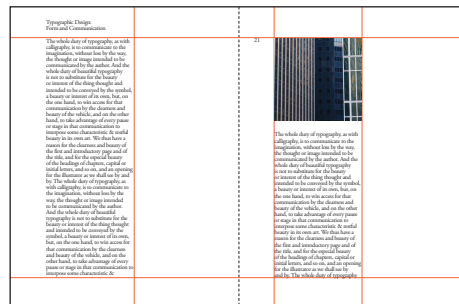
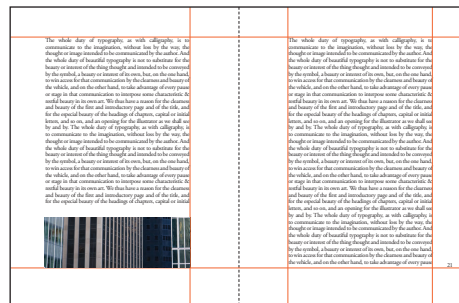
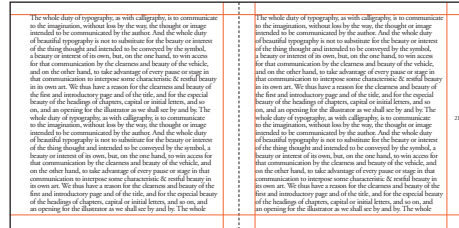
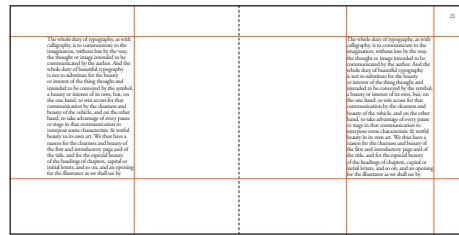
# SINGLE COLUMN GRIDS

**4-13** In this classic example, both text and page size share golden mean proportions.



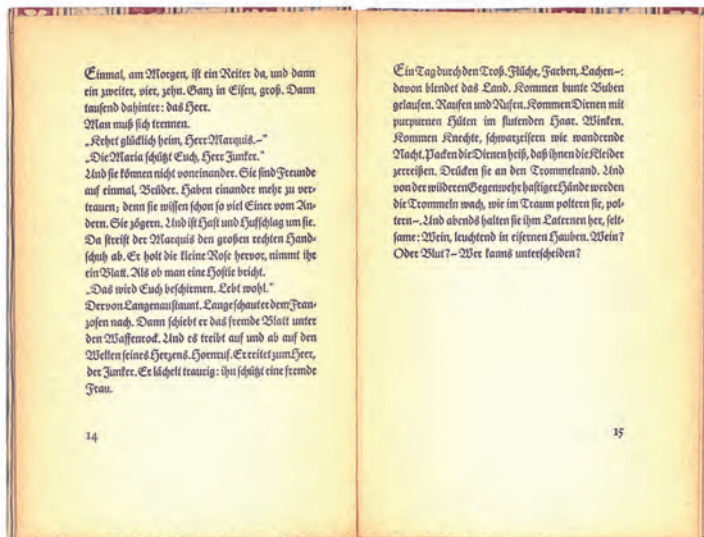
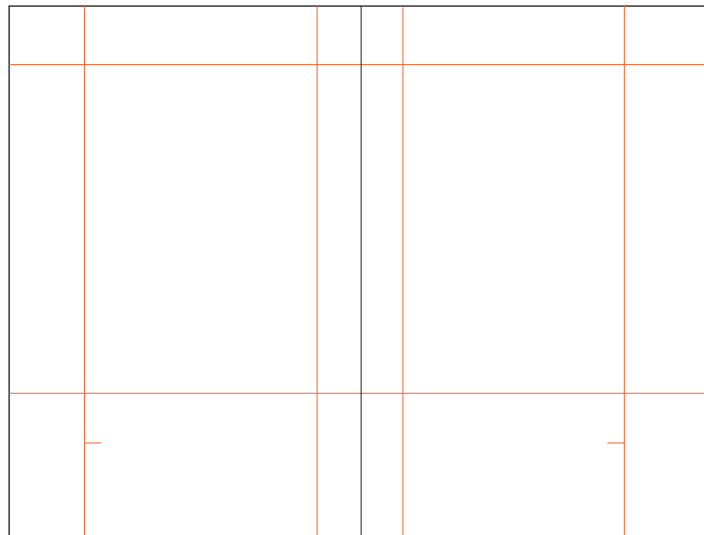
When text appears as a simple, linear narrative, as in the traditional novel or exhibition panel, it is often best to set it as a single block. There exist many ways to orient single text blocks to pages (or other spatial fields). These choices are most often related to budget constraints, standard paper sizes, and the function of typographic information. Some designers still find it rewarding to revisit the golden section from time to time (Fig. 4-13). But more often than not, alternative approaches to proportions are developed. The designer's own intuitive sense of proportion is nurtured through observation and practice.

The problem is always to consider the text block and the margins of the page as a proportional system. Margins function to set the typographic stage; they may be dynamically asymmetrical or quietly symmetrical. Margins also accommodate marginalia, separate typographic parts that support the text. These include folios, running heads, running feet, and notes. The negative space of margins flows gently into the text, a mingling of positive and negative space (see "Column and margin," pp. 92 – 95). The text block can be sized and adjusted within the page to attain a variety of proportional relationships (Fig. 4-14).



**4-14** The manner in which text blocks are placed on the page can greatly affect the overall tone of the communication. These sample layouts suggest an abundance of possibilities. Note the different ways in which text blocks, images, and marginalia are organized to define the space.

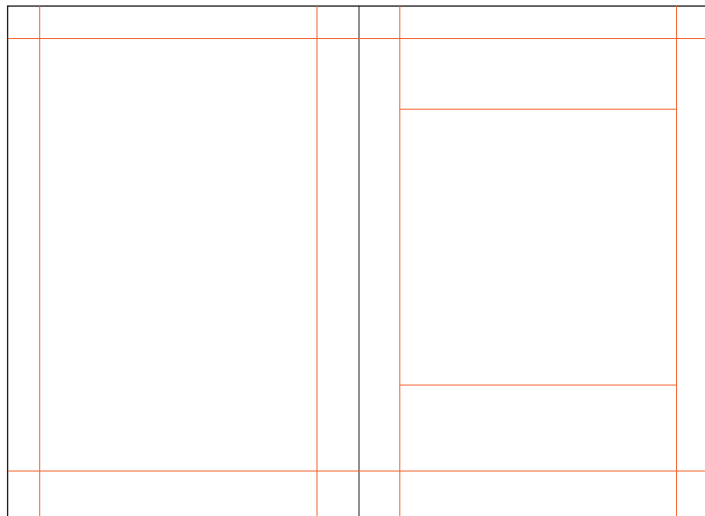
Single-column grids may appear quite unremarkable to the average reader, but in reality effective layouts are crafted with the utmost concern for minute detail. Choosing the right typeface for the content; adjusting letter-, word-, and linespacing for optimum legibility; and developing the proportions to set an appropriate tone are some of the issues that require the designer's attention (Figs. 4-15 to 4-17).



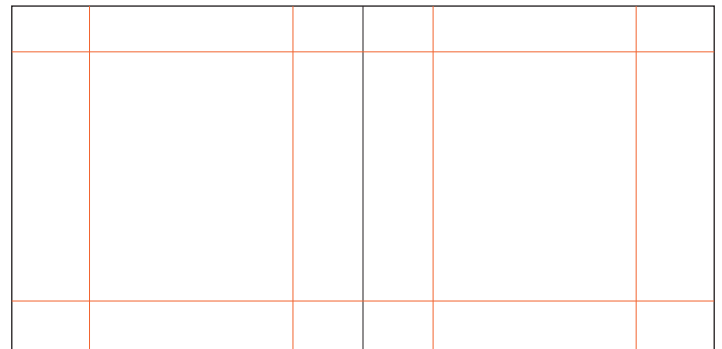
**4-15** Cover and spread from a small book published in 1957 by the German publisher Insel Verlag. The lively texture of Fraktur type contrasts with the quiet of generous margins.



**4-16** An exhibition catalog combines the photography of Leo Divendal and a childhood story by dancer and actor Christopher Milo. The text, set within narrow margins, reflects the expanse of the New Mexico landscape where the photographs and story originate. (Designer: Rob Carter)



**4-17** Set within comfortable margins, the text of this intimate book is a thoughtful reflection on the selection of photographs for a book and exhibition on the photographs of Otto Frank. The book respectfully displays the photographs, which are positioned alone on the page. (Designer: Victor Levie)



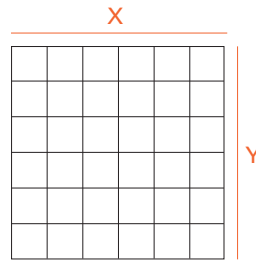
An elemental grid is based upon a Cartesian coordinate system of intersecting, perpendicular axes (Fig. 4-18). It consists of rectangular modules defined by a network of horizontal and vertical lines.

Before any decision can be made about the construction of the typographic grid, the designer must first become thoroughly acquainted with the amount of text, its content, the audience for which it is intended, and the medium used for its delivery. A book, an exhibition, a website—each requires special consideration. Though the designer thoroughly grasps the material to be organized, grid structures often require adjustment throughout the design process.

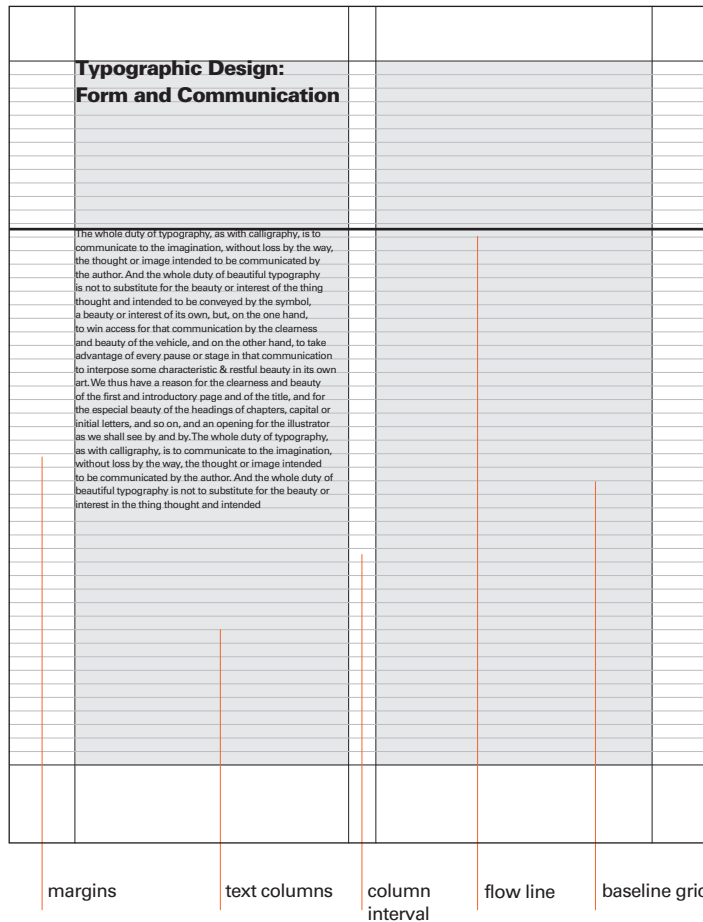
Multicolumn grids possess unique anatomical characteristics. These include margins that provide boundaries for typographic elements and define the active space of the page; text columns; gutters that separate text columns; and flow lines that create a dominant axis for the alignment of elements from page to page. The baseline grid represents the baselines of the primary text, which run from the top margin to the bottom margin. These horizontal divisions of space aid the designer in aligning text elements from column to column (Fig. 4-19).

To structure type is to organize typographic forms into a unified whole, and to establish visual pathways between them. Two columns or many columns can be employed depending upon the complexity of the content. Multilevel information, as found in most typographic communication today, can be translated into clear and accessible typographic layouts (Fig. 4-20).

The type area within a grid is composed of vertical columns. The width of text columns and the intervals between them should promote optimum legibility when required. The size of type should be measured on the column width to achieve the ideal number of characters per line.



**4-18** Horizontal lines running along the x-axis and vertical lines running along the y-axis are the elements composing a basic grid.



**4-19** The multicolumn grid is a structure with features specifically suited to the physical properties of typographic elements.




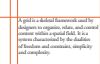

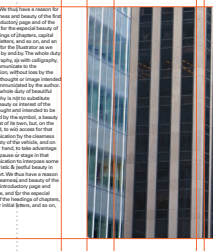
Grids may consist of primary and secondary divisions of space. For example, the grid used in this book consists of two columns as the dominant structure, with an optional structure of six columns (note the visible grid lines on this page). Concurrent grids not only provide added flexibility, they also enable the designer to layer typographic elements, achieving the illusion of three-dimensional space (Figs. 4-21 and 4-22).

Experimentation with multicolumn grids can yield visually surprising and functional results. Columns can be shifted horizontally and vertically, placed at opposing angles, or behave in ways extending typographic tradition. However, such effects should only be used when they contribute to the interpretation of the text (Figs. 4-23 to 4-26).

<p><b>Typographic Design: Form and Communication</b></p>	
<p>The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic &amp; restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the special beauty of the headings of chapters, capital or initial letters, and so on, and an opening for the illustrator as we shall see by and by. The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.</p>	<p>And the whole duty of beautiful typography is not to substitute for the beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic &amp; restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the special beauty of the headings of chapters, capital or initial letters, and so on, and an opening for the illustrator as we shall see by and by. The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.</p> 

<p><b>Typographic Design: Form and Communication</b></p>	
<p>The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic &amp; restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the special beauty of the headings of chapters, capital or initial letters, and so on, and an opening for the illustrator as we shall see by and by. The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.</p>	<p>communication to interpose some characteristic &amp; restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the special beauty of the headings of chapters, capital or initial letters, and so on, and an opening for the illustrator as we shall see by and by. The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic &amp; restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page.</p> 

**4-21** Concurrent grids and multicolumn grids with irregular column intervals can be used to accommodate information needing special treatment. Specific types of information can inhabit assigned columnar zones to preserve their autonomy. In the example shown, the far right column is reserved for the display of alphabetic characters.

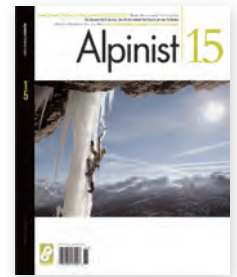
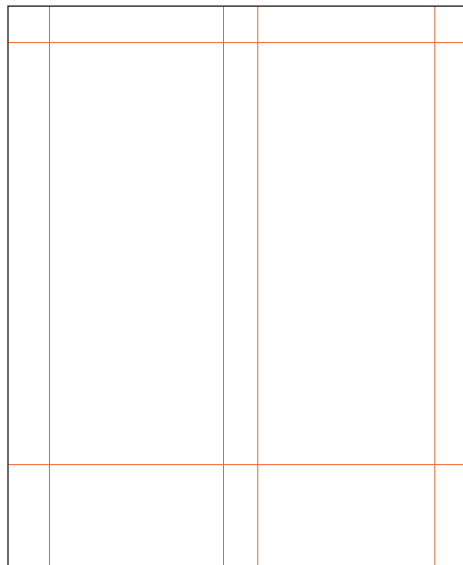
<p><b>Typographic Design: Form and Communication</b></p>			
<p>The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic &amp; restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the special beauty of the headings of chapters, capital or initial letters, and so on, and an opening for the illustrator as we shall see by and by. The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.</p>	<p>And the whole duty of beautiful typography is not to substitute for the beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic &amp; restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the special beauty of the headings of chapters, capital or initial letters, and so on, and an opening for the illustrator as we shall see by and by. The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.</p> 	<p>And the whole duty of beautiful typography is not to substitute for the beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic &amp; restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the special beauty of the headings of chapters, capital or initial letters, and so on, and an opening for the illustrator as we shall see by and by. The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.</p>	<p>And the whole duty of beautiful typography is not to substitute for the beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic &amp; restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the special beauty of the headings of chapters, capital or initial letters, and so on, and an opening for the illustrator as we shall see by and by. The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author.</p>

**4-22** Multicolumn grids can be applied to many different situations, as in this format consisting of three panels, each divided into three columns.

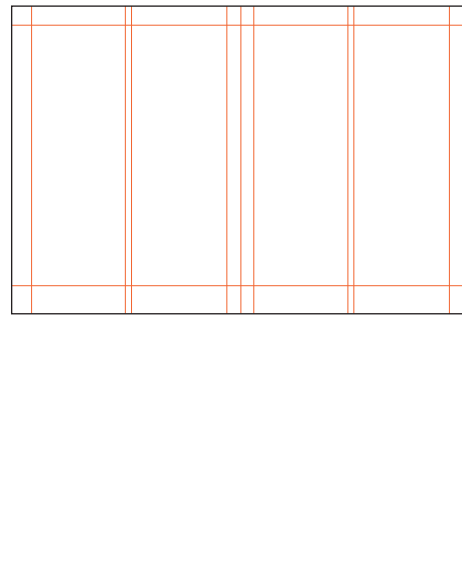


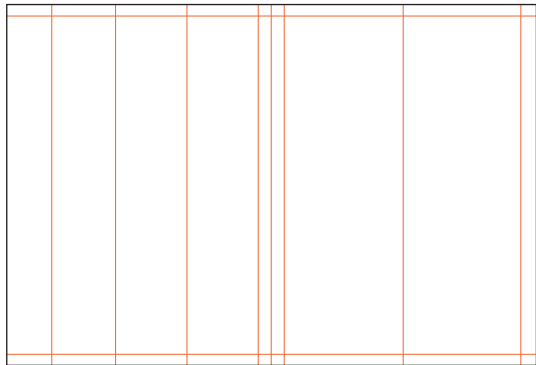


**4-23** Strict adherence to a two-column grid proves an orderly environment for the presentation of text and paintings by artist and designer Bart van der Leek. (Designer: Wigger Bierma)



**4-24** The purity and serenity of climbing is reflected in this elegant and restrained design. The magazine layout consists of three columns that facilitate a balanced integration of text and spectacular photographs. (Editor/creative director: Christian Beckwith; designer: Sam Serebin)





**4-25** In a book entitled *The Best Dutch Book Designs*, text columns shift laterally to achieve a woven texture. The columns are assigned texts in both Dutch and English. (Designer: *Typography, Interiority, & Other Serious Matters*)

When is the adoption of a modular grid more desirable than the standard columnar grid? Though these two methods for organizing information are cousins, the modular grid offers opportunities to present more complex information with a high degree of accuracy and clarity.

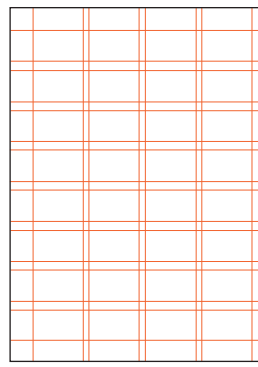
Modules are formed by the intersections of horizontal and vertical lines. These units provide zones for the placement of different parts of information. The goal is to create a distinct hierarchy between units of information. This is achieved by understanding the different levels of information and representing them as contrasting elements.

At first, the modular grid appears mathematical, repetitive, and unimaginative. But it is important to think of the grid as a system for organizing information and not as a physical, impenetrable fortress. Grid systems are flexible, and they evolve as the designer works to understand and represent information. Figure 4-27 displays a modular grid system consisting of thirty-six square modules. This example shows modules of equal size, but grid systems can be developed with modules consisting of any number of proportions. The beauty of the system is that modules can be combined into varied sizes and shapes to serve as zones for content elements.

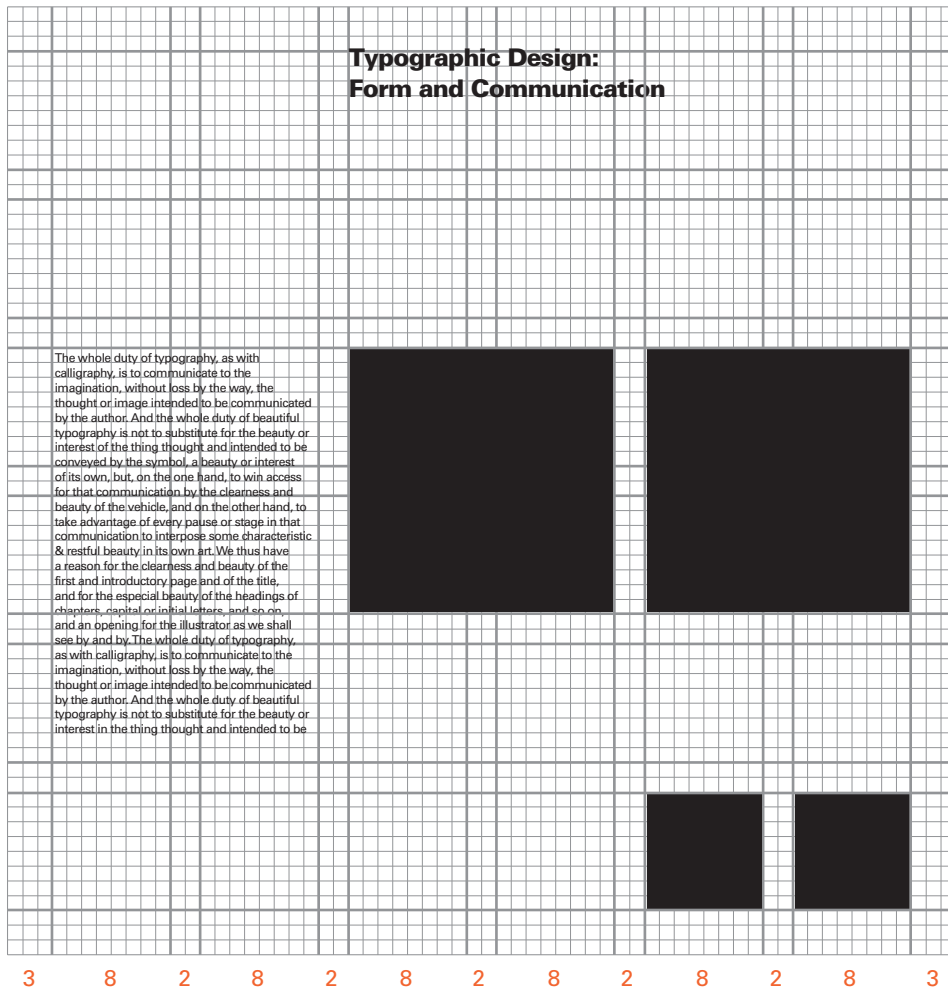
As a general rule, the more complex the grid structure, the more flexible the organizational possibilities. The process of organizing material within a grid structure is a balancing act between variety and unity. Too much variety deprives design of hierarchical clarity, and too much unity can become monotonous for the reader.



**4-26** For the *One Hit Wonders* exhibit in the *Rock and Roll Hall of Fame and Museum* in Cleveland, Ohio, multiple columns featuring song titles, artist's names, and descriptive text arch dramatically along a curved wall to achieve both visual resonance and maximum interpretive clarity. (Project directors: Bruce Burdick and Susan Burdick; Graphics director: Stuart McKee, *The Burdick Group*)



**4-28** The cover, an interior page, and the grid of Josef Müller-Brockmann's classic book, *Grid Systems*. (Designer: Josef Müller-Brockmann)

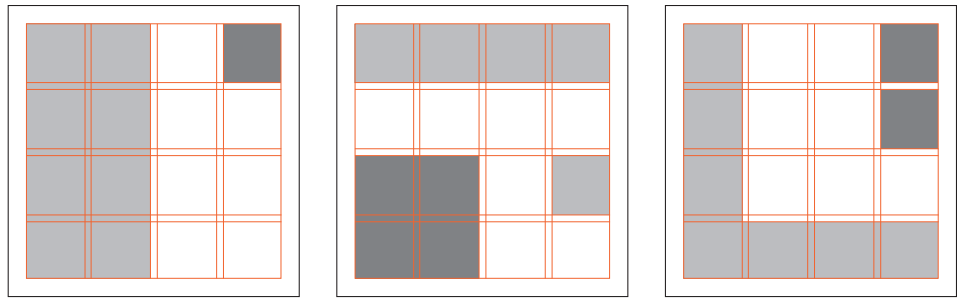


**4-27** A thirty-six-module grid extracted from 4,096 individual square units represents but one of an enormous range of grid constructions. In this example, the smaller vertical divisions function as a baseline grid. The complexity of this system offers a wide range of compositional choices. However, the goal remains to organize a collection of elements into a cohesive whole.

An excellent model for illustrating the modular grid is the work of Josef Müller-Brockmann, a major contributor to its wide acceptance (Fig. 4-28). A leader in the development of the International Typographic Style during the 1950s and 1960s, Müller-Brockmann sought pure objectivity in typography and graphic expression.

His work, including posters that remain as fresh today as they were when first designed, attest to the power and visual impact of his work. This rational philosophy, which he shared with other pioneers of the movement, was assimilated throughout Europe and the United States. In his 1981 book, *Grid Systems*, Müller-Brockmann states, “The use of the grid as an ordering system is the expression of a certain mental attitude inasmuch as it shows that the designer conceives his work in terms that are constructive and oriented to the future.”

**4-30** *Spatial interaction and compositional balance are achieved when modules define void spaces that are integral to the geometry of the page.*

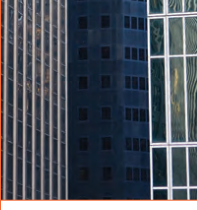


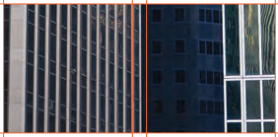
Grids allow for the distribution of typographic elements into a clearly intelligible order. Within the internal structure created, headlines, text, captions, images, and other parts of the message are integrated. The areas occupied, which correspond to specific modules or groups of modules, are referred to as spatial zones. After identifying all the parts of a message, the designer assigns them to specific zones. The result is a logical hierarchy of parts, and information that is more accessible to readers (Fig. 4-29).

In the tradition of modern design, the spatial zones within a typographic grid are not violated. The designer works within the grid framework to objectively present information, while utilizing the principles of ABA form to establish relationships between the parts and to imbue the composition with rhythmic and textural variety (see “ABA form,” pp. 106 – 110). But rules can be broken and risks are possible; skilled designers are capable of violating the grid to optimize clarity and maximize visual effect.

A successful grid is a performance, a concerto of typographical instruments working independently yet together. In the end, individual images and sounds work toward a common goal. What is perceived as the whole is greater than the virtuoso of any individual part (Fig. 4-30).

The following examples reveal variations on the modular typographic grid used inventively across various media. In a highly complex information environment, it is necessary to provide audiences with articulate structures that also resonate visually. This is as true for books as for websites and other delivery venues (Figs. 4-31 to 4-36).

<b>Typographic Design:</b>	
<b>Form and Communication</b>	The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the

<b>Typographic Design:</b>	The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the
<b>Form and</b>	The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some
<b>Communication</b>	

**4-29** *Progressing from simple to complex, these grids systematically illustrated a diverse number of modular configurations.*

**4-31** *The book American Graphic Design Timelines features a highly flexible grid that makes it possible for readers to compare and contrast timelines of several related themes, including major events in world and U.S. history, cultural events, and American graphic designers, companies, organizations, and publications.*

*Timelines in all sections are organized in a nine-column grid, with each column corresponding to a decade in the twentieth century. As readers turn the pages, this time-oriented structure remains constant from section to section, making it possible for information to be studied in context.*

*Depending upon need, readers may take any of several pathways through the book. It may be read traditionally as a linear narrative from section to section, or it may be used as a reference book where readers make specific connections by comparing the information found on the timelines. (Designer: Keith Jones)*



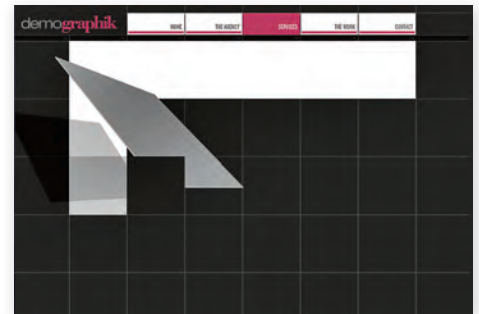
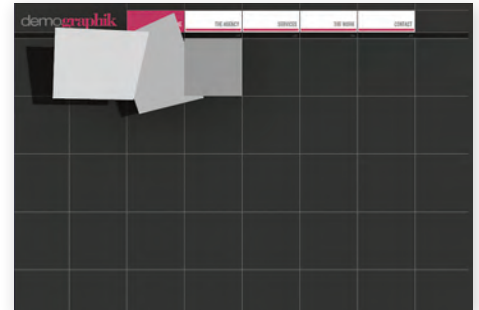
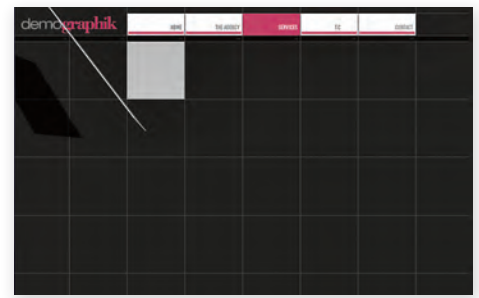




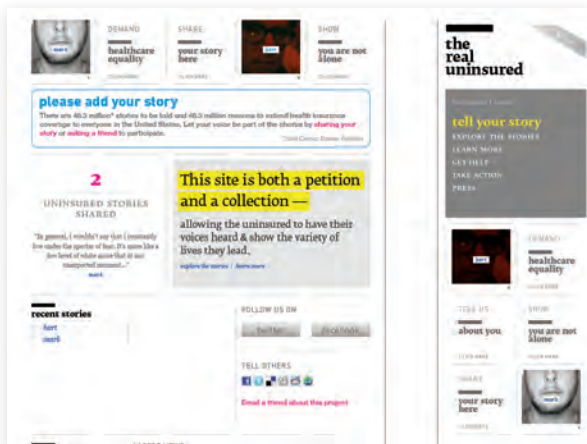
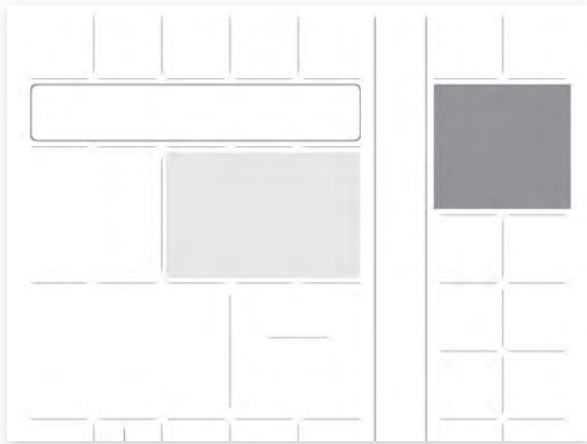
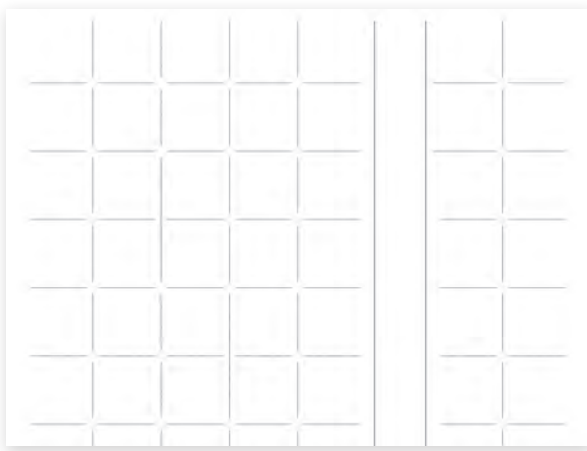
**4-32** The MeBox is a customizable cardboard box storage system. The ends of each box have a grid of perforated disks that can be punched out as needed to make initials, numbers, symbols, and text. The boxes can be arranged in rows to create longer messages. (Designer: Graphic Thought Facility, London)



**4-33** Visual unity among the many components of the Grasslands outdoor exhibition is established through a modular system of squares. By combining the smallest square unit into larger groups of rectilinear units, images and type are presented in many different sizes for visually dynamic displays. (Exhibition designers: Michael Mercadante and David Whitemyer; graphic designer: Polly Baldwin)



**4-34** The website for Demographik—a design agency based in Florida that develops media solutions—is based on an animated system of square modules. While navigating the site, “tiles” appear to lift from the surface of the screen, casting shadows, and dynamically spinning into new locations where transformed spaces reveal information about the company. (Designer: Juan Benedit)



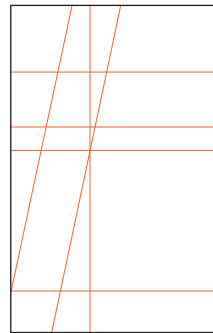
**4-35** *theRealUninsured.org* is an online petition and community advocating for universal healthcare in the United States. A strict modular grid forms a visual framework that fills with the stories contributed by site members. The more participation the site garners, the fuller the interface appears. (Designer: Mark Sanders)

**4-36** *IF/THEN* is a book utilizing concurrent grid structures that provide visual variety while also preserving unity among pages. (Designer: Mevis & Van Deursen)





4-37 The improvisational structure inherent in this poster is built upon dynamic relationships between horizontal, vertical, and diagonal axes. (Designer: David Colley)



Improvisational structures evolve in response to the specific elements of information, as opposed to modular grids, which are predetermined organizational devices. A complete grasp of the visual material in question enables designers to understand the relationships between parts and to create visual hierarchies among them. In the metaphorical sense, typographic designers are information architects—they “build” typographic environments for clear and accessible information.

Typographical materials are the building blocks of improvisational structures. Once it is known which elements are dominant, subdominant, and subordinate, they are translated into typographic forms reflecting their hierarchical status. These forms, consisting of different sizes and shapes, are then introduced into the spatial field and intuitively arranged until a rational and aesthetic solution is found. For a poster announcing a lecture series, designer David Colley has organized the information into five distinct zones: title, speakers, venues, sponsor, and tertiary information. The improvised structure not only communicates clearly through legible typography and the effective organization of contrasting parts, it also provides a dynamic viewing experience based on the language of asymmetrical composition (Fig. 4-37).

This flexible construction process involves inserting typographic forms in space to establish form and content relationships, substituting these forms with revised forms as necessary, and omitting forms that are inconsequential.

Working with improvisational structures calls for a firm understanding of asymmetrical composition, the dynamics of positive and negative space, and the essential role of visual contrast among typographic elements.





**The letter**

Our initial discussion of typographic syntax addresses the intrinsic character of the individual letter. This well-drawn form, exhibiting subtlety and precision, is the unit that distinguishes one family of type from another. It exists in various weights, sizes, and shapes (Fig. 5-1).

Although the letter typically functions as part of a word, individual letters are frequently combined into new configurations. As shown in Figures 5-2 and 5-3, combinations of letters *A* and *g* and *P* and *Q* are unified to create a stable gestalt. In the illustrated examples, there is an expressiveness and boldness to the individual letters. The syntax displayed here is an example of letter combinations acting as signs, extracted from a larger system of signs.

A typographic sign is visually dynamic because of its interaction with the surrounding void—the white of the paper. This form-to-void relationship is inherent in the totality of typographic expression. The repetition of the letter *T* in Figure 5-4 is balanced and complemented by its white space. In the title page for Hans Arp’s book *On My Way*, the visual interplay between the three letterforms animates the page (Fig. 5-5). This equilibrium and spatial interaction and the manner in which it is achieved will be discussed further in our study of typographic space.

Contemplating this ability of space to define form, Amos Ih Tiao Chang—architect and author of *The Tao of Architecture*—observed, “It is the existence of intangible elements, the negative, in architectonic forms which makes them come alive, become human, naturally harmonize with one another, and enable us to experience them with human sensibility.”



**5-1** This composition demonstrates contrasting visual characteristics of three letterforms. (Designer: Robert Boyle)

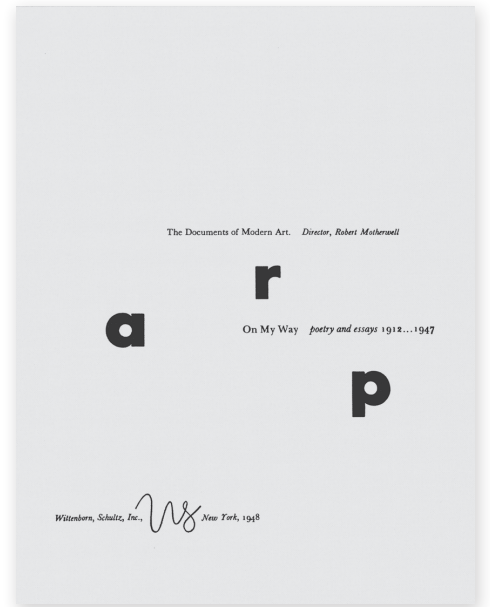


**5-2** Through precise letterform drawing and carefully considered form-to-counterform interaction, two dissimilar letters form a cohesive sign. (Designer: Gail Collins)

**5-3** Two letterforms are each broken into two geometric shapes of varying size and density, and the four resulting forms are combined into a delicate, asymmetrically balanced symbol. (Designer: Frank Armstrong)



**5-5** A dynamic composition is formed by the precise spatial location of the letterforms a, r, and p, which also spell the author's name. (Designer: Paul Rand)



**5-4** It is the figure/ground reversal in the repetition of the letter T that creates a balanced and expressive poster. (Designer: Willi Kunz)



---

## The word

By definition, a word has the potential to express an idea (Fig. 5-6), object, or event. Word signs are independent of the things they represent, yet by design they can be made to signify and reveal their meaning.

Form and counterform relationships, found within individual letterforms, also exist within individual words. Speaking on the structural consideration of form and counterform and the designing of typefaces, Adrian Frutiger stated, “The material of typography is the black, and it is the designer’s task with the help of this black to capture space, to create harmonious whites inside the letters as well as between them.”

By observing this principle and by combining form and counterform into word units, the designer discovers subtle typographic connections and rhythms (Fig. 5-7). The word unit is a constellation of individual letterforms, suggesting a union and forming a cohesive whole. Optically adjusted spaces and consistent counterform relationships assure the overall clarity of this union.

Discussing interletter spacing, the painter and graphic artist Ben Shahn tells about his training as an apprentice who lettered on lithographic stones in 1913. The shop foreman explained, “Imagine you have in your hand a glass that will hold only so much water. Now you must provide space between your letters—whatever their slants and curves may be—to hold just that much water, no more or less.” The universal principle for spacing letters is this: the typographer,

calligrapher, or designer attempts to make the interletter space between each pair of letters appear equal to the space between every other pair of letters. Because these counterform spaces have such different configurations, this spacing must be achieved through optical balance rather than through measurement.

Figure 5-8 shows a dissection of the word *Camerata*, displaying various interletter relationships, including both geometric and organic features. In this example, the word’s internal pattern is created by the visual properties of the individual letterforms and their various juxtapositions. This arrangement displays the nature of the internal pattern. *Camerata* is an Italian word meaning “a room full of people”; this meaning supplies yet another interpretation of the overall pattern.

A concern for form and counterform is evident in the equilibrium that is established among the letterforms comprising the word *Camerata*. It is extremely important to see the interior rhythms of a single word. In the example shown, the letters *C*, *m*, *r*, and *t* function as elements of contrast, while the three *a*’s and the *e* act as the unifying elements. A similar use of contrast and repetition is demonstrated by the progression of letterforms within the corporate logotype for Olivetti (Fig. 5-9).

Obviously, not all words offer the potential for such a rich typographic internal pattern. The complex and lively forms reproduced here clearly show the variety and fullness of form that exists in some deceptively simple word units.



**5-6** Three colors of overlaid letterforms composed of diagonal lines combine to form a sign for the word glimpses. The word’s meaning is expressed visually and poetically. (Designer: Q Collective)

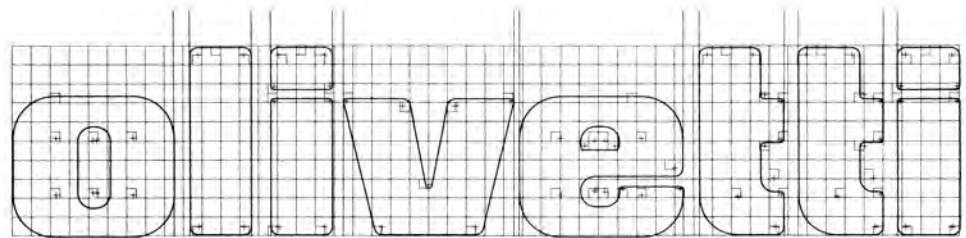
ce oo  
 ll d  
 •••••  
 cellar door

**5-7** Word-to-word interaction exhibits rhythmic recurrences of form and counterform. Individual letterforms are paired, and their corresponding interior counters are related here. (Designer: John Rodgers)

C a a  
 a  
 m r  
 Camerata  
 am  
 me  
 e

**5-8** This dissection of the word Camerata displays the letterform combinations and the relationships between consonants and their connecting vowels. Contrast and repetition create lateral movement within a word, and the overall arrangement relates to the word's meaning. (Designer: Sergio de Jesus)

**5-9** In the Olivetti logo, the x-height establishes continuity, and the five ascending vertical forms create a horizontal rhythm. The repetition of rounded forms (o and e) and the echo effect of a rounded form followed by vertical strokes create a lively unity; the angled strokes of the letter v introduce an element of contrast. (Designer: Walter Ballmer)





**5-13** This multiple-line composition contains varying line weights, yet expresses wholeness through the careful placement of all elements. It displays the diversity possible in the spacing of lines of type. (Designer: Wolfgang Weingart)

## The line

Words are joined to form verbal sentences and typographic lines. The configuration and placement of lines of type are significant structural concerns. In its most basic form, a line of type consists of a single point size and a single weight extended horizontally over a specific line width.

Lines of type can be arranged symmetrically (Fig. 5-10), or asymmetrically (Fig. 5-11). The viewer/reader must sense a clearly established relationship between individual lines of type and the surrounding space (Fig. 5-12).

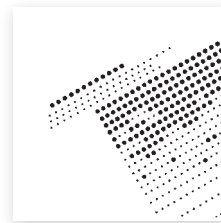
The smallest change in point size, weight, or line length controls the overall emphasis given to a line of type. The designer or typographer must determine when the overall effect is balanced and fully integrated. All design considerations—typeface selection, alignments, and spacing—should display connections that are apparent and distinct (Fig. 5-13). Jan Tschichold states, “The relationship of the sizes must in any case be clearly visible, its effect must be lively, and it must always follow the sense of the text exactly.”

The length of a group of lines of type can be equal (justified), unequal (flush left/ragged right, ragged left/flush right), or centered. The examples in this section illustrate various typographic alignments. Typographic form becomes lively and harmonious through these alignments, which enhance individual lines of type and activate the surrounding space (Figs. 5-14 and 5-15).

The placement of punctuation marks is of special significance to these alignments. In Figure 5-16, punctuation marks extend into the margin. Slight adjustments and subtle refinements heighten the degree of unity.

*Of all the achievements  
of the human mind, the birth of the alphabet  
is the most momentous.*

**5-10** Symmetrical placement produces a quiet, balanced configuration.



**5-11** Asymmetrical placement achieves a dynamic division of space on the page. (Designer: Ivy Li)



**5-12** Type and rules combine to bring a sense of unity to the page. Note the recurrence of similar space intervals and the attention given to individual line breaks (the rhythmic pattern of line endings). (Designer: Cheryl Van Arnam)



**5-14** Complex and subtle relationships in interline spacing are achieved here by varying type size, weight, and spatial intervals, which separate the statements for the reader. The overall effect is rhythmic and expressive. (Designer: Frank Armstrong)

Typographic rules are used in conjunction with type and separate one line of type from another or one group of typographic lines from another as in Figure 5-12, or in footnotes. Rules are found in a variety of forms (Fig. 5-17) and in numerous sizes and weights. (The use of visual punctuation, including typographic rules, is detailed under “Visual Hierarchy,” pp. 100 – 105.)

Earlier, we discussed kerning and the optical spacing of letterforms. Control of these factors makes possible a judicious use of letterspacing in a line of type. The orientation of lines raises a multiplicity of other spacing concerns; for example, interword spacing, interline spacing, and line-to-page relationships, as well as the establishment of columns and margins.

**“Bauhaus Masters”**  
Marcel Breuer  
Paul Klee  
Herbert Bayer

**“Bauhaus Masters”**  
Marcel Breuer  
Paul Klee  
Herbert Bayer

Straight-line rule

---

Bar rule

---

Bracket rule

Swelled rule

---

Oxford rule

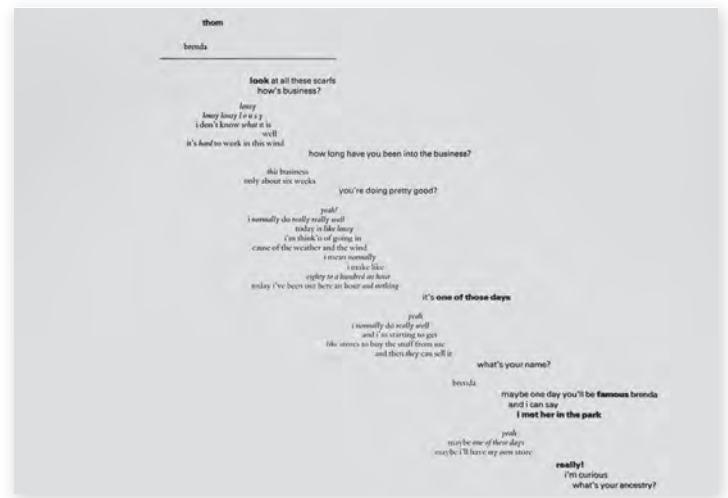
---

Leader

---

**5-16** In the top setting the lines are flush left, but the edge appears uneven because of the punctuation. In the bottom version, hanging the punctuation into the margin is an adjustment resulting in an optically aligned edge.

**5-17** Hierarchical clarity can be established by using this standard collection of typographic rules to separate, emphasize, and bring order to parts of information.



**5-15** In this conversation, the placement of lines and intervals reflects the dialogue. (Designer: Warren Lehrer)

## Column and margin

As an extension of the spatial qualities inherent in single letters, pages also possess form and counterform relationships due to the interaction of columns and their surrounding spaces. Functional clarity and visual beauty are established in the harmonious relationships of these spaces.

Three specific variables related to columns govern these relationships: the proportion of column height to width, texture (the tactile appearance of the type), and tone (the lightness and darkness of type). It is through the manipulation of these contrasting variables that pages are spatially activated, optically balanced, and hierarchically ordered. Additionally, the height and width of columns (and their adjoining space intervals) should be carefully examined to ensure adequate legibility (see Chapter 3).

When organizing text columns, either horizontal or vertical movements may be emphasized. One will often dominate, as shown in Figures 5-18 and 5-19. Eye movement across the page (side to side and top to bottom) is controlled by column rhythms, typographic weights, and rules functioning as visual punctuation. By the manipulation of these elements, the designer groups information according to its role in a given layout and guides the eye methodically through the space of the page. Each of the horizontal rows in Figure 5-20, for example, separates information for each composer, making it easier to locate the musicians performing each piece. The first row, with regular-weight type, contains general information and is subordinate to the second and third sections with large bold type.



**5-18** Four columns of type are arranged horizontally, allowing ample breathing space for the timeline of photographic images at the top of the spread in the book *Eva Zeisel: Life, Design, and Beauty*. (Designer: Pirco Wolfframm)

history at the University of Budapest, in 1904. Laura pursued her studies in hopes of escaping at the age of twenty-one. Some family members, who expected her to marry someone within their intellectual circle—someone like the philosopher and critic Georg Lukács, for example—found it difficult to conceive themselves with her choice of an older, wealthy textile merchant who did not share her intellectual interests.<sup>17</sup> Her brother Karl never fully reconciled himself to the loss of the daughter he saw his beloved sister might have had if she had chosen a different partner.<sup>18</sup> Eva, who admired her father, had no problem understanding why her mother felt in love with such a good-looking and kindly man, but in later years she acknowledged that Laura also made a deliberate choice about the type of lifestyle she wanted for herself and for her future children.<sup>19</sup>

Zeisel offered Laura considerable emotional and financial security, and a great deal of independence to do what she wanted—for more independence than many men who were focused on their own intellectual and political activities would have given. Marriage allowed Laura to return to the neighborhood where her family had formerly lived, to again enjoy a summer residence, and when children came, to live in private rooms and government. Thus, Eva was born into a lifestyle almost as privileged as that formerly enjoyed by her mother. Her brother Michael was only fourteen months older than the young Eva (he eventually became six years younger). When Eva was just a year old, Laura published an article in “Women of the Intellectual Middle Class,” and focused on “Education and Marriage,” and she completed her doctorate in three days a relatively short document just before Eva was three.<sup>20</sup> Her family and friends, and Laura herself, had expected her to enter academia when she completed her doctorate, but changes in the university regulations about that time closed the door of that institution to women.<sup>21</sup>

and Frankfurt, and the struggle art by Franz Gluck, who ran art-and-arts classes for children in Vienna. The kindergarten movement was popular with progressive, liberal-minded educators and parents across Europe and North America.<sup>22</sup> The practitioners of play and playfulness in Eva’s later work trace back to the long emphasis on play during her early life. Her mother later considered playfulness to be Eva’s most prominent characteristic as a woman.<sup>23</sup>

Art, music, and movement were key components of the kindergarten and “new education” movements, and Laura lived a disciple of the famous Swiss musician, composer, and educator Emil Jacques-Dalcroze (1865–1952) to teach rhythmic (the expression of music and sounds through body movements), the artist Berndt Czigany (1883–1952) taught drawing.<sup>24</sup> Laura’s commitment to Freudian ideas (she studied her psychology from other progressive middle-class kindergarten largely because initially was encouraged. Photographs show children naked or in green suits, hooded and happily dancing, painting, drawing, and enjoying nature.<sup>25</sup> Some people were shocked by the nudity, but Eva loved it. Zeisel recalled attending “an experimental, avant-garde kindergarten in Budapest. It was run by a young lady belonging to a very creative family... [who] had constructed an intellectual totalitarianism by marrying a successful businessman and, feeling frustrated, had opened the kindergarten for free and six-year-olds, where she put her practice some extremely advanced and, I suspect, somewhat confused pedagogical ideas.”<sup>26</sup> Eva shrugged her shoulders and laughed when I read that to her in 2000. “Thinking his opinions and (read) paradoxical, but adding that aversion about naked bodies was a great fit in the early decades of the century that even her “advanced” mother took back wearing a slip.”<sup>27</sup> She also recalled how, just before a vacation, the children were asked what they would like to eat “make pictures” while Karelina, who went on to become a journalist and writer, said “make stories.”<sup>28</sup>

**Vienna 1912–1913**  
The kindergarten was absorbed. For business reasons, the family moved in 1912 to Vienna, the capital of the Austro-Hungarian Empire, just before the end of World War I. There the family lived

frequently with the Klimtians and spoke German, a language new to Eva (she spoke six years old). She continued to be educated at home with a private tutor and may have attended school in Vienna from the age of ten.<sup>29</sup> She already showed promise in art, and as a person she soaked up the delights of the city. From Otto Wagner’s Secession Building (1903–1904), which she described later as “like a castle in a fairy tale,”<sup>30</sup> and art and design exhibitions there, to the “Museum of the Wiener Werkstätte” Vienna Workshops (1903–1904) and “The aggressive genetic erasms” of architect-designer Josef Hoffmann.<sup>31</sup> She would later go to see Baroque churches and monuments, and family dinner conversations about the controversial Low House (1903–1904), which she described as “bravely facing the stately, traditional Imperial Palace,”<sup>32</sup> critics of its austere aesthetic, steel and concrete construction, and lack of decoration inside and out had brought building to a halt temporarily in 1907.<sup>33</sup> Eva’s language, after that, suggests that she developed the placement of the building and probably of the building itself.<sup>34</sup>

Eva was extremely well grounded in the history of art, architecture, and design, especially of the Renaissance and Baroque periods, even as a girl. Of all the Mid-Century Modern designers in the U.S. after World War II, she probably had the greatest understanding and appreciation of historical styles and movements. The “almost weekly” guided tours she took in the winter months included stops at “the old tower along the Danube” where she absorbed the “spirit and details” of Baroque design.<sup>35</sup> One of her tutors was the young Friedrich Antal, also from a wealthy Hungarian-Jewish family, a former student of the distinguished German art historian Theodor Wulfen. Antal, like fellow art historian Adolf Hölzl, proposed that art was closely related to its social and economic contexts, a point of view held thereafter by Eva. The strong Baroque reflections in Eva’s work grew out of her deep knowledge of design from that period, as well as from the precision and depth of Baroque forms and motifs within Hungarian and Austrian (and not material culture, including folk traditions. The soft curves of many of her later designs owe much to the Baroque, and also to Antoni Gaudí and Hungarian Modernist designs of the day—slips. There was a revival of interest in Christian scenes Europe between about 1900 and 1920 and, for many of Eva’s generation, of classical influences, including Modernism, came in both contemporary and historical forms.

**Pelety Circle**  
Antal joined to some of the same intellectual circles in Hungary as Eva’s uncle Karl Polanyi, a leader of the progressive student movement and a founding member of both the Galileo Society and the Hungarian Radical Party. Both Antal and Polanyi were friendly with Lukács, who was seen to embrace historical materialism and join the Austrian Communist Party, and with the philosopher and sociologist Karl Mannheim. All four men belonged to the Stróczy Circle, another group for young intellectuals that began meeting about 1901, and in 1907 they helped establish the Free School of the Cultural Sciences, which offered classes on various aspects of modern bourgeois culture, from art and literature to politics. Other figures in each circle included Székely, who became a leading socialist theoretician; Deákai János, editor of *Kommunist* and leader of the Biological Society in long-term Polanyi friend; artist Irma Seidler, another Polanyi niece and an early girlfriend of Lukács; Franz Seidler, who married Eva’s father; Lukács, a professor of economics at Budapest University (later at the New School, New York); artist Anna Lenau, composer Béla Bartók and Zoltán Kodály, and the socialist Emma Flósz also moved to these circles.<sup>36</sup> Mannheim and Polanyi’s political views were more liberal and social democratic than those of Lukács and Antal, as were those of Karl’s siblings Michael and Laura. At that time, the older Polanyi brother, Adolf, founder of the first socialist student club at Budapest University in the early years of the century, was the most politically radical Polanyi sibling.

After the Stróczy returned to Budapest, Laura became heavily engaged in progressive socialist democratic politics. Along with brothers Karl and Michael, she supported the bourgeois liberal progress of the Hungarian Democratic Republic (October 1918–March 1919) in which government. Count Karolyi (a neighbor of the Stróczy), called an election based on universal suffrage for April 1919. Laura planned to run for parliament on a reformist, social democratic, and feminist ticket under the auspices of the Hungarian Radical Party her position on women, however, differed little from that of the Marxist feminists who insisted that class was a key factor in what was then known as the “women question.”<sup>37</sup> That election did not take place; the Hungarian



**5-20** Columns and margins are carefully balanced through the use of contrasting type sizes and weights, and the use of rules. (Designer: David Colley)

Contemporary Chamber Players  
School of Music  
University of Illinois at Urbana-Champaign  
David Liptak, director

Wednesday December 10 1986 at 8:00 pm  
Foellinger Great Hall  
Kranert Center for the Performing Arts  
University of Illinois at Urbana-Champaign

*Drimal sieben Gedichte aus Albert Giraud's  
Pierrot lunaire, op. 21 (1912)*

# SCHOENBERG

Barbara Dalheim, *sprechstimme*  
Alexander Murray, *flute and piccolo*  
Howard Klug, *clarinet and bass clarinet*  
Catherine Tait, *violin and viola*  
Tsuyoshi Tsutsumi, *cello*  
Eric Dalheim, *piano*  
Ian Hobson, *conductor*

*Quatuor pour la fin du Temps (1941)*

# MESSIAEN

Howard Klug, *clarinet*  
Catherine Tait, *violin*  
Tsuyoshi Tsutsumi, *cello*  
Eric Dalheim, *piano*

**5-19** Eight columns of type create a vertical movement. Their uneven heights serve to balance the space and create a lively rhythm. The use of photographs and color breaks the overall grayness of the text. (Designer: John Malinoski)

Laura Shtudman performing *Then Now / Don't / The Sherry George*, Kennedy Center Millennium Stage, Washington, D.C., January 2006

I first met Dick almost fifty years ago. I was an uncertain art student while he, at least to me, was an accomplished artist living in the lowest east side of New York City. At first from the lower east side was not the trendy place we know today; it was a lot poorer, a lot dirtier, and a lot cheaper. Dick lived and worked in a cold-water room, in a walk-up building with shared bathrooms on each floor. His room was extremely small with a tiny storage pantry. He could live in the room — there was a cot, a table, and a chair — or he could work in the room; there was not space, however, to do both at the same time. Dick's solution was to get up in the morning, disassemble the cot, and move that, along with most of his other living stuff, to the storage area. Nothing inevitably would then be brought from the storage area to what was now his studio. In the evening, the room was swept, cleaned, and sometimes even repaired, if needed. His studio returned to being a small room with a cot, a table, a chair, and a single painting on the wall. Dick did this every day, seven days a week.

Many years later when going through the Monastery of San Marco in Florence, I found myself thinking of Dick and the way he lived and worked during this period of his life. I think it was because of the simplicity of the individual monk's cells, each a small room with a cot, a table, a chair, and a single painting on the wall.

**Richard Martin**

Team teaching the Art Intro class with Richard was the best education in education I have ever received. Few people I know are as articulate as I have had such a stellar colleague. When I think of the man, I remember that the light from the distant stars still reach us long after the sun is no longer there. I think of Richard in this respect; his gifts to me and others will carry on his spirit, persona, and actions for generations to come.

I knew my students loved him. They parroted his lectures and criticism, and felt superior to their peers because they had a seat in his classes and were not part of the SRO crowd. Tempers flared when the space in Richard Carlyn's sculpture class was kept at a sane level. The adoration of the student body was earned through his giving. I think every kid here that went Richard regarded their work or lecture, they were getting the reassurance from someone whose love of the field was absolutely unquestionable. His ability to find gems of quality in the paltriest endeavors was part of his genius. A student once said of Richard that he knew Carlyn had great eyes because he could effortlessly explain what he perceived. "And, of course, he loved my work." Richard seemed to love each student with something positive to build upon.

The honesty and positive reinforcement were things those who loved Richard emphasized in their own teaching. I learned from Richard that "having the glass half full" was essentially a choice against its alternative.

**Leona Van Winkle**

...Once while conducting a critique of a sculpture student's work in the lobby of the new building, I saw Richard across Broad Street walking to his studio. I asked the students if they knew that white-haired guy in the black jacket. They stood up at the glass windows, and several of the students said, yeah, that's Richard Carlyn. I then asked if they knew where he was going. It was wonderful to be able to talk to the students about Richard's commitment to his work and his work habits relative to their work habits and commitment. I told the kids to check on Richard and they would see him most days walking to his studio. A few students commented on their Carlyn sightings. They were the best students, upon whom a good example is never wanted.

**Leona Van Winkle**

Richard Carlyn is one of the most influential artists in Richmond's history — generations of artists in this community have been profoundly inspired by his generosity, intellect, broad perspective, and process. As part of the retrospective dedicated to Carlyn's career, a tribute celebrating his artistic connections and contributions to dance and performance was presented by the VCU Department of Dance and Choreography on September 26, at the university's Grace Street Theater.

It also featured *Then Now / Don't / The Sherry George*, a dance created by choreographer Laura Shtudman in 2003. The choreography is an adaptation of the movement in Carlyn's video *Then Now / Don't*. Through video editing, Carlyn re-imagined the Sherry George dance number performed by Fred Astaire and Rita Hayworth in the film *New Year's Eve*. Loewick originally choreographed by Lenore Fox.

For me, this evening was an extraordinary moment — an important part of the city-wide retrospective honoring Richard Carlyn. Dick had a gigantic range and ability to subvert and transcend theme, aesthetics and art forms — sculpture, painting, film, etc. — and dance was certainly included in that range. He danced as a child and as a young man, studying the Martha Graham technique when he became a student at Richmond Professional Institute. Later, when he was my painting teacher and I was considering dance as a career, his understanding of dance as an Art Form was clarifying and invaluable to me. Over the years, his informed comments and feedback continued to be invaluable and somewhat inspiring. He had that rare ability to infuse an emerging artist or re-ignite a working artist with the excitement of the process, the challenge, and the journey.

In fact, to watch Dick move as any point in his life was to see him dance. This performance was a way of sharing another rich aspect of Richard Carlyn, THE ARTIST.

**Chris Romulo**



The Bridgeport Hospital family, 4,357 members strong, is a special and meaningful community. Our goals blend the values of fine health care and human compassion with a balanced regard for technology and the demands of cost containment. Our mission is health care: the time clock of our Hospital community is idiosyncratic and without regard for "appropriate hours of visit" every person's. His community values, and is valued for, his and her role in the complex process of healing. The photographs and essays on these pages bring to your attention some of the highlights of fiscal year 1982.

The state Commission on Hospitals and Health Care in 1982 approved three vertebrae of need applications from Bridgeport Hospital in 1982: a linear accelerator whose high energy X-ray and electron beams destroy cancer cells in the treatment of patients with cancer; a full body CAT Scanner, a computerized diagnostic tool that produces X-ray pictures of thin sections of the entire human body; and a new state-of-the-art cardiovascular laboratory and a special radioisotope procedures lab for the diagnosis of cardiovascular disease and peripheral vascular diseases.

Historically, patients undergoing surgery spend a fair amount of time in the hospital for pre-operative testing and post-operative recuperation. In an attempt to realistically assess and better meet the needs of patients as well as to improve operating room utilization, Dr. Claude Dorval, chairman of the department of Anesthesiology, in conjunction with anesthesiologist Erica Pitt, began work on modifying our existing one-day surgery center project. On April 26, the facility expanded its operating with a dedicated team of nurses in a new area constructed by plant operations.

New Faces Highlight the Year

Dr. Denis Wason, M.D., an attending surgeon, served as president of the Bridgeport Hospital attending staff in 1981 and was re-elected in 1982 to serve as president of the 478 active and courtesy physicians. At the annual meeting of the medical staff in 1983, Anthony Muto, M.D., an attending physician in Ophthalmology was named president of the Bridgeport Hospital attending staff for 1983 and Dr. Wason was named Chief of Staff and chairman of the attending staff executive committee. Howard L. Rubin, M.D., an attending physician in the section of Gastroenterology, was chairman of the executive committee and Chief of Staff in 1982. Some of the other personnel changes during the year include the naming of Robert M. Daly, M.D., as chairman of the newly created department of Psychiatry, and the appointment of Wealdy D. Simmons to the newly created post, vice president of finance.

Two new sections of the department of Surgery were established during 1982. Glenn W. Sandberg, M.D., was named chief of the new section of Cardiothoracic Surgery and Susan A. Levitt, M.D., was named chief of the new section of Vascular Surgery.



William S. ...  
Department of Pharmacy

5-21 In this annual report there are subtle spatial relationships. These include the form/counterform of the column to the margin; the placement of the heading and subheading, which extend into the margin for emphasis; and the column mass to rules, photograph, and caption. (Designer: Frank Armstrong)



Haydn, Poulenc and the Princesses

Haydn's help in 1791 with the 18th anniversary of the death of the Emperor Joseph II... Poulenc's... the Princesses...

5-22 This magazine page exhibits the needed contrast between text and caption elements. The column width of the text is double the column width of the caption. (Art director: Ben Day; designer: Anne Stewart)

The difference in tonality, which is an important design consideration, hierarchically leads the eye from one element to the next, and finally into the white of the page (see "Visual Hierarchy," pp. 100 - 105). The critically determined spatial intervals create an engaging visual rhythm.

The size of type may vary from column to column (Fig. 5-24) or within a column (Fig. 5-25). As indicated in the latter diagram, type that is larger or heavier in weight appears more dense and is therefore emphasized on the page. Changes in density provide a kind of contrast that makes it possible to balance various typographic elements and add rhythmic qualities to the page.

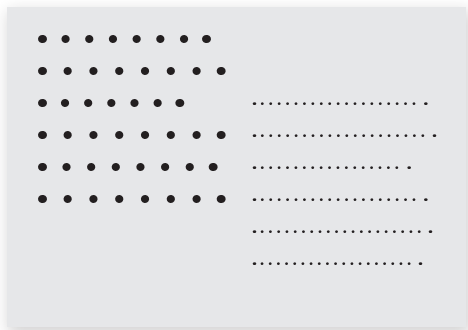
The scale and proportion of columns, intervals between columns, and margins and their relationships to one another must be carefully adjusted as determined by the kinds of information they support. In Figure 5-21, generous, unequal margins frame a single column of quiet text type for a hospital's annual report, while in Figure 5-19, narrow margins surround narrow columns for an efficient-looking publication.

5-23 This experimental text composition reveals various combinations of typographic texture and tone.

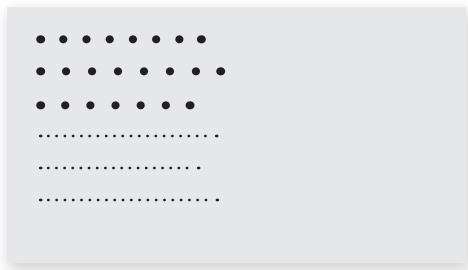
The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the

**5-24** Variation in size, column to column.



**5-25** Variation in size within a column.



**5-27** Placement of a bullet (a typographic dot used for emphasis) upon intercolumn rules designates new paragraphs in this booklet design. (Designer: Jeff Barnes)

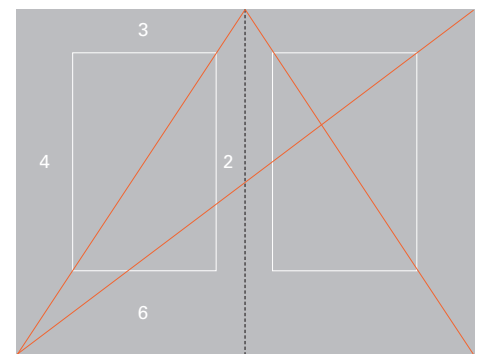
independence in the student.

- "Accordingly, handicraft in the workshops was right from the start, not an end in itself, but laboratory experiment preparatory to industrial production. If the initial products of the Bauhaus looked like individual craft products, this was a necessary detour for the groping student whom we avoided to prod with a foregone conclusion.
- We salvaged the best of experimental education and added to it a carefully constructed program of information-based design that produced non-commercial products that worked. It was a different school with different people with different goals in a different time. Our aim was to produce designers who had the will, the ability, and the ethical base to change American production for the better.
- I was somewhat concerned that this might be a middle of the road

Margins not only frame parts within pages, they also contain supportive elements (marginalia) such as running heads, folios, and captions.

The elegant margins shown in Figure 5-26 have proportions identical to the page. The margin ratio is 2 margin units to 3 to 4 to 6, as indicated. In other words, the bottom margin is twice as high as the top margin. Jan Tschichold has pointed out that this complex series of column-to-margin ratios, based on the golden section, is found in numerous medieval manuscripts. (For further discussion of margins, see Chapter 4.)

**5-26**



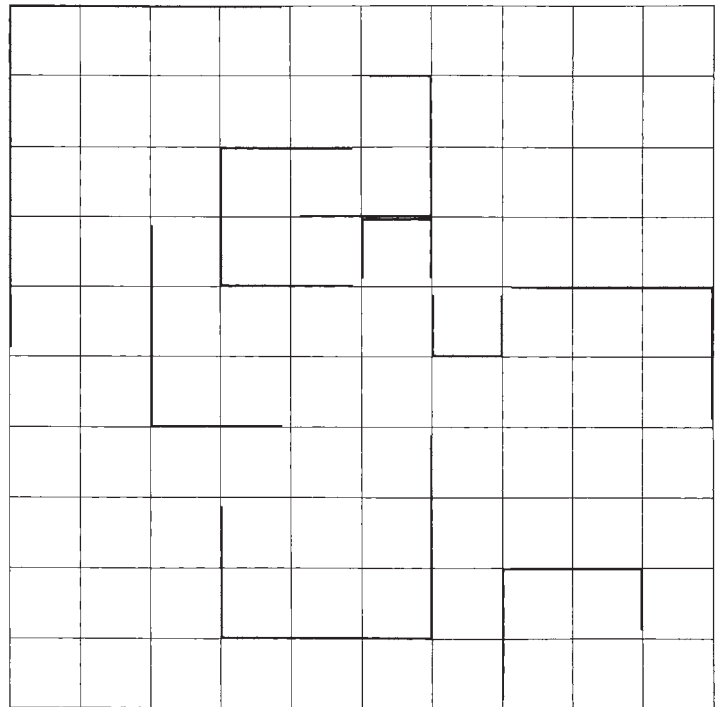
Paragraph breaks within a column greatly influence the relationship between a column of text and its surrounding margins. A break may be introduced as an indentation, as a space interval, or as a combination of both. Designers have also developed their own ways to indicate paragraphs (Fig. 5-27). The overall page organization will determine the most suitable method.

When columns, margins, and their interrelationships are clear and appropriate to content, the result is a printed page of distinction. Every problem demands a fresh approach, yet an ordered unity that is responsive to the meaningful blend of form and counterform is always the goal.

“Speech proceeds in time and writing proceeds in space.” Applying Karl Gerstner’s statement to typographic design, typographic space is the rhythmic and dimensional field in which typographic communication exists. This field consists of positive form (the typographic elements) and void (the spatial ground) upon which the elements are arranged. Unity within the space is achieved by visual compensation; that is, the spatial balance and arrangement of typographic elements. Amos Chang, discussing the relationship between compensation and visual dynamics, wrote, “This process of growth from deficiency to compensation brings inherent movement to physical form . . . we may borrow an important rule of balance from the anatomy of a zoological being, man in particular . . . man’s body is in a state of balance when his arms and legs are in a position to be moved effectively to compensate for position changes of the body.”

Visual compensation is achieved by balancing elements against each other, adjusting their sizes, weights, spatial intervals, and other visual properties until unity and equilibrium are achieved (Figs. 5-28 to 5-30). In Figure 5-31, two contrasting letterform pairs are balanced. The letterform pair *ff* suggests contraction and consonance, while *gv* expresses expansion and dissonance. Consonance is a harmonious relationship between similar or corresponding elements, while dissonance is a discordant relationship between dissimilar elements. In Figure 5-32, dissonant elements are combined with consonant form-to-void relationships, resulting in a state of visual balance and unity.

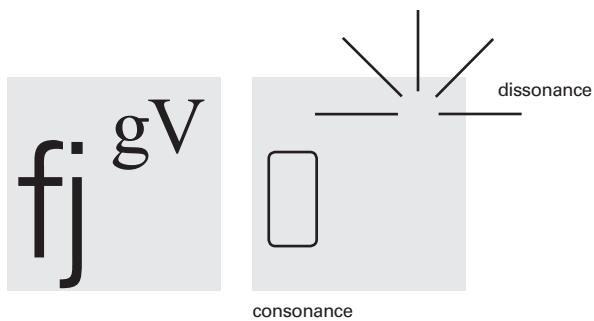
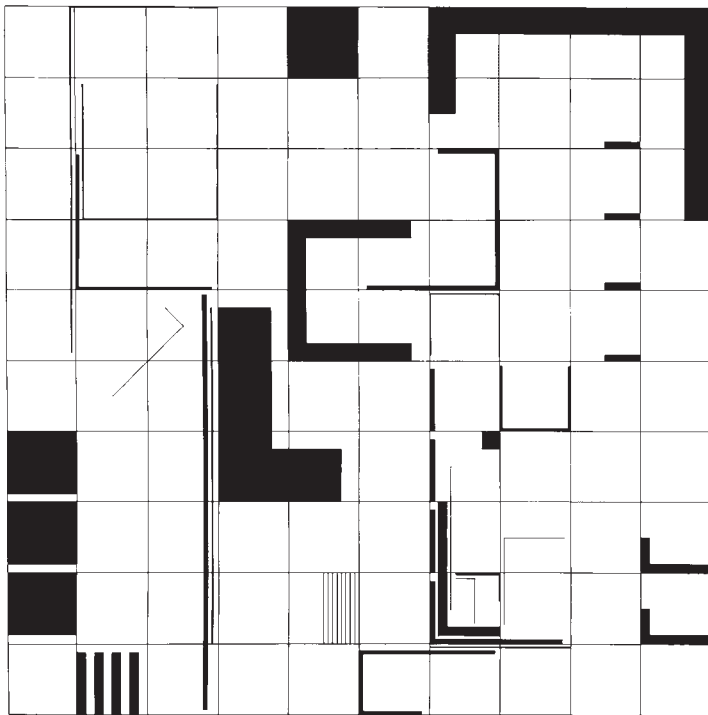
**5-28** *Spatial elements are balanced through the principle of visual compensation, achieving equilibrium and tension. Elements form relationships with other elements through carefully planned juxtapositions and alignments. Tension exists between the edge of the composition and adjacent elements. These basic forces affect typographic organization and help achieve dynamic, asymmetrical composition. (Designer: Jean Brueggjenjohann)*



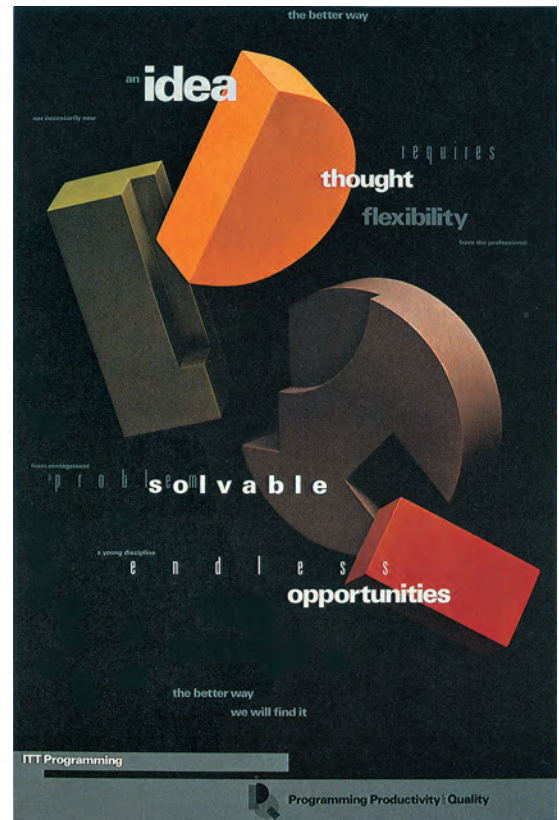
**5-29** *In the spread, pictorial and typographic elements contrast each other. Here the rectangular photograph of Eva Zeisel is balanced by a typographic column that mimics the shape of her vases. (Designer: Pirco Wolfframm)*

**5-32** The contrast between geometric and gestural letterforms is dissonant. Unity is achieved by carefully planned shape correspondences and form-to-void relationships.

arts



**5-31** (Designer: Lark Pflieger)

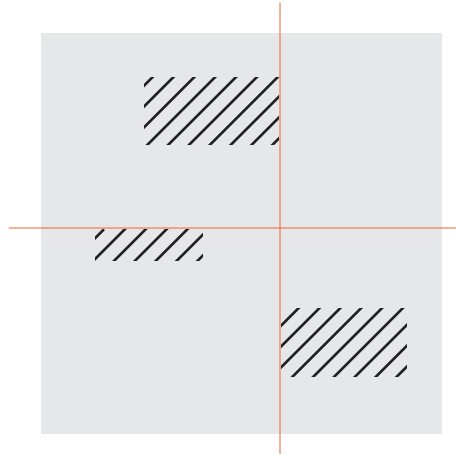


**5-30** This dynamic poster combines both large three-dimensional letterforms and a complex arrangement of two-dimensional elements. Spatial wholeness emerges from the arrangement: overlapping of elements is precise and expressive. Compensation is achieved through careful placement, with attention given to the surrounding void. (Designer: Frank Armstrong)

The structure of typographic space can be defined by alignments (Figs. 5-33 to 5-35) and form-to-void relationships that establish a composition's underlying spatial order. This substructure is developed and enhanced through optical adjustment (Fig. 5-36). Often inconspicuous, optical adjustment is the precise visual alignment of typographic elements in space based not on mathematical but on perceptual alignment. The designer's understanding and use of optical adjustment is necessary for visual clarity.

Visual compensation and optical adjustment within the typographic space link printed elements and the spatial ground. This structural integration is not an end in itself; its order, simple or elaborate, acts as a stimulus, controlling the visual dynamics of the message transmission and response.

Nathan Knobler's observation in *The Visual Dialog* that "psychologists tell us that the need to understand, to find meaning in the world around us, is coupled with the need for stimulation and involvement" applies to design. To communicate with clarity and exactitude, the designer must be aware of the need to stimulate and involve the viewer. In typographic problem solving, the designer creates complex, highly interactive spatial environments (Fig. 5-37) that establish coherence between the viewing experience and typographic form, between the verbal statement and written language.



**5-33** Alignments create visual relationships between forms in space. (Designer: Jennifer Mugford Wieland)



**5-34** In this asymmetrically balanced composition, the edge of the type column aligns with the central axis of the circle. (Designer: Sergio de Jesus)

**5-35** Typographic elements are aligned with the horizontal and vertical edges of the geometric configuration.



The whole duty  
of typography, as  
with calligraphy

E

The whole duty  
of typography, as  
with calligraphy

The whole duty  
of typography, as  
with calligraphy

The whole duty  
of typography, as  
with calligraphy

O

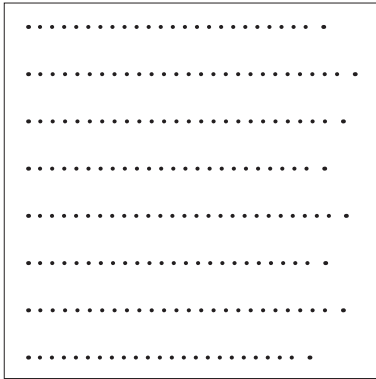
The whole duty  
of typography, as  
with calligraphy

The whole duty  
of typography, as  
with calligraphy

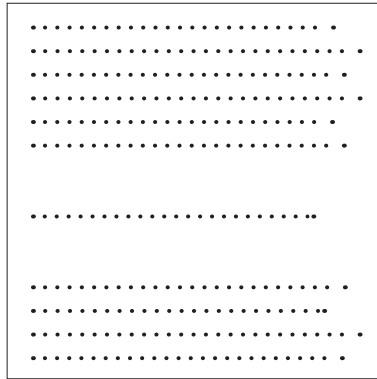
**5-36** Dotted lines indicate the use of alignments to relate forms to each other. Note the optical adjustment in relating the large O to the text type.

**5-37** In this exhibition catalog cover, horizontal and vertical alignment of elements bring order to a dynamic, asymmetrical design. Texture and tone create a vibrant luminosity. (Designer: Wolfgang Weingart)

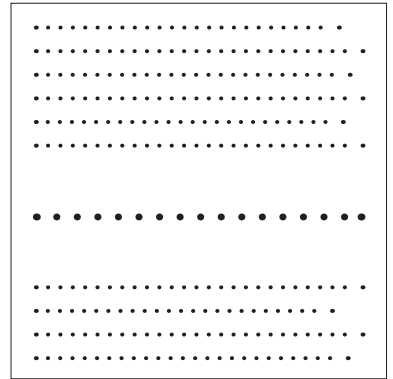




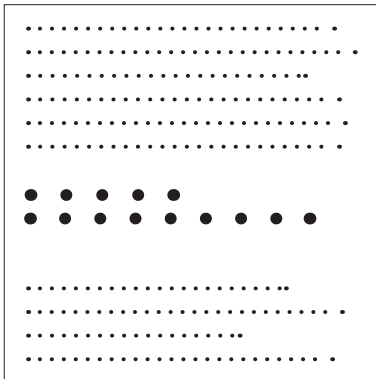
5-38



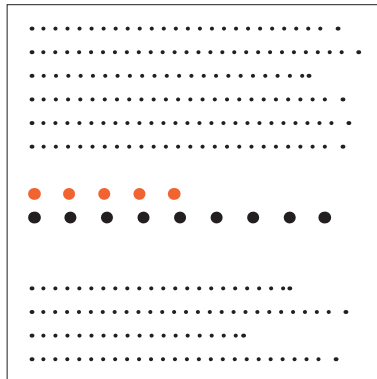
5-39



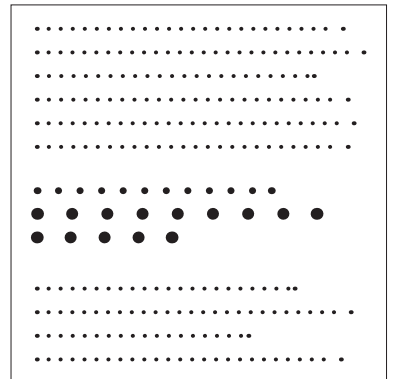
5-40



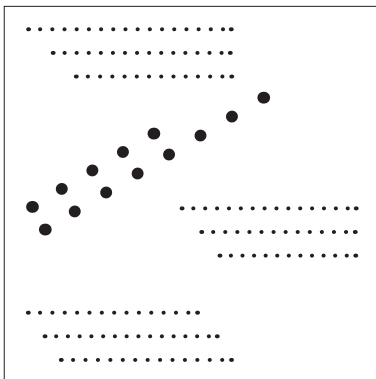
5-41



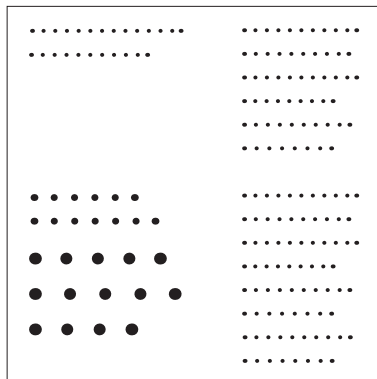
5-42



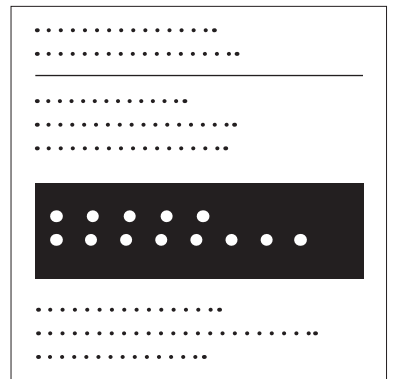
5-43



5-44



5-45



5-46



**5-38** Type style, size, color, weight, and spacing are consistent, resulting in an even texture and tone. Visual hierarchy is almost nonexistent in this arrangement.

**5-41** Changing the size and weight of the title makes it even more prominent in the visual hierarchy.

**5-44** The diagonal position of the title increases its prominence in the space. The smaller type elements align with the diagonals of the title's baseline and posture, unifying the composition.

**5-39** A spatial interval equal to one line space separates the title from the other information, giving it prominence in the composition.

**5-42** Color or value can create another level of contrast that can be controlled by the designer to create hierarchy.

**5-45** This composition demonstrates how extreme contrasts of type size and weight increase visual hierarchy and legibility from a distance.

**5-40** Setting the title in bolder type further separates it from the overall tone and texture, increasing the hierarchical contrast.

**5-43** Two sizes and three weights of type are used to create subtlety and variety within the composition.

**5-46** Reversing the title from a black rectangle heightens contrast and increases the visual hierarchy. A ruled line separates the secondary type into two zones of information.

The Modern Literature  
Society presents a lecture  
by Raoul Ramirez,  
Professor of Literature  
Santaneo State University  
Modern Hispanic Poetry  
7:30 pm March 23  
The Humanities Center Auditorium  
Admission is free

5-38a

The Modern Literature  
Society presents a lecture  
by Raoul Ramirez,  
Professor of Literature  
Santaneo State University  
  
Modern Hispanic Poetry  
  
7:30 pm March 23  
The Humanities Center Auditorium  
Admission is free

5-39a

The Modern Literature  
Society presents a lecture  
by Raoul Ramirez,  
Professor of Literature  
Santaneo State University  
  
**Modern Hispanic Poetry**  
  
7:30 pm March 23  
The Humanities Center Auditorium  
Admission is free

5-40a

The Modern Literature  
Society presents a lecture  
by Raoul Ramirez,  
Professor of Literature  
Santaneo State University  
  
**Modern  
Hispanic Poetry**  
  
7:30 pm March 23  
The Humanities Center Auditorium  
Admission is free

5-41a

The Modern Literature  
Society presents a lecture  
by Raoul Ramirez,  
Professor of Literature  
Santaneo State University  
  
**Modern  
Hispanic Poetry**  
  
7:30 pm March 23  
The Humanities Center Auditorium  
Admission is free

5-42a

The Modern Literature  
Society presents a lecture  
  
Santaneo State University  
Professor of Literature  
  
Raoul Ramirez  
**Modern Hispanic  
Poetry**  
  
7:30 pm March 23  
The Humanities Center Auditorium  
**Admission is free**

5-43a

The Modern Literature  
Society presents  
a lecture  
  
**Modern  
Hispanic Poetry**  
  
by Raoul Ramirez,  
Professor of Literature  
Santaneo State University  
  
7:30 pm March 23  
The Humanities Center Auditorium  
**Admission is free**

5-44a

Santaneo State University  
Professor of Literature  
  
Raoul  
Ramirez  
**Modern  
Hispanic  
Poetry**  
  
The Modern  
Literature  
Society  
presents  
a lecture  
  
7:30 pm  
March 23  
The Humanities  
Center  
Auditorium  
Admission  
is free

5-45a

The Modern Literature  
Society presents a lecture  
  
by Raoul Ramirez,  
Professor of Literature  
Santaneo State University  
  
**Modern  
Hispanic Poetry**  
  
7:30 pm March 23  
The Humanities Center Auditorium  
**Admission is free**

5-46a

fj

**5-47** The letters f and j are typographic counterparts because their forms correspond. Integration and equilibrium are achieved. (Designer: Lark Pflieger)

A visual hierarchy is an arrangement of elements in a graduated series, from the most prominent to the least prominent, in an area of typographic space. When establishing a visual hierarchy, a designer carefully considers the relative importance of each element in the message, the nature of the reader, the environment in which the communication will be read, and the need to create a cohesive arrangement of forms within the typographic space.

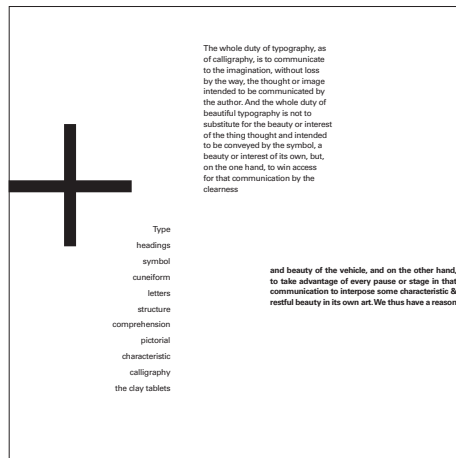
The study of visual hierarchy is the study of the relationships of each part to the other parts and the whole. When elements have similar characteristics, they have equality in the visual hierarchy, but when they have contrasting characteristics, their differences enable them to take dominant and subordinate positions in the composition.

Contrast between elements within the space is achieved by carefully considering their visual properties. Important contrasts used to create hierarchical arrangements include size, weight, color, and spatial interval. The location of an element within the space plays an important role in establishing a visual hierarchy. The spatial relationships with other elements can also influence an element's relative importance in the arrangement.

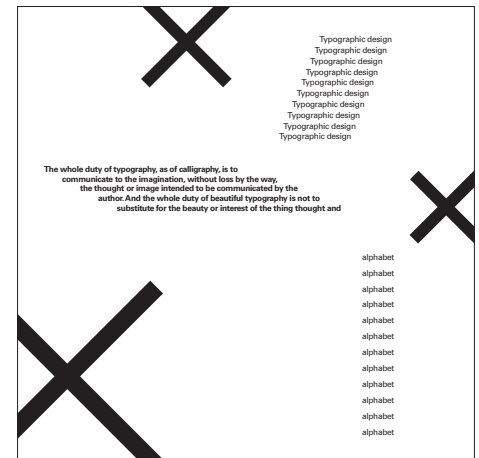
Principles used to achieve visual hierarchy through careful contrast between the elements are demonstrated by the nine diagrams in Figures 5-38 to 5-46. The nine typographic designs in Figures 5-38a to 5-46a correspond to these diagrams.



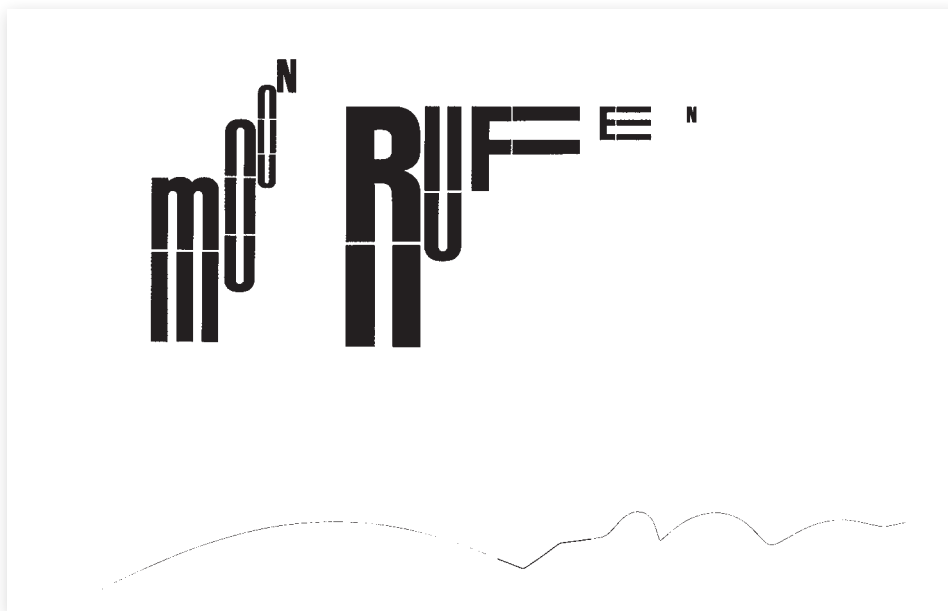
**5-48** In this diagram, forms in the photograph and the letter S correspond. This counterpart relationship creates unity between these unlike elements. (Designer: Ivy Li)



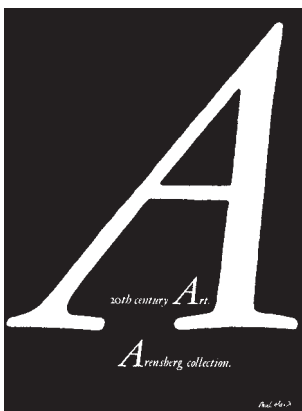
**5-49** In these arrangements, the dominant elements (addition and multiplication signs) have a counterpoint relationship to the text blocks due to contrasts of scale and weight. Because the text blocks echo the structure



of the addition and multiplication signs, and the elements have a balanced arrangement in the space, unity is achieved. (Designer: Lark Pflieger)



**5-50** A hierarchy of size gains unity and rhythm through the modular construction of letterforms. Rufen means “to call.” (Designer: Wolfgang Weingart)



**5-51** The repetition of the letter A in two different point sizes creates a dynamic hierarchical structure. (Designer: Paul Rand)



**5-52** The word sassafras calls for a response, and the phrase a flavoring agent provides the reply. (Designer: Ivy Li)

When creating a visual hierarchy in typographic space, a designer balances the need for harmony, which unifies a design, with the need for contrast, which lends vitality and emphasis. As in music, elements can have a counterpart or a counterpoint relationship. Typographic counterparts are elements with similar qualities that bring harmony to their spatial relationship (Figs. 5-47 and 5-48). Elements have a counterpoint relationship when they have contrasting characteristics, such as size, weight, color, tone, or texture. Counterpoint relationships bring opposition and dissonance to the design (Fig. 5-49).

Typographic elements can have both counterpart and counterpoint relationships. In Figure 5-50, extreme scale contrasts create a counterpoint relationship, while the modular letters, constructed from parallel horizontal and vertical elements, become typographic counterparts. Because the forms correspond, the A's (Fig. 5-51) are counterparts, but their extreme scale contrast permits them to have a dissonant counterpoint relationship in the space. When organizing typographic elements into a visual hierarchy, it is useful to consider counterpart and counterpoint relationships.

Often, typographic elements in a visual hierarchy can be designated as questioning forms and answering forms (Fig. 5-52). The typographic unit assigned the questioning role invites or calls for an answer. In a sense, the answering form has a counterpart relationship to the questioning form because it completes the communication. The most prominent visual element of a typographic hierarchy is frequently a questioning form. Consider the role of both typographic form and pictorial form: do individual components of a composition suggest a question or an answer? The questioning component expresses dissonance (unrelieved tension), while the answering component expresses consonance (relieved tension).

A typographic arrangement is partly governed by visual punctuation. As a writer uses standard punctuation marks to separate words and clarify meaning, a designer introduces visual punctuation (space intervals, rules, or pictorial elements) to separate, group, or emphasize words or lines. Visual punctuation (Figs. 5-53 and 5-54) clarifies the reader/viewer's understanding of the content and structure of a typographic arrangement. Visual punctuation helps to clarify the meaning of the typographic message, while visual emphasis or accentuation is used to make one element more important. Emphasis is relative to the contrasting properties of elements.

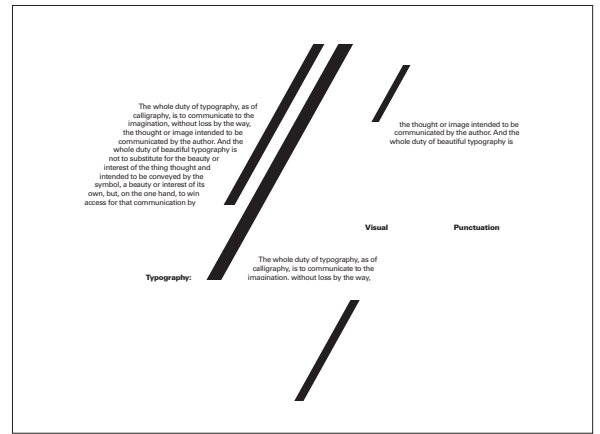
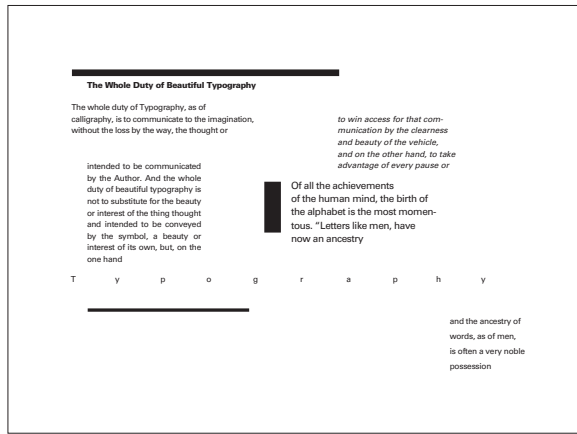
Visual accentuation is giving emphasis or stress to properties (round and straight, thick and thin, geometric and organic, etc.) of typographic and pictorial signs, usually through contrast with dissimilar elements. The bold and compelling mark combining the letter *A* and the scroll of a violin in Figure 5-55 is an example of visual accentuation through contrast. The geometric properties of the letter *A* are accentuated in opposition to the organic properties of the musical instrument. In this example, details in both the letter and pictorial form are accentuated or deleted, yet the legibility of the original letter and object has been retained. The letter *A* and the violin are incomplete, yet each retains its essence.

Typographic joinery is the visual linking and connecting of elements in a typographic composition through structural relationships and form repetition. The assembly of separate typographic elements to form a unified sign is seen in the logotype for the American Broadcasting Corporation (Fig. 5-56). The pronounced geometry and emphasis given to the circular forms joins the forms through the use of the repetition. The shape of the circle is common to every part of this mark. The three letterforms and their circular container are blended to become one sign.



**5-54** In this poster, the system of shapes and colors provide visual punctuation and suggest the idea that multiple solutions can spring from the same parts. (Designer: Erik Brandt)

**5-53** In these typographic exercises, rules and space intervals are used as visual punctuation. (Designers: Bryan Leister and Rebecca Lantz)



**5-55** This symbol demonstrates visual accentuation. Striking visual contrast is achieved through the opposition of straight and curved edges and shapes. (Designer: Nick Schrenk)



Some typographic designs are seen from different distances (far, middle, close). The viewer's perceptions are greatly influenced by shifts in the viewing experience. Attention to visual hierarchy and the perceptual environment is vital in graphic media (signage, posters, and exhibitions) where the viewing experience is in constant flux (Fig. 5-57).

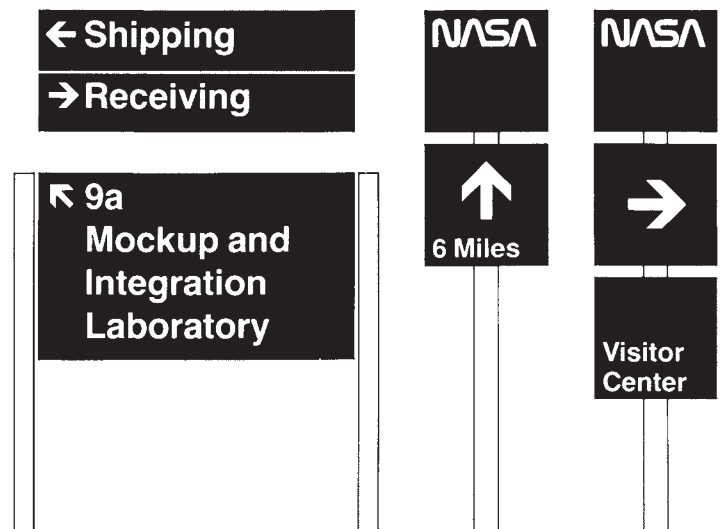
Typography's hierarchical order derives from the basic process of pattern-forming found in nature, in verbal and written language, the arts, and computer technology. This is aptly described by Gyorgy Doczi, speaking of his research on proportional harmonies in art and design: "The rhythms of writing are created by the same pattern-forming process of sharing that creates rhythms of dance, music, and speech. Movements shared make dance, patterns shared make music and speech."

The shared patterns of typography find expression through visual dynamics that enable it to function as both a message-carrier and a rhythmic, visual structure. The typographic message, with all its limitless thought and diversity of form, is shaped by this subtle and meaningful hierarchical language.

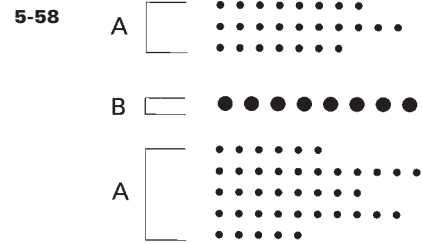
ABC abc abc abc



**5-56** A mark's unity is dramatically enhanced as typographic joinery becomes more refined. (Designer: Paul Rand)



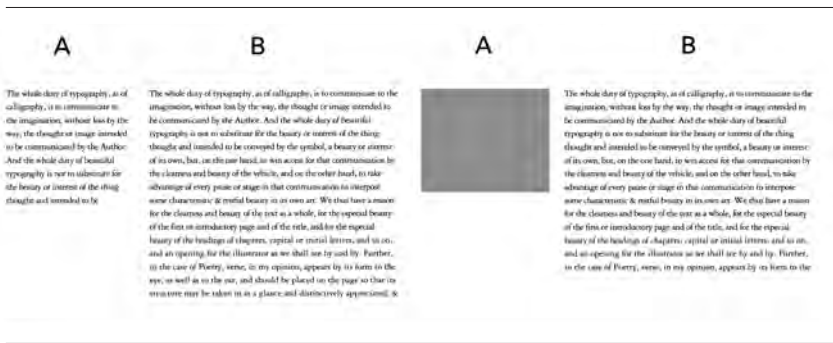
**5-57** In this signage for NASA, viewing context determines the visual hierarchy. For example, the size and position of the arrow in the interior directional signage are quite different from the size and position of the roadside signage. (Designer: Danne and Blackburn)



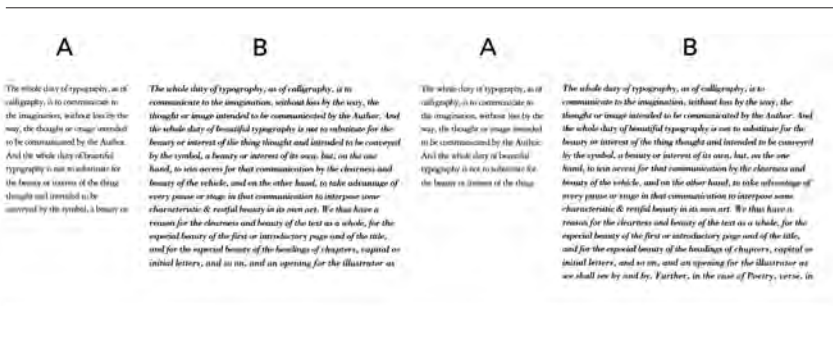
In typographic communication, visual relationships are established through an active dialogue between two fundamental design principles: repetition and contrast. Using these principles, the typographic designer imbues messages with visual order and rhythmic variety.

Musical structure is also based upon repetition and contrast, and because it is linear in nature, a quality that is also common to typography, it provides an excellent model for understanding basic typographic structure. The primary structural pattern of music is the three-part form of statement-departure-return (ABA). The unifying components (the two A's) function as repetition, while the middle component (the B) functions as contrast. Arnold Schoenberg observed that “the principle function of form is to advance our understanding. It is the organization of a piece which helps the listener to keep the idea in mind, to follow its development, its growth, its elaboration, its fate.” This quote also clarifies the mission of typographic form, where relationships between visible typographic elements are guided by the dynamics of ABA form.

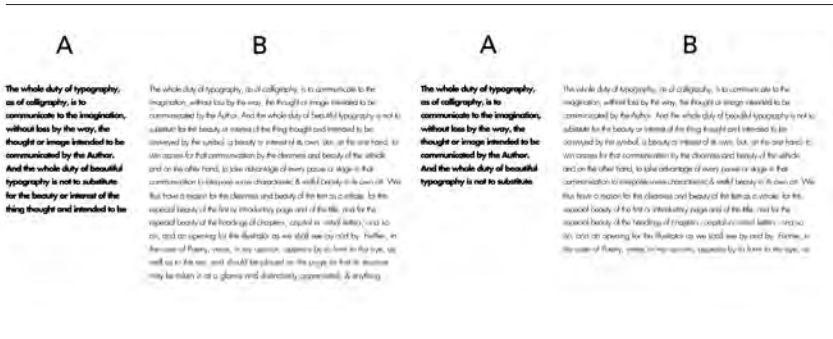
The viewer of typographic communication perceives form relationships as being either in opposition or in correspondence. This principle suggests that a fully integrated typographic composition depends upon the successful blending of elements of contrast and repetition. The viewer seeks a variety that stimulates both eye and mind, while structuring the communications experience. This is the dual basis of ABA form.



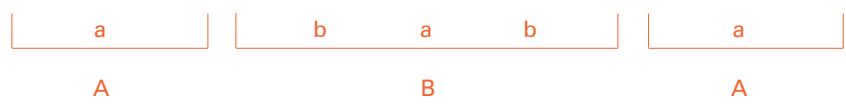
5-59 Even though the functions of the small text block and the photograph are unrelated, these elements correspond to one another because of their similar sizes.



5-60 Letters, when combined together as text, provide a treasury of textural contrasts. Corresponding textures reveal visual links between elements.



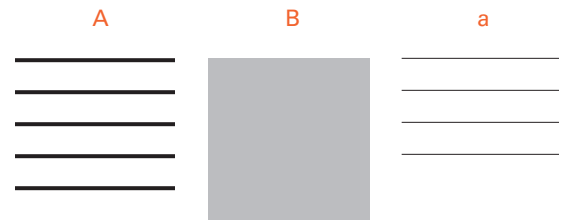
5-61 When typographic elements possess contrasting tonal qualities, the eye perceives an implied three-dimensionality.



**5-62** This poster is zoned into three spatial corridors: two columns of text, finely textured and light in tonal value, flank a dynamic arrangement of music-related visual signs, coarser in texture and darker in tone. (Designer: Ben Day)

ABA form in typography, as in music, is based upon a fundamental three-part structure where two repeating parts are in correspondence, and a third contrasting part stands in opposition (Fig. 5-58). This fundamental structure, however, may be found in abundant variation. This is true because contrasting and repeating typographic elements within a composition are governed by the dynamic principles of proportion and rhythm. It is via these principles that ABA form grows in complexity and diversity. By definition, proportion in ABA form is the ratio determined by the quantity, size, weight, texture, tone, shape, color, or other syntactic quality of similar and dissimilar typographic elements (AABAABAA). Rhythm is established in the intervals of space separating these elements (AA . B . AA . B . AA).

When typographic elements are similar in size to one another, an immediate correspondence between these elements is established (Fig. 5-59). This correspondence is heightened because the tonality of the photograph and small text block is darker than the tone of the larger text block. In the middle diagram, the correspondence between the smaller text blocks is also magnified (Fig. 5-60). A third variation is created by altering the tone of the elements: a bold typeface is introduced in the smaller text blocks, linking them together. Here, the factors of both scale and tone establish a distinct pattern of repetition and contrast (Fig. 5-61). In an applied example—the design of a concert poster—the recurrence and contrast of typographic tone and texture are demonstrated (Fig. 5-62).



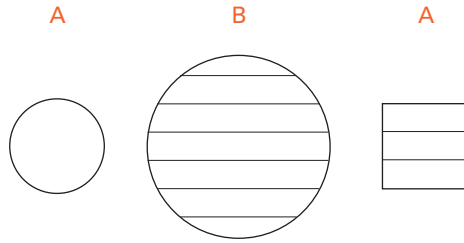
Further variations in ABA form are discovered when elaborations (ABa, ABAB or AbAc) of corresponding elements occur to establish subtle contrasts (Fig. 5-63), or when primary and secondary relationships occur in compositions simultaneously (Fig. 5-64). The foregoing examples show the influence of proportion upon the relationships between typographic elements. The rhythmic patterns in each of these examples are identical, with equal or nearly equal intervals of space separating the elements. In a detail of the concert poster (Fig. 5-65), a distinct rhythm composed of unequal spatial intervals between typographic elements can be observed. This rhythmic pattern may be viewed on two levels: the major group (A . B . A), and the minor group (a . bb . . a . b . . a . bb . . a, etc.). The intervals between these elements facilitate the functional grouping of the parts of the message: the instruments are separated from the performers by a 1X interval of space, and each of these groupings is separated one from another by a 2X interval of space. Other syntactic traits bind and isolate the parts: the instruments are bold in typographic weight, linking them together, while the performers are light in weight. At the same time, all these typographic elements share the same type size to distinguish them from the location of the event, which is presented in a larger, italic, all-capitals typeface.



**5-64** *The relationships established by the three vertical columns of equal width (ABA) achieve visual dominance over the three horizontal bands (aba). The small column of text (c), which departs from the visual pattern of the main unit in position and type weight, provides an additional variation.*



**5-66** *Shape relates the first and middle forms; texture relates the middle and right forms; and size relates the left and right forms.*



a	<b>Bass</b>	A
b	Thomas Coleman	
b	Anthony Beadle	
a	<b>Flute</b>	
b	Elinor Preble	
a	<b>Oboe</b>	
b	Peggy Pearson	B
b	Raymond Toubman	
a	<b>Clarinet</b>	
S Y M P H O N Y		
H A L L		
a	<b>Bassoon</b>	
b	Francis Nizzari	
b	Ronald Haroutunian	
a	<b>French Horn</b>	
b	Oaneka Oaujub	

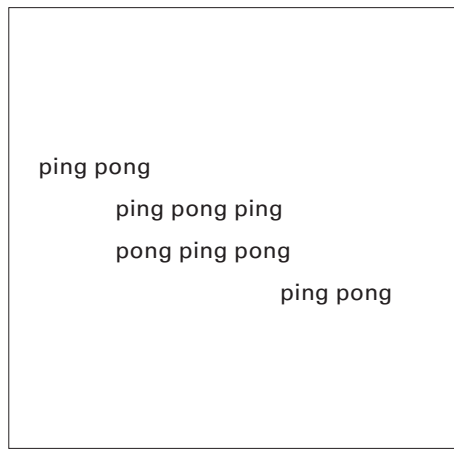
In this example, it is also possible to observe a phenomenon that appears at first as a contradiction in terms, but nonetheless is a condition in typographic design: perceiving typographic forms that are simultaneously in correspondence and opposition. This is a concept that is linked to a fundamental design notion: achieving unity within diversity (Fig. 5-66). ABA form variations are capable of unifying diverse forms through visual correspondence while at the same time bringing variety to similar forms through opposition. The skilled designer manipulates typographic elements to achieve this essential balance.

ABA form is composed of both simple and complex patterns that give order and emphasis to the visual linking of typographic elements. These are not fixed systems but are a way of understanding the interrelationships of typographic form. About music Joseph Machlis stated, "The forms . . . are not fixed molds into which the composer pours his material. What gives a piece of music its aliveness is the fact that it adapts a general plan to its own requirements."



**5-67** This poster announcing a production of the play *Company* clearly demonstrates the three spatial zones composing a basic and rhythmic ABA form relationship. (Designer: David Colley)





6-1 “ping pong”  
(Poet: Eugen Gomringer)

The typographic message is verbal, visual, and vocal. While typography is read and interpreted verbally, it may also be viewed and interpreted visually, heard and interpreted audibly. It is a dynamic communication medium. In this sense, early twentieth-century typography became a revolutionary form of communication, bringing new expressive power to the written word. Consider the concrete poem “ping pong” (Fig. 6-1). The geometric structure of this poem is composed of a repetition of the words *ping* and *pong*. As these words are repeated, they signify the sound of a bouncing ping-pong ball, and the circular letters *p*, *o*, and *g* reflect the shape of the ball. The full impact of this poem is achieved when it is read aloud. By hearing the sounds while viewing the typographic forms, the typographic message is strengthened.

Significant departures from the use of conventional typographic forms occurred in Europe at the beginning of the twentieth century. During this activist period, experimentation in all the visual and performing arts was affected by potent social and philosophical changes, industrial and technological developments, and new attitudes about aesthetics and modern civilization. Typographic design was pulled into this artistic revolution as poets and visual artists realized that both meaning and form could be intensified in typographic communications.

The Futurist manifesto, written by the Italian poet Filippo Marinetti in 1909, profoundly influenced thinking in Europe and Russia. Futurism praised technology, violence, danger, movement, and speed. Futurist typography, known as “free typography,” demonstrated these ideas in a highly expressive manner (Fig. 6-2; see also Fig. 1-125). The chill of a scream was expressed in bold type, and quick impressions were intensified through italics. Letters and words raced across the page in dynamic motion.



6-2 Les mots en liberté futuristes. (Designer: Filippo Marinetti)



6-3 Cover of the first issue of Der Dada. (Editor: Raoul Hausmann)



6-4 Title lettering for De Stijl. (Designer: Theo van Doesburg)

Among the movements affected by Futurism were Dadaism in France, Switzerland, and Germany; de Stijl in Holland; and Constructivism in Russia. Each of these historical movements has had a penetrating effect upon typography. Artists and designers associated with these movements saw typography as a powerful means of conveying information relating to the realities of industrialized society (Figs. 6-3 to 6-5; see also Figs. 1-129 to 1-135). They disdained what typography had become: a decorative art form far removed from the realities of the time. The architect Otto Wagner further emphasized that “all modern forms must be in harmony with the new requirements of our time. Nothing that is not practical can be beautiful.” Written in 1920, the second de Stijl manifesto clearly demonstrated the concern for a new, expressive typography (Fig. 6-6). With dramatic changes taking place in the form and content of typography, the typographic message became a multifaceted and expressive form of communication. Typography needs to be read, seen, heard, felt, and experienced.



**6-5** Constructivist cover design for Veshch, Gegenstand, Objet. (Designer: El Lissitzky)

THE WORD IS DEAD...  
 THE WORD IS IMPOTENT  
 asthmatic and sentimental poetry  
 the "me" and "it"  
 which is still in common use  
 everywhere...  
 is influenced by an individualism fearful of space  
 the dregs of an exhausted era...

psychological analysis  
 and clumsy rhetoric  
 have KILLED THE MEANING OF THE WORD...

the word must be reconstructed  
 to follow the SOUND as well as  
 the IDEA  
 if in the old poetry  
 by the dominance of relative and  
 subjective feelings

the intrinsic meaning of the word is destroyed  
 we want by all possible means  
 syntax  
 prosody  
 typography  
 arithmetic  
 orthography

to give new meaning to the word and new force  
 to expression

the duality between prose and poetry can no longer  
 be maintained  
 the duality between form and content can no longer  
 be maintained

Thus for the modern writer form will have a directly  
 spiritual meaning  
 it will not describe events  
 it will not describe at all  
 but ENSCRIBE  
 it will recreate in the word the common meaning of  
 events  
 a constructive unity of form and content...

Leiden, Holland, April 1920.

Theo van Doesburg  
 Piet Mondrian  
 Anthony Kok

**6-6** De Stijl manifesto of 1917.

As a dynamic representation of verbal language, typography must communicate. This functional role is fulfilled when the receiver of a typographic message clearly and accurately understands what is in the mind of the transmitter. This objective, however, is not always accomplished. With a proliferation of typographic messages littering the environment, most are missed or ignored. The messages that are noted, possessing effective qualities relating to form and content, are appropriate to the needs of both message transmitter and message receiver.

The impact of an effective typographic message cannot be easily measured. Some may assume that since printed and broadcast messages are ephemeral, they have little impact upon their audience. This assumption is false. Because typographic ephemera are rhetorical, they often have a long-range effect upon a message receiver, influencing the context of social, political, and economic events. The symbol of the solidarity expressed by Polish workers (Fig. 6-7), the social statements made with graffiti in urban environments, and the typography on billboards aimed at passing motorists all operate as purposeful messages directed toward a predetermined audience within a specific context.



**6-7** *Solidarity logotype.*  
(Designer: Jerzy Janiszewski)

Effective typographic messages result from the combination of logic and intuitive judgment. Only the neophyte approaches this process in a strictly intuitive manner; a purely logical or mechanical procedure undermines human expression. Keeping these two extremes in balance requires the use of a functional verbal/visual vocabulary capable of addressing a broad spectrum of typographic communication.

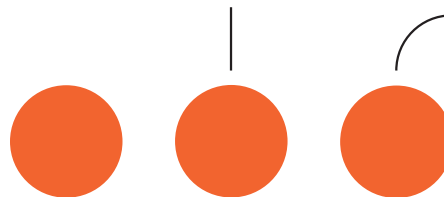
Language, in any of its many forms, is a self-contained system of interactive signs that communicate ideas. Just as elocution and diction enhance and clarify the meaning of our spoken words, typographic signs can be manipulated by a designer to achieve more lucid and expressive typographic communication.

Signs operate in two dimensions: syntactic and semantic. When the mind is concerned with the form of a sign, it is involved with typographic syntax. When it associates a particular meaning with a sign, it is operating in the semantic dimension.

All objects in the environment can potentially function as signs, representing any number of concepts: a smog-filled city signifying pollution, a beached whale representing extinction, and confetti implying celebration—each functions as a sign relating a specific concept.

Signs may exist at various levels of abstraction. A simple example will illustrate this point. Let us consider something as elemental as a red dot. It is a sign only if it carries a particular meaning. It can represent any number of things: balloon, ball, or Japanese flag. The red dot becomes a cherry, for example, as the mind is cued by forms more familiar to its experience (Fig. 6-8).

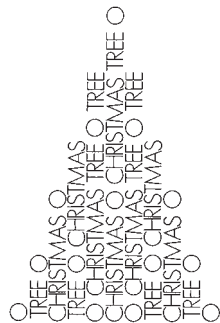
The particular syntactic qualities associated with typographic signs determine a specific meaning. A series of repeated letters, for example, may signify motion or speed, while a small letter in a large void may signify isolation. These qualities, derived from the operating principles of visual hierarchy and ABA form, function as cues, permitting the mind to form concepts. Simple syntactic manipulations, such as the repetition of letters or the weight change of certain letters, enable words to visually mimic verbal meaning (Fig. 6-9). In another example, the letter *E* has been visually altered, relating it to the meaning of specific descriptive words (Fig. 6-10).



**6-8** *Signs exist at various levels of abstraction. A form is a sign, however, only when it carries a message. As the mind is cued by forms familiar to experience, information is conveyed.*

leav e  
in ter val  
diet  
ststutter  
drop

**6-9** Syntactic manipulations are controlled by such factors as repetition, size change, position change, or weight change. These enable words to visually mimic verbal meaning.



**6-11** Typographic signs combine to form a more complex sign, suggesting a decorated Christmas tree. (Designer: Donna Funk)

In language, signs are joined together to create messages. Words as verbal signs, grouped together in a linear fashion, attain their value vis-à-vis other words through opposition and contrast. Words can also evoke meaning through mental association. These associative relations are semantically derived. Since typography is both visual and verbal, it operates in a linear fashion, with words following each other in a specific sequence, or in a nonlinear manner, with elements existing in many syntactic combinations. For example, in the visual poem “O Christmas Tree,” the choice of the typeface, Futura Light, is very important. The capital letter *O* is a perfect circle, signifying ornaments; the linear strokes of other letterforms suggest the texture of evergreen needles (Fig. 6-11). This typographic message is derived from the mental associations formed by contrasting typographic signs.

Two terms important to the understanding of signs are denotation and connotation. When considering the meaning of typographic signs, denotation refers to objective meaning, the factual world of collective awareness and experience. For example, a denotative interpretation of a yellow *O* would be: “This is a yellow letter *O*” or “This is a yellow circle.” Connotative interpretations of the yellow *O* might be: “This is the sun, a slice of lemon, or a golden ring.” Connotative observations are often conditioned, for they relate to overtones and are drawn from prior personal experience.

Typographic signs are both verbal and visual. The associations formed between the verbal and visual attributes are verbal/visual equivalencies, which are found in a variety of configurations. These reveal the associative nature of signs composing the typographic message and help us further understand its multifaceted attributes. Figures 6-12 to 6-24 illustrate the nature of some of these verbal/visual equations.

**6-10** These elaborations of the letter *E* express a variety of concepts. (Designers: Carol Anthony, Linda Dronenburg, and Rebecca Sponga)



to scrape



to crease



to peel



to melt



to splinter

**6-12** Visual substitution: The visual sign of an ear is substituted for the letters E, A, and R. (Designer: Lou Dorfsman)

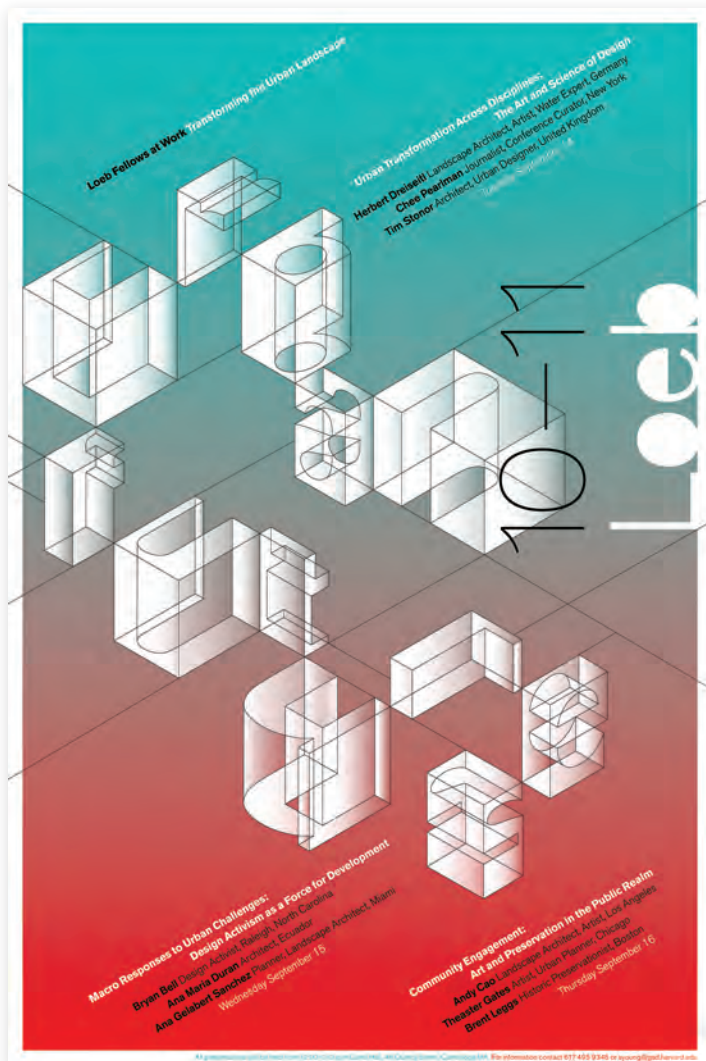


# Eight

**6-14** Simultaneity: The numeral 8 functions as the letter g in this logotype used for a group exhibition of paintings by the early twentieth-century American art group the Eight.

# Families

**6-15** Visual transformation: A mother, father, and child are suggested through the visual transformation of the letters l and i. (Designer: Herb Lubalin)



**6-13** Visual transformation: Letterforms are drawn to represent the visual sign of a building and spell the words urban and futures. (Designer: Thirst/John Pobjowski)

**6-16** Visual exaggeration: The irregular syntactic treatment of typographic signs exaggerates the process of taking things apart and putting things together. (Designer: Steff Geissbuhler)



**6-17** Visual exaggeration: The repetition and playful treatment of typographic forms effectively reinforces the content of the drama Fool's Play. (Designer: David Colley)







**6-18** Form combination: Visual and verbal signs are combined into a single typographic statement, creating trademarks that suggest the nature of various industries: an electrical contractor, a maker of plastic fibers for carpets and draperies, and a lithographic printer. (Designer: Don Weller)



**6-19** Form combination: Verbal signs are combined with visual signs (skyscraper and clouds) to evoke concepts of memory, opposition, and incompleteness as metaphors for the building 1 World Trade Center. (Designer: Mark Sanders)

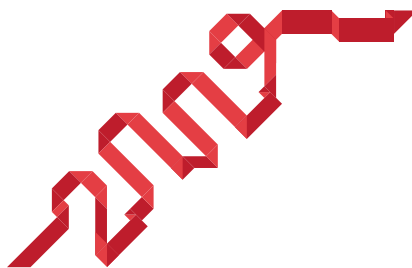
**olivetti**



**6-20** Parallel form: The Olivetti logotype and electronic calculator have similar visual characteristics that parallel each other. (Logotype design: Walter Ballmer)



**6-23** Verbal/visual correspondence: The visual qualities of the typeface chosen for the poster for the play Working make direct reference to the stenciled typography typically seen at a warehouse or construction site. (Designer: David Colley)



**6-21** Verbal/visual correspondence: The syntactic qualities of the number 2009, used on a holiday card, represent the material qualities of ribbon and the idea of celebration. (Designer: Q Collective)

**ZIIIIIIIIIIIPPPER**

**6-22** Verbal/visual correspondence: The visual characteristics of this typographic sign correspond to the form of a zipper. This is achieved by a repetition of letters and a horizontal shift within the word. (Designer: Richard Rumble)

**6-24** Verbal/visual correspondence: The visual repetition of this word—unified by the shared letters u and n—express the concept of unity. (Designer: Steff Geissbuhler)



*Functionalism* is a term used to describe the utilitarian and pragmatic qualities of designed objects. During the early twentieth century, functionalism was generally equated with designed objects of clarity, purpose, and unornamented simplicity. However, it has since evolved as a subjective notion that varies widely according to the needs of the audience and the objectives of the designer.

For example, if comfort in the design of a chair is defined as plushness and cushiness, an upholstered automatic recliner complete with footrest might satisfy the criteria of a functional chair.

In contrast to the automatic recliner is the red/blue chair, a central artifact of the de Stijl movement, designed in 1918 by Gerrit Rietveld (Fig. 6-25). Members of de Stijl sought a restrained expression and a new philosophy for living. With its hard, flat surfaces, the red/blue chair appears very uncomfortable; however, Rietveld's desire was for the chair to promote alert mental activity through rigid support. The seat and backrest planes are attached at only one edge, enabling the pliable wood to adjust to the user's weight. In this regard, the chair functions according to Rietveld's intentions. In an interior environment, Rietveld's red/blue chair has the presence and visual harmony of a piece of sculpture. The needs for a functional object (seating) and for aesthetic experience are fulfilled in this one object.

In typography, function is the purposeful communication of information to a specific audience. Although the range of possible typographic design solutions is infinite, the appropriateness of a solution always depends upon the purpose for which it was intended. Varying degrees of formal reduction or elaboration can be effective when solving specific typographic problems.

Formal reduction can be used to create optimum clarity and legibility, presenting complex information, such as news or scientific data, in a clear and straightforward manner. Orderly presentation guides the eye from one element to another, preserving reader and attention (Figs. 6-26 and 6-27).

**6-25** Red/blue chair, 1918. (Designer: Gerrit Rietveld)



**6-26** The elemental shape and sequence of letters in the word *eye* visually suggest two eyes and a nose. Based on the typeface *Radio*, this typographic configuration serves as the masthead for *Eye: The International Review of Graphic Design*. (Concept: Nick Bell; designer: Magnus Rakeng)

Nutrition Facts	
Serving Size 1 cup (228g)	
Servings Per Container 2	
Amount Per Serving	
<b>Calories</b> 250	Calories from Fat 110
% Daily Value*	
<b>Total Fat</b> 12g	<b>18%</b>
Saturated Fat 3g	<b>15%</b>
Trans Fat 3g	
<b>Cholesterol</b> 30mg	<b>10%</b>
<b>Sodium</b> 470mg	<b>20%</b>
<b>Total Carbohydrate</b> 31g	<b>10%</b>
Dietary Fiber 0g	<b>0%</b>
Sugars 5g	
<b>Protein</b> 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%

**6-27** Required to appear on all food packaging in the United States, the standardized Nutrition Facts label clearly provides consumers with important information about the nutritional value of foods. Typography informally assumes an objective, informational role. (Designer: Burkey Belser)

**6-28** The “A” stamp is the official priority stamp of the Swiss postal service. A simple configuration of three interlocking shapes suggests an uppercase A. The trilogy of shapes represents the codependent parts of the mailing process: message, sender, and receiver. (Designer: Jean-Benoît Lévy)

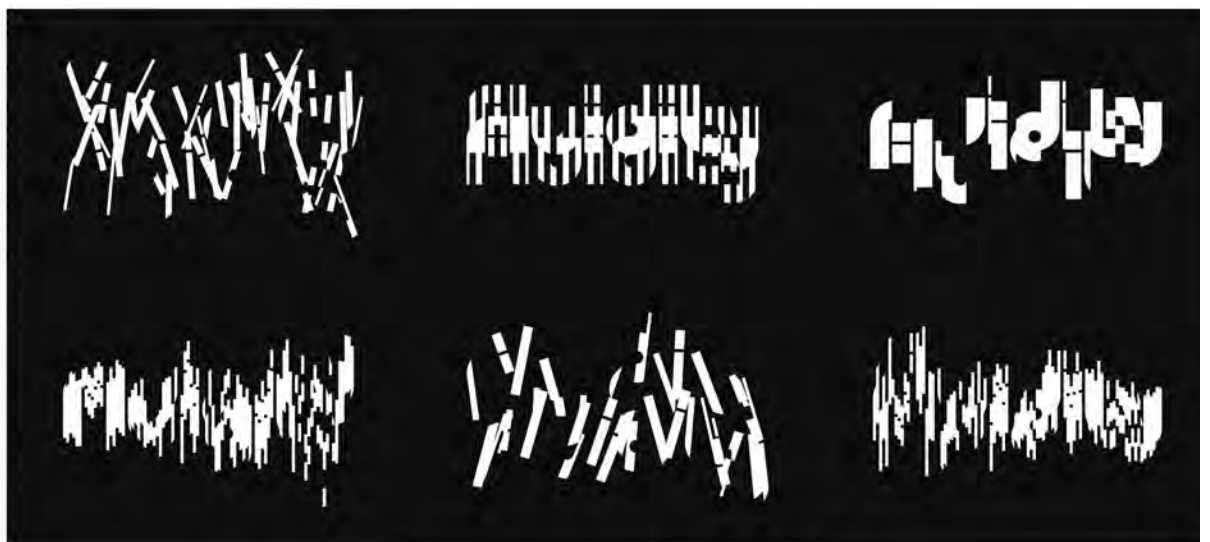


**6-29** The vitality of Rolling Stone magazine is revealed in this monumental, three-dimensional letterform, a deconstructed element used in the traveling exhibition The 30th Anniversary Covers Tour. (Designer: J. Abbott Miller, James Hicks, Paul Carlos, and Scott Davendorf)



Another approach, expressionism, accomplishes its purpose through formal elaboration and ornamentation, creating visual impact. When appropriate, attention can be given to experimental, expressive, and ornamental possibilities. Ornament serves a variety of practical needs. Because it is semiotic, iconographic, and historical, it identifies the object with which it is associated. Expressive and ornamental typographic forms place objects in time, reveal their purpose, and clarify their structures (Figs. 6-28 to 6-30). The formal elaboration of objects in architecture, industrial design, and the fine arts can significantly influence typographic possibilities. Figures 6-31 to 6-33 possess strong ornamental qualities (as do Figs. 1-71 and 1-119). Innovative typography can emerge when a designer fully understands communication needs and is able to assimilate a diversity of visual ideas.

**6-30** This sequence of frames represents the dynamic identity for Fluidity, a water design firm. To communicate the qualities of water, the letterforms transform in shape and mimic refraction. The identity appears in different forms on different applications. (Designer: Thirst/John Pobjewski)



**Pratt**

Pratt Institute  
Grad ComD  
144 West 14th St  
New York, NY 10011  
212.647.7573  
www.prattgradcomd.com



**6-31** A field of typographic forms, photographs, and the colors orange and yellow charge this poster with expression. (Designer: Sandra Maxa)

On this subject, Ladislav Sutnar—graphic designer, author, and pioneer of information design—commented that “an eccentric visual scandal or visual shock of the outrageous and of the unexpected can catch the attention of the astonished eye... it may also delight the eye to see a fresh design concept or a message so orderly presented as to make comprehension fast and easy.” A designer can avoid conventional solutions to typographic problems when innovation is appropriate. A single approach to typographical design, induced by stylistic convention and predetermined formulas, is a routine activity lacking the vitality of meaningful typographic invention. Sound principles and a trained vision should supersede dependency upon preconceived formulas. For typography to be truly functional, satisfying the needs of an audience, a designer must understand both the verbal and visual attributes of a typographic message.



**6-32** This view book acquires its robust and expressive quality through vivid color, varying typographic textures, and structural complexity. (Designer: Rob Carter)



**6-33** Expressive text type is achieved on a spread of the book *Elvis+Marilyn* by its configuration into the letter R. (Designer: Mirko Ilić)

The invention of typography has been called the beginning of the Industrial Revolution. It is the earliest mechanization of a handicraft: the handlettering of books. Typographic design has been closely bound to the evolution of technology, for the capabilities and limitations of typesetting systems have imposed constraints upon the design process. At the same time, typesetting has offered creative challenges as designers have sought to explore the limitations of the available systems and to define their aesthetic and communicative potential.

From hand composition to digital typography, it is important for designers to comprehend the nature and capabilities of typographic technologies, as this understanding provides a basis for a thoughtful blending of design and production.

## HAND COMPOSITION

1450s to 1880s



7-1 Composing stick.

The traditional method of setting foundry type by hand is similar to the method used by Gutenberg when he invented movable type in 1450. For centuries, hand composition was accomplished by assembling individual pieces of type into lines. A typographer would hold a composing stick (Fig. 7-1) in one hand while the other hand placed type selected from a type case (Fig. 7-2) into the stick. Type was set letter by letter, line by line, until the desired setting was achieved. When it was necessary to justify a line, additional spaces were created in the line by inserting metal spacing material between words. Letterspacing was achieved by inserting very thin pieces of copper or brass between letters until words appeared to be evenly spaced. When additional space between lines was desired, strips of lead were inserted between the lines until the type column was the proper depth. By adding lead, the exact proportion and size of the column could be formed, assuring readability through consistent spacing.

Once type was set, it was “locked up” in a heavy rectangular steel frame called a chase (Fig. 7-3). This was done on a table called a stone. The type was surrounded by wood or metal spacing material, called furniture, and the contents of the chase were made secure by tightening wedgelike steel devices called quoins. After the type was secured in the chase, it was ready to be transferred to a press for printing, and after printing, the individual pieces of type were distributed back into the type case by hand.

Hand composition was tedious and time consuming. When typesetting became automated as a result of the invention of Linotype and Monotype machines, hand composition was used only for setting small amounts of type or for display type. Currently, hand composition is obsolete as a practical means of setting type, though it has been revived as an art form. Private presses produce limited-edition books and a variety of experimental materials by hand. Many of our typographic conventions and traditions have their origins in the rich heritage of handset metal type.



7-2 Type case.



Chase

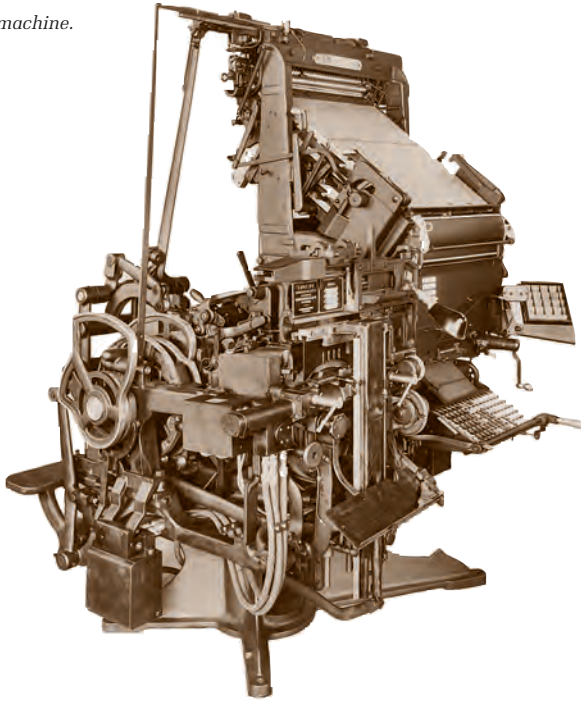
Wood furniture

Type

Quoins

7-3 A chase containing type locked up and ready for printing.

**7-4** *Linotype machine.*



**Linotype**

One of the most profound developments in typesetting technology was the invention of the Linotype machine (Fig. 7-4) by Ottmar Mergenthaler in 1886. This machine represented the first great step toward typographic automation. Its name was coined because it produced a single line of type to a predetermined length specified by the keyboard operator.

The operation of the Linotype was based on the principle of a circulating matrix. Each time a key was pressed, a single brass matrix (Fig. 7-5) was released from an overhead magazine, divided into ninety vertical channels, each containing matrices for one character. The magazine was the character storage case for the machine. Once an entire line had been typed, the matrices moved into an automatic casting mechanism where the line of type was cast from molten lead. As each line was being cast, the operator typed the next line. After the casting process was complete, cast lines of type called slugs (Fig. 7-6) were ejected from the mold, and the matrices were automatically returned to their appropriate slot in the magazine for reuse.

The advantages of machine composition as compared to hand composition were obvious. It was faster and more accurate; the problem of type distribution (returning characters to the type case) was eliminated, for the cast lines of type were simply melted, and the lead was reused. Justification of type was automatic, eliminating the tedious process of inserting spaces between letters and words. A standard Linotype could cast lines up to thirty picas in length.

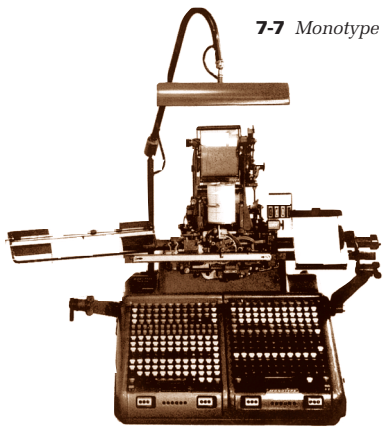
An important development for linecasting type was the Teletypesetter. This perforated tape-driven machine—an attachment to Linotype and Intertype—was introduced in 1928. Tape, which was punched by a machine similar to a standard typewriter, could be generated from a distant office and transmitted to the linecaster by wire, which made the machine invaluable to news services.

**7-5** *Linotype matrix.*



**7-6** *A Linotype slug.*





7-7 Monotype keyboard.



7-8 Monotype matrix case.

## Monotype

Another significant achievement leading to fully automated typesetting was the Monotype machine, invented by Tolbert Lanston in 1887. This machine cast one character at a time rather than an entire line. It was composed of two parts: a keyboard and a typecaster (Fig. 7-7). When an operator typed at a keyboard, a perforated paper tape was generated. This coded tape was used to drive the second part of the system—the typecaster. Compressed air, blown through the punched holes of this revolving spool of coded paper, determined which characters would be cast by the typecaster. Actual casting of type occurred when hot metal was forced into matrices from the matrix case (Fig. 7-8). Once the cast characters had cooled, they were placed into a metal tray called a galley, where the lines were assembled. Monotype lines could reach a maximum length of about sixty picas.

Monotype became an efficient way to set type for several reasons. Corrections could be made by changing individual letters instead of complete lines. Therefore, complex typesetting, such as scientific data and tabular information, was easier. The Monotype matrix case held many more characters than a Linotype magazine, and the casting machine was relatively fast, casting 150 characters per minute. Since the system consisted of two separate machines, an operator could generate type away from the clutter of the casting machine. In fact, several operators could keyboard information for later setting.

## Ludlow

Ludlow, a semiautomatic linecaster, is another machine that found a place in the development of automated typesetting (Fig. 7-9). Unlike the Linotype and Monotype, the Ludlow did not have a keyboard but combined both hand and machine production. An operator took matrices from a matrix case similar to a handset type case and placed them into a special composing stick, one by one. The stick would automatically justify or center lines by inserting blank matrices where necessary. Once a line of matrices was assembled, it was placed into a casting device where it was automatically cast into slugs. If a correction was necessary, matrices were inserted into the stick, cast, locked up, and printed. Although partially automated, this process was time-consuming. Distributing the matrices back into the type case by hand added to the production time.

Type produced by the Ludlow machine ranged from 6 to 144 points. Its major use was to produce display type for headlines and other purposes requiring larger typefaces. As was true in the case of handset composition, the Ludlow was neither practical nor efficient for setting large volumes of type.



7-9 Ludlow linecaster.



## PHOTOTYPESETTING

1950s to 1970s

**7-10** A display phototypesetter.



**7-11** Film font for a display phototypesetter.



Phototypesetting is a cold-type process, for type is set not from molten cast metal, but by exposing film negatives of characters onto photographic paper. Although photographic typesetting was explored as early as the 1880s, its potential was not fully recognized until after World War II. As printing advanced from letterpress to offset lithography, typography underwent a similar evolution. Hand composition of metal display type, and cast metal machine-set text type, yielded to photographic typesetting. Two kinds of phototypesetting systems were developed: display phototypesetters, for larger headlines and titles; and keyboard phototypesetters, used to set text type through keyboard input. Phototypesetting gradually replaced metal type during the 1960s, as the technology improved rapidly.

### Display phototypesetting

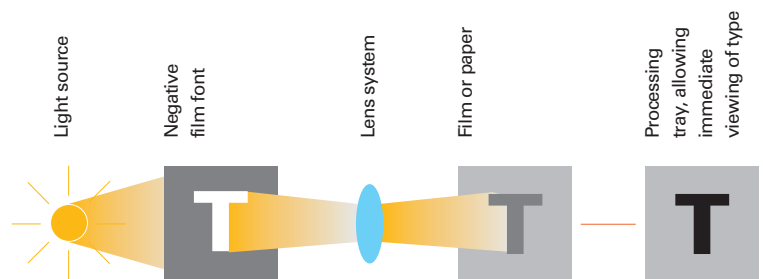
In display phototypesetting machines (Fig. 7-10), light is projected through film negatives and a lens to expose letters, numbers, and other symbols onto a strip of photographic paper. While a font of type in hand composition consists of a drawer full of raised metal letters, a font for display photo composition consists of clear images on a long strip of film (Fig. 7-11) wound on two reels. This film font slides between an amber safe light and a lens. Characters are projected onto a strip of photo paper resting in a shallow tray filled with a developing solution. An operator uses hand cranks to roll the strip from one drum to another, putting the next letter in position to be exposed. By pressing a button, the operator causes a bright white light to flash thorough the lens, exposing the character to the photo paper (Fig. 7-12). The character immediately begins to develop, so the operator sees it while using a lever to advance the photo paper. The projected image for the next character is positioned by winding the film strip on the reels with hand cranks. Character by character, a line of display type is exposed on the photo paper, then developed and fixed. Because the operator can view recently set characters as they develop, letterspacing is precisely controlled (Fig. 7-13). This spacing flexibility was a major innovation. Many design advantages of display phototypesetting made it the dominant method for setting headlines by the late 1960s. No longer constrained by the fixed sizes of metal type, the designer could now specify display type set from the film font (whose capitals were about an inch tall) in a wide range of sizes. Type could be enlarged up to two times the master font size, for two-inch capitals, or reduced to a one-fourth size, with capitals as small as a quarter inch high. Enlarged and reduced type retained perfect sharpness, unlike metal type, which became very ragged when enlarged. Metal fonts had a limited number of characters, while photo type had an unlimited number of characters, because the same negative could be exposed over and over again.

The constraints of metal blocks yielded to the elasticity of photographic processes, and innovative designers rapidly explored new possibilities. The lens system permitted photographic distortion. Characters could be expanded, condensed, italicized, and even backslanted (Fig. 7-14). The tremendous expense of introducing new metal typefaces, requiring punches, cast letters, and matrices, was replaced by the cost of one economical film font. As a result, many new display typefaces—as well as revivals of earlier styles that were no longer available—were introduced at a rapid pace.

### Keyboard phototypesetters

Keyboard phototypesetters were introduced in 1950. Two major types of phototypesetting systems (Fig. 7-15) were developed: photo-optical and photo-scanning systems. They have the same basic components (Fig. 7-16); the primary difference is how the photo paper or film is exposed.

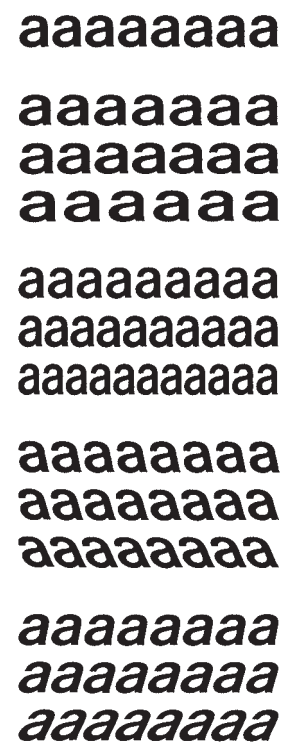
Photo-optical systems store characters as a master font on film disks, drums, grids, or strips. The letters, numbers, and other symbols in the text are input on a keyboard. A typical film disk or drum spins at several thousand revolutions a minute, and a computer controls the exposure of light through the negative characters and a lens, onto light-sensitive paper or film. At the same time, the computer advances the paper or film in a transport device, moving it forward by the set width of the previously exposed character and into position for the next character to be exposed. Different lenses are used for different magnifications, so the typesetter can set different sizes of type. The computer makes very precise adjustments in spacing for the specific type size, and increases interletter and interword spacing when setting justified text columns. These systems are capable of setting hundreds of characters per minute.



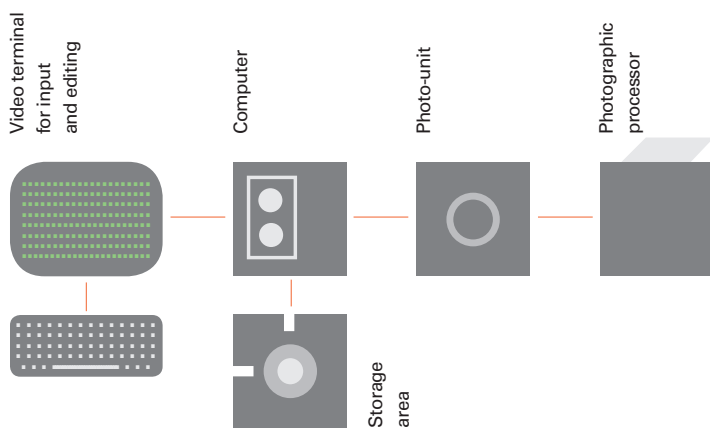
**7-12** Components of a typical display phototypesetter.

## Typography Typography Typography Typography

**7-13** Unlike hand composition, where every letter is cast on a block of metal and cannot easily be kerned, display photo-type interletter spacing is visually controlled by the operator and can be set wide, normal, tight, or even touching.



**7-14** Photographic distortion permitted by the lens system allows characters to be normal, expanded, condensed, backslanted, and italic (top to bottom).



**7-16** *Components of a typical keyboard phototypesetter.*



**7-15** *A keyboard phototypesetter.*

Early phototypesetting systems used a special keyboard to code punched paper tape that was fed into the phototypesetter to control the typesetting process. Paper-tape systems were replaced by magnetic tape systems and then by magnetic disks and diskettes.

A newer generation of photo-scanning typesetters replaced the photo-optical systems with an electronic system. Fonts are stored as electronic data. These digitized characters are projected as typeset text on a cathode ray tube (CRT) screen. A lens focuses the type on the CRT screen onto light-sensitive film or paper. A full page of type, including many different sizes and typefaces, can be divided into a grid of several blocks, each the size of the CRT screen, and stored in the computer's memory. Photo-scanning typesetters are much faster than photo-optical systems. They reproduce sections of the page rapidly, one block at a time, setting up to ten thousand characters per second.

Phototypesetters are flexible and fast, compared to hot-metal typesetting machines, which could set only about five characters per second. Hot-metal machines had many mechanical parts, while phototypesetters were operated electronically. Photo type needs little storage space because it is stored on flat photographic paper or film, while metal slugs are very heavy and require enormous amounts of storage space. Phototypesetting permits electronic editing, with corrections and changes made at the keyboard.

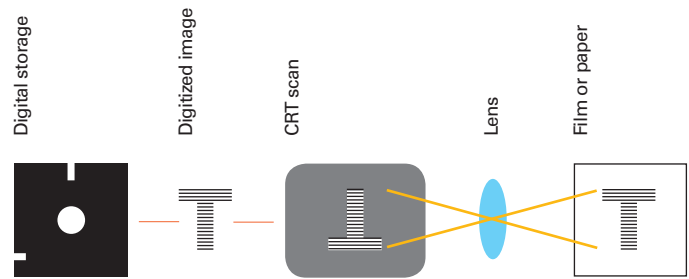
Phototypesetting freed designers from the physical restrictions of metal type. Increased flexibility in spacing typographic elements included greater control over kerning, interletter and interline spacing, overlapping, and special effects such as runarounds (type running around elements such as images). Designers who understood the potential of this technology used it to great advantage.

A computer in combination with the high-resolution cathode ray tube (CRT) and laser revolutionized the communications industry. Using only electronic rather than mechanical components, computers set and process type at speeds never thought possible. In addition, the text type from digital typesetters rivals the quality of photo type.

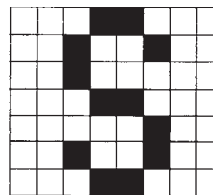
Digital typesetting systems encode typographic characters digitally on a grid, defining the shape of each letter as a certain number of distinct points. Every detail of a letter is defined, including horizontal strokes, vertical strokes, and curves. The coded characters are stored electronically as digital instructions designating the x and y coordinates of the character on the grid. In the earliest digital typesetters, these instructions were sent to a CRT, where the character is generated onto the computer screen.

The degree of resolution in digital letterforms is an important consideration. Basically, the more dots or lines used to describe a letterform, the higher the resolution. Because letters are constructed on a grid, the curved lines consist of a series of stair-stepped contours (Fig. 7-17). When more dots are used to represent a curve, the curve appears smoother to the eye. The quality of letterforms is determined not only by their design but also by their digital resolution (Fig. 7-18).

Resolution is improved through a process called hinting (see Chapter 8), which mathematically encodes letterforms in a manner true to their original design. Each size of a well-designed typeface possesses characters with unique proportional characteristics, and hinting preserves these characteristics, a concern particularly relevant for typefaces of smaller size. Details of curves, strokes, and serifs maintain optical integrity.



**7-19** Components of a digital-scanning typesetter.



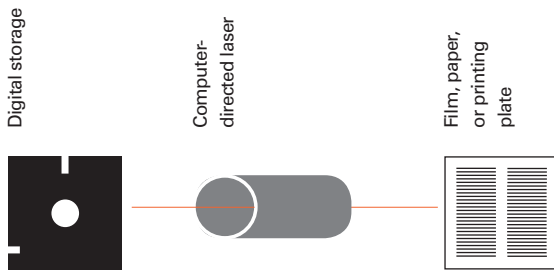
**7-17** Curved lines consist of a series of stair-stepped contours in digital letterforms.



**7-18** Examples of digital letterforms, demonstrating decreasing resolution, from left to right, as the number of dots is reduced.



**7-21** A morphology of multiple master fonts, originating with six master fonts interpolated along the axes of weight, width, and optical size. Weight and optical size occur along the vertical axis; width occurs along the horizontal axis. Though the variations seem subtle, each represents an individual font.



**7-20** Components of a digital-laser typesetter.

### Scanning and laser systems

There are two classes of digital typesetters: digital-scanning systems, first introduced in 1972, and digital-laser systems. In digital-scanning systems (Fig. 7-19), photographic characters were digitally scanned and recorded electronically on a magnetic disk or tape. The characters were translated into a grid of extremely high resolution and then transmitted as a set of instructions to a CRT. Next, the characters were generated onto the CRT by a series of scan lines. The letterform images were then projected from the CRT onto paper, film, or an electrostatic drum. Because the output type is digital, it could be modified automatically to reflect a number of typographic variations. For example, it could be made heavier, lighter, slanted, condensed, or expanded at the command of the operator.

Rather than employing a CRT to generate characters, digital-laser systems (Fig. 7-20) used a laser beam that scanned photographic paper as it read digital information stored in the typesetter. As the paper was scanned, a series of dots forming the characters were exposed to the paper. The information controlling the laser included the font, as well as spacing, paragraph configuration, hyphenation, and kerning.

The nature of typographic communication has changed drastically as the responsibility for typesetting has shifted from a compositor to the designer. The ability of a designer to dynamically edit and alter individual letterforms and entire fonts with the aid of software has in many ways redefined the way type is used. For example, multiple master typefaces, developed by Adobe in 1991, readily enabled designers to interpolate and therefore change fonts along several design axes (Fig. 7-21). These axes include weight, optical size, stroke shape, and serif configuration.

Other developments depart entirely from traditional typesetting methods. The typeface Walker, for example, designed in 1995 by Matthew Carter for the Walker Art Center, provides “snap-ons,” that is, variant serifs treated as separate characters that can be added to or removed from letters as desired (Fig. 7-22).

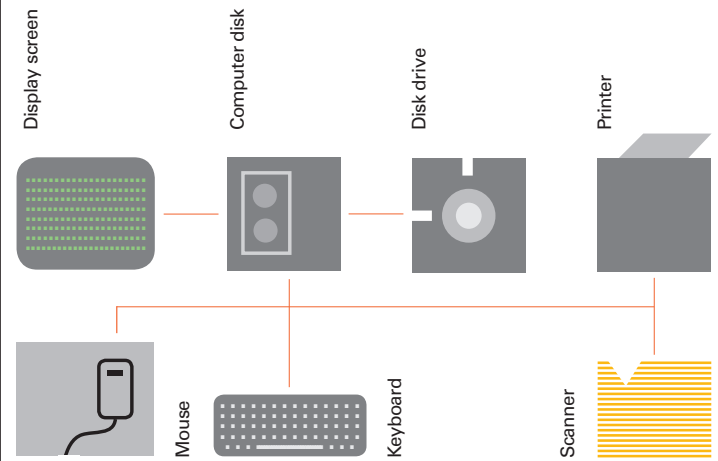


**7-22** Walker, a typeface designed by Matthew Carter, enables designers to “snap on” five variations of serifs at will.

## Desktop publishing

Digital typesetting moved onto the designer's desktop with the development of more powerful personal computers, software applications, and laser printers (Fig. 7-23). Page-design programs were made possible by the development of interpretive programming languages that provide a software interface between page-design programs and output devices. Interpretive programming languages like PostScript by Adobe Systems were specifically designed to handle text and graphics and their position on the page. The introduction in 1985 of products like the page layout software PageMaker and the Apple LaserWriter printer gave designers more flexibility in how they worked, keeping more of the production process in the studio and decreasing dependence on service bureaus and commercial printers. Color monitors, faster processors, and more robust file storage methods continued to speed up the design process.

Such major leaps forward in typographic technology have brought unprecedented control and freedom to typographic design. These tools make it possible for designers to make unlimited changes to their designs, create mock-ups from laser or inkjet printers, and send electronic proofs to clients and collaborators. One file can take many forms and may be sent to a commercial printer, self-published, converted to a template, made into an interactive Portable Document Format (PDF), or used as a prototype for an app, game, or web page. Control over the means of production of typography has also given designers the tools to experiment with typographic form, composing it in unconventional or expressive ways by manipulating settings of leading, tracking, rotation, and more.



**7-23** Components of a desktop publishing workstation.

The screenshot shows a Degree Plan for the Graphic Design Post Baccalaureate Studio. The plan is organized into two semesters: Fall Semester and Spring Semester. The Fall Semester includes GD PBAC STUDIO 1 (6 credits), DESIGN THEORY AND PRACTICE (3 credits), TYPOGRAPHY 1 OR 2 (3 credits), and STUDIO ELECTIVE (3 credits), totaling 15 credits. The Spring Semester includes GD PBAC STUDIO 2 (6 credits), GD PBAC WORKSHOP 2 (3 credits), TYPOGRAPHY 2 OR 3 (3 credits), and STUDIO ELECTIVE (3 credits), totaling 15 credits. The PROGRAM TOTAL is 30 credits. The page also includes a 'More info' section and a 'Course Descriptions' section.

### MICA GDPP

- news
- about
- gallery

### About

The program provides in-depth study of the language and practice of graphic design. Our students are professionals and graduates from complementary fields, including liberal arts, fine arts, architecture, media studies and journalism as well as those who studied design as undergraduates yet desire a more comprehensive and rigorous education in the theory and concepts of graphic design.

### Degree Plan

#### FALL SEMESTER

- GD PBAC STUDIO 1 | 6 CREDITS
- DESIGN THEORY AND PRACTICE | 3 CREDITS
- TYPOGRAPHY 1 OR 2 | 3 CREDITS
- STUDIO ELECTIVE | 3 CREDITS
- 15 CREDITS TOTAL

#### SPRING SEMESTER

- GD PBAC STUDIO 2 | 6 CREDITS
- GD PBAC WORKSHOP 2 | 3 CREDITS
- TYPOGRAPHY 2 OR 3 | 3 CREDITS
- STUDIO ELECTIVE | 3 CREDITS
- 15 CREDITS TOTAL
- PROGRAM TOTAL | 30 CREDITS

### Course Descriptions

#### CORE CLASSES

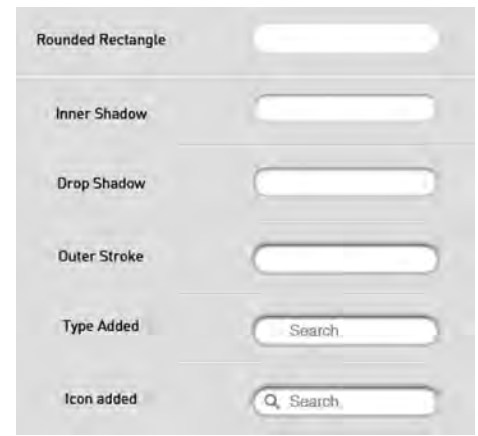
##### Graphic Design Post Baccalaureate Studio

The GD PBAC Studio provides an immersive introduction to design, taught with a strong emphasis on visual research, process and critical analysis. In the Fall, students are assigned projects with constraints designed to solidify typography and visual communication skills yet encourage experimentation with media and content. In the second semester, GD PBAC Studio focuses on creating and exhibiting a self-directed design project in line with the student's goals, as well as building a portfolio of compelling work.

##### Design Theory and Practice

**7-24** Web typography is no longer limited to a simple outline layout and can use a wide array of typefaces and column arrangements. (Designer: Mark Sanders)

**7-25** A deconstruction of all the elements used to build typography that signifies interaction. (Design: Tim Collins)



With electronic communication, typography has evolved from static, printed output to dynamically created and distributed information viewed and interacted with entirely on screen. As in printed typography, screen-based typography is used to communicate and convey information in many different mediums.

**Web**

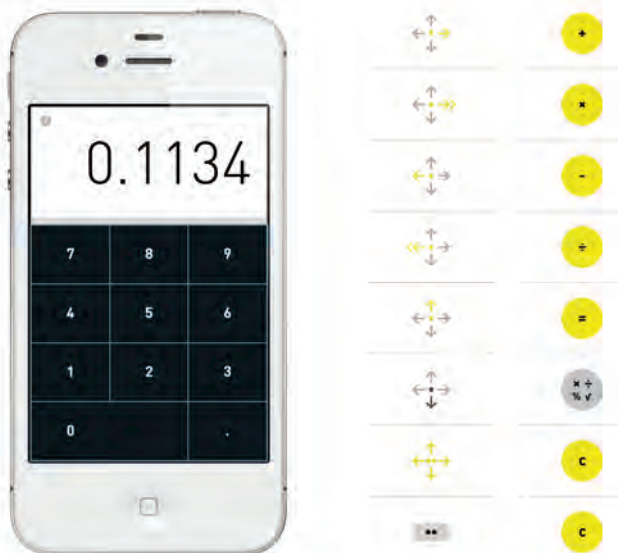
With more than twenty years of typographic development and technical improvements, the web is the most robustly explored and documented application of screen-based type. Early browsers confined type to a single, vertical column of running text, so typesetting was limited to expressing the importance of text through only size, weight, and posture. As the use of the web increased, more sophisticated layout and typeface choices were developed. Complex column arrangements, broad typeface choices, layering, and rotation became possible as browsers and coding became vastly more powerful. Today's screen-based typographic designers now have almost as broad a palette as their counterparts in print (Fig. 7-24).

Web typography is meant to be not only read but also engaged. This can take the form of links, which allow site users to load new pages or access additional information, or other interface components that allow further interaction with content (Fig. 7-25). This act of engagement has grown in importance as websites have moved from presenting relatively static information on screen to encouraging user participation while dynamically assembling the content.

**Mobile apps**

With the launch of the App Store in 2008, Apple set in motion the next great advance in on-screen typography. Apps (short for *applications*) are self-contained programs that perform specific tasks. While they have existed in a variety of formats since the introduction of the personal computer, their relative ease of creation, the ready-made App Store distribution network, and a fixed format established this latest iteration as a screen-based medium. Originally designed for mobile phones, mobile apps are now utilized by tablets and even by desktop computers.

Mobile apps are generally developed utilizing a software development kit (SDK) that governs the platform they run on. This SDK contains not only programming instructions but also interface, design, and even typography specifications. App designers can depart from these guidelines, but on their own these standards establish a typographic cohesion and ready-made hierarchy of information. Typography for mobile apps is influenced by a fixed screen size that responds to touch and gestures performed by fingers (Fig. 7-26).



**7-26** The Rechner Calculator app uses gestures in place of buttons for controlling calculations. (Designer: Berger & Föhr)

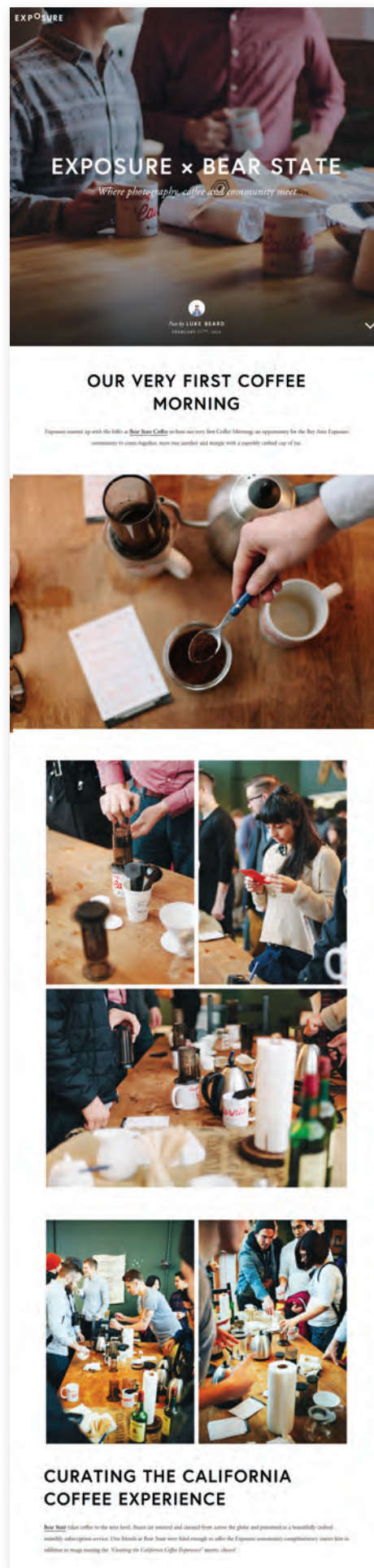
## Responsive design

In response to the differences in programming, layout, and complexity of information that exist among mobile phones, tablets, and desktop computers, a hybrid strategy known as responsive design is now in practice. On-screen design and typography “respond” to the screen size they are being viewed on, fitting content into the frame for each device (Fig. 7-27). The advantage of this technique is that a single code base is used for all display sizes, simplifying the coding and unifying the design from device to device.

Virtually all aspects of typographic layout and design can be varied in response to a specific screen size. Visual and interface elements can also be removed or reordered to best utilize the communication potential of the specific device.

Responsive design is especially challenging since the designer must plan to display information in a variety of layouts that best suit the screen size. For example, content may be designed in a one-column layout for a mobile phone screen, while a multicolumn layout may be more appropriate for a desktop computer with a wider screen. Designers also anticipate the different ways users interact with information, such as touching a mobile device or using a mouse or trackpad on a desktop.

Typographic media continues to develop rapidly, and designers must keep abreast of innovations that influence the design process and the typographic image. Having now assumed almost all of the typographers’ role, designers must develop specialized knowledge of the typesetting system they are utilizing in order to fully understand its capabilities and achieve the desired quality of typographic communication.



7-27 The layout and typography of the website *Exposure.so* change in response to different screen sizes.





The Internet provides a challenging environment for good typography, especially with text sizes. Its problems are inherent in all on-screen font displays, whether designing typography for a laptop, tablet, smartphone, interactive kiosk, or website. When designing on a computer screen—even when the final production will take another form, such as offset printing—the same legibility issues apply to on-screen type. Screen fonts are bitmaps, which are digitized images made up of tiny dots.

To render an outline letterform stored as a Bézier curve on a computer screen, it must be rasterized, or converted into tiny dots called pixels, which is short for picture elements. The relatively low resolution of many contemporary computer screens, which typically have a bitmap matrix of 72 or 96 pixels per inch, cannot display the subtle nuances of a beautifully designed font. When a type's outline is rendered on a screen, details such as stroke weight, subtle curves, and serif detail are reduced to a coarse approximation of the refined forms found in the original design. This occurs because curved and diagonal edges rendered as pixels on a raster-scan display have a jagged stairstep quality, called “the jaggies.” The more pixels used to generate the letterform, the higher the resolution (Fig. 8-1). When small type appears on-screen with too few pixels to accurately display the subtle forms of the letter, a catastrophic decrease in legibility can occur (Fig. 8-2).

Satisfactory on-screen typographic display blends many factors. These include font enhancement methods such as anti-aliasing, hinting, the use of pixel fonts, and capturing type as image. Computer operating systems and a user's choice of web browser also play vital roles. These aspects must be considered to achieve optimum typographic outcomes on screen. Operating systems and a user's choice of web browser also play vital roles.



**8-1** Digital letterforms have decreasing resolution as the number of pixels is reduced.



**8-2** This enlargement of an a, displayed on a computer screen at a five-pixel height, shows the resulting distortion.



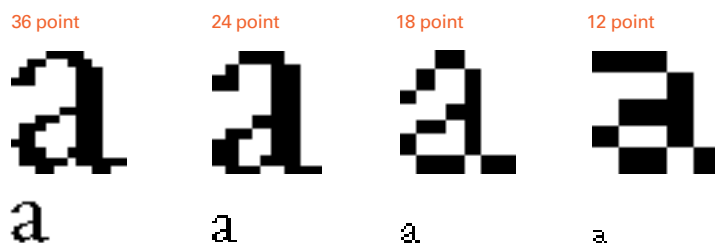
**8-3** Enlargement of a screen display of an a shows the “jaggies” caused by pixels.



**8-4** Antialiasing smooths out the hard, stair-stepped diagonal and curved edges.



**8-5** An enlarged antialiased letter a demonstrates how colors blend to achieve a smoother look at smaller sizes.

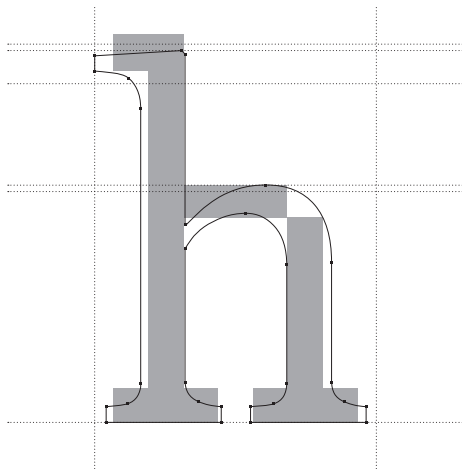


**8-6** Four sizes of a hinted letter a are shown enlarged and at on-screen reproduction sizes. (Designer: Matt Woolman)



**8-7** Verdana (left) and Georgia (right) are shown at 9-, 14-, 24-, and 36-point on-screen sizes. Hinting improves legibility by adjusting the design for each size. Note that the 9-point type is bitmapped, while the computer applied antialiasing to the larger sizes. (Font designer: Matthew Carter, hinted by Thomas Rickner)

**8-8** This illustration shows a text-size Georgia h as a bitmapped letterform and as an outline letterform. (Designer: Matthew Carter)



### Antialiasing

This technique is used to replace the jagged stairstep edges (Fig. 8-3) created by pixels with an illusion of the smooth curves found in well-designed typefaces. Pixels around the edges of curved or angled letterforms are rendered in an intermediate tone or color. These pixels are displayed in a blend of the type color and the background color, resulting in an appearance of smoother, more refined letterforms (Fig. 8-4). The drawbacks of antialiased type are that the smaller type gets, the fuzzier it appears, which can significantly degrade the original design of the typeface on low pixel-density displays (Fig. 8-5).

### Hinting

A major factor influencing the legibility of on-screen type is resolution. Where fewer pixels are available to describe letters, resolution decreases. To compensate for this problem, type designers reshape the outlines of characters, a process called *hinting*, to create the best possible image at various point sizes. Hints alter the actual outlines of letters by selectively activating pixels, thus improving the legibility of letters on the screen and from low-resolution output devices. An unhinted typeface will typically instruct the computer to turn on a pixel if more than half of its area is covered by the letterform. A hinted typeface has the pixels activated to display each letter adjusted to more accurately display it at various sizes (Fig. 8-6). Hinting information is built into the software that generates the typeface on the screen and automatically occurs when the type is displayed.

Two widely used on-screen typefaces were specifically created for use as web page text. These are Verdana and Georgia (Fig. 8-7), designed by Matthew Carter and hinted by Thomas Rickner. Most digital typefaces are designed as outline fonts that are used to generate bitmapped screen fonts. Verdana and Georgia were first designed as bitmaps of pixels (Fig. 8-8), then they were translated into outline fonts. As a result, they have better on-screen fidelity than most typefaces originally designed for high-resolution output.

By clicking SUBMIT, you will complete your order.



**8-11** *Inadequate resolution of type as image on hi-res screens results in pixelation, as in the SUBMIT button in this example.*

### Techniques for displaying on-screen fonts

**Pixel fonts.** These are typefaces specifically designed as bitmapped type, which are designed to the pixel; for example, the characters in Emperor 15 (Fig. 8-9) are exactly 15 pixels high. On a 72-dpi screen, these will be the same height as a 15-point typeface, since there are also 72 points in an inch. On a 96-dpi screen, however, a 15-pixel tall bitmap font will appear smaller, about the size of 11-point type. Pixel fonts can degrade when used at larger or smaller sizes than the size for which they are intended. Each of the specimens shown will appear more or less legible at different sizes (Fig. 8-10). On screen, care must be taken to scale type for optimum legibility. Pixel fonts are especially useful for very small on-screen text, as they can be designed to maximize legibility when pixelated. The distinctive appearance of these fonts has led to their occasional use as display fonts because their character is expressive of computer technology.

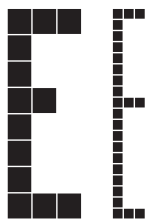
**Type as image.** Type, especially display type, is converted to a picture file format, such as GIF, and downloaded as an image on a website. The benefits are fidelity to the designer's intent and compatibility with almost all web browser software. Since images require more file size than plain text, this slows the downloading of the web page. Type downloaded as an image is fixed in size and cannot be selected or copied as text. It cannot be scaled or changed in size. Revisions are difficult because an image, rather than running text, must be revised. Image files should be saved at a minimum

of 200 percent of the standard resolution of 72 pixels per inch to accommodate high pixel-density displays (Fig. 8-11). Photoshop provides preset antialias settings that enable designers generating type as image to fine-tune the images for improved legibility.

**@font-face.** For many years, due to differences in computer operating systems and browsers, web designers were limited to the selection of default typefaces installed in computer operating systems. Also, they have fought with the inability to consistently control the way type specified for their websites is viewed by users on their computers. Users can set their own browser preferences, enabling them to select typefaces, type sizes, font smoothing, colors, and how to view images. The inconsistent rendering of type across platforms and browsers remains a problem, but new technologies have emerged that enable designers to link any number of fonts to their web pages, thus ensuring that users view pages as intended by the designer.

The introduction of the @font-face feature, for example, allows designers to link any number of fonts from a third-party URL to different browsers. Users can be served designer-selected fonts on their local computer without relying on the limited offerings of their font library. Services that host or supply web fonts are working with font designers to develop new typefaces and revivals at a quickening pace.

As web designers gain access to a greater percentage of the world's font libraries, the need to understand typography from historical, technological, and communicative perspectives is critical.



Emperor 8  
Emperor 10  
Emperor 15  
Emperor 19

**8-9** *Emperor is a pixel font with a different design for display at different point sizes, with each pixel equaling one point. Emperor 19, for example, is 19 pixels tall. (Designer: Zuzana Licko)*



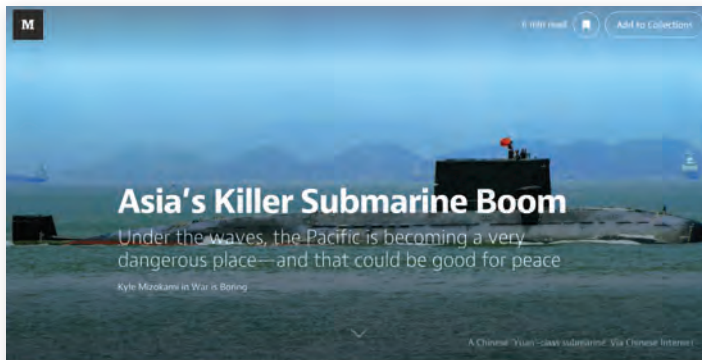
**8-10** *Despite their inherent simplicity, abundant variations of pixel fonts exist, each with its own expressive potential.*



Typographic adjustments must be made to text because of differences in how information is read on screen. In print, readers mark their progress as well as establish points of reference by turning the page. It's easy to establish how far the reader has come or how much remains by how many pages are physically before or after the page that's currently being read. With on-screen type an entire article is typically contained on a single page, bypassing the visual and tactile cues as to pace, tempo, and position that are inherent to print.

Because of this difference, readers of on-screen text have established new habits. Before an in-depth reading, site users pre-read or scan the page they are on. From this quick view, length, relevance, and hierarchy are understood and the choice to read the entirety is made.

While reading, screen viewers do not benefit from the tempo or progression markers of turning a page. Variety of units of text, images, rules, and dynamic variations in white space all help readers mark their pace and place in the body of text. When designers provide these types of visual breaks, readers are able to stop and restart reading or return to a specific place in the text in a manner that's similar to print typography (Fig. 8-12).



**8-12** The website Medium.com uses a variety of units of text, images, rules, and dynamic variations in white space to establish a reading rhythm.

In early January, the heavy-lift ship *Rolldock Sea* entered the Vietnamese port of Cam Ranh Bay towing a submarine. The sub, HQ-182, is a Russian-made *Improved Kilo*-class boat, one of six ordered by the Vietnamese navy in 2009.

**HQ-182, also known as the Hanoi, is Vietnam's first submarine.**

Displacing 4,000 tons underwater, the diesel-powered *Kilos* have six tubes for launching guided torpedoes or supersonic SS-N-27 "Klub" anti-ship missiles. So quiet that they're called "black holes" by the U.S. Navy, the subs can sit silently off Vietnam's coast, waiting in intercept and sink any attackers. The six *Kilos* will be Vietnam's capital ships.

And Hanoi isn't the only Asian government buying submarines. Malaysia has also purchased two. Thailand just built a new submarine headquarters—now it just needs the actual subs. South Korea is doubling its undersea fleet, while Japan is growing its sub force by more than a third.

Across Asia and the Pacific, defense budgets are going up and the money is going deep... very deep. To keep the peace and win at war, the region's navies are betting on submarines.

**China's second-order effects**

As Asian nations grow economically, it's natural for them to build up their navies. Many of them are heavily reliant on sea shipping to import natural resources and export finished goods. Japan imports 96 percent of its energy. South Korea imports 90 percent of its food. For many of these countries, losing the sea would mean disaster.



*The Agorostovsk-JSC 'Kerzhnitskiy' docks in Port Harbin Via Naval Photos.*

China is no exception. Traditionally a land power, as China's economy grows its interests are becoming global. Among other things, China is now dependent on Mideast oil, raw materials from Africa and Australia and the whole world as a market for its goods.

As a result, Beijing's navy is growing at breakneck speed. China commissioned its first aircraft carrier

Given the limitations of rendering type on screen, the choice of typeface will either help or hinder legibility. The most readable typefaces exhibit formal characteristics that distinguish them as timeless specimens capable of serving any communicative need. The type families shown in Chapter 13, Type Specimens, display these universal qualities. When considering typefaces for use on the web or for other on-screen applications, the following guidelines will help in their selection:

**On-screen type sizing**

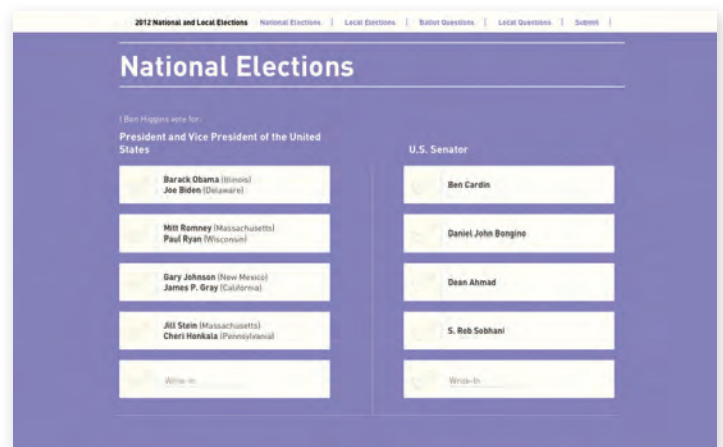
Type on screen can be measured in several ways. Pixels, ems, rems, xx-small, and relative percentages of parent elements are all acceptable for specifying the size of on-screen type. While these can be used individually for text sizing, they are generally used in combination to best allow adaptive scaling. To accomplish this, a font size and line height are declared in pixels for the tag in HTML. All other type is sized and spaced relative to these values via ems, rems (a root em), or percentages.

**Simplicity**

Typefaces possessing elemental shapes translate more effectively into the domain of pixels than do typefaces with ornamental and adorned shapes, or typefaces with extreme stroke-to-stroke contrasts (Fig. 8-13).

Intricate forms lose detail when translated. Elaborate typefaces may gain in legibility when presented at larger sizes, but this gain in visual fidelity may not compensate for how they can potentially detract from the content and message. If used, they must be employed as part of a strategic communicative plan. Many typefaces have simple yet distinctive letterform shapes that render well on screens of various resolutions.

**8-13** *This design proposal for online ballots achieves its purpose by utilizing clear hierarchy created from clear information zones. (Designer: Ben Higgins)*



Old Style  
Old Style  
Old Style  
Old Style

Transitional  
Transitional  
Transitional  
Transitional

Modern  
Modern  
Modern  
Modern

Slab Serif  
Slab Serif  
Slab Serif  
Slab Serif

**8-14** *Compare these serif type examples for legibility at various sizes. As type gets smaller on screen, it is described by fewer pixels, which decreases legibility. The specimens shown are antialiased at a resolution of 72 dpi.*

---

### Sans serif and serif typefaces

Because sans serif typefaces are generally simpler in form than serif typefaces and scripts, they achieve a clearer visual presence on the web. On screen, very small serifs are described by an inordinate number of pixels relative to the rest of the letterform. Comparisons between sans serif typefaces must be made by the designer to ensure that selections are suitable to the content. Usually, a well-proportioned sans serif typeface possesses a medium stroke weight and a balanced ratio of form to counterform. Slightly condensed faces afford more characters per line and thus utilize less space on the page. Designers may safely select traditional workhorses such as Helvetica, Univers, and Futura, or typefaces embracing similar design characteristics. These classic typefaces still appear fresh when well-spaced and provided with sufficient scale contrast. Sans serif fonts with personality can be equally effective for on-screen viewing. These include DIN, Franklin Gothic, Gill Sans, Lucida Sans, Meta, and Rotis Sans, to name but a few.

When serif typefaces are used, they are best selected on the basis of their legibility on screen at small sizes (Fig. 8-14). In the serif category, slab serif fonts provide more legibility than Old Style, transitional, or Modern typefaces (Fig. 8-15). Typefaces such as

Memphis, Rockwell, Serifa, and Museo possess moderate contrast between strokes, and blocky serifs that translate well into pixels. All typefaces under consideration should be tested by comparing their relative legibility on screen at various sizes. Typefaces endowed with sturdy serifs and moderate stroke contrasts hold up best to pixelation on screen (Fig. 8-16).

### Scale

At medium resolution, type scaled to larger sizes benefits from increased pixel density (Fig. 8-15). More pixels reveal subtle contours of typographic form and detail. To achieve a lively visual hierarchy, there should be sufficient contrast in the size of typographic elements. Larger type elements in relationship to smaller elements not only create drama but also provide units of information that establish emphasis on the page. The screen environment is forgiving of text scaled to larger sizes. Depending on the size of the screen and the resolution, 12- to 16-point type serving as text copy can appear proportionally correct and not visually overpowering. However, neighboring text units should be sufficiently scaled to maintain contrast.

---

**8-15** A beloved classic, the Bodo ni typeface possesses hairline serifs and an extreme contrast between thin and thick strokes that make it less adaptable for screen use. The antialiased letterform T, descending in size from large to small, illustrates how letterforms break down at a screen resolution of 72 dpi.



---

**8-16** The specimens shown at right exhibit the formal clarity, simplicity, and proportions required of any typeface to be used on digital screens. These antialiased specimens are shown in medium or bold weights at 72 dpi.

<b>Arial</b>	<b>City</b>	<b>Cheltenham</b>
<b>DIN</b>	<b>Boton</b>	<b>Garamond</b>
<b>Franklin Gothic</b>	<b>Memphis</b>	<b>Georgia</b>
<b>Futura</b>	<b>Officina Serif</b>	<b>Lucida</b>
<b>Rotis Sans</b>	<b>Rockwell</b>	<b>Minion</b>
<b>Trade Gothic</b>	<b>Serifa</b>	<b>Palatino</b>

### Combining typefaces

With rare exception, effective web pages utilize no more than two or three different typefaces. Using more than this number compromises hierarchical clarity. The most important consideration for selecting multiple typefaces is contrast, and variations in contrast are abundant: serif/sans serif, roman/script, bold/light, thick/thin, simple/complex, and functional/decorative. Plenty of contrast between typefaces ensures that each will effectively fulfill its task. Effective contrasts can also be achieved when using different typefaces within the same family, or using all capital letters in relationship to capitals and lowercase. The process of selecting typefaces is one of comparing several combinations on screen until the best possibilities emerge (Fig. 8-17).

### Contrast

The subtlety of typographic variation that can be achieved in print goes unnoticed when viewed on screen. Antialiasing, lower resolution, and a backlit presentation dull typographic detail, which in turn lowers contrast. Because of this, all shifts in typesetting and typeface selection must be further emphasized to promote proper clarity, texture, and hierarchy.

Make at least two typographic shifts for contrasting text items on screen. These properties can include typeface, size, weight, posture, orientation, margin, and color. As an example, bold or strong text in a paragraph is emphasized by being set two weights heavier (changing from regular to black instead of bold) or by changing to a heavier weight of a contrasting typeface (changing from Chaparral Regular to Futura Bold) (Fig. 8-18). In-line changes to typeface, weight, or posture may require resizing the text to keep a consistent x-height.

	Futura	Garamond	Meta	Rotis Sans	Serifa	Univers
<b>Futura</b>	Futura <b>Futura</b>	Garamond <b>Futura</b>	Meta <b>Futura</b>	Rotis Sans <b>Futura</b>	Serifa <b>Futura</b>	Univers <b>Futura</b>
<b>Garamond</b>	Futura <b>Garamond</b>	Garamond <b>Garamond</b>	Meta <b>Garamond</b>	Rotis Sans <b>Garamond</b>	Serifa <b>Garamond</b>	Univers <b>Garamond</b>
<b>Meta</b>	Futura <b>Meta</b>	Garamond <b>Meta</b>	Meta <b>Meta</b>	Rotis Sans <b>Meta</b>	Serifa <b>Meta</b>	Univers <b>Meta</b>
<b>Rotis Sans</b>	Futura Rotis Sans	Garamond Rotis Sans	Meta Rotis Sans	Rotis Sans Rotis Sans	Serifa Rotis Sans	Univers Rotis Sans
<b>Serifa</b>	Futura <b>Serifa</b>	Garamond <b>Serifa</b>	Meta <b>Serifa</b>	Rotis Sans <b>Serifa</b>	Serifa <b>Serifa</b>	Univers <b>Serifa</b>
<b>Univers</b>	Futura <b>Univers</b>	Garamond <b>Univers</b>	Meta <b>Univers</b>	Rotis Sans <b>Univers</b>	Serifa <b>Univers</b>	Univers <b>Univers</b>

**8-17** Working with a type selection matrix can be an effective and time-saving method for selecting typeface combinations. Contrast between paired typefaces is the most important principle to consider.



Making type legible on screen requires the utmost attention to how type is translated into pixels and how it works spatially on the page. It also requires attention to typographic syntax: the connecting of typographic signs to form words and sentences on the electronic page. Cohesive and readable pages establish a visual gestalt through typographic space and visual hierarchy.

**Capital and lowercase letters**

As in print, using only capital letters for extensive text settings severely slows reading. Using capital and lowercase letters provides rhythmic word sequences and characteristic word images that promote readability. However, use of all capitals in heads or small amounts of text can be effective in creating emphasis and visual elegance when sensitively spaced. (Fig. 8-19). When displaying text with all capital letters on screen, a minimum letterspace value of 110–120 percent is recommended.

**Interletter and interword spacing**

Especially at smaller sizes, interletter spacing should be increased to compensate for the spread of antialiased type and the illumination of the screen. Otherwise, pixels from one letterform appear to visually “flood” into the next, causing overly tight interletter spacing. Interword spacing should be proportionally adjusted to interletter spacing so that, as in print, letters flow rhythmically and gracefully into words, and words into lines. Essentially, typographic elements living on a web page require slightly more spatial separation than do those on the printed page.

The whole duty of typography, as with calligraphy, **is to communicate to the imagination**, without loss by the way, the thought or image intended to be communicated by the author.

The whole duty of typography, as with calligraphy, **is to communicate to the imagination**, without loss by the way, the thought or image intended to be communicated by the author.

The whole duty of typography, as with calligraphy, **is to communicate to the imagination**, without loss by the way, the thought or image intended to be communicated by the author.

8-18 Lower resolution and backlighting require greater typographic shifts to create appropriate on-screen contrast.



8-19 This home page is typeset in all capital letters. Varied interletter spacing imbues the site with classic elegance and textural beauty. (Designer: Gina Kang)

### Line length and interline spacing

Line lengths on the display are best viewed and perceived when viewed at a glance. Readers scan text in chunks, establishing fixation points throughout paragraphs. Sixty to seventy-five characters per line is an optimal number for ease of scanning websites. For smartphone apps, thirty-five to fifty characters per line is optimal.

Generous interline spacing is recommended for displaying text on a computer display. A reasonable guideline suggests that the interline spacing equal 140 percent of the type size when typesetting for websites. Measured in pixels, for example, type with an overall height of 10 pixels will require a measure of 14 pixels from the baseline of one line of type to the baseline of the next. This amount should be increased by at least 20 percent for type on smartphone apps. Ultimately, interline spacing must rely on optical judgement and an experienced designer's eye. As text settings get smaller on screen, they require more interline spacing for improved legibility (Fig. 8-20).

### Weight and width

When letterforms appear too heavy or too light on screen, they lose the visual balance between form and counterform, a critical relationship that enables readers to distinguish one letter from another. This principle holds true also for extremely condensed and expanded letterforms.

### Alignment

Flush-left, ragged-right text alignments are easiest to read, whether implemented in print or in electronic display applications. Right-side line terminations quickly and imperceptibly cue the reader from one line to the next. Other text structures (flush-right, ragged-left; centered; and justified) may serve a viable purpose, but these alignments do suffer a loss in legibility.

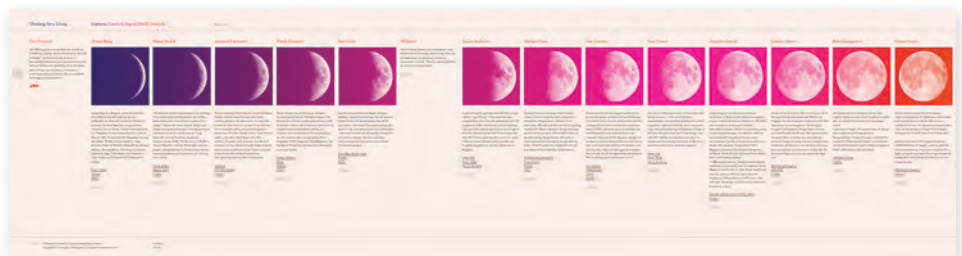
The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended

The whole duty of typography, as with calligraphy, is to communicate to the imagination, without loss by the way, the thought or image intended to be

**8-20** Compare these four text settings. Lines of type without sufficient leading inhibit onscreen legibility.



**8-21** This landscape page from the website *Thinking for a Living* promotes readability by keeping paragraphs short and succinct, and by creating a colorful narrative of the phases of the moon. (Designers: Duane King, Ian Coyle, Shane Bzdok, and Frank Chimero)

**8-22** This abstraction of layout and information on a web page illustrates the symbolic use of type on screen. (Designer: Laura Peters)



### Units of text

On screen, short paragraphs and the introduction of small units of text invite readers into the content. Text can be structured with the goal of bringing clarity and understanding to ideas, and preventing the monotony of vast seas of text, which severely inhibits the reading process (Fig. 8-21).

Further, reading on-screen text begins with a visual scan. By doing so, a reader gauges the length, relevance, and interest they have in the information. Properly dividing and articulating units of text help this process. Thinking of each different type of information, including headers, subheads, pull quotes, paragraphs, links, buttons, and so on, as individual symbols and as part of the overall page and site system brings clarity to each unit's function and establishes clear hierarchy. Readers then rely on these typographic cues to navigate the rich array of content on each page as well as throughout the site or app (Fig. 8-22).

A traditional style sheet that specifies typeface, size, leading, line length, letterspacing, etc., for each type of element is an invaluable aid in building and testing the effectiveness of the typographic system. The designer can test the mix of typefaces and make adjustments to promote consistency or contrast.

### White space

To break visual uniformity and accentuate units of text, white space should be increased around and between typographic elements. At a page level, this includes margins and column gutters. At a column level, spaces between paragraphs and sections are increased up to 20 percent.

For longer passages of text, white space can be used to visually mark a reader's progress. Violating the edge of a column with a different unit of type like a pull quote or an image provides a moment of visual pause as well as creating dynamic, asymmetrical white space (Fig. 8-23).

HTML

- I. Meet the cast: ABCDEFGHIJKLMNOPQRSTUVWXYZ
- II. Now see the movie: Helvetica
  - A. A documentary film by Gary Hustwit
    - 1. A Swiss Dots production, in association with Veer
    - 2. Helvetica
    - 3. Featuring
      - a. Michael Beirut
      - b. Neville Brody
      - c. Matthew Carter
      - d. David Carson
      - e. Wim Crowell
      - f. Experimental Jetset
      - g. Tobias Frere-Jones
      - h. et. al.
    - 4. Produced and Directed by Gary Hustwit
    - 5. Editor
      - a. Shelby Siegel
    - 6. [helveticafilm.com](http://helveticafilm.com)
    - 7. Director of Photography
      - a. Luke Geissbuhler
    - 8. Additional Photography
      - a. Colin Brown
      - b. Gary Hustwit
      - c. Pete Sillen
      - d. Chris Wetton
      - e. Ben Wolf

CSS

Helvetica Neue Bold; White; 18pixels tall;  
 Helvetica Neue Bold; Red; 96pixels tall;  
 78pixels leading;  
 Helvetica Neue Regular; White; 6pixels tall;  
 8pixels leading; Double space after paragraph; 9 columns

8-24 HTML structures the information presented on a web page like an outline, while CSS gives visual form to marked-up content, articulating hierarchy and communication objectives.

8-23 Dynamic, asymmetrical white space breaks the visual uniformity as well helps readers mark their progress through long texts on screen. (Designer: Tristan Scow)

## SMART CITIES

Having a bright idea is one thing, translating it into reality another. So how do world-changing advances come about?



Smart cities have always existed in people's heads. Since Plato's Republic, people have dreamed of the perfect community where citizens live in harmony; life is good, technology is harnessed and everything works. Today, big ideas about improving city life continue to pour forth from futurologists, academics and think tanks. But what really transforms a bright idea into a world-class innovation?

Plugging in to new technology at first appears a sure-fire route to success. City planning today seems like the stuff of science fiction. The microchip and the internet, according to the doctrine, are the keys to making cities more livable, integrated and even "intelligent". Long ago, city fathers may have yearned for the chance to run on time, but today they dream of robot bridges, electric car pools and skyscraper urban farms.

In some of the unlikeliest locations, whole new cities are planned based on the latest in carbon-neutral thinking and digital technology. In Abu Dhabi, the *Muscat City* project is a six square kilometer walled development billed as "the world's first zero-carbon, zero-waste city", designed by London-based Foster and Partners. In China, a new city at Guangzhou will be so "smart" it beats China's old and new rivals for the accolade of the world's smartest.

**Luca, Winthrop**, professor of Forecasting and Innovation at De Montfort University in Leicester, points out that huge urban leaps have often occurred when technologies coincide, as in the industrial revolution, creating unpredictable social change. "It also helps to have a sense of forward momentum in society—that anything is possible. But with so many people fearing climate change, that isn't the zeitgeist today."

Self-styled freelance futurologist **Rena Manna**, a telecommunications expert, agrees. "Successful innovation is hard to predict. Thirty years ago nobody would have dreamed of the smartphone, the iPod or the internet, which have changed our lives. The big things just happen. What matters is not technology, but big ideas. With climate change around the corner, it's putting my money on floating cities. Why not?"

For **Luca Zacharilla** of the US-based Intelligence Community Forum think tank a key factor in turning a blue-sky thought into a real, on-the-ground innovation is its appeal as a "universal experience". "One of our ideas is food," says Zacharilla. "Everybody is interested in food, and everybody needs it. With problems of food security, food will be sourced locally and we think urban planners will be building skyscraper farms instead of empty office blocks, as more people will be working from home."

Food is also central to the ideas of London architect **Clare**, who is among the shortlisted designers for Guangzhou's new smart city. Lam, professor of architecture and cultural design at the University of London, is passionate about putting the traditional back into smart. "Our city won't necessarily have all the latest technology," he says, "but it will have a human face, with culture, tradition, jobs and food security. We are planning a city with rooftop gardens, vegetable plots and parks with fruit trees. It may have been done before, in the world war two, but it is a big idea for the future."

"Every true innovation has its time, but it has to be understood and supported by everybody. If it's something my mother couldn't grasp, it will never become a world class innovation. It has to be like a light bulb—the first time you switch it on, every-

LUCA ZACHARILLA  
OF INTELLIGENCE COMMUNITY FORUM

Meet the cast:

ABCD  
EFGHIJK  
LMNOP  
QRSTU  
VWXYZ

Now see the movie:

# Helvetica

A documentary film by Gary Hustwit

<b>A Swiss Dots production</b> in association with <b>veer</b> <b>swiss dots</b> Helvetica A documentary film by Gary Hustwit	<b>Featuring</b> Michael Beirut Neville Brody Matthew Carter David Carson Wim Crowell Experimental Jetset Tobias Frere-Jones Frank Green Chris Wetton Ben Wolf	<b>Luke Miller</b> Shelby Siegel Mike Parker Matthew Carter Mike Parker Frank Green Tobias Frere-Jones Frank Green Chris Wetton Ben Wolf	<b>Executive Producer</b> Matthew Carter <b>Produced and Directed by</b> Gary Hustwit <b>Editor</b> Shelby Siegel <a href="http://helveticafilm.com">helveticafilm.com</a>	<b>Director of Photography</b> Luke Geissbuhler <b>Additional Photography</b> Colin Brown Gary Hustwit Chris Wetton Ben Wolf	<b>Additional Editing</b> Luca Winthrop <b>Sound</b> Neville Brody David Carson Wim Crowell Experimental Jetset Tobias Frere-Jones Frank Green Chris Wetton Ben Wolf	<b>Music</b> The National Darius Chicago Underground Clare Ben Folds Four Tet Kanye West Mikaela Mufson Santitas	<b>Associate Producers</b> Andrew Denton Adam Osborne Sharon Hefford Matthew Mitchell Ben Folds Chris Wetton Mikaela Mufson Santitas
---	--	---	--	--	--	---	--

© 2008 Swiss Dots

There are many ways in which websites can be built, and designers often rely upon specific methods and tools that work best for their needs. However, designing websites generally involves three layers of functionality: structure, presentation, and behavior. HTML specifies the structure of content, controls the presentation of the content, and JavaScript, a scripting language that is usually embedded directly into HTML pages, and provides websites with interactive capabilities. With the release of CSS3, interactivity can also be achieved through style sheets. These three types of markup and scripting provide capabilities for controlling the layout of content; typographical specifications such as font, size, and spacing selection; and interactivity on the web.

### HTML

HTML (hypertext markup language) is a set of markup tags or code that describes the hierarchy, structure, or function of content to be displayed in a web browser. Every item to be displayed on the page is marked up with these tags. Divisions within the content are articulated and the order of the information is established, much like a traditional outline (Fig. 8-24). The on-screen typographer can quickly mark up content to establish hierarchy, promote connections between different types of information, and construct flow.

### CSS

CSS (cascading style sheets) control the presentation of information contained in an HTML file (Fig 8-24). All aspects of how a page looks and is visually structured are specified via CSS. Using style sheets, designers have the ability to control page composition; specify exact type sizes, weights, and styles; and manipulate interletter, interline, and interword spacing. As discussed in Chapter 3, these aspects are major determinants of typographic legibility. Style sheets can be embedded within a single HTML file or externally linked.

Advances in CSS, including the new CSS3 specification, have greatly increased the designer's control over layout. Rotation, layering, insets, and other sophisticated typographic forms of expression can now be implemented on screen via CSS. Additionally, the CSS3 "transform" property allows designers to construct interaction without the need of learning a scripting language like JavaScript. Most CSS properties can be transformed, either individually or in combination with other properties.

### JavaScript and JavaScript libraries

JavaScript is a scripting language widely used to create dynamic, interactive web pages. It is maintained as source code embedded in HTML pages, which are otherwise static rather than dynamic. Web developers use JavaScript to validate form input, create image rollovers, and open pop-up windows, among other things.

Supporting JavaScript are cross-browser JavaScript libraries, collections of JavaScript code that emphasize interaction between JavaScript and HTML. A popular example is jQuery, a fast and concise library containing a store of commonly used functions, shortcuts, and animation effects that allow designers to create interactive interfaces for web applications. Other libraries include ProtoType, YUI Library (Yahoo), Moo Tools, Scriptaculous, and Dojo. Libraries are often extended by plug-ins and/or modules that combine functions into a specific interface component like a slideshow, an interactive behavior like an animation, or a custom event that triggers a reaction, like changing the background color when scrolling past a specific section in a page.

### Operating systems (OS) and web browsers

Viewing web pages set in typefaces that are not installed on a computer results in a carefully designed web page being rendered in different fonts than those used in the original design. Different set widths and letterform designs can totally change the appearance of the page layout and type. Fonts can be embedded in web pages, but often these are not downloaded and displayed. CSS permits a designer to list a string of commonly available fonts (for example, Georgia, Times New Roman, Times) that are frequently installed on computers. The computer will set the text in the first available font from the list.

In response to this limitation and problem, CSS now includes the @font-face property, which allows web pages to embed virtually any typeface. Through this technique, the number of on-screen fonts available to designers is dramatically increased. Typically, an @font-face declaration specifies several different file types, since there is no one standard for all browsers. This, however, allows @font-face embedded fonts to render correctly on any modern browser.

Accurate on-screen type display largely depends upon the operating system in use and a user's choice of web browser. Every web browser features a layout engine that decides how it will render type on the screen. These engines determine how web designs are generated and visualized. Most browsers, however, defer to the text-rendering engines of the operating system to determine the look of the typography. What this means for the web designer is that browser/OS combinations must be checked to ensure that particular fonts are accurately rendered on the web.

On a Macintosh computer, each and every web browser utilizes Core Text, the system default text-rendering engine, along with OS font-smoothing (antialiasing) settings. Browser preferences do not affect the way type is antialiased. Therefore, the appearance of typography on a Macintosh remains the same regardless of the browser in use. This, however, is not true of every OS/browser combination.

**Site structure and architecture**

The scope of this chapter prevents an in-depth investigation into the complex realm of website architecture and navigation. It remains important to emphasize, however, that the ability to successfully travel through a site depends on navigational hierarchies. Users must be assured that they can move efficiently about a site's pages and find the information they seek without getting lost in the process.

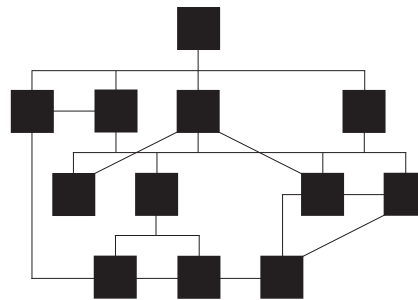
Websites consist of a series of pages connected topologically by hyperlinks. The number and pattern of these links define the site's information architecture. Two fundamental structural schemas exist: (1) networks or webs, which are a collection of pages connected by a fixed number of hyperlinks; and (2) trees, which organize information into a descending hierarchy. The majority of websites combine these two models, enabling users to navigate the site's pages from many different directions (Figs. 8-25 to 8-27). The most effective websites limit the number of links and organize them into a logical site hierarchy.

**Page structure and spatial organization**

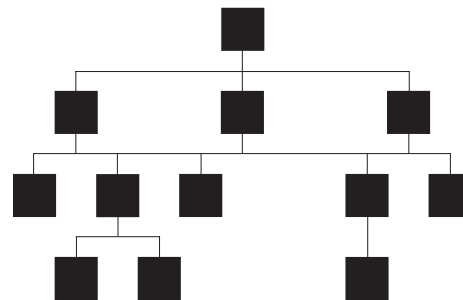
The possibilities for designing web pages and controlling their appearance continue to advance. Compared to the infancy of web design, designers enjoy many technological advances that contribute to improved legibility, page organization, visual hierarchy, aesthetics, expression, efficiency, consistency, and adaptability to change. The following considerations enable designers to optimize typographic functions and aesthetics on electronic pages.

Designing grids for any application requires a thoughtful analysis of content, but designing grids for web applications presents additional challenges. Unlike the fixed media size in print, where type and other elements are scaled and positioned by the designer in relation to established proportions, designing for the web is challenged by the variable nature of OS platforms, screen size, and the actual devices used for viewing sites. In addition, users have the option of changing font sizes, resizing browser windows, and altering screen resolution. With this in mind, effective grid systems for the web adapt to the user's potential changes, and retain the original proportions of the page.

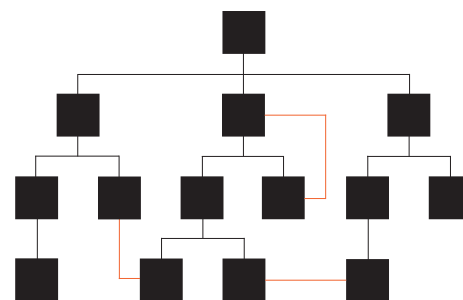
Layout grids for web pages can be relative or absolute structures. Relative grid structures, also known as adaptive structures, are based on the use of percentages or relative measurements, whereas the values of absolute or fixed grids are measured in pixels. Both of these types can be used as the basis of a responsive grid, which adjusts itself to the size of a screen.



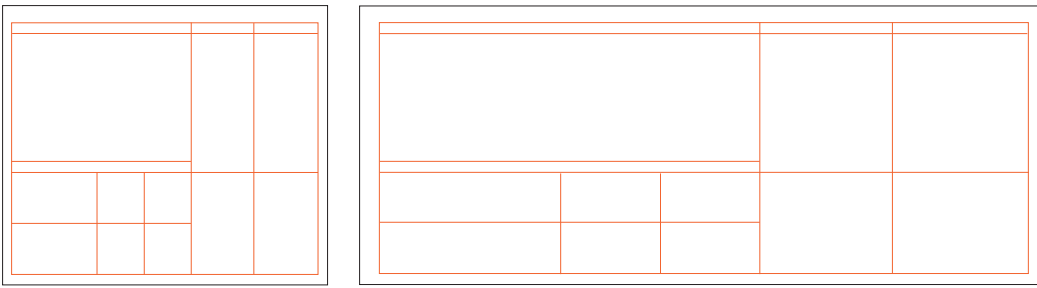
**8-25** Websites consist of pages connected by hyperlinks. These configurations determine a site's architecture. The most flexible, but unrefined, site is a collection of pages connected arbitrarily by hyperlinks.



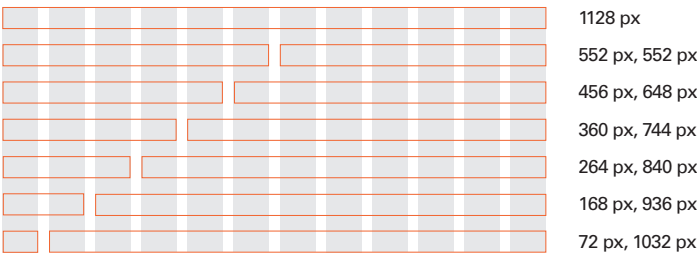
**8-26** A tree structure organizes information into a family tree: parents beget children, children beget grandchildren, and grandchildren beget great-grandchildren. Aberrant connections between these branches revert a tree structure to a network structure.



**8-27** Optimally, a site combines a network with a tree, allowing a limited number of hyperlinks to move through the structure. These hyperlinks aid in the site's hierarchical structure.



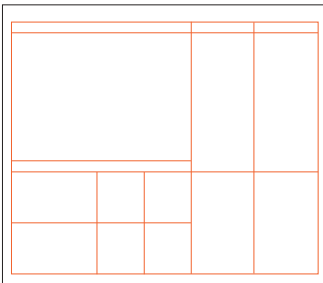
**8-28 Adaptive:** The proportions of a page are altered in the process of changing the dimensions of the browser window.



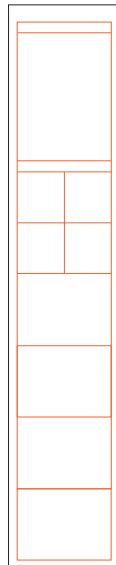
**8-29 Fixed:** Column-based grid layouts are almost ubiquitous; they are easy to create, fairly stable across multiple platforms, and they do not degrade to the same degree as table-based layouts.

**8-30 Responsive:** When viewing this web layout on different screen sizes, the grid responds in width and arrangement.

Desktop



Mobile



**Adaptive grid systems** lend themselves well to web page design since they are independent of specific units of measurement. These systems are constructed from ratios such as 1:3, 2:1, 3:2, or some percentage of parts to a greater whole (Fig. 8-28). This “whole” may be the entire browser window, and when the size of the window is changed, the proportional properties of the grid also changes. More complex ratios, such as the golden section (1:1.618) are referred to as irrational ratios (see Chapter 4, The Typographic Grid). Flexible-width designs scale to the user’s resolution, and therefore to the browser window. The downside is that when stretched, flexible pages can look proportionally distorted.

**Fixed grid systems** provide the designer with more control over the typographical appearance of the site on different browsers (unless, of course, the user tinkers with browser settings). As the flexibility of layout has expanded with CSS, many websites utilize column-based fixed grids, ranging from two to many columns, depending on the complexity of the content. These grid systems provide a more stable structure than table-based HTML grids, and more typographic flexibility while retaining structure, consistency, and legibility (Fig. 8-29).

**Responsive grid systems** can be adaptive or fixed in composition. Through media queries in CSS or via JavaScript, the layout of a page responds to the size and/or proportion of the screen on which it is being viewed. Mobile browsers can display a single-column layout appropriate to their size while a desktop browser of the same site displays multiple columns. Constructed from a single code base, responsive grids are an efficient way to customize the typography and structure of a website to the visual strengths and limitations of each device (Fig. 8-30). In CSS, media queries specify a range of pixel dimensions that contain rules that are used to style the HTML when the specific conditions of the query are met. Frameworks like Bootstrap, Skeleton, Frameless, and Foundation predefine the media queries for all popular screen sizes and devices as well as define a flexible grid system that can be used to lay out the column structure of a website. Additionally, the grid dynamically changes in response to larger or smaller screens.

Regardless of the kind of grid system used, the designer’s task is to organize elements into a clear and easily perceived visual hierarchy, a requirement for successful page and site navigation. Without hierarchy, users are easily frustrated and left to trial and error. Visual hierarchy refers to the relationships of each part to other parts and to the whole. An effective hierarchy is achieved by carefully connecting and/or separating elements in space. As discussed in Chapter 5, when elements are separated by means of size, weight, color, and spatial interval, they achieve independence and emphasis.

## CASE STUDY

### Museum of Design Zurich

Design: Andreas Kohli and Benjamin Schudel

Through its collection and programs, this museum chronicles the aspirations and products of design in Switzerland and around the world. Design categories include product, interior, environmental, and graphic design.

The site's home page features an animated grid of square tiles. The lower left tile presents the name of the museum in white Helvetica on a red background. Current exhibition venues are identified in adjacent squares upon a kinetic photographic montage (Fig. 8-31).

As the cursor passes over these venue squares, their backgrounds are replaced by squares of solid color that slide together from the top and bottom of the grid. Clicking on these venues links to pages containing additional information. Filling the entire grid are representative images that continually refresh with new images (Fig. 8-32).

Clicking "Exhibitions" (Fig. 8-33) links to a page containing submenus that list current and future exhibitions. These link further to descriptive information about each of the exhibitions.

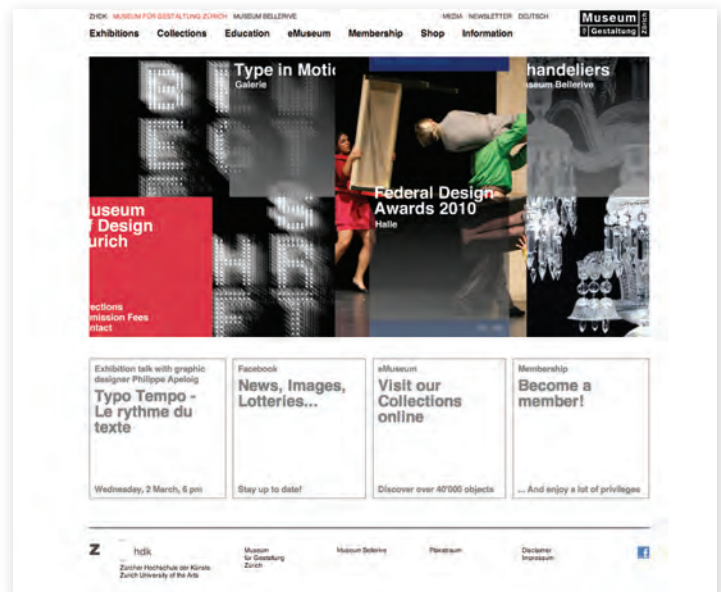
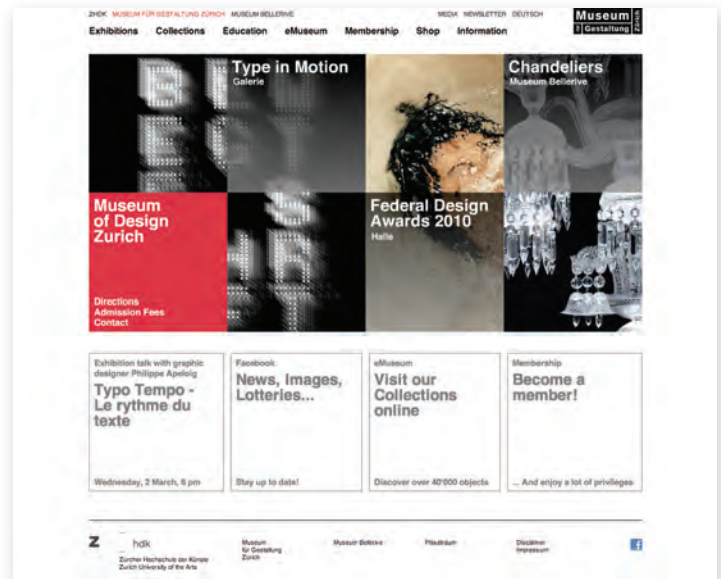
Clicking on "Collections" takes visitors to a page containing background information and links to the museum's collections, including the design, graphics, posters, and applied arts categories. At the top of each of these pages, a band of representational images can be viewed by scrolling through them (Fig. 8-34).

This is an altogether flexible interface, where visitors learn about the museum and retrieve information about events from a varied number of directions. Users can freely navigate between pages to learn about the museum or find the information they are seeking.

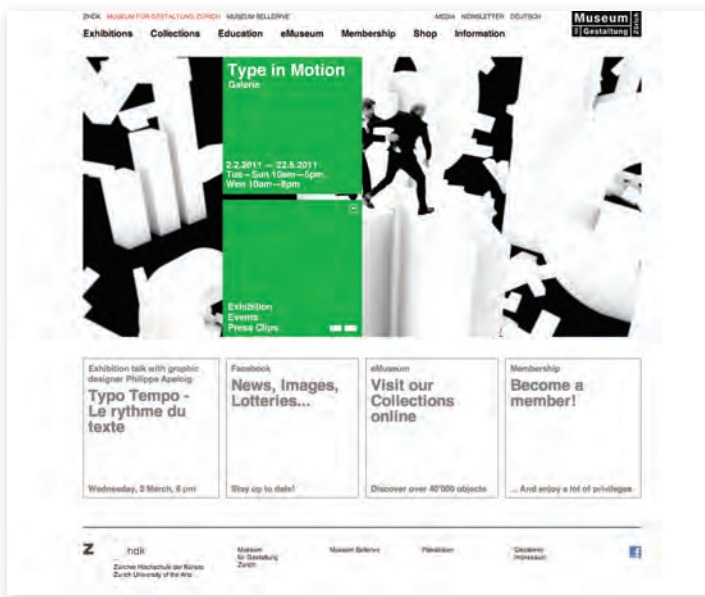
This kinetic and resonant site provides users with a lively, memorable experience and a virtual mini-tour of the museum and its collections.

The case studies on the following pages reflect the typographical, navigational, and aesthetic qualities associated with effective web page design and other digital, on-screen applications. These attributes include simplicity, typographic legibility, clear navigation, and adaptability to change.

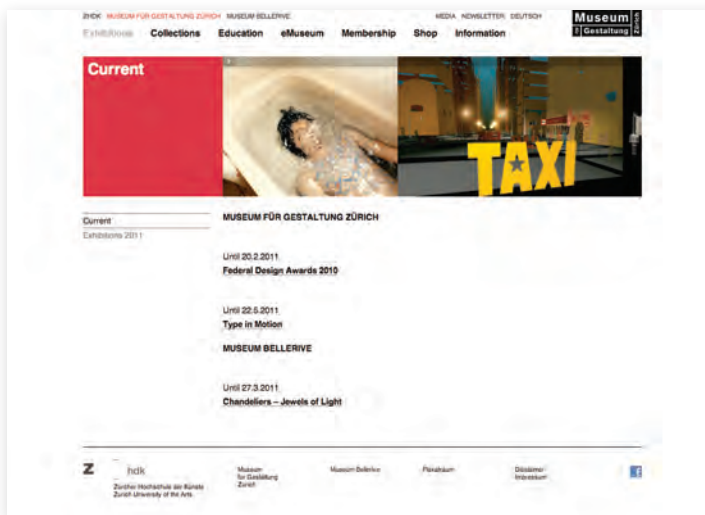
8-31



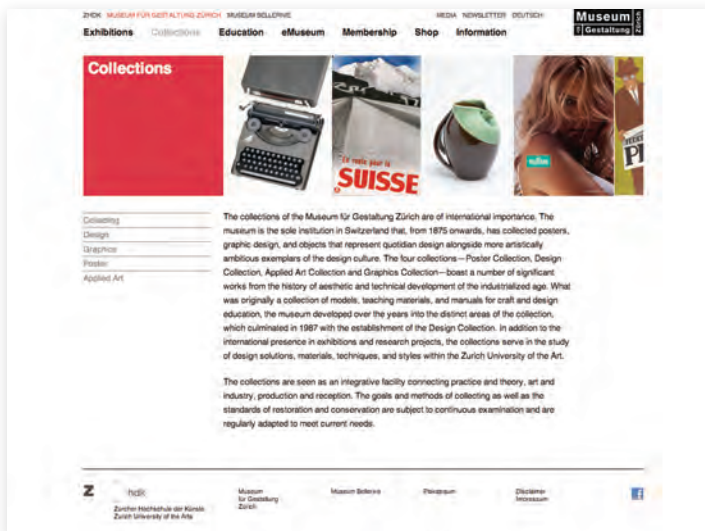




8-32



8-33



8-34

## CASE STUDY

### Helmut Schmid: Design is Attitude

Design of website: Students in the course SchmidToday, under Victor Malsy and Philipp Teufel, professors at Fachhochschule, Düsseldorf

The Helmut Schmid: Design is Attitude site (Fig. 8-35) reflects the results of the “Schmid Today” project, a three-year research project about the designer and typographer Helmut Schmid. The results of the project are an international exhibition; a book, *Design Is Attitude*; a documentary; and this website. Schmid’s prodigious work and career spans forty years.

After training as a typesetter, Schmid (b. 1942 in Ferlach, Austria) studied at the Basel School of Design under Emil Ruder, Kurt Hauert, and Robert Buchler.

The website reflects the essence of Schmid’s typographical work: an integration of clarity, functionality, and visual poetry. The Dutch designer Wim Crouwel has said, “Helmut Schmid ... his typography has rhythm ... it is created by the eye and resembles a musical score.”

After selecting a preferred language on the intro page, visitors enter the home page (Fig. 8-36) containing links to five content areas: on Helmut Schmid (Fig. 8-37), the archive, the exhibition, the book, and the sponsors.

This website is arranged as a simple tree structure, enabling visitors to further select options within subcategories.

After clicking on the archive, a random thumbnail collection of works from the archive emerges. From a submenu, viewers can select work displayed as lists of thumbnails from more specific categories, including medium, year, client, and collection. Clicking on specific thumbnails displays a larger image of the subject (Fig. 8-38).

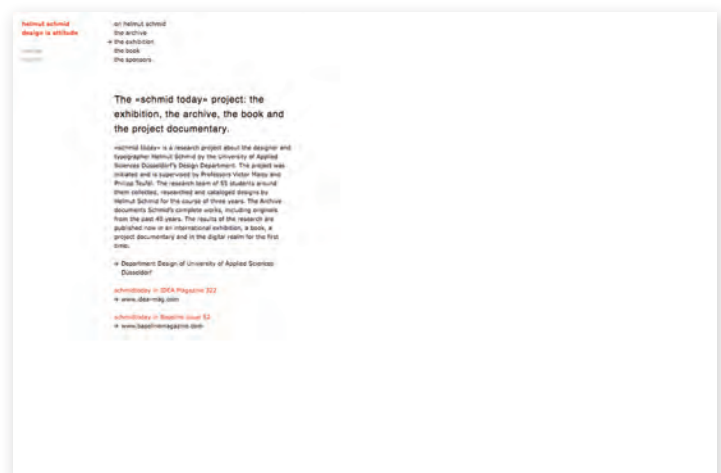
Text at the left of the page reveals facts about the object: title, object number, year, medium, format, color, and client. In the case of multicomponent designs, such as books, users can scroll through a representative selection of spreads and parts (Fig. 8-39).

Clicking on Search enables viewers to scroll through thumbnails of the entire collection (nearly five hundred images) presented in chronological order (Fig. 8-40).

8-35



8-36





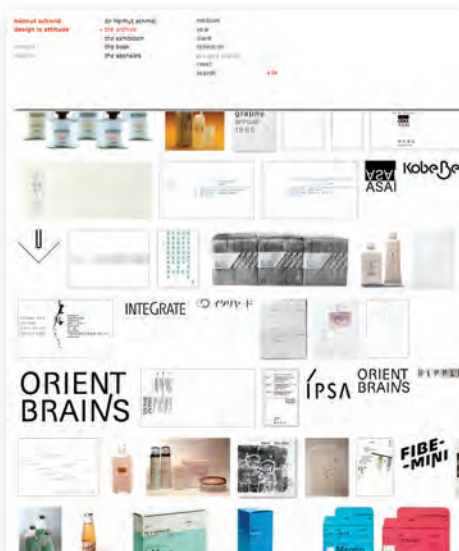
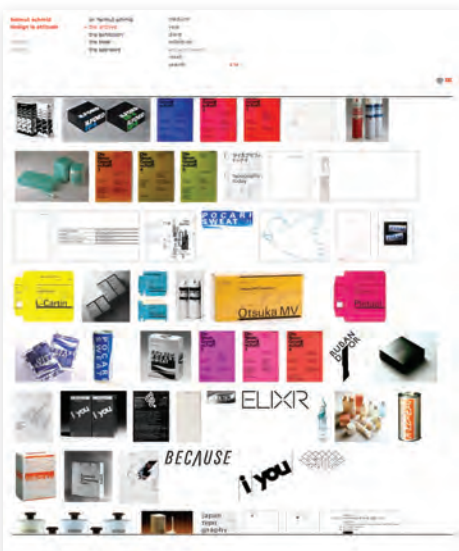
8-37



8-38



8-39



8-40

Design: Nicholas Davidson

This bold and direct website showcases the work of designer Nicholas Davidson. The site opens to a page containing a list of design projects set in large, tightly spaced capital letters. Set in Trade Gothic Bold Condensed No. 20, the scale and dense texture of this typographical listing makes it the most dominant element on the page, and its imposing presence invites visitors to explore the site (Fig. 8-41).

Clicking on the links opens image panels featuring examples of the projects (Figs. 8-42 and 8-43). This causes the remainder of the list to slide down the page, contributing to a resonant, kinetic effect. Clicking on additional projects opens new panels while closing previous ones. Activating the same link a second time closes a panel.

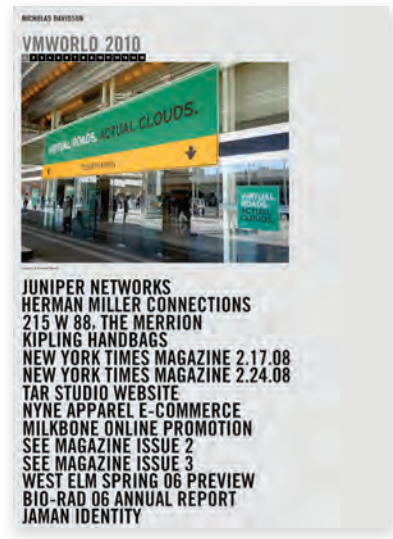
Clicking anywhere on an open panel slides the current image to the left, revealing the next in the form of a slideshow. Numerical tabs at the top of the panels enable visitors to explore elements of each project in any order whatsoever.

The interactivity of this website is appropriately functional, giving visitors the freedom to fluidly wander through Davidson's work and to examine its many aspects in detail.

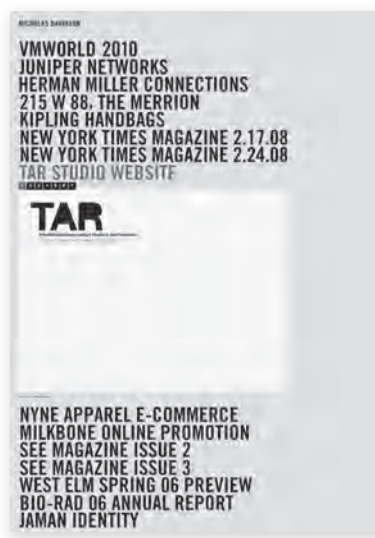
8-41



8-42



8-43



## CASE STUDY

### Martin Venezky's Appetite Engineers

Design: Philippe Vendrolini and  
Martin Venezky

8-44



This website introduces Appetite Engineers, Martin Venezky's San Francisco-based graphic design studio, and also entices visitors with a tasty and unforgettable visual treat.

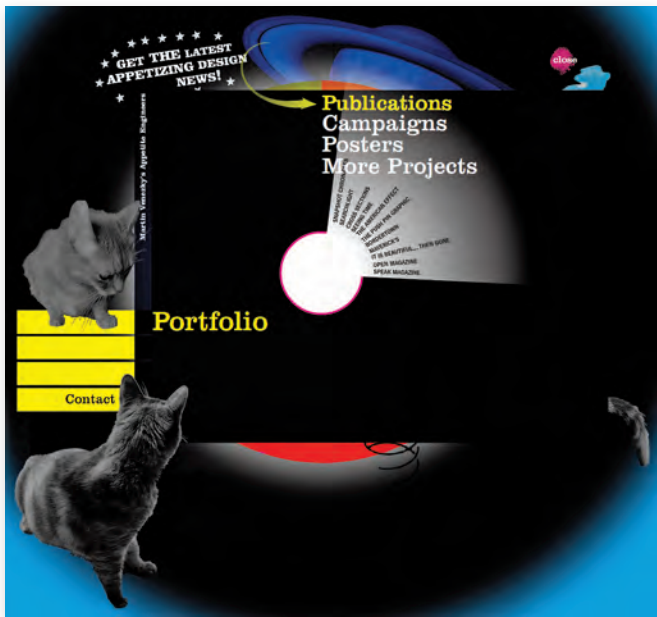
The splash page opens with a curious array of symbolic images appearing to orbit around a central sphere: the planet Saturn (search for the unknown), a collection of mischievous cats (curiosity), a baby (creative innocence), and a content menu (Fig. 8-44).

When clicking on main-menu links, kaleidoscopic transitions provide viewer entertainment and a sense of the studio's playful creative attitude. In one transition, a cat leaps into space to catch a spinning ball, while in another a typographic poster spins into view (Fig. 8-45).

The submenu "This is what we do" leads to a selection of project categories, and from there to specific projects (Figs. 8-46 and 8-47). The screen remains in constant flux as visitors navigate the site's pages (Figs. 8-48 and 8-49).

8-45

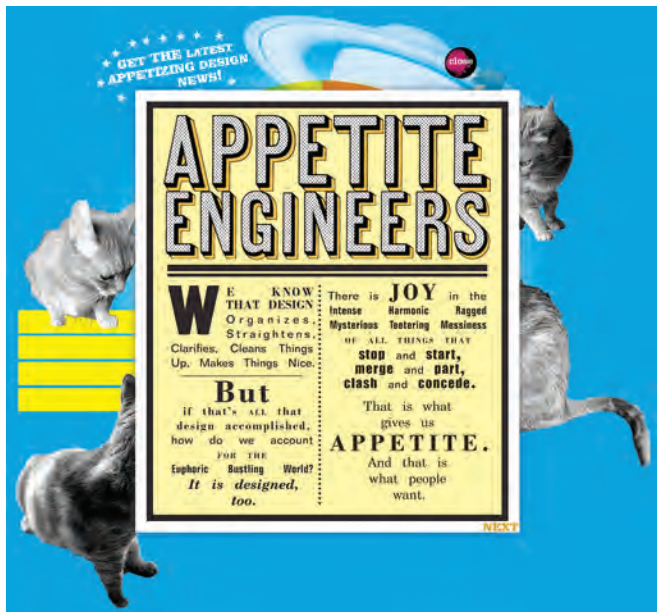




8-46



8-47



8-48



8-49

While motion can be simulated in printed works by means of repeated letterforms, uneven baselines, changes in direction, or inventive page formats such as flipbooks, kinetic typography gives designers the opportunity to communicate with behaviors or actions as well as with visual form. Time becomes the most significant structural element in the design, with the designer determining a sequence and pace for the message.

Beyond the basic considerations of typography, the designer decides *how* type moves and behaves, adding a “voice” to the message. Similar to listening to a person speak, type in motion can convey tone and inflection. And the pace at which the piece unfolds—quickly, slowly, or with dramatic pauses—establishes a mood. Moving type, coupled with sound and images, enables the typographic designer to explore narrative as a means of expressive communication.



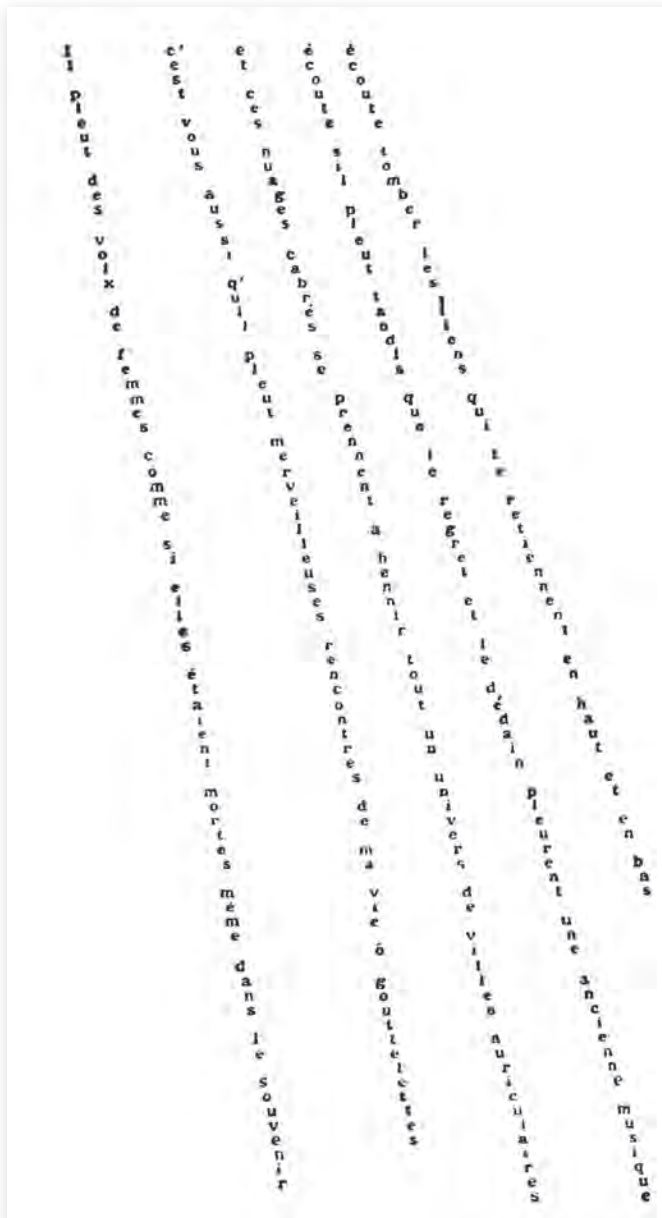
9-1 Film still from *Le portrait mysterieux*, 1899, by Georges Méliès.

Designers have always been interested in dynamic typography. Examples of animated letterforms appeared as early as 1899 in advertisements created by Georges Méliès, a French illusionist and filmmaker, who used multiple exposures and time-lapse photography in his work (Fig. 9-1). Around 1929, the Italian Futurists began challenging assumptions about how language could be expressed and interpreted by liberating words from traditional compositions and arranging them in dynamic ways. Filippo Marinetti explored the concept of speed and motion in books with type set on diagonal and vertical baselines (Fig. 1-125 and Fig. 6-2). Carlo Carrà made collages with layers of color and typography to communicate the changing nature of media and the fast-paced distribution of information (Fig. 9-2). And French poet Guillaume Apollinaire worked with “calligrams,” poems with words that move through the page to express a concept (Fig. 9-3). These revolutionary typographic forms continue to be influential to artists and designers wishing to express ideas with type in time and motion.



9-2 *Interventionist Demonstration*, by Carlo Carrà, 1914, puts type into circular motion with overlapping layers, shadows, and dynamic juxtapositions to give a sense of time and space.

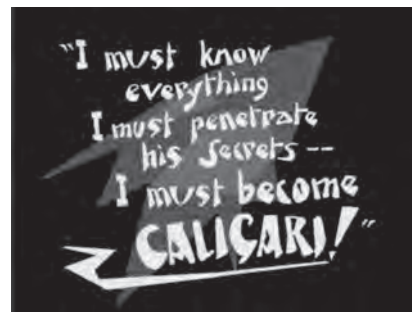




**9-3** "Il Pleut" (It's raining), by the poet Guillaume Apollinaire, 1918, is a "calligram" that composes words as raining letters.

The history of type in motion is most commonly linked to film title sequences. In silent films, intertitles were used to cue audiences to plot points (Fig. 9-4), and for many years simple title cards marked the start and end of a film (Fig. 9-5). Beginning in the late 1950s, designers were commissioned to introduce the themes and story lines of the films in more complex and communicative title sequences. Designers like Saul Bass and Maurice Binder shaped new ways in which typography might introduce setting and character in a film (Fig. 1-156). In Binder's work for the film *Charade*, a thriller starring Audrey Hepburn and Cary Grant from 1963, the type and credits merge with colors, arrows, maze shapes, and patterns, giving the viewer a hint of the twisting plot, fashionable Paris setting, and action (Fig. 9-6).

Today, kinetic typography is featured not just in film and television titles but in a wide range of digital media. Type in motion has the ability to draw in viewers and keep their attention with a cinematic, narrative presentation of a message. Designers use moving type in many projects, including websites, film titles, book and game trailers, data visualizations, and mobile apps.



**9-4** An intertitle card from the silent film *The Cabinet of Dr. Caligari*, 1920, uses expressive typography in keeping with the horror film's stylized sets.



**9-5** Title card used in the trailer for the film *Citizen Kane*, 1941.

9-6 Frames from the title sequence for *Charade*, 1963. The circling arrows visually convey the twisting plot of the film. (Designer: Maurice Binder)



Moving type offers unique communication opportunities because it has two properties: form and behavior. As with static typography, the designer chooses typeface characteristics (serif, sans serif, extended, italic, etc.), and how the type is set (lowercase, all caps, size, color, etc.) to add meaning to a message. With dynamic typography, he or she also determines how the type moves (pace, rhythm, with sound, etc.), relying on that action to communicate a mood, a context for the message, or a hierarchy of information.

For example, to make a word seem important on a poster, the designer may make it large, bold, and red (Fig. 9-7). In a motion sequence, the designer may also animate the large red type so it comes toward the viewer, increasing in size until it fills the frame (Fig. 9-8). To show significant years on an interactive timeline, a designer may indicate the dates with bold, all-caps text, and animate the numbers so they grow in size when a user hovers over them.

Another example of this kind of feedback is the subtle animations and transitions that guide users through mobile app and website interfaces. Readers rely on both what type looks like and how it moves to help them interpret the message.

**Time and sequence**

An understanding of the principles of animation and film broadens the potential for designers to communicate and create rich messages with type in time and motion. Like a film director, the designer is a storyteller and can control time, sequence, pace, and even sound to achieve different results. He or she can sequence content in a straightforward, linear way, with one event following another. Or, time can be manipulated by changing the order of the story or content using foreshadowing and flashbacks. As Jean-Luc Godard, the French New Wave film director, has said, “A story should have a beginning, a middle, and an end, but not necessarily in that order.”

In all cases, time becomes the structural element of the design and is enhanced by appropriate choices of typographic forms, images, movements, and sounds. Different structures and the rhythm of the action can set a mood and engage viewers by giving them cues as to what is going to happen next.



9-7 In this poster for an exhibition at P.S.1, a museum in New York, bold typography draws attention. (Designer: Level Design Group)



9-8 This motion sequence emphasizes the names of the artists in the exhibition by moving them toward the viewer and increasing their size over time. (Designer: Level Design Group)

## Structures

In the span of a motion piece, frames follow each other, revealing the message or story for the viewer over time. The order is important to how we decipher a message. We see one frame in the context of what came before it and what comes after it. The amount of visual information, and how it is composed in a frame in comparison to the frames that precede and follow it, gives the viewer cues for interpretation.

**Meaning and interpretation.** Designers can present an idea using a sequence to tell a story or communicate information in a very direct, explicit way called denotative meaning. If a visual idea is presented so that the sequence juxtaposes two or more images, words, or sounds in a way that encourages associations and communicates implicit meaning, this is called connotative meaning (see Chapter 6).

A designer can use the order of frames to convey symbolic meaning. In the language of film, this technique is called montage. A montage is a series of shots that combine into a sequence to condense space or time, or suggest a feeling or idea. Russian filmmaker Lev Kuleshov experimented with this

technique by cutting the same shot of an actor between varying images to elicit different emotions from the audience (Fig. 9-9). The director Alfred Hitchcock considered the montage one of the most important ways to impart meaning; he once said, “Cinema is simply pieces of film put together in a manner that creates ideas and emotions.”

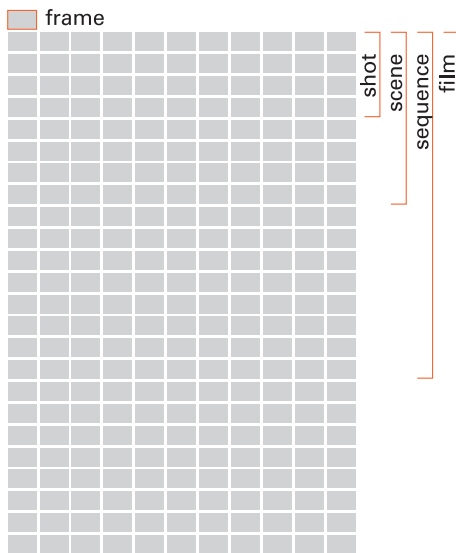
**Continuity.** The feeling that space, time, and visual elements are continuous helps bring clarity to a motion sequence. To maintain a viewer’s sense of orientation, it is important to establish visual links to what is happening from frame to frame. This is done spatially by maintaining the positions of major elements in the frame in each shot. In terms of time, a logical sequence with an event in one frame causing an effect in the next provides a sense of chronology. A third way to provide continuity in a motion sequence is to link segments using the same visual properties of line, form, color, or image from one shot to the next. For example, in a the sequence shown in Fig. 9-10, the camera zooms in to a yellow balloon and then cuts to a frame with a yellow letter *O* before zooming out to reveal the word *hello*.



**9-9** Around 1920, Russian filmmaker Lev Kuleshov discovered that audiences perceive an actor as hungry, sad, or in love depending on what image precedes the actor, even if it is the same shot. The technique that exploits this discovery is known as montage.



**9-10** Continuity within a sequence is here achieved by using the same color across several frames and repeating circular shapes to transition from image to type. (Designer: Sandra Maxa)



9-11 The parts of a motion sequence or film.

**Filmic syntax.** The syntax used in film is similar to that of language. In language, letters create words, words are put together to make sentences, sentences combine to form paragraphs, and paragraphs are linked to make stories or deliver information. In film, frames make up shots, shots make up scenes, scenes make up sequences, and sequences combine to create a story. An engaging book design enhances written language by creating pages that flow from one to the next, while time-based pieces rely on a visual relationship between frames, shots, scenes, and sequences (Fig. 9-11).

Designers use storyboards to visualize a narrative and show how elements in a sequence will move and change. They are used to sketch the relationship between frames, plan for continuity, and determine the pace at which action will unfold. The storyboard also helps the designer decide which frames will hold the most important content, which will contain points of drama or excitement, and which will be static or quiet. Like the use of white space or negative space in a poster design, adding a slow or quiet scene before or after a fast, loud scene will make the active scene seem more dramatic and impactful (Fig. 9-12).

9-12 Storyboards show the sequence of frames, indicating how a story will be told. In this example, quiet frames precede loud frames, adding emphasis to the action. (Designer: Erica Peterson)

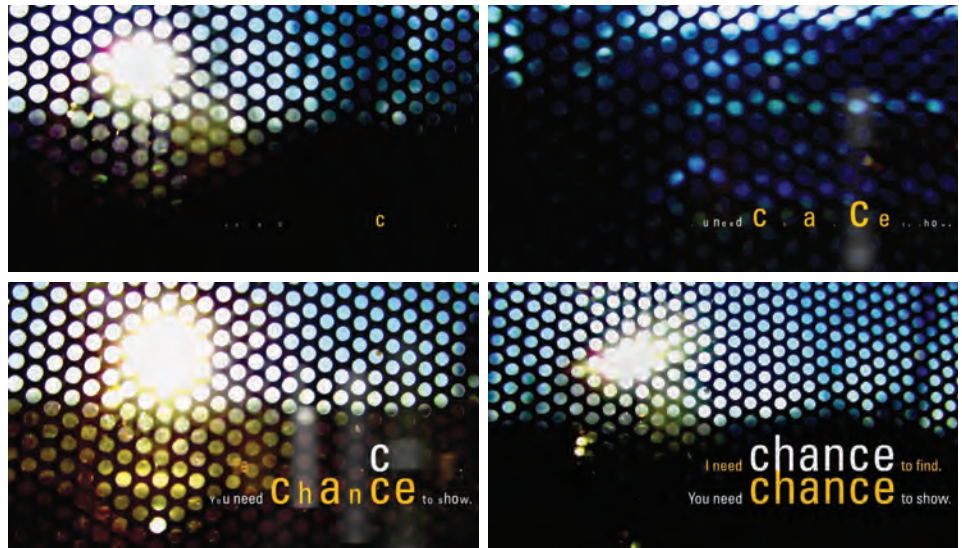


## Hierarchy

All good typographic design establishes a hierarchy of the content presented, whether it be the several levels of headlines, text, and captions that lead our eye through a newspaper or the simple hierarchy of a book index, with just single spaces between alphabetic sections. The size, color, and weight of a typeface help a reader determine what is most important. In addition, words that are set at the top or left of a page are usually read first. Designing type in motion uses these same components to create hierarchy, as well as others related to when type enters the frame (time) and how it moves within and out of the frame (behavior). Over the course of a sequence, elements are said to have “birth, life, and death.”

**Time.** Because of the linear structure of animation, the order in which type enters the screen can indicate significance to the viewer. We often perceive items that appear first or last as more important. For example, if one letter is fading up while another is fading out, the viewer will give more attention to the new word coming into focus (Fig. 9-13).

**Behavior.** The speed and juxtaposition of elements with sound also help create hierarchy. The speed at which words appear and disappear affects the amount of attention the viewer gives them. In addition, words that appear with a fast or slow motion that interrupts the established pace of the sequence are considered more significant (Fig. 9-14). Sound or music can also add emphasis to type entering a frame. If music builds in volume or intensity when a word enters the frame, that word will become more important than others that appeared while there was no sound.



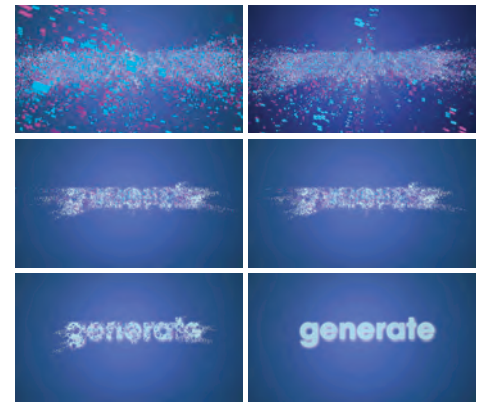
9-13 In addition to the large size and bright color of the word chance, the unusual order in which the letters appear give the word prominence. (Designer: Hong Wei)



9-14 Type fading up quickly on the left and right sides of the screen attract attention because it interrupts the established pace of the animation. (Designer: Hong Wei)

## HOW TYPE CHANGES AND MOVES

**9-16** In this sequence, small pixels build the word generate. The fixed position of the word helps the viewer perceive the passing of time as the word takes form. (Designer: Anna Bitskaya)



**9-15** In this interactive website, the position of the words thank you is fixed, but the letters transform by changing orientation, growing, or melting when a user moves the mouse. (Designer: Jason M. Gottlieb)

### Fixed position

**Variation.** In a motion sequence, type can change even if it does not move across the screen. The typography can remain the same while each frame shows a change in color or other formal quality. Likewise, a letter or word can remain in a fixed position while its visual attributes are altered. A letter or word can change in typeface, weight, width, slant, or size. It can change in color, value, or transparency. It can also change its shape through cropping, blurring, slicing, repeating, or adding dimension with shadow (Fig. 9-15). One more way a letter or word may change while remaining in a fixed position is if it is built up over a series of frames. This repetitive action can communicate a sense of passing time (Fig. 9-16). The possibilities for animated type, even without motion across the screen, are endless when more than one variable changes at a time.

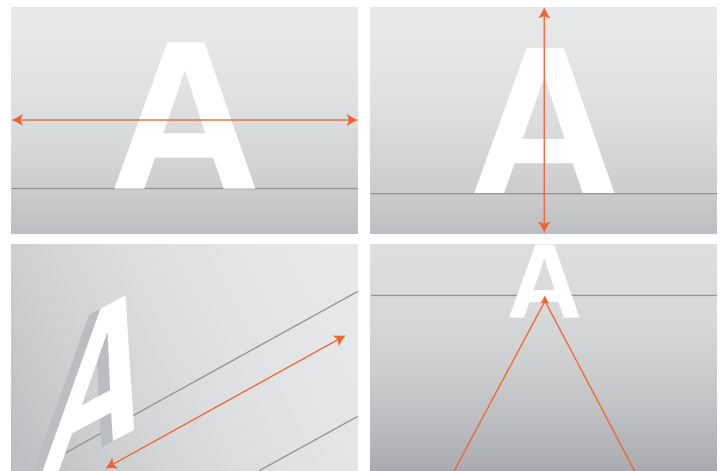
A technique called rapid serial visual presentation relies on a fixed position of typography. After the first frame, the words change quickly in sequence, about ten items per second, challenging the viewer to read the screen and building a sense of anticipation about the next word. In this technique, also called quick-cut editing, repetition is often used to ensure certain elements are remembered.



**9-17** In this image the camera was positioned high and to the left of the typography, showing the three-dimensional letterforms as part of the landscape. (Designer: Tiffany Small)

**Camera angle.** Another technique that allows the type to remain in a fixed position is altering the “camera” angle. While in most cases designers are not operating an actual camera to film an animation, this technique can be achieved through software. The perspective of the viewer is changed by moving the camera and giving different impressions. For example, dramatic angles give a stronger illusion of three-dimensional space, making typography part of the virtual landscape (Fig. 9-17). A camera angle can also affect how a subject is perceived. A high-angle shot can make the subject seem small or weak, while a low-angle shot can make the subject seem important or powerful.

**Camera movement.** In a motion sequence, the subject may remain fixed, while the camera movement changes the viewer’s perspective. Some terms used in motion design are borrowed from film and include *panning*, *tilting*, *tracking*, and *zooming*. In a panning shot, the type or subject is stationary and the camera moves from left to right. In a tilting shot, the camera moves up and down. In a tracking shot, the camera moves forward or backward through space, or parallel to the action. Zooming allows the camera to get closer to the subject over time (Fig. 9-18).



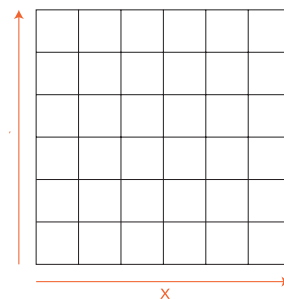
**9-18** In these examples, the subject, the letter A, is stationary, while the camera moves around it, panning, tilting, tracking, and zooming.

### The frame and space

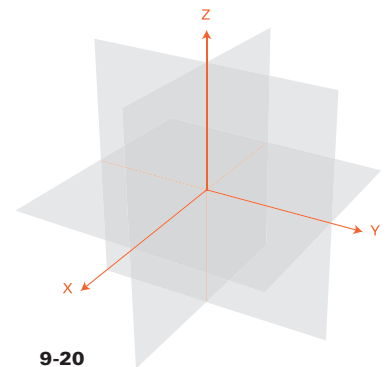
Designers in all media must consider the edge of a composition and how the type enters, exits, or is contained by the frame. Additionally, if letters, words, or images are moving, the frame acts as a constant reference point and becomes more important to how the viewer follows the animation and reads the message.

**Three primary axes.** A grid helps visually organize and group words or establish alignments. If viewers perceive there is visual organization, it can help them focus on the changes to the type over time. When thinking about how type can move or change, we start by noting the position at which it enters a frame. Position is noted on a grid that locates points on a two-dimensional plane with a horizontal x-axis and a vertical y-axis (Fig. 9-19). In addition, principles of three-dimensional space—point, line, plane, volume, and perspective—are important to time-based media because shapes have behaviors which are more apparent in three-dimensional space. A transverse z-axis locates a point in space, either in front of or behind the picture plane (Fig. 9-20). Once a starting position is identified, a designer plots a trajectory for the type and determines how it will move and change in the frame.

**Depth of field.** When working in three dimensions, principles of visual perception are used to create natural-looking movement. One principle, depth of field, states that objects that are farther away are smaller, lighter, and less in focus. Objects in the foreground are larger, darker, and sharper. Similarly, objects in the foreground move faster because they are larger, while images farther away move slower because they are smaller (Fig. 9-21).



**9-19**

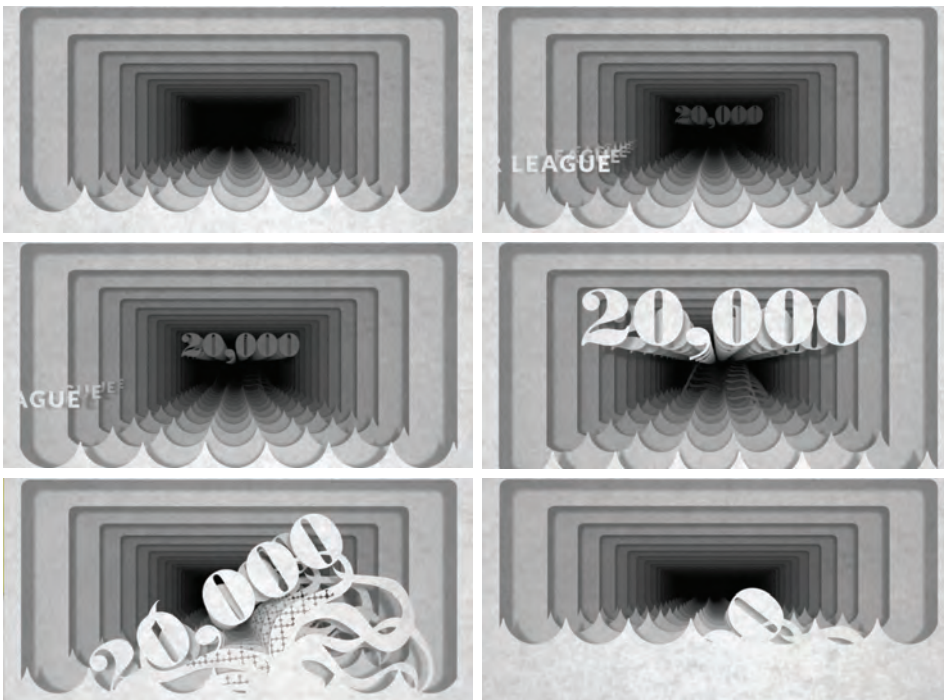


**9-20**





**9-21** This title sequence for the documentary film *How Democracy Works Now* shows type layered over still images and film footage, all moving at different speeds. The moving layers give the illusion of depth and communicate complexity. (Designer: Level Design Group)



**9-23** In this sequence, type comes toward the viewer from a vanishing point, giving a sense of three-dimensional space. (Designer: Jamie Carusi)

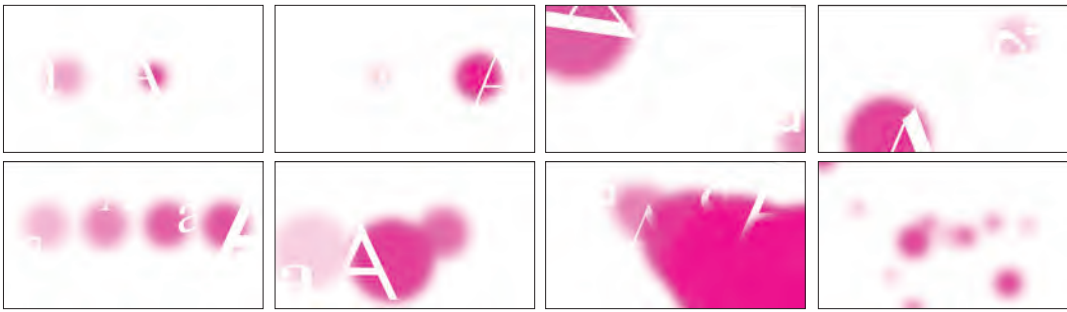
## Movement

A designer of a motion sequence establishes the way that type and other visual elements move. Behaviors can be regular, inconsistent, or in-between, depending on the message. This section provides preliminary considerations for animating type and other elements. More detailed information can be found in the book *The Illusion of Life: Disney Animation* by Ollie Johnston and Frank Thomas, which describes twelve basic principles of animation, including how objects move in space based on the laws of physics, and guidelines for timing movement.

**Direction.** There are many ways type can move between two points, starting with simple scrolling. Basic scrolls can move type in a single line from right to left, like the marquees featuring news headlines in Times Square (Fig 9-22), or from bottom to top, like traditional film credits. In addition to moving in horizontal and vertical directions, type can also rotate or move diagonally. If a three-dimensional space is established, type may move forward, toward the viewer, from a vanishing point in the background on the z-axis (Fig. 9-23). This mimics movement in physical space, similar to how a train comes into view from down the track.



**9-22** Scrolling type on a Times Square marquee moves from right to left.



**9-24** In this sequence, “Letter Beats,” dots appear repeatedly in sync with the pace of music and reveal the white letters. (Designer: Xiaozhou Li)

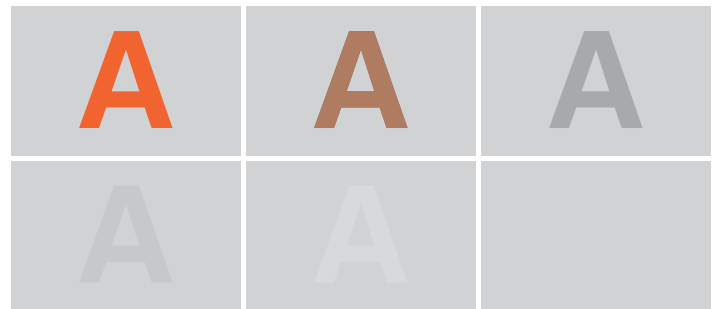
**Rhythm and pace.** A designer should consider the timing of a sequence and how typographic content or visual elements can establish a rhythm within it. Rhythm is an action, word, or image that is repeated at regular intervals in order to engage the viewer. The pace, or rate of a repeated element in a motion sequence over time, controls the speed that elements enter the frame. Often, music or repeated sound effects are synced with the appearance of type on screen to reinforce a visual pattern for the viewer (Fig. 9-24).

Effective use of rhythm and pace can set the tone of a piece. For example, if letters of a word march across the frame slowly, the tone may be perceived as serious or deliberate, while letters that appear quickly may communicate fun or urgency. Irregular rhythm is often used to demonstrate acceleration or deceleration or to exaggerate a motion.

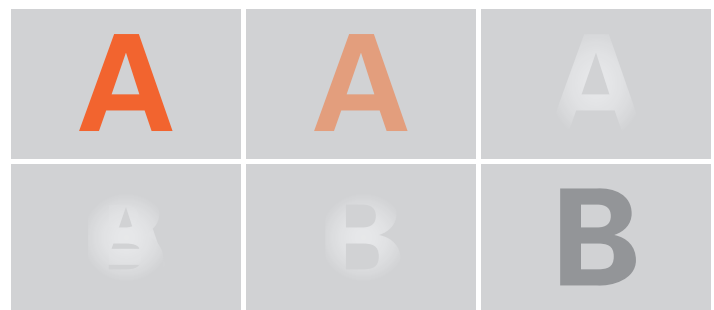
**Transition.** Transitions are used to indicate the change to a new scene, the passing of time, or different action with new text or visual elements. This can occur with a simple cut, a basic transition where one image is replaced by another (Fig. 9-25). Other transitions are more subtle and may be used to alter the viewer’s perception of time or suggest a mood. An example of this is a fade-out, in which a word gradually becomes lighter or darker to match the background so it disappears (Fig. 9-26). A fade-in is the opposite, with a word increasing in contrast with the background. Like a fade, a dissolve changes a word gradually, but instead of disappearing into a background, it transitions into a new word (Fig. 9-27). A wipe replaces one word with another word in a systematic motion, usually from left to right (Fig. 9-28). A designer may also create a sequence in which the viewer watches an entire transformation, including the in-between steps. There are many types of transitions where text or an image morphs from one state to another over time (Fig. 9-29).



**9-25** In a cut, one image is replaced with another.



**9-26** In a fade-out, an image gradually becomes lighter or darker to match the background.



**9-27** In a dissolve, one image fades out to reveal another image.

## LEGIBILITY FACTORS



**9-28** In a wipe, one image replaces another in a transition from left to right.



**9-29** In this example, a letter A morphs into a letter B.

Type in motion has the same legibility factors as static type. The characteristics of individual letters must have integrity so that readers can recognize their shapes. Typeface and size, case, letterspacing, and color all contribute to the ease and speed with which text is read. However, there are some additional guidelines for creating legible typography in motion.

**Length and grouping.** Because the designer sets the pace of linear animations, viewers cannot go back and reread text. In general, animating short sentences or phrases is better than animating long ones because the viewer can read the words on screen without getting tired. To aid in creating clear messages, consider what words or ideas belong together (thought-unit typography), and assign similar visual attributes and behaviors to them. This will help the viewer make connections and remember key text. Grouping words in a limited number of spatial zones on the screen helps focus a viewer's attention (Fig. 9-30). For example, if a pattern is established that repeatedly places text in the center of the screen, viewers will expect to see additional text there and will be able to focus on *how* an element is moving rather than *where* an element is moving, providing more clarity.

**9-30** This sequence accompanies a news story about Voyager 1 and Voyager 2 with units of typography designed to bring emphasis and clarity to the spoken voiceover. (Designer: Joshua Howard)



**Speed and duration.** The speed at which type enters a frame and the length of time it stays on screen can affect legibility. Fluid movement also makes an animation easier to watch and read. Using more frames will create more natural movement and greater legibility of type in motion. Equally important to movement on screen are pauses in the action. Allowing a viewer to take in all the changing variables the designer has created is important to clear communication. Pauses are used to create drama, building anticipation as the viewer waits for the next frame (Fig. 9-31). The designer is in control of how quickly type will be read, and the viewer has to follow text at the pace

the designer sets. This can be uncomfortable for some viewers who are used to static text, which allows them to read at their own pace and go back to reread text at any time.

Viewers of type in motion must take in a lot of auditory and visual information at once—text, images, movement, sound—and process the combination of signs into meaningful messages. Well-designed sequences show a careful balance of these elements in each frame, shot, and scene so as not to overwhelm the viewer. Appropriate timing of type in motion requires trial and error, and testing with audiences is encouraged to guarantee legibility.



**9-31** This animation about political conflict in Colombia is designed to make it easy for the viewer to receive information. Images and text are added gradually, and colored backgrounds cue the viewer to changes in tone. (Designer: Eduardo Palma)

Just as in two-dimensional typographic design, type in motion can employ expressive, abstract elements. With type in motion, the designer communicates through both the type's form and how it behaves. Animated type often takes on the qualities of a character in a story, and its actions may be playful, steady, dramatic, hesitant, frustrated, confident, and so on. Animated type helps visualize spoken language. It is most effective with short sentences or phrases, punctuating words and changes in how words are delivered, such as quickly, slowly, or with accompanying sounds. This layered visual communication is akin to tone or inflection used in conversation (Fig. 9-32).

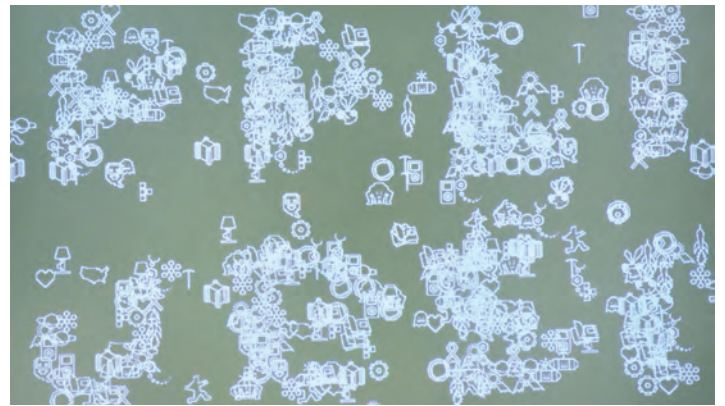
In addition, motion has a unique ability to show transformations. In a motion sequence, one letter, word, message, or idea often changes into another. Designers at the Museum of Modern Art in New York

created a moving, dynamic exhibition title wall in which icons of different works (Fig. 9-33) in the show move randomly and then come together to form the words *Applied Design* (Fig. 9-34). The animated projection orients visitors to the exhibition as they enter and visualizes the idea that design is responsive to change.

Thinking in terms of time and how a story or message builds over multiple frames can prevent the motion from overshadowing the meaning of the sequence. Additionally, there is expressive potential in juxtaposing type, image, and sound to create compelling sequences. Designing with type in time and motion offers a wealth of possibilities for enhancing a message, expressing thoughts, connecting with an audience, and providing a context for ideas.



**9-32** In this sequence, type placed above the actor connotes thoughts in his head. Type size, case, orientation, and position relative to the frame all communicate tone. (Designer: Angad Medi)



**9-33** Icons representing work in the Applied Design exhibition at MoMA in New York City are animated to form words. (Design: Tony Lee)



**9-34** On the title wall for MoMA's Applied Design exhibition, icons move randomly and then come together to form the title. (Designer and animator: Tony Lee; programmer: David Yen)

The case studies presented in this chapter describe specific typographic design problems encountered in professional practice: integrating type and image on posters, establishing a visual system to unify various materials, translating content to experimental form in publication design, thinking about typography in terms of time and motion, creating dimensional and environmental typography, analyzing and visualizing data, and developing a unique visual language for everyday events. The nature of each concept is analyzed, and the rationale for the solution is discussed, with the aim of showing the complexity of applied problem solving.

## CASE STUDY

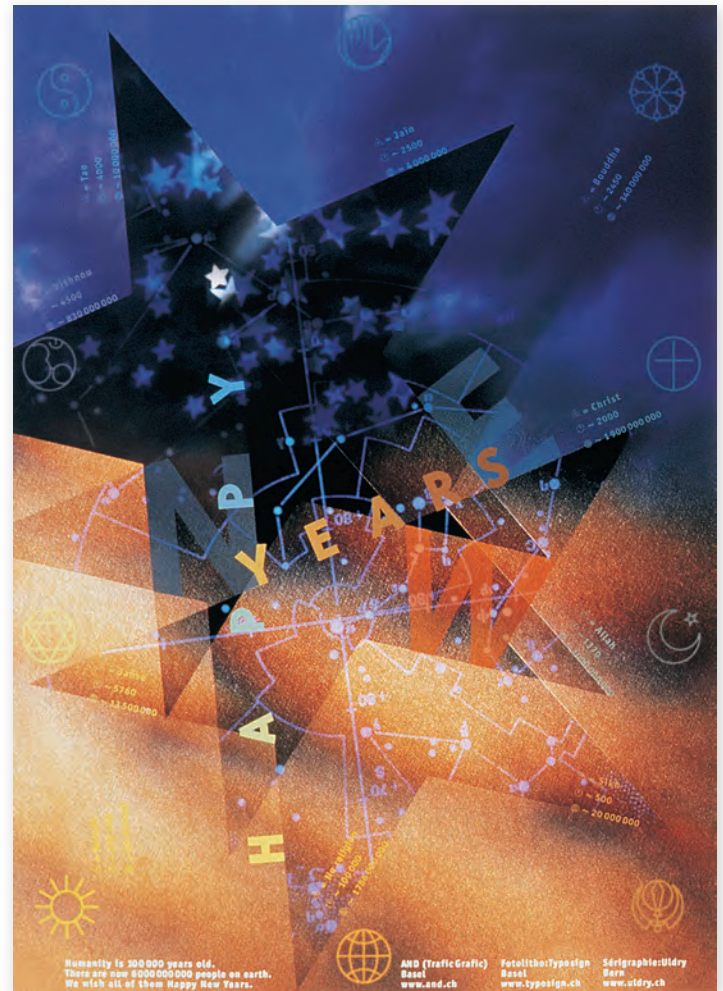
### Integrating type and image in poster design

A remarkable integration of type with image is found in posters designed by Jean-Benoît Lévy, who has a studio in San Francisco, California. Lévy collaborates with photographers, approaching their images as three-dimensional fields whose space is activated and extended by type. On the last day of class when Lévy was a student, teacher Armin Hofmann told him to place type *in* the photograph rather than *on* the photograph. Lévy says, “From that moment on, I knew what to do.” In his inventive designs, words and images become a unified composition.

The large star in a “Happy New Years” poster (Fig. 10-1) for the Basel studio AND (Trafic Grafic) conveys a sense of energy and motion through repetition on a diagonal axis. The background transition from orange to blue signifies earth to sky. *Happy* aligns with the two white stars, unifying the type and background. The sky is signified in three ways: symbolic stars; a photograph of clouds; and the lines and dots of a star chart. Subtle symbols of the world’s major religions, and small type identifying each religion’s deity or founder, date, and number of adherents, add another level of meaning in the bold celebratory message.

Grid structures for graphic designs are often implied, but in a poster (Fig. 10-2) for the fashion store Inflagranti, the horizontal and vertical pattern of window blinds superimposed with a double portrait of a fashion model provides a visible structure of the placement of type. The translucency and graded tones of the vertical store name echo the translucent portrait and blended tones of the blinds, further uniting word and image.

The curved forms of watch parts, their shadows, and watch-face numerals were photographed in atmospheric space for a Montres et Bijouterie Bosch watch and jewelry store poster (Fig. 10-3). Widely letterspaced type set in arcs reflects the curves in the photograph. Color is used to create harmony, with the yellow, white, and orange letters repeating the photograph’s warm tones in contrast to the predominantly gray background. Lévy says the orange dots from the text signify seven planets, with the sun in the exact center.



**10-1** Alignment of the type along the angled edges of the stars unifies word and image. (Designer: Jean-Benoît Lévy; photographer: Tom Wedell)





**10-2** Three different type sizes and amounts of tracking creates variety, while using the same typeface brings unity to the design. (Designer: Jean-Benoît Lévy; photographer: Jean-Pascal Imsand)



**10-3** The simple geometry and spatial dispersion of the type echoes these qualities in the photograph. (Designer: Jean-Benoît Lévy; photographer: Franz Werner)

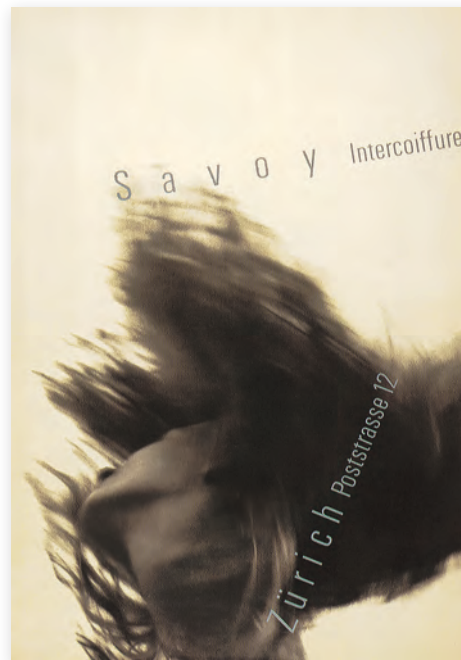
For the Savoy Intercoiffure hair salon poster (Fig. 10-4), Lévy used a photograph shot from a low viewpoint of a woman moving her head, causing her hair to fling about in a blurred shape. The photograph was carefully cropped to bleed on the right side and bottom, making a dynamic dark shape against the soft flat background. Two diagonal lines of condensed sans serif type are a sharp contrast to the blurred shape. One line links the top and bottom of the head, while the other links the top of the hair to the edge of the poster. The first word in each line is larger, and the tracking is increased for emphasis.

*Markt Blatt* is a free newspaper of advertisements in Bern, Switzerland. A sidelit man (Fig. 10-5) reads the paper against a warm yellow background. A trapezoid of light becomes a symbol for the process of reading, connecting the reader's eyes with the printed page. Alignment of the typography with the diagonal of the newspaper page and the horizontal and vertical edges of the poster creates a structured relationship. By making the type on the photograph yellow and the type on the background white, further integration is achieved. The bold and light type, and overlapping of the two words of the title, produce an arresting visual element.

In a poster (Fig. 10-6) for the Labyrinth bookstore in Basel, the maze or labyrinth appearing on the poster reinforces the store's name. Lévy carefully drew his complex labyrinth in pencil on a modular grid. The soft pencil tones bring warmth to the rigid geometry. This labyrinth can actually be solved by a viewer standing at the poster kiosk.

A photograph of a young man reading a book is superimposed over the labyrinth. "Reading," Lévy says, "is like entering a labyrinth." The organic properties of the human image provide contrast to the stark geometry of the labyrinth, softening and enriching the poster.

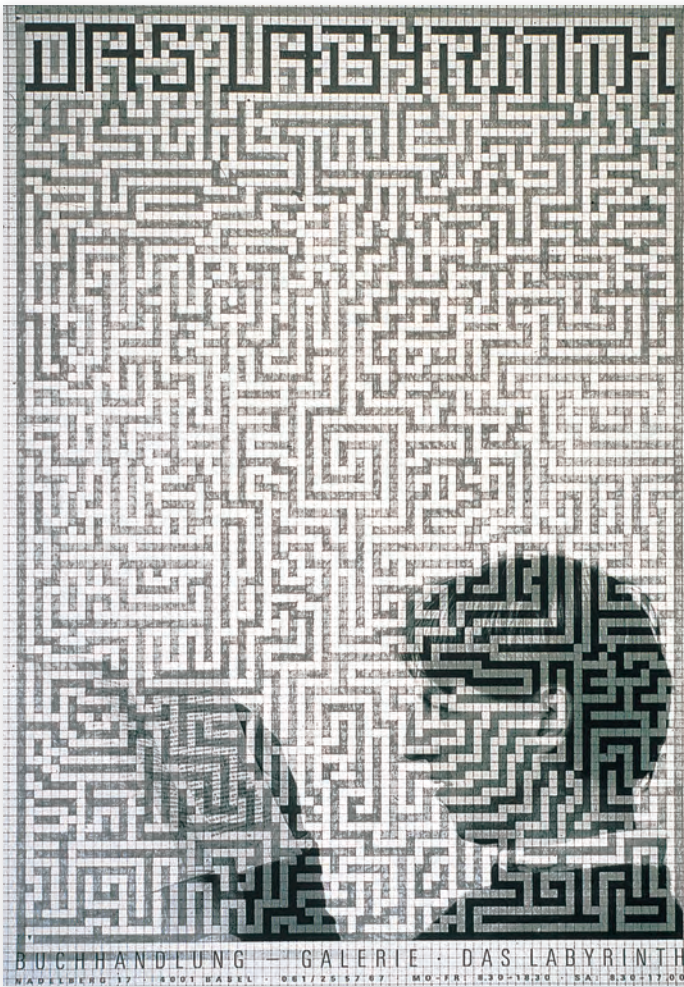
In a subsequent poster (Fig. 10-7) for the Labyrinth bookstore, Lévy created an image of a three-dimensional labyrinth moving back into space. This compelling image fades back into an out-of-focus, tightly cropped photograph of a reader. The letters that spell out the store's name hover in space over the labyrinth; their openness and transparency echo its edges and open channels. As in Lévy's other posters, a dynamic integration of word and image is achieved through unexpected and original compositional relationships between pictorial and typographic forms.



**10-4** By making the x-height of the larger words the same height as the smaller words, a strong visual relationship is maintained. (Designer: Jean-Benoît Lévy; photographer: Jean-Pascal Imsand)



**10-5** Lévy carefully retained enough of the overlapped letters to ensure their legibility. (Designer: Jean-Benoît Lévy; photographer: Alexandre Genoud)



**10-6** Across the top, eight rows of modules are filled in with a darker pencil tone to spell the bookstore name in geometric letterforms. The condensed all-capital sans serif type at the bottom of the poster is two modules tall; this unifies with the labyrinth. (Designer and photographer: Jean-Benoît Lévy)



**10-7** The letters of the bookstore name were executed in outline slab serif letterforms that are drawn to conform to the horizontal, vertical, and diagonal movements of the labyrinth image. (Designer and photographer: Jean-Benoît Lévy)

## CASE STUDY

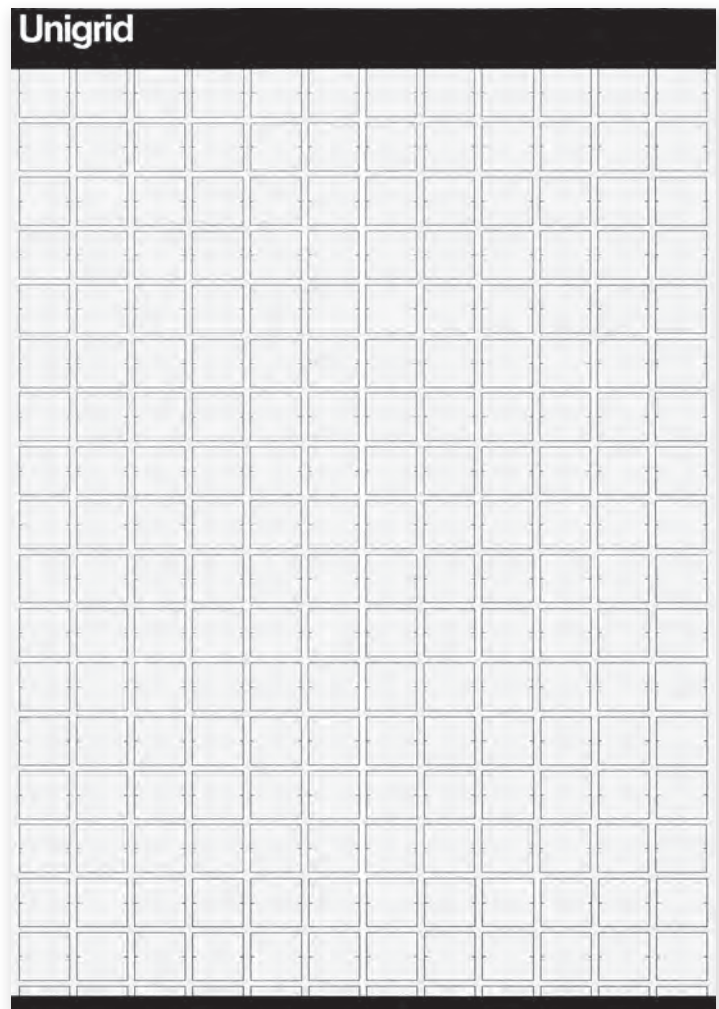
### The U.S. National Park Service Unigrid system

The United States National Park Service (NPS) began developing the Unigrid system in 1976 as a design system to unify the design of hundreds of site folders, while bringing harmony and economy to its publications program. Unigrid (Fig. 10-8) is based on a sheet 420 by 594 millimeters (about 16.5 by 23.5 inches), which folds into twelve panels that are 99 by 210 millimeters (about 4 by 8.25 inches). Ten basic formats (Fig. 10-9) can be derived from the Unigrid, ranging from one-panel leaflets to twelve-panel foldout broadsides. Each side of a folder is treated as a unified graphic surface that is completely unfolded by the user, just as one fully opens a map. The fold lines and the panels they create become background rather than a dominant structure, because the typical user quickly unfolds it to its full size; users rarely open a folder panel by panel. These standard formats permit great production economy because paper can be purchased in volume in two flat sizes or in web rolls. Most folders are printed in five of the available formats, further simplifying planning.

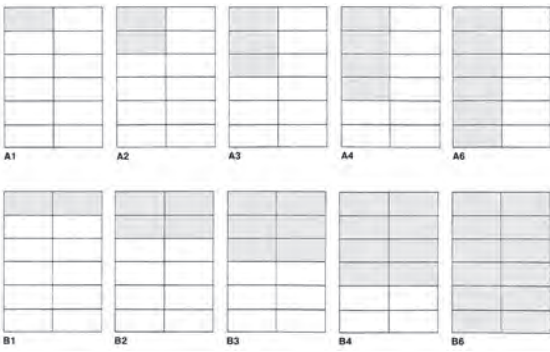
Grid modules for the folder formats measure 7 picas wide and 80 points high. Vertical spaces between modules are 1 pica wide; horizontal spaces between modules are 10 points high. Horizontal measurements are always made in picas, while vertical measurements are always made in 10-point units or modules. These spatial intervals provide a structure for organizing type, illustrations, photographs, and maps into an orderly whole.

Helvetica was selected as the type family for the Unigrid system because of “its crisp, clean details and typographic texture that make it aesthetically pleasing and easy to read.” It was also determined that Helvetica would strengthen and unify the NPS map series that accompanies the folder program. Other considerations are Helvetica’s clearly defined hierarchy of sizes and weights with predictable results, large x-height with good line strength and consistent color, and outstanding printing characteristics. Text type is usually set in 8/10 or 9/10 Helvetica or Helvetica Medium in columns two or three modules wide (15 or 23 picas wide, measuring two or three modules plus spatial intervals between them).

Text type is often justified, and columns are aligned top and bottom to create horizontal movement. Sometimes the last column will run short. One line space, rather than an indentation, is used to separate paragraphs.



**10-8** The Unigrid was created by Massimo Vignelli (consulting designer), Vincent Gleason (art director), and Dennis McLaughlin (graphic designer).



**10-9** Ten basic publication formats are derived from the Unigrig structure.



**10-10**

**10-10 and 10-11** Copy the Unigrig in Figure 10-8 onto transparent material and place it over these folders to study the underlying structure of the designs.

Captions are set one or two modules wide (7 or 15 picas wide) in 7/7, 7/8, or 8/9 Helvetica Regular or Medium, and may be either roman or italic. This variety of weight, posture, and leading provides flexibility to create a value and texture that complements and contrasts with other typographic and pictorial elements. Captions are set ragged-right, and this helps create a strong separation between text and captions, as do contrasts between text and caption textures, weights, and line lengths.

Major display type can be set in 12-, 18-, or 24-point Helvetica Medium and is often positioned 10 points above the related text on a horizontal band of white space, frequently 40 points high, running above the text. The variety of display sizes gives the designer the flexibility needed to create appropriate scale relationships between display type, the size of the folder, image sizes, and density of text type. The margin below the text type is always a spatial interval at least 20 points high.

The cover panels of all folders have a 100-point black band that bleeds at the top and on both sides (Fig. 10-10). Titles reverse from this bar and are set in standard sizes of Helvetica Medium for park names with fewer than twelve letters. When site designation and location appear reversed from the black bar, these are set in 12/14 or 8/9 Helvetica Medium and align on the seventh grid module. Service designations are the same size and align on the tenth grid module. Cover panel type is always positioned 10 points down from the top edge of the band. This horizontal black band with its standardized title type becomes a consistent visual identification device for the National Park Service.

Horizontal movement is accentuated through the placement of the type, the horizontal margins, and internal bars that divide the space into zones of information. These bars are 25 points wide and correspond to the title bar. They may be complementary colors, contrasting colors, or black. One bar is always placed across the bottom of the folder. Display type is sometimes reversed from the bars.

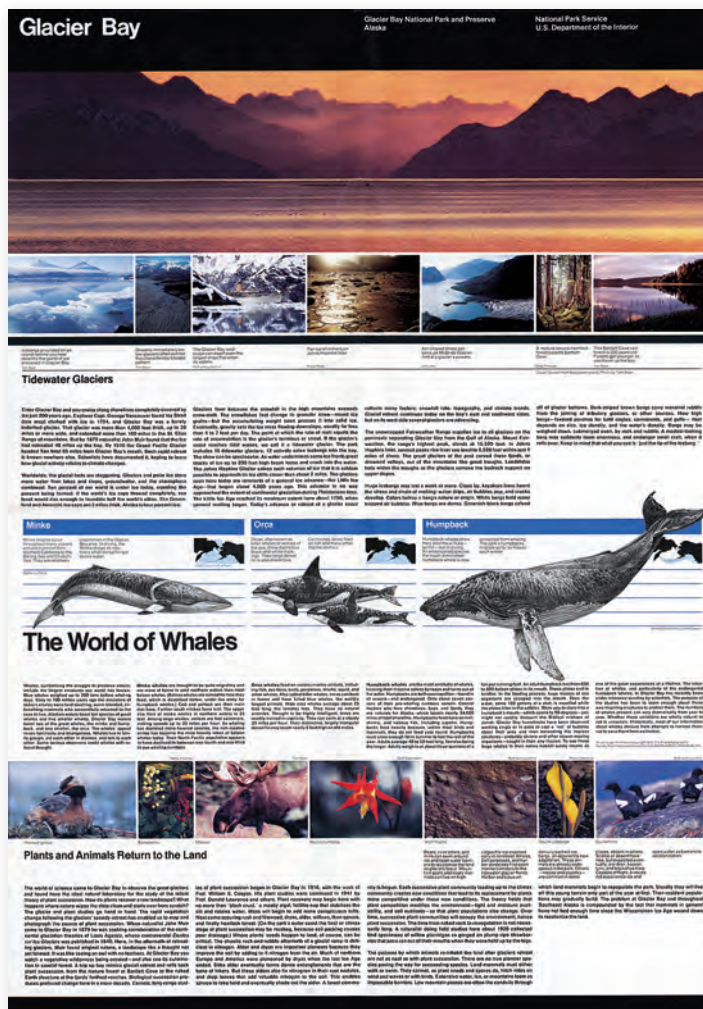


10-12 The black bars and consistent typography on folder covers become a visual identification.

The Unigrad system emphasizes clarity by clearly separating the elements (Figs. 10-11 and 10-12). Type seldom overlaps images, and maps are not obscured by picture inserts or overlaps. Neutral grays and beiges, used to create backgrounds behind text areas or unify groups of images, are part of a standard palette of twenty-four colors, created from four-color process inks and a limited selection of secondary colors. This color palette creates continuity between various park publications.

Standardized formats and typographic specifications enable National Park Service designers to focus on content and design, rather than developing formats and specifications for each project. The Unigrad system is flexible, permitting unique solutions appropriate to specific messages, while leading to consistent graphic excellence and a unified visual identification.

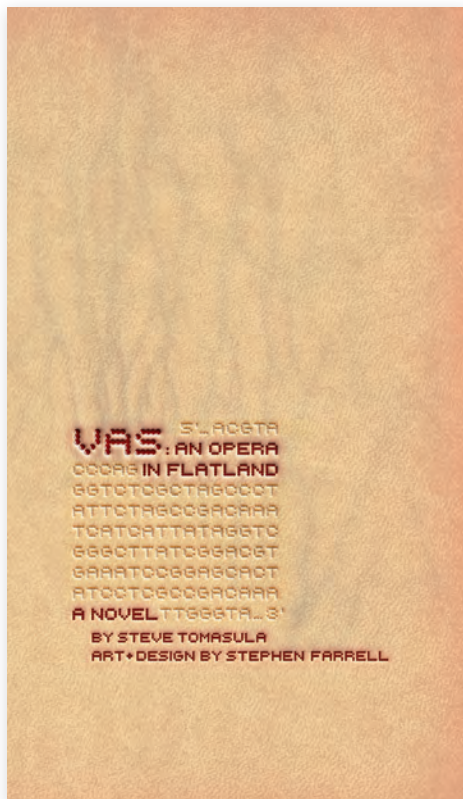
Massimo Vignelli was the inventor and consulting designer for the Unigrad system. The program gained its vitality because the original design team remained intact over the first dozen years, and included Vincent Gleason (art director), Melissa Cronyn, Nicholas Kirilloff, Linda Meyers, Dennis McLaughlin, Phillip Musselwhite, and Mitchell Zetlin.



10-11

## CASE STUDY

### Book design: *VAS: An Opera in Flatland*



**10-13** On the cover of *VAS*, a system of veins meandering beneath flesh introduces readers to an epic story about the human body. The book's title, bleeding blood red, emerges from a detail of DNA data.

Coauthored by Steve Tomasula and Stephen Farrell, and designed by Stephen Farrell, *VAS: An Opera in Flatland*, provides an uncommon, multimodal reading experience. A plethora of texts and images combine to reveal dynamic layers of subtexts and expanded narratives. “Authoring” *VAS* evolved more as a process of structuring and organizing masses of ideas and information than of weaving a linear tale.

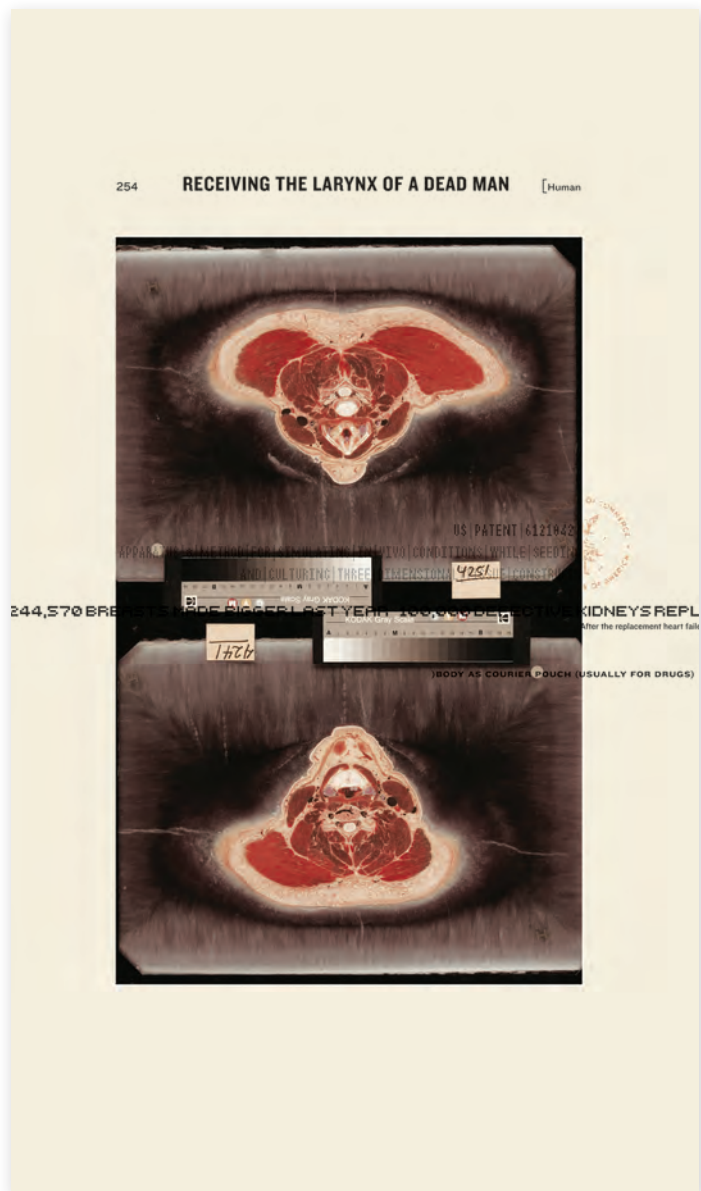
Combining the processes of writing and design, the authors worked as a team for a period of six years to juggle research and source material, bits of writing, raw manuscripts, design concept sketches, and developing spreads. Based on a leapfrog method of writing, designing, and researching, the book was built from the inside out: the subject matter provided the generative mechanism—the material, the guidelines, and the constraints—for the book's organization and structure. The result fuses subject matter with literary and typographic structure into an expansive work of 370 pages.

The authors scoured material sources from popular, literary, and scientific arenas, both classic and contemporary. Raw materials included evolutionary biology and anthropology books, eugenics books, government databases, chromosome charts, genetics supply catalogs, Internet plastic surgery and egg donor sites, medical books, doll catalogs, and many other sources accumulated over several years. Some materials were used unaltered as “evidence,” some were deconstructed and reconstituted, and others were used as structural frameworks. The authors also generated many of their own images and illustrations.

The book's subject matter involves the general theme of human biology. But more specifically, the text-image novel explores the myriad ways in which the human body is represented in words and images, and how these representations shift the way we see, perceive, and relate to our bodies (Fig. 10-13).

The book's protagonist, Square, is a writer married to Circle. He considers having a vasectomy, but, having doubts about the procedure, he traverses the realms of science, medicine, bioengineering, and information technology, pondering the ways in which these domains reveal aspects of the human body through graphic and literary portrayal (Fig. 10-14).

Square focuses on one biological aspect in particular: DNA, the engine of life on earth. But the phenomenon of DNA is too small and too complex to depict in its reality. Square observes science, continuously abstracting it, analogizing it, reframing it, and repackaging it, each incarnation offering a new representation of DNA.



**10-14** A page revealing the essence of *I*, a story about how we represent our biology and how these representations allow us to see our bodies, think about them, and manipulate them in various ways.

Farrell further explains, “DNA’s most frequented analog is a string of letters that casts our genetic selves as a piece of writing, a grand text, a magnum opus that science has dubbed ‘the book of life.’ Through this analog, a human body is suddenly a stream of text, a living novel, a reference guide and technical manual, a printing press running off copies of itself, an agglutination of letters that, when sequenced, form flesh and blood. The genome is a raw manuscript with stories of longevity or disease, chemical balance, sexual development, the acquisition and loss of motor skills and language—a many-layered story which a body acts out and carries to conclusion.”

While reading *VAS*, one comes to realize that the concept of DNA and the popular analogy of DNA as a long text chain provides both the subject matter and structural framework for the book. *VAS* draws together this language model and the double helix model of DNA to build the book’s narrative structure and its compositional and typographic structure (Fig. 10-15).

A symmetrical five-column grid of hairlines running vertically through the pages stands for the unwound DNA scaffold of the double helix (Figs. 10-16 to 10-18). Readers feel as if they are traveling a tiny stretch of genome and reading its contents. Three layers of historical, ontological, and narrative text threads assigned to the scaffolding cascade down the pages in a coiled sequence mimicking DNA. This grid provides the armature that adheres the texts and constrains them to discrete horizontal positions. This grid slips into other guises throughout the book: the lines are hair, a scalpel’s path, suturing thread dipping in and out of flesh, a musical staff.

In one spread, the lines swirl into flight patterns of moths to a flame, light rays plotted in curved space, Galileo’s telescope, and an abstract plot of normal vs. mentally ill children. Quotes from influential scientists, government officials, famous authors, and the like pierce the DNA strand with ideologies, each given the authority of an encyclopedic tab.

In *VAS*, fonts make flesh, and print technologies are analogous to body technologies where materiality of the body and materiality of the body of the text become one. Readers become fully immersed in a book printed in three colors: black, flesh, and blood.

(Farrell actually matched the red to a drop of his own blood, and the “flesh” color to Crayola’s discontinued “flesh” crayon, which happens to be a very close match to 3M’s official designation of “flesh” for their medical supplies.)

Three dominant typefaces were selected for the three dominant voices of the book: Clarendon, Univers, and Cholla. Many accent faces were also used, including Synchro, Fell, Winchester, and Comic Sans. The choreography of the texts and the palette of typefaces provide a sense of coherence, intelligibility, and narrative pacing to the disparate and interlocking narrative fragments.

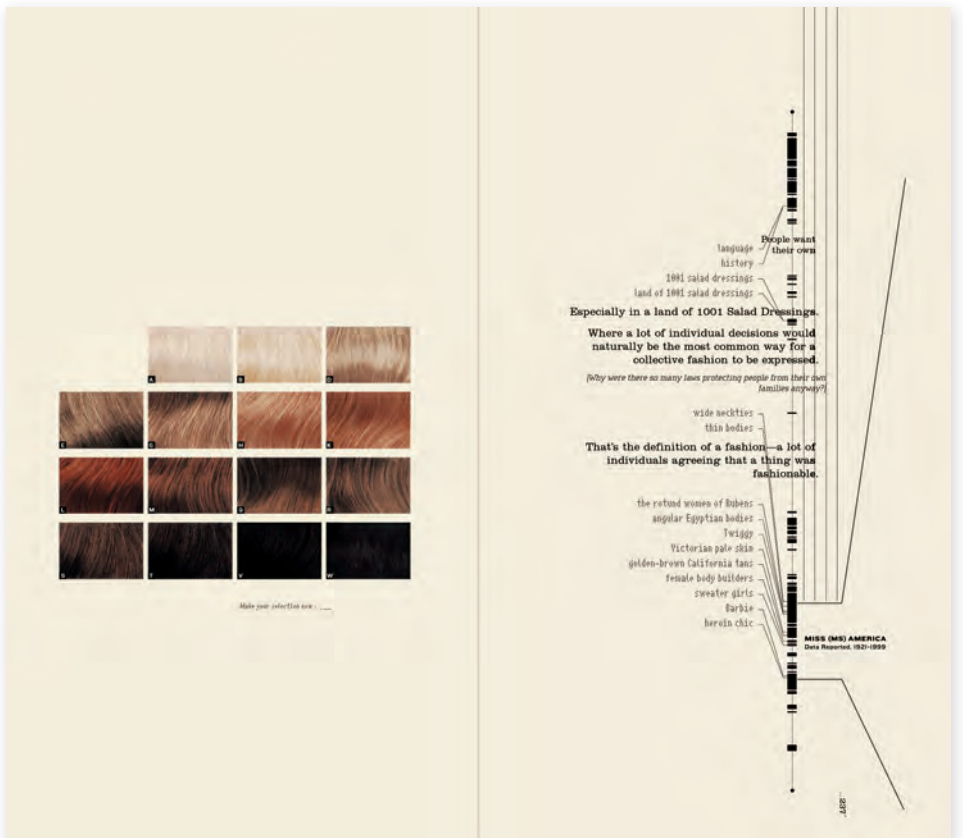




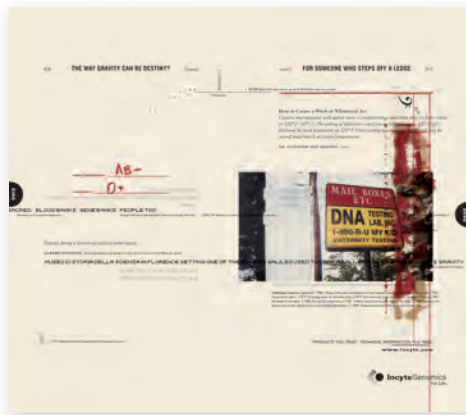
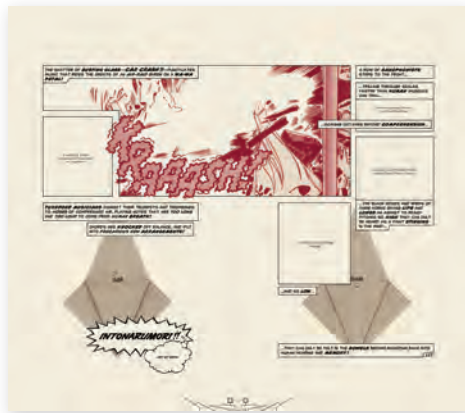
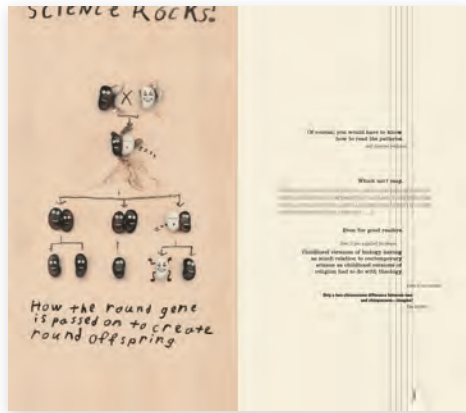
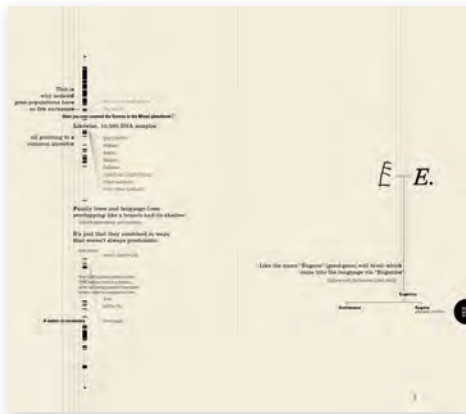
10-15 A page showing the typographical (analog) structure of the book, a “double helix” armature consisting of five vertical hairlines.



10-16 The grid lines as DNA strand provide the structure for interpenetrating text and images. The grid lines transform into a suture, visually piercing the page as if piercing skin.



10-17 A sample spread reveals an intricate typographic structure, a DNA armature where texts of multilayered content and typographical expression spin downwardly as part of a greater, all-encompassing story.



10-18 A range of spreads reveals the breadth of typographic expression and the intermingling of texts and images within the governing structure of DNA.

**CASE STUDY**  
**Typographic film titles**



**10-19** Title sequence for the film *Superman*. (Designer: Richard Greenberg)

Referring to a movie advertisement that used letterforms “painted by light,” typographic historian Beatrice Warde wrote, “After forty centuries of the necessarily static Alphabet, I saw what its members could do in the fourth dimension of Time, ‘flux,’ movement. You may well say that I was electrified.” Through advanced animation and computer graphics techniques, graphic designers are transforming typographic communication into kinetic sequences that might almost be called “visual music.”

Richard Greenberg has distinguished himself as a leading innovator in graphic design for film titles, movie previews, special effects, and television commercials. He considers film titles to be a “visual metaphor” for the movie that follows, setting “the *tone* of the movie. You have to take the people who have just arrived at the theater and separate them from their ordinary reality—walking onto the street, waiting in line; you bring them *into* the movie. You want to tell them how to react: that it’s all right to laugh, that they are going to be scared, or that something serious is going on.”

In the titles for the Warner Brothers film *Superman*, bright blue names and the Superman emblem streak through space like comets, stop for a moment, and then evaporate into deep space (Fig. 10-19). The speed and power of this film’s fantasy superhero are evoked. This effect is accomplished by tracking rear-illuminated typography in front of an open camera lens. Each frame captures a streak of light that starts and stops slightly before the light streak recorded on the next frame. When shown at twenty-four frames per second, this series of still images is transformed into a dynamic expression of zooming energy.

For the Warner Brothers movie *Altered States*, the title sequence opens with a wide-angle image of a researcher in an isolation tank (Fig. 10-20). Superimposed over this image, the two words of the title—transparent, as if they are windows cut from a black background—overlap each other as they move slowly across the screen. The film credits are superimposed in white typography in front of this lively pattern of typographic forms and counterforms. Behind the title the background slowly darkens while the camera pulls away from it, causing the letterforms to become smaller and smaller. Finally, the title *Altered States* appears in its entirety before the totally black screen. In the title, set in Avant Garde Demi, the repetition of this unusual configuration unifies the two words and serves to make the title a unique and memorable signification.

An ominous mood is created in the title sequence for the Twentieth Century-Fox production *Alien* (Fig. 10-21). Deep in outer space, the dark side of an immense planet (suggested by a sweeping curved edge) moves slowly onto the screen. Gradually, it passes from right to left, engulfs the screen in blackness, and then continues until it disappears from sight. As the planet passes, small white rectangles appear one by one and then undergo a metamorphosis to form a five-letter title letterspaced across the screen. An elevated sense of mystery is achieved by the harmonious juxtaposition of the passing planet and the typographical transformation. The impending arrival of aliens is evoked.



10-20 Title sequence for the film *Altered States*. (Designer: Richard Greenberg)



10-21 Title sequence for the film *Alien*. (Designer: Richard Greenberg)



**10-22** Title sequence for the film *True Lies*.  
(Designer: Richard Greenberg)



**10-23** Title sequence for the film *Lethal Weapon 3*.  
(Designer: Richard Greenberg)

A striking three-dimensional effect is achieved in the seamless title sequences for *True Lies*, a film about a secret agent who learns about his wife's extramarital affair and pursues her using intelligence resources available in his profession, which is a job he kept secret from her. The title begins with four faint blue streaks that start to rotate in space (Fig. 10-22). As the lines rotate, the flat, planar letters of the word *true* are revealed. These letterforms continue to rotate, appearing as independent cubelike structures, with the final sequence revealing the letters of the word *lies*, reversed and appearing in black on the adjacent surfaces of the structures. This simple and elegant visual transformation provides a surprising tension between the two opposing words of the film's title.

Martin Riggs, the lead character in the film *Lethal Weapon 3*, finally meets his match in Lorna Cole, a beautiful but tough policewoman. Together with his partner, Roger Murtaugh, the three attempt to expose the illegal arms racket of a fellow police officer. The heightened suspense of the film is established with the visceral image of fire licking the surface of a calm body of water. As the flames erupt from left to right along the screen, typography presenting the names of the film's stars follows their movement (Fig. 10-23). In this film title, the synergistic relationship between type and image is fully developed as they move in time and space. This film title provides an excellent example of the integration of type into image, unlike many designs where type is merely added to, or placed upon, an image.

The time-space orientation of digital media enables the typographic designer to add motion, scale change, sequence, and metamorphosis to alphabet communication. As demonstrated by the work of Richard Greenberg, this opens new vistas of expressive communication.

## CASE STUDY

### Buenos Aires Underground (Subte)



**10-24** This photograph from 2004 shows a subway entrance before the Subte system was implemented. How to replace chaos with order and clarity became the question.

Buenos Aires, the capital of Argentina, is a culturally diverse city with a population of approximately twelve million people. The firm Diseño Shakespear has made a lasting impression on many facets of the city's visual culture and information infrastructure. Ronald Shakespear, founder and principal of this multidisciplinary firm, describes his design mission as "making the city legible."

A dramatic example of this quest is the Buenos Aires subway system, a megawayfinding project designed by Ronald Shakespear and his sons, Lorenzo and Juan. The system inherited the name Subte (from *subterráneo*), city residents' colloquial term for their subway. This memorable term functions as a brand, like the Tube in London, the Métro in Paris, the Metro in Washington D.C., and the Subway in New York.

The Buenos Aires subway system originated in 1913 with the introduction of a first station and grew rapidly in later years to keep pace with a burgeoning population. Before the design transformation by Diseño Shakespear, the "system" constituted nothing more than a chaotic collection of vernacular elements (Fig. 10-24).

Between 1995 and 2007, Diseño Shakespear pursued separate stages of the subway's branding and wayfinding transformation for the existing five lines. The team relied on their established design methodology: research, analysis, synthesis, drafts, final project, implementation. Sketches and graphic notations served to visualize and synthesize ideas and concepts (Fig. 10-25).

A successful wayfinding system relies on a combination of on-site research and what Ronald Shakespear refers to as "verified intuition." Two fundamental criteria must govern the signs in any successful system: 1) they must be easy to find and their locations predictable, and 2) they must be easy to understand. Shakespear believes that designers have an obligation "to listen to people, to decipher their codes, to discover their yearnings, and to give them an answer."



**10-26** An early subway map lacks the typographic organization, hierarchy, and diagrammatic clarity required for adequate interpretation.



**10-25** Process sketches seek to define the basic elements of the Subte system.

**10-29** *Contrasting colors brand subway lines, making it easy for riders to distinguish and identify each of them.*



**10-27** *The redesigned map diagrams the cityscape into a translatable model based upon simple geometry. City streets form a secondary lattice beneath the subway lines, orienting riders to their position in the city.*

**10-28** *This drawing reveals the dimensions of the prominent Subte station entrance signs. The proportional system shown here relates to the grid structures used in all other system components.*



Research and evaluation of the existing system stimulated the development of a rational and functional graphic language that communicates clearly, providing travelers with the sense and assurance that they will reach their destinations without a problem. The design solution would have to be adapted to eighty-six subway stations, each with unique physical conditions.

An adaptable but consistent program governs Subte, and a well-considered hierarchy of information is delivered using a bold, clear, and concise visual syntax.

An early task was to design a new map. Prior renditions, relying on actual interpretations of topology, were visually dense and difficult to interpret (Fig. 10-26). Influenced by the map of the London Underground designed in 1933 by Henry C. Beck, and the New York Subway system map designed by Massimo Vignelli, the Subte map was reduced to a comprehensible network of linear elements and typographic labels positioned horizontally, vertically, and at 45-degree angles. The simplified, diagrammatic structure provides a legible gestalt for riders en route (Fig. 10-27).

A grid system accommodates a variety of sign types, from interior station signage to exterior directional signage (Fig. 10-28). As shown in Figure 10-29, each of the six subway lines (A–F) is assigned a color from a vivid palette of primary and secondary hues. The contrast between colors brands each of the lines, making it easy for riders to pinpoint where they are and how to plan their route. The color scheme corresponds to the Subte map.

Station signage consists of forty-one signs in a typical station configuration. Station identification bands run parallel to the tracks at a consistent height of 2.2 meters from the platform floor. This creates a 220-meter “perpetual belt,” through the interiors of the stations. The station name repeats every 2.5 meters, helping riders to readily identify their stops from within the trains (Fig. 10-30).

Ronald Shakespear attests that signs are “active expressions of identity that go beyond just giving directions and solving basic circulation and communication problems.” They must integrate into the surrounding environment and contribute to a sense of place.

Observations revealed critical psychological concerns—for example, the express need for riders to leave the underground environment as soon as possible. As Shakespear puts it, “The exit sign is the most important symbol to people on the subway: How do you escape? It is unnatural to be underground in the city.” (Fig. 10-31).

Frutiger was selected as the system typeface, not only for its superb legibility but also for its informal, friendly appearance. Set in Frutiger Bold, the name *Subte* provides a distinctive word picture for a memorable brand. Different weights and sizes of Frutiger are applied to the signage to establish a decipherable information hierarchy. Type was scaled to optimize readability at various viewing distances.

The final phase of the Subte transformation was the design of above-ground signage. Since a specific design program had not been employed in a hundred years, the entrance conditions, including signage, varied widely. The Shakespear team adapted visual aspects of the interior signage, but reconfigured them at an appropriate scale to help travelers identify the six different transit lines.

The circular forms identifying various lines on interior signage were integrated into illuminated sign boxes as three-dimensional orbs. Because of their three-dimensional forms and bold colors, these signs serve as prominent landmarks for Subte stations (Figs. 10-32 to 10-34). As a major urban feature, the Subte system contributes enormously to the functionality and ambience of Buenos Aires, and to the pride of its residents.



**10-30** Running the entire length of each station platform, an information rail typographically repeats the station name, reassuring travelers of their arrival destination. The station name is easily viewed while riding the train.



**10-31** Exit signs are easily identified in the information hierarchy. Upon stepping out of trains, travelers immediately seek escape from the underground.



**10-32 to 10-34** The prominent circular columns, viewed at a distance and from any angle, mark subway entrances and provide information about links to other lines. The Retiro station sign was one of the first to be implemented. Illuminated at night, the station signs are highly readable, encouraging twenty-four-hour travel.



**10-33**



**10-32**

**10-34**



**Credits:**

*Directors: Lorenzo Shakespear, Juan Shakespear, Ronald Shakespear; team: Gonzalo Strasser, Cecilia Bonnefon, Martina Mut, Lucia Diaz, Juan Cerdá; photos: Juan Hitters, Lorenzo Shakespear, Alejandro Calderone; legal advisor: Victor Levy; construction advisor: Atlas SAIC.*

## CASE STUDY

### Information design: *Metropolitan World Atlas*

Ingenious, brave, impressive, and absolutely unique—these are terms often used to describe the work of graphic designer Joost Grootens. His books on subjects of art, architecture, and urban spaces all share an analytical and intelligent approach to the subject matter.

Prior to Grootens's design of the *Metropolitan World Atlas*, there had been no way of directly comparing worldwide metropolises. Written by Arjen van Susteren and published by 010 Publishers, this remarkable atlas offers a unique survey of global trade networks and their impact on metropolitan spaces.

This book documents a total of 101 metropolises, analyzing them in easy-to-read ground plans. The atlas redefines cities as more than densely built-up areas. It chooses to define metropolitan areas as “regions where global relationships dominate over local ones and which are characterized spatially by a high concentration of global connections and a high concentration of people.” These areas having a global range of influence are compared via information graphics in terms of population, density, pollution, travel time, data traffic, air and water travel, and the size of central business districts, among other pertinent factors.

The unexpected combination of ground plans and statistics makes this atlas a unique reference work where for the first time metropolitan areas like Beijing, Lagos, London, Los Angeles, Rio de Janeiro, and Tokyo can be compared with one another in terms of their position in the global urban network. The atlas conveys this information with transparent clarity, enabling readers to sense instinctively that they are immersed in the language of cities.

#### 10-35 and 10-36

The cover and back cover set the stage for an approach to design used throughout the atlas: convey content elegantly by being clear, consistent, simple, and direct.



10-35



10-37 The book's endsheets show maps of the globe. The geographic locations of the 101 metropolitan areas are shown together with the page numbers of where they are located in the atlas. The color orange indicates the most populous regions.

**Metropolitan World Atlas: Anchorage, Antwerp-Brussels, Athens, Atlanta, Auckland, Baghdad, Bangalore, Bangkok, Barcelona, Beijing, Berlin, Bogotá, Boston, Buenos Aires, Busan, Cairo, Calcutta, Charlotte, Chennai, Chicago, Cincinnati, Copenhagen, Dallas-Ft. Worth, Denver, Detroit, Dhaka, Djakarta, Dubai, Durban, Frankfurt, Geneva, Hamburg, Hong Kong, Houston, Hyderabad, Indianapolis, Istanbul, Jerusalem-Tel Aviv, Johannesburg, Kaohsiung, Karachi, Kinshasa, Kobe-Osaka-Kyoto, Kuala Lumpur, Lagos, Lahore, Las Vegas, Le Havre, Lima, Lisbon, London, Los Angeles, Louisville, Madrid, Manila, Melbourne, Memphis, Mexico City, Miami, Milan, Minneapolis-St. Paul, Monterey, Montreal, Moscow, Mumbai, Nagoya, New Delhi, New Orleans, New York, Orlando, Oslo, Paris, Perth, Philadelphia, Phoenix, Pittsburgh, Randstad Holland, Rhine-Ruhr, Rio de Janeiro, Rome, Sacramento, San Francisco-Oakland, Santiago de Chile, São Paulo, Seattle, Seoul-Incheon, Shanghai, Singapore, St. Louis, St. Petersburg, Stockholm, Sydney, Taichung, Taipei, Tangier, Tehran, Tianjin, Tokyo-Yokohama, Toronto, Vancouver and Washington-Baltimore.**



10-36

The *Metropolitan World Atlas* utilizes various weights of Akkurat, designed by Laurenz Brunner in 2004, as the primary type family. This highly legible, sans serif type family enables easy, unencumbered reading, and its friendly image urges readers into statistical information without trepidation. In contrast to complex content, the design of the atlas design exhibits restraint, taking on the responsible and critical task of clearly presenting the information without the use of unnecessary decorative devices. The cover invites readers to enter the content by means of a generic map printed in orange Day-Glo ink. This map corresponds to the scale of maps found throughout the atlas, becoming a part of the entire system. The orange color functions throughout the book to signify population distribution and the intensity of other statistical values. The back cover readily identifies the 101 featured metropolitan areas as a continuous list (Figs. 10-35 and 10-36).

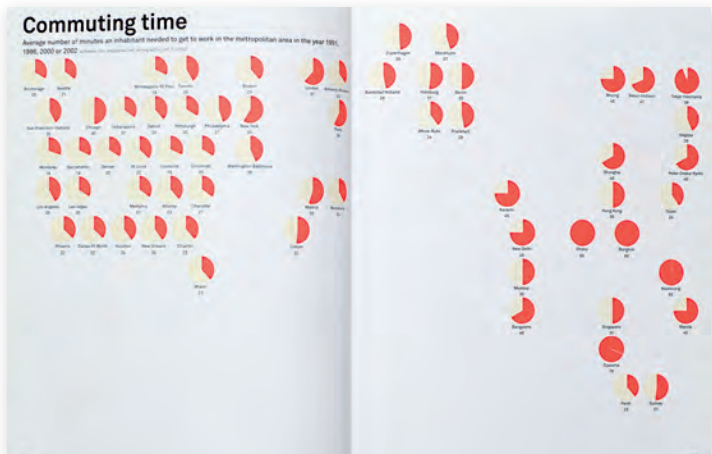
Front and back end sheets and paste-downs provide at-a-glance maps of the globe that pinpoint locations of the major metropolitan areas. Serving as a visual index, page numbers attached to these areas indicate where they can be found in the pages of the atlas. Along with organizing the content alphabetically, this device helps readers find their way in the atlas (Fig. 10-37).

After the introduction, a section presents global (and historical) statistics, such as “The world’s 10 largest cities through the ages,” and “The world’s 25 largest seaports” (Fig. 10-38).



**10-38** Introductory pages present lists of metropolitan areas having the most significant global impact in terms of the size of population, seaports, airports, and telecom ports. These criteria determined the final selection of 101 metropolitan areas. Grootens finds these lists to have “a poetry of their own.”





Each of the 101 metropolitan areas is shown consistently, using the same organizational structure. The designers began with a geographically projected world map and zoomed into each area to establish a 162 x 130 kilometer framework and a 1:750,000 scale.

This means that 1 centimeter on the map corresponds to 7.5 kilometers on the ground. For comparison purposes, each map has the same scale, grain, frame, and legend. Grain adjusts in density according to elevation. The legend indicates bodies of water, land area, land elevation, railways, motorways, built-up areas, airports, and seaports. A concentration of contrasting orange on these maps indicates built-up areas.

The statistical data for each metropolitan area are displayed next to each map using two methods: as diagrams, and as figures and text. The diagrammatic display shows proportions in relation to the maximum value that a given characteristic of the region can reach: a small orange dot represents a relatively low value, and a large dot a relatively high value. Maps appear on the right-hand page of the spread, while statistical information appears on the left, enabling readers to seamlessly flip through the book to compare one area to another (Fig. 10-39).

The second section of the atlas (Fig. 10-40) compares data for the metropolitan areas on a global perspective by topic. Dots representing the areas are positioned on simplified world maps. The size of dot or, in some cases, the colored pie-chart percentage of the dot refers to regional values in relationship to specific data. Readers can compare areas in terms of passenger airports, flight movements, telecom ports, population, built-up areas, average temperatures, and income per capita, among others.

The design of the *Metropolitan World Atlas* provides an extraordinary typographical reference work for comparing the differences and similarities of metropolitan regions from varying perspectives.

## CASE STUDY

### A typographic program for the 17th Street Farmers' Market



**10-41** The bold, vector-based tractor silhouette, straightforward spatial composition, and vivid color are characteristics that became the defining elements of the market's graphic program.

The 17th Street Farmers' Market in the Shockoe Bottom district of Richmond, Virginia, was one of America's first public markets. It originated as an outdoor market around 1737 and was officially established in 1779. The first structure on the site was an open wooden shed, replaced two years later with a brick building and colonnade. The market expanded in the following years, and by 1854 a larger brick building—the First Market House—was built on the corner of 17th Street and Main. During the Civil War, this building served as a strategic gathering place for Confederate soldiers. Later in the war, Union troops occupied it as barracks. After the war and into the 1900s, the market prospered; but by the mid-twentieth century the Shockoe Bottom district had declined and the market could no longer be sustained. The First Market House was demolished in the 1960s. The market was again revived in the 1980s, and the current open-air pavilion was built during this time.

In recent years, the market has thrived as a vital center for community events, and as a venue for farmers, artists, flea and antique dealers, and bakers to sell their products.

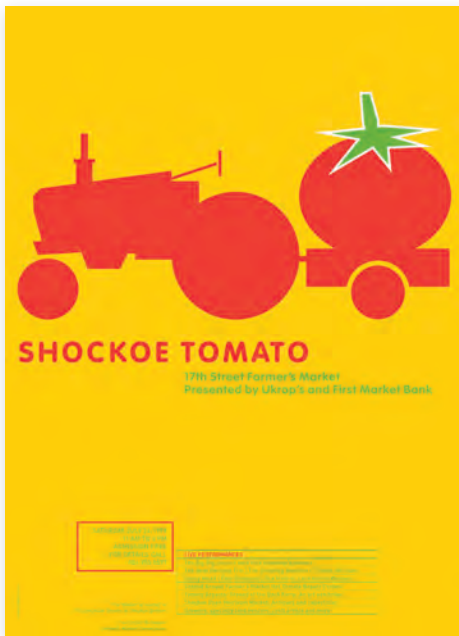
The current success of the 17th Street Farmers' Market is largely attributable to a visionary period of time when the market's manager departed from the conservative thinking of the city officials and the advisory board to embrace the power of forward-thinking graphic design and typography.

Initially, John Malinoski was asked to design a poster for one of the market's events. The poster proved so successful that it soon became the pilot project for the market's identity and the inspiration for developing the graphic program (Fig. 10-41). The visual language of the program is based on compelling ideas and bold, iconographic forms rather than what might be considered the obvious market vernacular—nostalgic photographs and engravings laden with obvious period typography. The silhouetted icon of the farm tractor serves as the market's identity mark and as a central unifying element in posters, postcards, bumper stickers, and various other printed materials (Fig. 10-42).

Malinoski can be considered a second-generation modernist who pays allegiance to the universal principles of rationality, simplicity, and visual economy. He nurtures these ideals like a dedicated parent, but does so with wit, humor, and intelligence. It is possible that several visits to Holland contributed to shaping his design vision, for Dutch design has street presence and is a reflection of the processes and pragmatics of everyday living. Malinoski adheres to the idea that understatement is the most potent statement.



**10-42** The sun sets on a horizon of aligned text type in this implied farm landscape.



10-43

**10-43 and 10-44** The tractor icon is inventively introduced into different environments and contexts to surprise and delight viewers. Considerable effort was made to identify a typeface that visually accommodates the tractor wheel.



10-44

Malinoski's work for the market is also street savvy. The striking simplicity and boldness of the posters and other materials command the attention of people both walking and driving. Often the tractor combines with other images or typography to excite the curiosity of viewers.

In one poster, a tractor hauls a giant tomato to create a highly exaggerated and memorable image (Fig. 10-43). In another example, the wheel of a farm tractor is substituted for the letter *o* in the word *tomato*. The large scale and oblique angle of the type, and the hot color, set the stage for a hot summer event (Fig. 10-44).

Other farm implements are sometimes used in combination with type to create thought-provoking messages. Examples include a postcard for the International Brunswick Stew Festival, where the tractor, a passenger jet, and a bowl are objectively displayed as a series of international symbols (Fig. 10-45); and a brochure featuring a wheelbarrow loaded with type (Fig. 10-46).



**10-45** Reminiscent of travel baggage stickers and tickets, the postcard communicates the international scope of the event. The warm colors suggest autumn.



**10-46** The contrast between a sturdy wheelbarrow and delicate type creates a convincing image. The wheelbarrow is filled with items found at the market.



10-47

**10-47 and 10-48**  
*Incongruent combinations of type and image challenge the expectations of viewers.*

Sometimes type and image combine in surprising ways to tell a story or convey an abbreviated narrative. For a market event focused on pets, a tractor is placed in a doghouse (Fig. 10-47), and in an announcement for Saturday Arts on the Market, a living room setting with a framed image of the tractor suggests that art was purchased at the market (Fig. 10-48).

When departing from farm-related images, as in a poster announcing the market's opening season, the consistent use of robust icons preserves visual unity (Fig. 10-49).

The universal feel of the graphic system is supported by the use of DIN as the text typeface. Designed by H. Berthold AG in 1936, DIN is the face used for road signage in many parts of Europe. When large amounts of text occur in materials, it is set into flush-left, ragged-right blocks, as seen in a flyer for a film festival. (Fig. 10-50). The inherent simplicity of the graphic program belies the careful attention paid to every conceivable typographic detail.



10-48



**10-49** *The word opening refers to the market's new season and the emergence of a spring flower. The typeface selected for the word is both organic and geometric, effectively corresponding to the flower.*



**10-50** *The bold, vector-based tractor silhouette, straightforward spatial composition, and vivid color are characteristics that became the defining elements of the market's graphic program.*



The rapid advance of technology and the expanding role of visual and media-based communication in contemporary society have created new challenges for typographic education. Faced with a complex communications environment, and the changes that are occurring and are anticipated, how can a designer nurture sensitivity to typographic form and communication? An appreciation of our typographic heritage, an ability to meet the standards of contemporary design practice, and an innovative spirit in facing the future are required.

The following assignments, ranging from basic theoretical exercises to complex applied projects, were selected to provide an overview of contemporary typographic design education. An effective curriculum is composed of perceptual and conceptual development, technical training, and processes for solving multifaceted design problems. These projects were selected with emphasis upon building the perceptual and conceptual abilities that provide a foundation for effective and innovative typographic design practice.

## Letter/digit configurations

Rob Carter

Virginia Commonwealth University

Visual configurations were invented by combining letters from the English alphabet and single-digit numbers (Figs. 11-1 to 11-4). Scale, proportion, weight, and shape relationships between two different signs were explored.

Objectives of this exercise include introducing letterform drawing and drafting skills, using typographic joinery to unify the two distinct forms into a visual gestalt, and understanding the variety of spatial relationships that can exist among characters.



11-1 Designer: Penny Knudsen



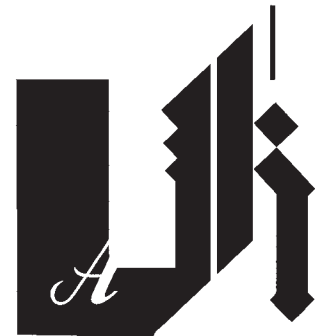
11-2 Designer: Penny Knudsen



11-3 Designer: Colene Kirwin



11-4 Designer: Linda Evans



11-5 Designer: J. P. Williams

## Urban letterform studies

Thomas Detrie

Guest Lecturer Winter Session in Basel  
Rhode Island School of Design

Letterforms in an old section of a European town were studied and documented through drawing, rubbings, and found material. A black-and-white letter composition was developed, depicting graphic qualities found in the assigned area.

On a formal level, compositional issues such as dynamic asymmetrical composition and form-counterform relationships are explored. On an interpretive level, the ambience of a historical area is translated into a typographic configuration (Fig. 11-5).

## Flowering typography

Dennis Y. Ichiyama

Purdue University

Selected letters of the alphabet were combined with images of flowers that have been reduced into visually simplified forms. Each letter is coupled with a flower whose name begins with the chosen letter. In the examples shown, *A* is for *alyssum* (Fig. 11-6), *K* is for *Kirengeshoma* (Fig. 11-7), *J* is for *jalap root* (Fig. 11-8), and *H* is for *hollyhock* (Fig. 11-9).

A primary objective of this project is to achieve a harmonious synthesis between type and image, and in the process create a new visual configuration. It is essential that both the letterform and the flower be recognizable in this hybrid form. This project is also concerned with exploring the dynamic relationship between positive and negative space.



11-6



11-7



11-8



11-9

Fig. 11-6 to 11-9 Designer: Li Zhang

## Inventing sign systems

Greg Prygrocki

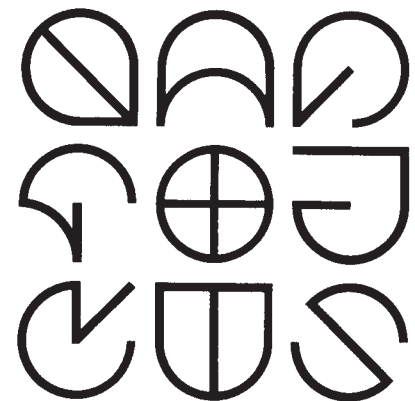
North Carolina State University

A set of nine signs were invented (Figs. 11-10 and 11-11). Each was required to be a distinctive mark, with unique optical characteristics, yet harmonious with all the other signs and clearly recognizable as part of the set.

The focus of this project is to make students aware of the properties that bring unity to any typographic system. These include stroke weight and direction, stress, form repetition, and intersection.



11-10 Designer: Joe Easter



11-11 Designer: Paul Dean

**Comparative relationships:  
type and image**

Jan Conradi

Ball State University

In this two-part project, students considered visual relationships between type and image. After selecting photographs, students chose typefaces and letterforms that related to the image through visual characteristics such as shape, weight, decorative embellishments, and other design attributes. Part one involved hand drawing the letterform in a side-by-side comparison of form (Figs. 11-12 and 11-13).

In part two, the relationship was explored further by integrating the letterform into the image (Figs. 11-14 and 11-15). Attention to

typeface selection, scale, repetition, color, and balance allowed the merger of type and image into a single entity.

This project helps students who are innately image-oriented understand how design characteristics of typefaces are distinctive. Selection of an appropriate font can enhance the communicative message, and type and image can be composed into a unified composition.



11-12 Designer: Brandon Luhring



11-14 Designer: Trina Denison



11-13 Designer: Brandon Luhring

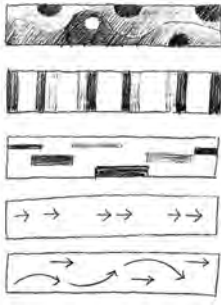


11-15 Designer: Kara Holtzman

**Sequential typographic forms in space**

Akira Ouchi

Virginia Commonwealth University



11-20

By cropping, shifting, rotating, and scaling a large sampling of single letterforms within square modules, students discover the dynamic relationships between form and counterform and the resulting effect upon visual space. Students then proceed with a study of typographic kinetics by organizing selected modules into a linear sequence of ten modules (Figs. 11-16 to 11-19). Similar to musical scores, diagram sketches enable students to articulate and test sequences with respect to rhythmic patterns, shape and value transitions, and the flow of typographic elements (Fig. 11-20).

11-16 to 11-20 Designers: Virginia Commonwealth University sophomores



11-16



11-17



11-18



11-19

**Typography and image transformations**

Gordon Salchow

University of Cincinnati

A letter has been altered in a series of steps until it is transformed into a simple object, an abstract shape, or another letterform (Figs. 11-21 to 11-23). An understanding of typographic sequencing, permutation, and kinetic properties is developed. Students gain an awareness of form and counterform relationships, and of the unity that can be created in complex configurations.

11-21 to 11-23 Designers: University of Cincinnati sophomores



11-21



11-22



11-23

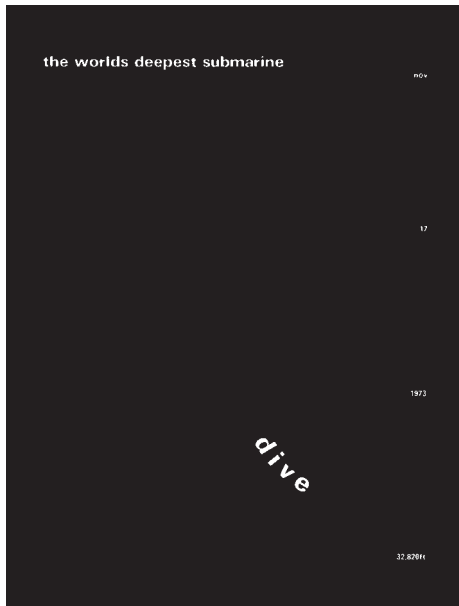
## Unity of form and communication

Christopher Ozubko

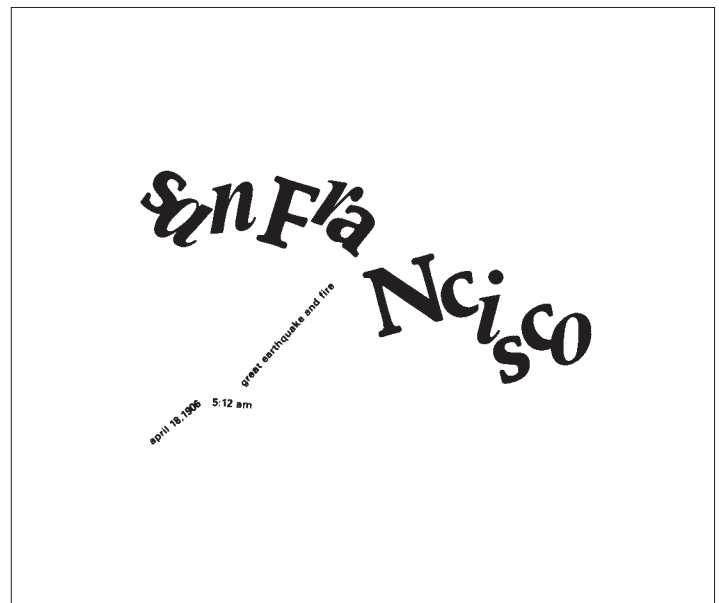
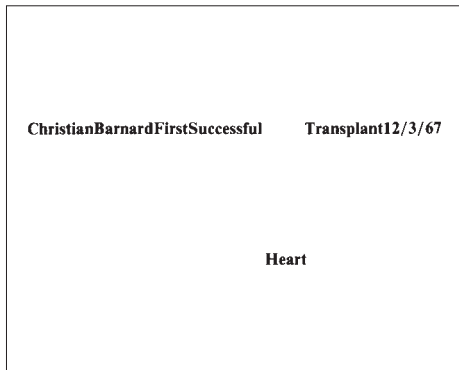
University of Washington at Seattle

Students select a historical event as a subject, and develop a typographic message using the visual properties of type and space to amplify its content (Figs. 11-24 to 11-27). This project develops an understanding of the inventive potential of typographic form. As a message carrier, typography can intensify and expand content and meaning.

**11-24** Designer:  
Steve Cox



**11-25** Designer:  
Bill Jolley



**11-26** Designer: Susan Dewey



**11-26** Designer: Kyle Wiley

**Syntactic explorations using onomatopoeic terms**

Frank D'Astolfo

Rutgers University–Newark

An onomatopoeic term (a word that sounds like the thing or action denoted) was selected and used in syntactic explorations. The first level involved drawings exploring syntactic variations using a grid to create visual relationships. These studies evolved into complex type compositions expressing the term.

Level two saw an additional word added as a simple linear element. Unexpected yet meaningful relationships were sought. Visual relationships were created through alignment, balance, juxtaposition, and direction.

In level three, a photograph was added, completing the composition and forming a meaningful message. Unexpected, ironic, or complex associations were encouraged. A spectator or fan at a sporting event (Fig. 11-28) adds a new dimension to the *ver* sound of a fan. Rabbit ears cause *schhh* (Fig. 11-29) to denote the static of poor television reception. The meaning of the word *croak* (Fig. 11-30) is changed by the gun. The *ding-dong* (Fig. 11-31) comes from the bell in a boxing match after a prizefighter is added to the design.

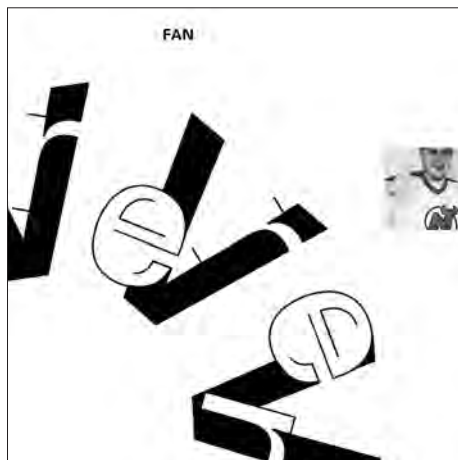
This project addresses a complex set of issues. Type style, size, and placement can express the meaning of words. Effective visual organization is achieved with the help of a grid. Words and pictures strengthen and even alter each other's meaning.



**11-29** *Schhh, static, and rabbit ears.* (Designer: Kelly Olsen)



**11-30** *Ribbitt, croak, and gun.* (Designer: Cheri Olsen)



**11-28** *Ver, fan, and spectator.* (Designer: Elisa Robels)



**11-31** *Ding dong, ready, and boxer.* (Designer: Paris Jones)

Jennifer Bernstein

Pratt Institute

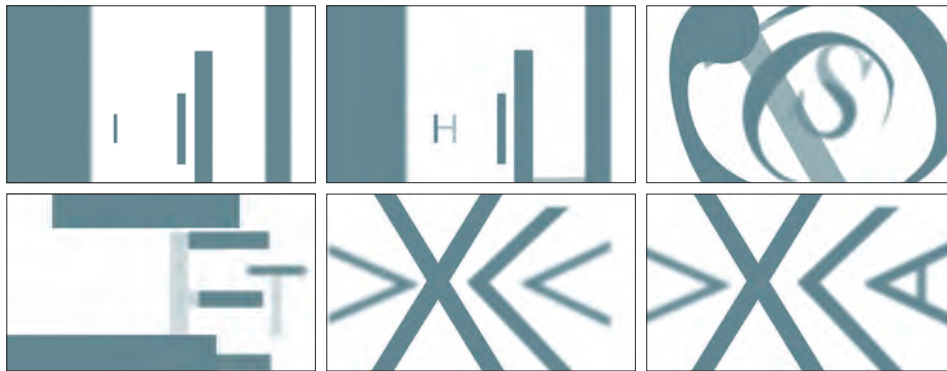
Following an introduction to basic principles of narrative and animation, students created a series of ten-to-fifteen-second motion studies to communicate a specific visual principle or structure using abstract type and basic forms. The goal of the sequence was to combine the more static visual language of traditional graphic design (composition, color, shape, depth, tension, and contrast) with the dynamic visual language of cinema and film (pacing, rhythm, and sequence). Elements

included in the motion studies are letterforms, abstract shapes and forms, and sound.

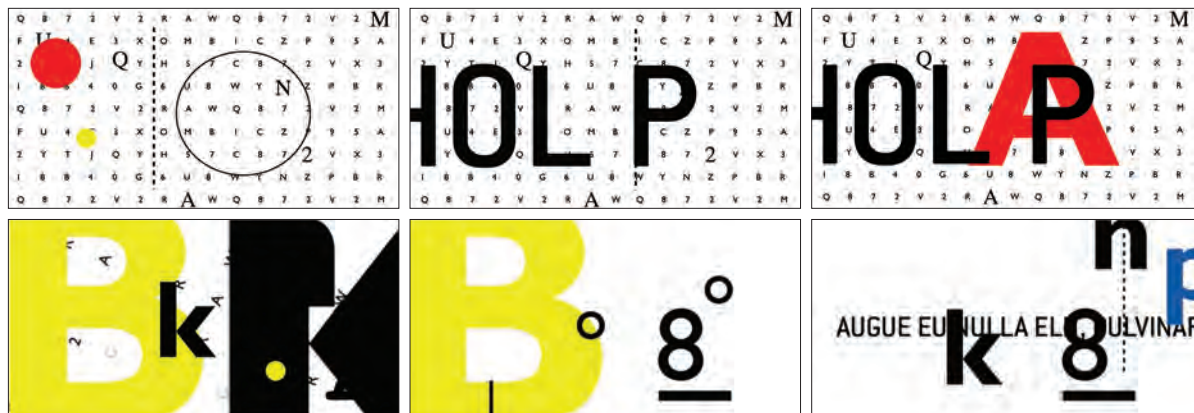
Students selected a principle from the following list: rhythm and repetition, progression, symmetry and asymmetry, contrast, randomness and order, figure and ground, spatial layering and overlapping, grid. They then began to research, sketch, and plan their sequences as storyboards. Four rough-draft animations were assigned and then refined into final animations over

three weeks (Figs. 11-32 and 11-33). Play, discovery, and exploration were encouraged.

Work was evaluated in the context of how the motion sequences communicated the chosen principle and how they functioned as visual narratives over time. Discussion and critique addressed the potential of typography as a vehicle for both denotative and connotative messaging through kinetic behavior and orchestration with sound.



11-32 *Rhythm.*  
(Designer: Xiaozhou Li)



11-33 *Randomness.*  
(Designer: Napasawan Sirisukont)



R. Roger Remington

Rochester Institute of Technology



11-34 Designer: Heinz Klinkon

A comparative study of ten typefaces was made by each student. The information was organized chronologically in a booklet with four pages devoted to each typeface. In Figure 11-34, the opening spread juxtaposes descriptive text and a complete font opposite a large letterform. The following spread contains a historical application of the type opposite a contemporary application created by the student.

This problem involves developing research skills, an understanding of typographic history, and an ability to work with different typefaces. Large amounts of complex data are organized, a consistent format is developed, and diversity is created within this format.



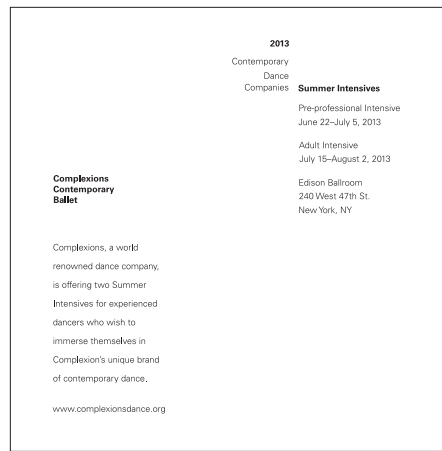
## Typographic hierarchy

Rachele Riley

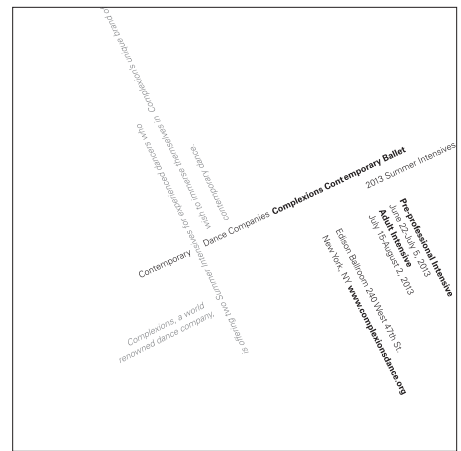
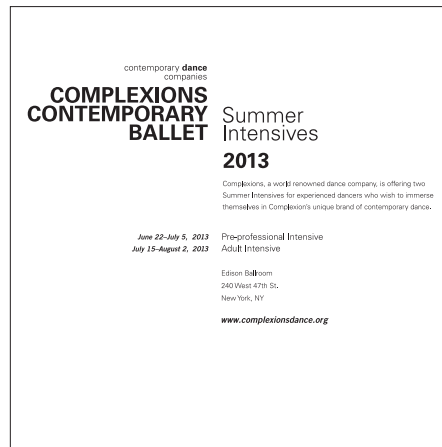
University of the Arts

In this sophomore-level project that develops an in-depth understanding of informational hierarchy and composition, students built on their knowledge of letterspacing, wordspacing, linespacing, rags, and alignment. Students were asked to research and choose content for an event series related to contemporary dance, music, or architecture.

Over the course of nine weeks, students worked within a 7 x 7-inch format to explore the possibilities for visual communication with typographic hierarchy. In the first exercise, students used only Univers 45 Light at 10 point, experimenting with leading, alignment, and negative space. Compositions built in complexity as specific parameters were introduced, explored, and analyzed each week: alignment, weight, slant, scale, extreme scale, texture, and image/series (Figs. 11-35 to 11-40). All compositions started with thumbnail sketches, which were evaluated before students were then asked to design five compositions for each parameter. The project culminated in a presentation book that included the most successful composition for each parameter and that demonstrated the range of a student's exploration and understanding.

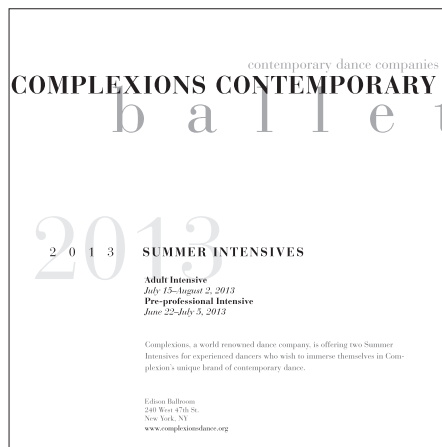


11-35



11-36

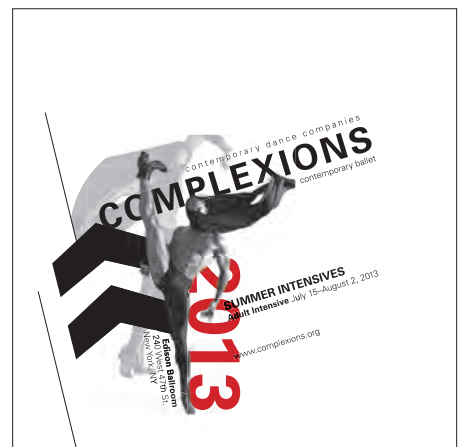
11-37



11-38

11-39

11-35 to 11-40 Designer: Anna Rising



11-40

## Calendar deconstruction

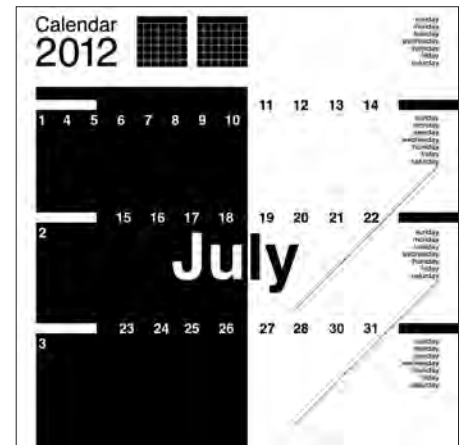
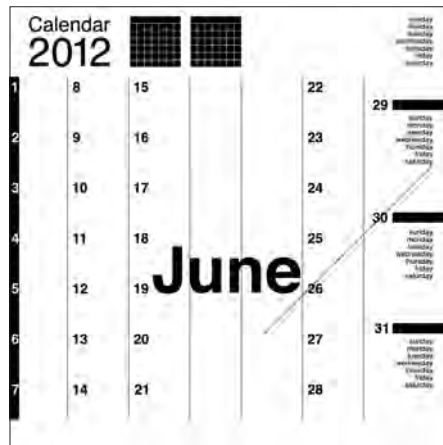
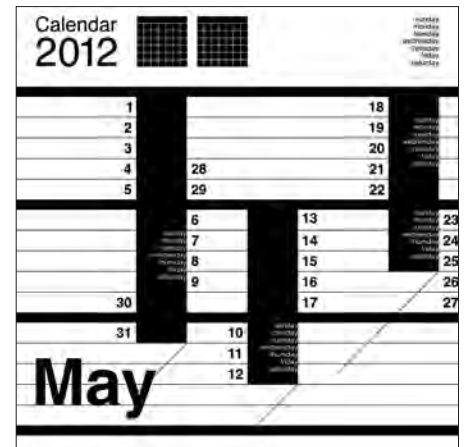
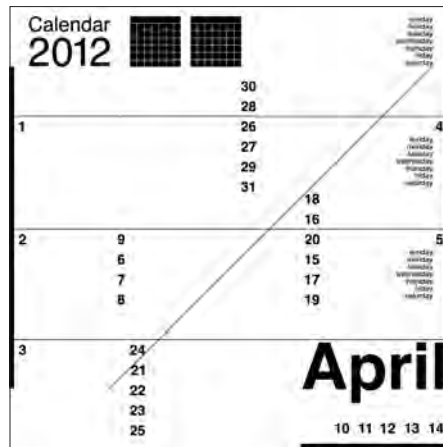
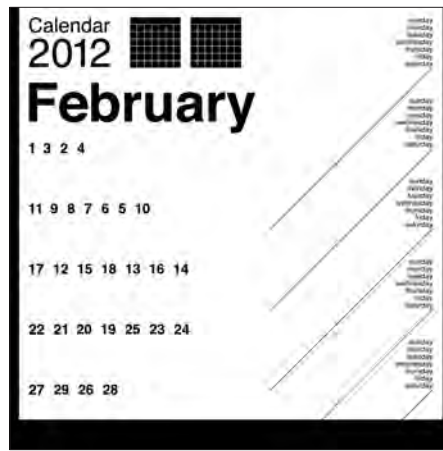
Mark Sanders

Maryland Institute College of Art

Calendar pages were designed using typographic elements to organize the space and direct eye movement on the page (Fig. 11-41). Emphasis was placed on experimentation, creating unity and movement on each page, and developing a visual elaboration over twelve designs. A grid structure was established and used to achieve diversity and order within a sequence of twelve designs. Students identified a personally meaningful categorization of time which formed the modules used to inhabit the grid. Typeface usage was limited to a single family. Graphic elements were limited to typography, rules, and single color.

This assignment enables students to explore interrelationships between graphic elements and the surrounding space, grid construction and usage, and sequence.

*This project is a re-investigation of the original by Josef Godlewski that is included in earlier editions of Typographic Design: Form and Communication.*



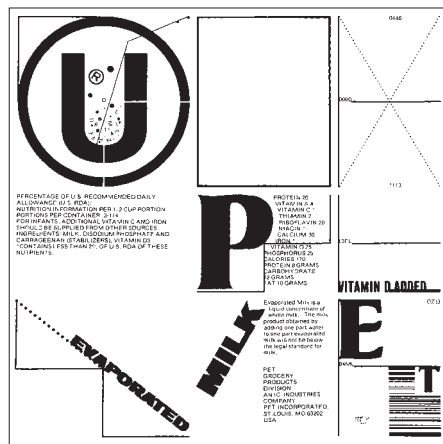
## Experimental compositions with found typography

Katherine McCoy

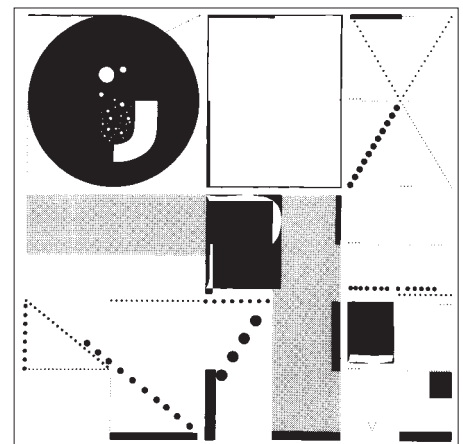
Cranbrook Academy of Art

Using all of the typography found on a product label, a grid-based composition was produced exploring size relationships, spatial interval, and weight (Fig. 11-42). A second composition was generated with more dynamic movement and scale change (Fig. 11-43). Visual notations were made of each, analyzing eye movement, massing, and structure (Figs. 11-44 and 11-45). Tone, texture, and shape were substituted for the typographic elements.

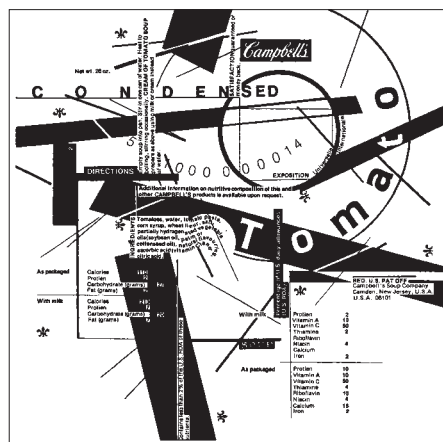
This project is designed to encourage an understanding of the abstract properties inherent in existing typographic forms. An exploratory attitude toward space and visual organization is developed.



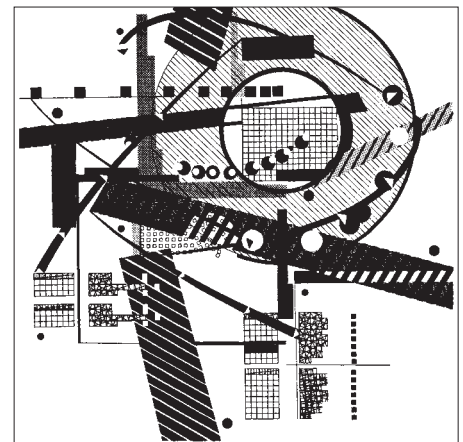
11-42



11-43



11-44



11-45

11-42 to 11-45 Designer: Ryoji Ohashi

**Directional poster: from your house to the university**

Malka E. Michelson  
Philadelphia University

Typographic posters reveal the directional path between students' homes and the university. Message content, hierarchy, and sequencing of letters, words, and lines of type were explored to enhance the development of a typographic landscape. Bumpy, smooth, straight, jagged, curvy, up, down, slow, traffic jams, smooth sailing, bumper to bumper, confusing, farmland, city, over water, and through tunnels are examples of concepts explored through typographic space to amplify and expand content, context, and meaning (Figs. 11-46 to 11-49).



11-46 Designer: Todd Duchynski



11-47 Designer: Monique Maiorana



11-48 Designer: Erin Roach



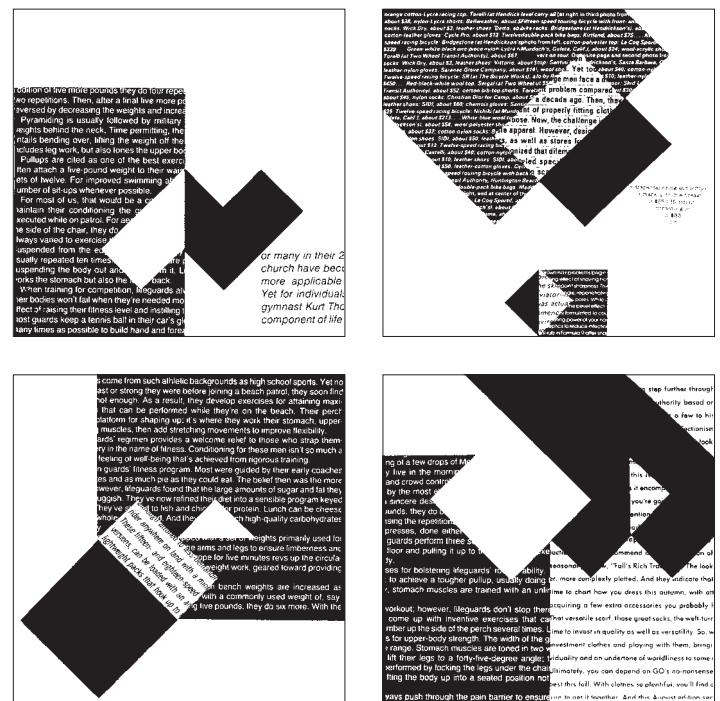
11-49 Designer: Susan Ulsh

**Visual organization and grid structures**

Greg Pryrocki  
North Carolina State University

Students developed linear grid structures and then created a series of plates, organizing found typographic materials into spatial compositions based upon the underlying structure (Fig. 11-50).

This project introduces the grid structure as a formal design element. The grid module is the basic compositional unit, bringing order to the arrangement. Students consider contrast, structure, positive and negative space, balance, texture and tone, and rhythm as design properties.



11-50 Designers: Craig McLawhorn and Matt Monk

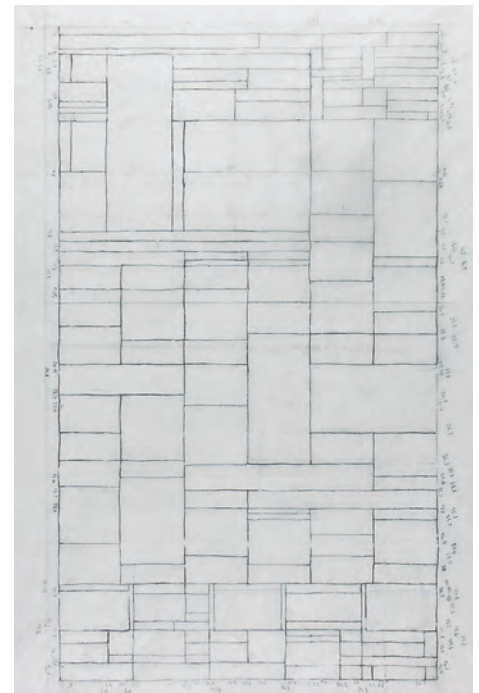
## New York Times grid analysis

Erik Brandt

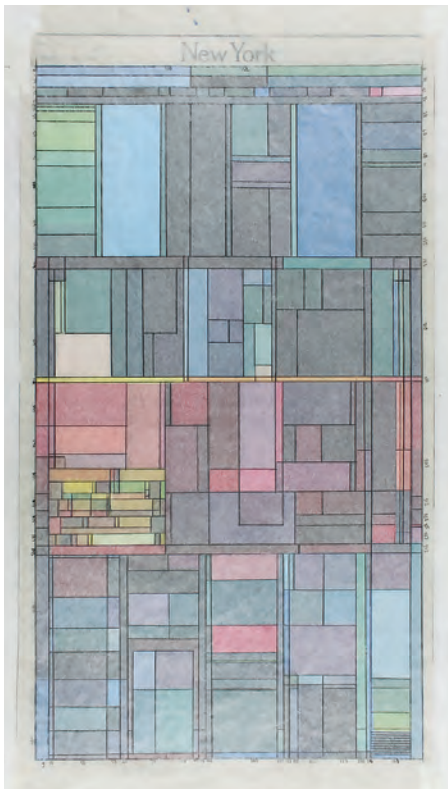
Minneapolis College of Art and Design

A grid was established by each student after analysis and documentation of columns and baselines from pages of the *New York Times* (Fig 11-51). The grid was then reconstructed digitally, and carefully selected modules within it were filled with three primary colors. Students then built upon this initial composition by mixing and adding more colors, creating many variations (Fig. 11-52). A single colored grid was then reproduced with paint on paper (Figs. 11-53 and 11-54).

Exploring projected and reflected light as it inhabits and translates a grid of each students' own construct demonstrates a process for architectural page analysis and offers the opportunity to create experimental form from a relatively humble and simple source.



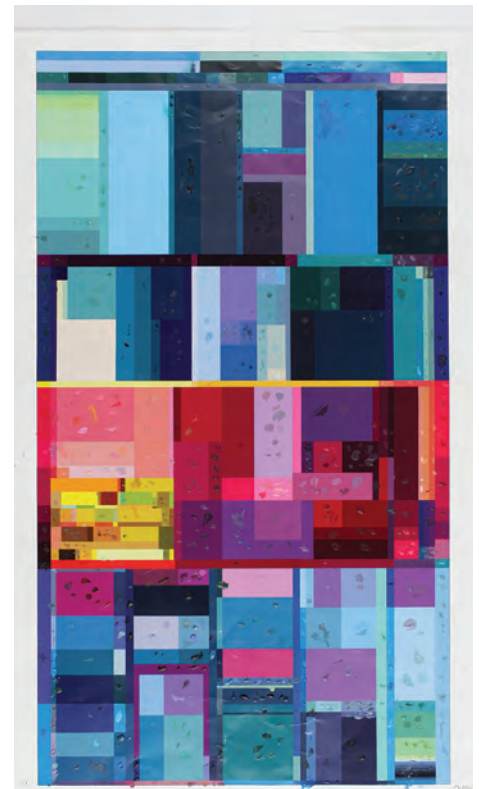
11-51



11-52



11-53



11-54

11-51 to 11-54 Designer: Sarah Boley

**Environmental grids**

Brenda McManus

Pratt Institute

To explore a relationship between type and image, students began by choosing and photographing a physical environment they find compelling for its spatial complexity, diversity, and uniqueness (Fig. 11-55). Students then chose text that complemented the space through metaphor, counterpoint, irony, or humor.

Images of the physical site were abstracted in a series of line and shape studies (Fig. 11-56). The text was analyzed through experimental compositions to understand tone, structure, and meaning (Figs. 11-57).

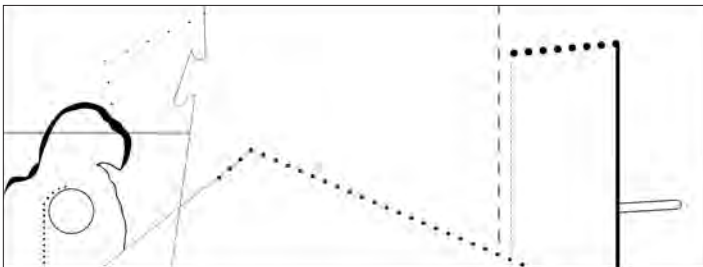
Students then combined image, line, shape, and text into a single visual statement, using underlying structures in the image to guide placement of typography (Figs. 11-58 and 11-59). The studies were expanded into a larger format to refine the integration of type and image.

This assignment helps students combine image and type, create structure to organize fluid and nontraditional grid systems, and build a stronger understanding of hierarchy, order of reading, legibility, and contrast.

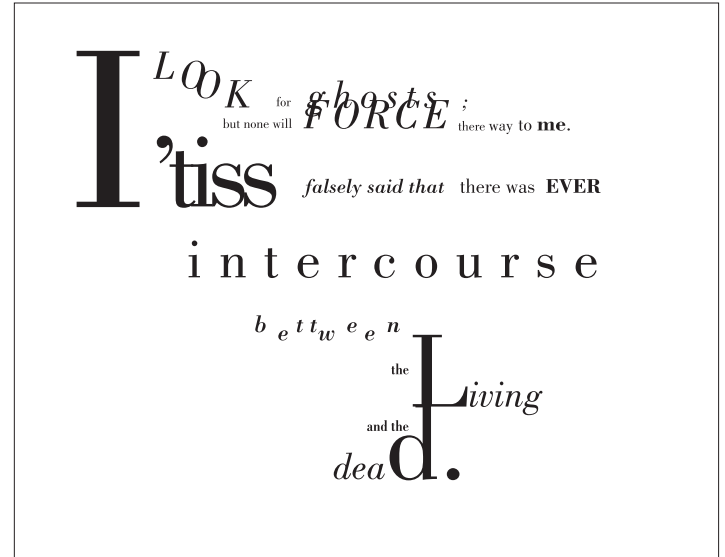
11-55 to 11-59 Designer: Laurie Duggins



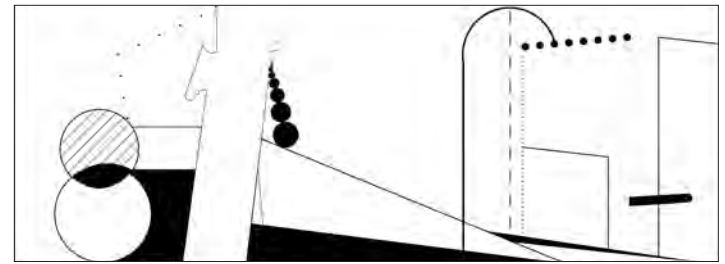
11-55



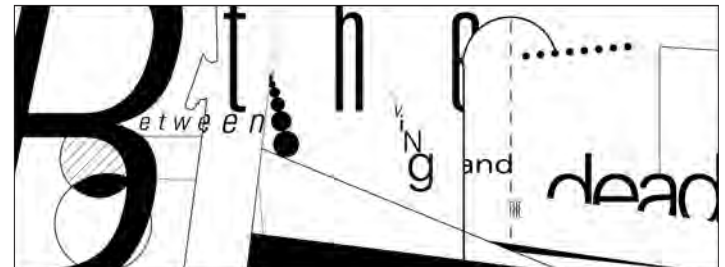
11-56



11-57



11-58



11-59

## Banknote design

Ned Drew

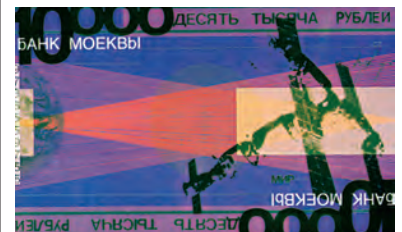
Rutgers University–Newark

Cultural diversity was the underlying context for this project. Students were asked to design a series of banknotes in three sequential denominations, both front and back sides (Figs. 11-60 and 11-61). They began by researching the country of their origin and engaging in word lists, mind maps, visual notations, and image gathering. The goal of the project was to design a currency system revealing pertinent historical, social, and environmental aspects of the home country, providing the system with functionality and aesthetic beauty.

Ultimately, the new banknote designs attempted to surpass the quality and communicative effectiveness of those currently in use.



11-60 Designer: Alan Bayot



11-61 Designer: Christian Pearson



Levi Hammett  
Titus Nemeth

Virginia Commonwealth University,  
Doha, Qatar

Students were first challenged to identify distinctive modular grid structures found within the environment, or to create them using physical materials. Once a grid structure was selected, the system was playfully explored in an effort to generate a “dot-matrix” Latin or Arabic alphabet. In other words, typographical characters were constructed from modules distilled from the larger grid structure. The constructed letterforms were analyzed for visual attributes that could be shared among characters to provide a unique font.

The design of the alphabet was informed by studying a well-designed existing typeface and the underlying visual qualities that coalesce a set of diverse characters into a unified font.

These emerging fonts were recorded as sets of photographs, which enabled the students to compare characters, evaluate legibility, and make changes as appropriate to improve the unity among characters.

Each alphabet design evolved from the unique structures and limitations inherent in the initial grids. This project was realized as a collection of individual letterforms recorded on photographic cards and integrated into a poster presenting the results (Fig. 11-62).



**11-62** Designers: Aisha Bushawareb, Aldana Al-Malki, Fatema Al-Doh, Fatma, Al-Remaihi, Fatma Al-Jassim, Kholoud Al Sada, Mariam Gasan, Maryam Al-Homaid, Reem AlHajri, Rihab Mohamed, Rouda Al Thani, Sarah Husni, Abeer Al-Kubaisi, Angela Guy, Asma Al-Thani, Esra Abduljawad, Fatima Zainal, Hadeer Omar, Najla Al-Kuwari, Riam Ghani, Sahwa Elnakhli, Sara Qubrosi

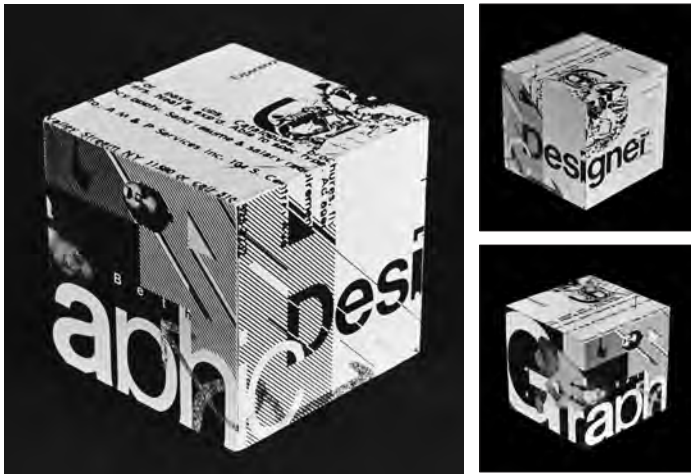
## Typographic cubes

R. Roger Remington

Rochester Institute of Technology

A visual presentation combining typography, images, and symbols was created as an extension of a self-assessment study by advanced design students (Figs. 11-63 to 11-65). The students made a formal analysis of their past experiences and future goals. This part of the project stressed research and information gathering. The collected materials were evaluated for their communicative effectiveness in a complex design.

Transforming diverse information into a three-dimensional cube poses a complex design problem. Each side of the cube functions as part of a totality; the six contiguous sides are graphically and communicatively integrated.



11-63 Designer: Beth April Smolev



11-64 Designer:  
Katherine St. James



11-65 Designer:  
Bruce Morgan

## Blending Latin and non-Latin typographic forms

Levi Hammett  
Leland Hill

Virginia Commonwealth University,  
Doha, Qatar

Objectives of this project included a rigorous process of form generation. After selecting an existing Latin letterform from a provided list, students were asked to identify a non-Latin letterform having similar but also contrasting formal characteristics. Students were then instructed to create a unique symbol, a blend of the visual characteristics of the two typographic forms. A large quantity of experimental processes were explored using different materials. First explored two-dimensionally, the final outcome was realized three-dimensionally. Foam prototypes led to the construction of highly crafted wooden typographic object signs (Figs. 11-66 to 11-68).



11-66 Designer: Fatima Bukhshaisha



11-67 Designer: Khadija Safri



11-68 Designer: Joanne Bermejo

## Type and image in the third dimension

Marcia Lausen

University of Illinois at Chicago

In 1952, Charles and Ray Eames created the House of Cards, a set of interlocking playing cards for children and adults. This project is an adaptation of that now-famous design system.

Students chose a subject and designed a set of twenty cards that communicate, on opposite sides of each card, the subject as a conceptual duality (as related to semiotics, color theory, symbolism, etc.). The interlocking feature of the cards allowed students to explore type and image in dimensional form and space.

Three excellent examples of this project include *Fourteen Generations*, the Holing family lineage traced to the voyage of the *Mayflower* (Fig. 11-69); *Catalog of Building Materials* (Fig. 11-70); and *Cards of Mystery*, where type and image were manipulated to express different emotions and sensations (Fig. 11-71).



11-69 Designer: Allison Holing



11-70 Designer: Chul Kam



11-71 Designer: Kyra Jacobs

## Typezine: my favorite typeface

Rob Carter  
Henk Groenendijk

Virginia Commonwealth University

After considering many possibilities, students were asked to select their favorite typeface—one with which they would choose to have a “love affair.” On the basis of the selected typefaces, six pages were designed by each student to be combined into a single collection (Figs. 11-72 and 11-73). The content consisted of the following: a title, type specimens, an image having a metaphorical relationship to the typeface, a love letter to the typeface, an experimental interpretation of the typeface, and a page revealing the research process.

This project exposes students to the enormous range of available typefaces, creating an awareness of the history, form, and function of different typefaces.



11-72 Designer: C. J. Hawn



11-73 Designer: Jung Kwon

**Typeface design: mind/machine**

Max Kisman  
 Rob Carter  
 Henk Groenendijk

Virginia Commonwealth University

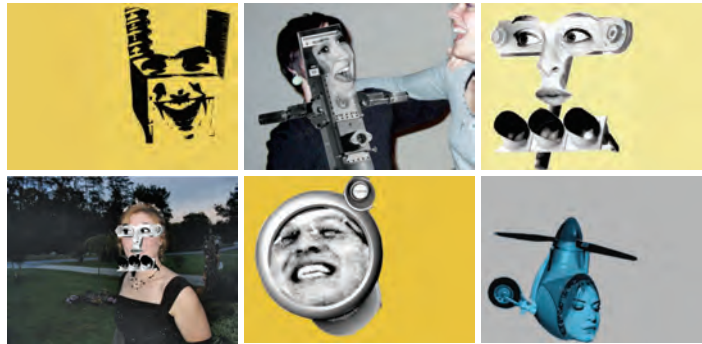
This project was launched by Max Kisman as part of a visiting lecture series. Because of the short length of his visit, the project was completed under the tutelage of Rob Carter and Henk Groenendijk. Students were asked to design a typeface based on the concept mind/machine. Kisman's premise that "an alphabet can be anything and anything can be an alphabet," encouraged students to pursue open-ended and unique designs. Typefaces

derived from a variety of methods and tools were realized using font design software (Figs. 11-74 and 11-77). Other components of the project include a short movie about each typeface (Figs. 11-75 and 11-78) and a folder containing specimens and a poster (Figs. 11-76 and 11-79). The two examples shown are the typefaces Alphemotibots and Franklin Zombie.



11-74

11-74 to 11-76  
 Designer: Erin Hall



11-75

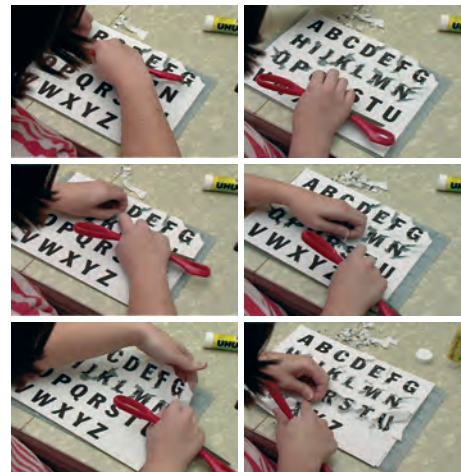


11-76

11-77 to 11-79  
 Designer: Ginny Winston



11-77



11-78



11-79

## Experimental typographic system

Sandra Maxa  
Mark Sanders

Pratt Institute

Italo Calvino's 1972 novel *Invisible Cities* is used as a basis for typographic experimentation and expression. In conversations between Marco Polo and Kublai Khan, fifty-five cities are described as physical spaces and as impressions of residents and memories of visitors. With poetic prose, Calvino presents an alternative to how we usually think about cities, using metaphors based on human nature, linguistics, and semiotics. These metaphors provide a springboard for typographic play and manipulation, thereby teaching students how to achieve more expressive communication.

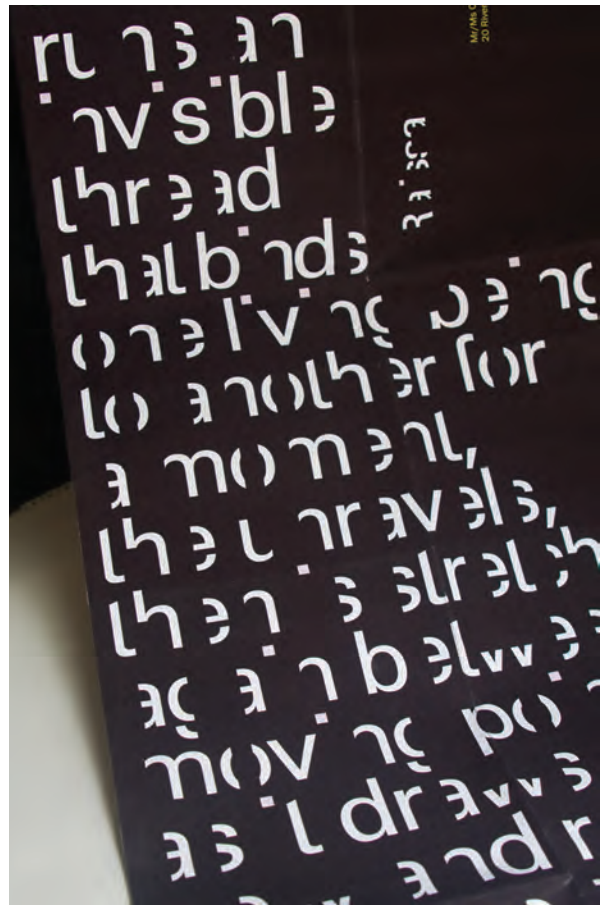
Students selected one of the cities from the book. Experimentation began with identifying descriptive words and aphorisms for the chosen city. Students explored how type can clarify a message, function symbolically, or emphasize meaning in a conceptual way. Work continued with physical alteration of letterforms, integration of texture or other images, and composition studies in an effort to create an authentic, impressionable representation of the city's geography, activities, and citizens. These investigations culminated in a book about the city (Fig. 11-80). Other system elements included a two-sided poster with a calendar of events (Fig. 11-81), voter registration cards (Fig. 11-82), and various digital materials.



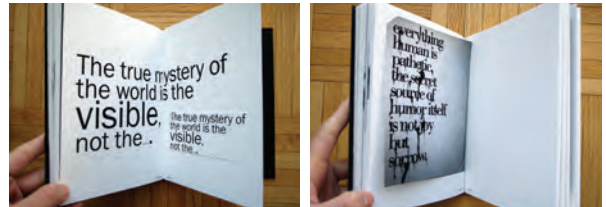
11-82

11-80 to 11-82

Designer: Chiu-Ping Chiu



11-81



11-80

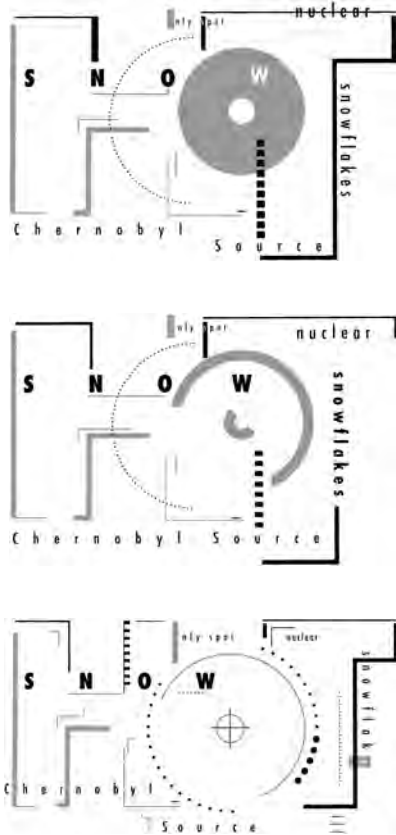
**Expressive typography:  
form amplifies message**

Douglas Higgins

University of Cincinnati

Design students explored the potential of software techniques to intensify typographic messages. Content derived from scientific newsletters was used to create typographic identifiers that clearly summarized factual information contained in the article. By employing a source of subject matter that is usually designed routinely, the temptation to appropriate a solution was minimized.

Special attention was given to the role of visual hierarchy and typographic contrast while developing drafting skills useful in professional practice. The ease with which the computer generated variations facilitated visual refinements (Fig. 11-83).



11-83 Designers: University of Cincinnati juniors

**Type as metaphor**

Warren Lehrer

SUNY Purchase

Students investigated a subject, and then, working with one to three primary texts, they developed four panels that approach typography as metaphor. The first panel was composed of paragraphs, sentences, and phrases; the second panel, individual words; the third panel, syllables; and the last panel, individual letters. Through research, critical thinking, mind mapping, and experimentation, students gave

form to metaphoric implications through compositional arrangement, juxtaposition, and typographic manipulation. Design students were pushed beyond utilitarian, overliteral, or preordained approaches to typography (Fig. 11-84 and 11-85).

*This project is a variation of the Type as Metaphor project by Mike Schmidt (University of Memphis), which was inspired by Andrew Blauvelt.*



11-84 Designer: Kerry De Bruce



11-85 Designer: Nakyoung Sung

**Form and counterform, scale and proportion:  
“Ne var, ne yok?”**

Erik Brandt

Minneapolis College of Art and Design

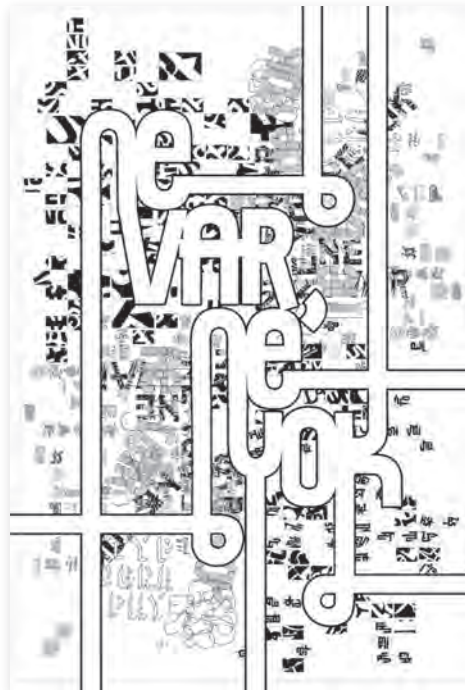
“Ne var, ne yok?” is an old-fashioned Turkish greeting that translates roughly to “What is, what isn’t?” These conglomerate posters represent the culmination of a series of five typographic experiments, each investigating critical aspects of form and counterform (Fig. 11-86). Literally, what is, and what isn’t? The formal challenge was to incorporate each and every one of hundreds of hand-drawn sketches they created, organize and perhaps resolve a few of them, and project this essential question (Figs. 11-87 and 11-88). Inspired by the introduction to Ara Güler’s seminal book, *Memories of Istanbul*.



11-86 Designer: Kayla Kern



11-87 Designer:  
Brian Mueller



11-88 Designer:  
Sara Zahedi



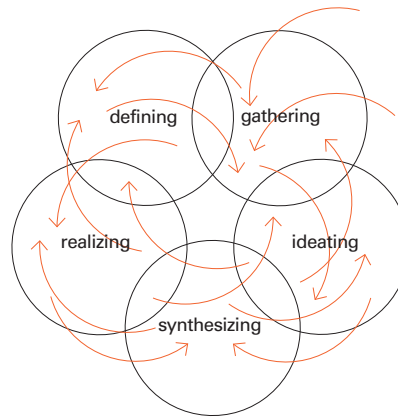


This chapter explores the design process and its role in typographic problem solving. Many models exist that schematically represent the design process. But in fact, there is no single process or method for working through problems. Most designers approach their work in a highly individual manner, some using a combination of traditional and digital tools and methods. Digital technology has played an enormous role in the evolution and individualization of design processes.

A well-known model of the design process consists of five steps, which are explained below. Traditionally, these steps have been thought to occur in a linear manner, beginning with *defining* the problem and progressing toward *realizing* the solution. But rarely, if ever, is the process so smooth and predictable. Design formulas certainly can be devised and followed letter by letter, ending in solutions lacking imagination and mental rigor. But perhaps it is more helpful to think of the process as five fields of activity that overlap one another in a multidimensional environment of intellectual discourse. The process is not linear; rather, it is one of interaction and ambiguity where paths appear to meander aimlessly toward durable and innovative solutions (Fig. 12-1).

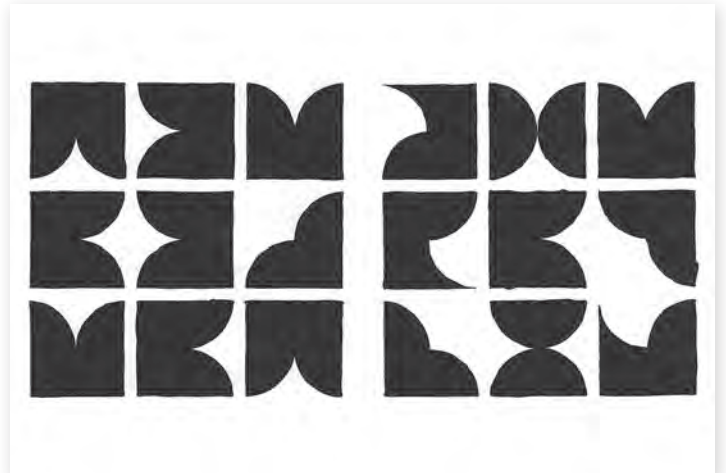
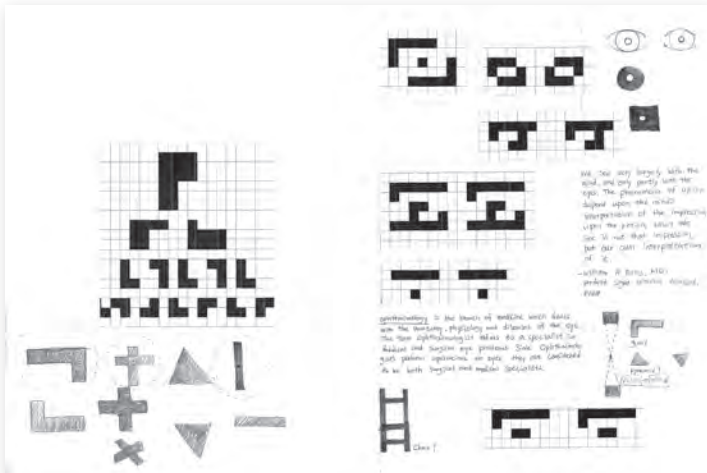
**Defining.** Immersion into the design process begins by defining the problem and its parameters. What are the client's needs, and what is the sphere of the client's activity? What are the goals and objectives of a potential solution? Who is the audience? What are the budget and production limitations? To answer these and other pertinent questions is to set the problem's parameters. These parameters may change at any time during the process and should not be too tightly defined.

**Gathering.** This phase provides the essential information needed by the designer regarding all aspects of the problem. This includes gathering information about the client, problem content, and production requirements. While gathering information, designers should make use of all available resources. Experts, libraries, museums, antique shops, and movie theaters are all excellent information-gathering venues. The Internet is also an invaluable resource.



**12-1** This typographic diagram reveals the design process as a flexible, dynamic, and unpredictable mental journey. Diverse lines of thought and activity lead eventually to closure.

**12-2** Selected spreads from sketchbooks reveal process drawings, thoughts, and visual notations. (Designers: Yoon-Young Chai, Brent McCormick, Matthew Stay)





**12-3** A process book unfolding in time documents the petroglyphs and pictographs of the Anasazi and Fremont cultures of the American southwest desert region. (Designer: Rob Carter)

As new developments arise later in the process, designers may find it necessary to gather additional information. A designer's curiosity is the key to informed practice and the ability to openly and clearly communicate with colleagues and clients.

**Ideating.** The worst enemy of the design process is thinking inside the proverbial box. The mind should be open to lateral, sideways, and unconventional thinking. Often, experienced designers rely upon formula or knowledge-based intuition to solve problems. But these approaches often limit the vast potential for new possibilities.

**Synthesizing.** Whereas the ideation phase is concerned with expanding possibilities, the synthesis phase concentrates on narrowing options and coming to closure. Often, the most effective solutions are readily apparent; they meet initial problem criteria and are formally and aesthetically superior to weaker solutions. Short of using sophisticated marketing techniques, the best way to evaluate the effectiveness of a solution is to weigh it point by point against the criteria established at the outset of the problem. However, if necessary and appropriate, the original criteria can change at this stage and the solution can be adjusted.

**Realizing.** Implementation cannot go forward without client approval. Usually, designers and clients communicate on a regular basis throughout the process, which prevents confusion and misunderstanding at the end. More often than not, clients are not visually oriented people, thus making it the designer's responsibility to educate them and communicate with them clearly and without the use of jargon or highly technical language. Such communication breeds mutual trust and respect. Upon final approval, the design moves into final production. Successful implementation requires the designer to

manage production processes such as printing and manufacturing with an eye on intermediate and final deadlines.

### Processing typographic form and ideas

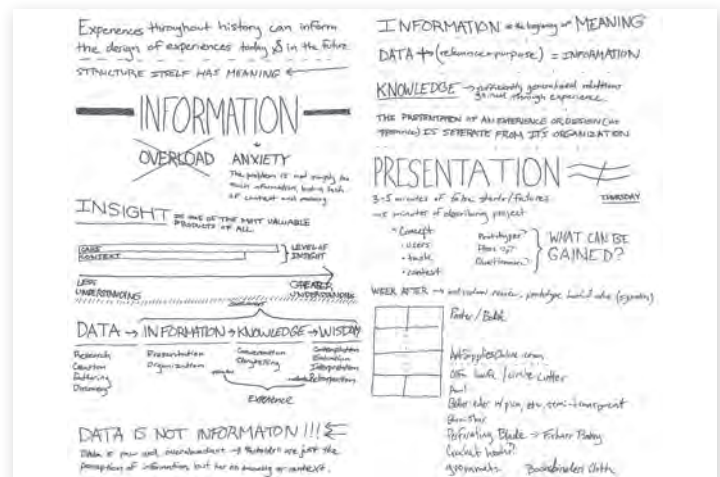
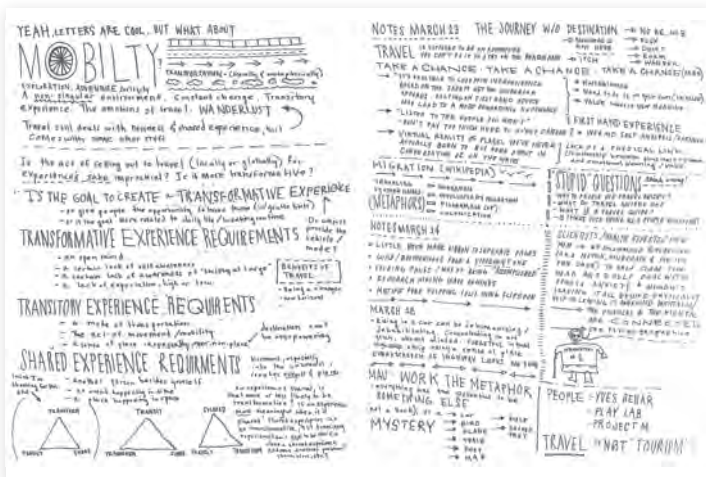
The typographic design process involves a search for typographic form and its meaning. Any change in form (syntactics) results in a shift in meaning (semantics). The goal of typographic problem solving is to formulate ideas based on form and its meaning. The following methods and techniques aid the designer in this search.

**Sketchbooks and process books.** Highly curious individuals, designers crave visual stimuli and make a habit of recording daily visual experiences. Through camera lens and sketchbook, they record thoughts and images by drawing, writing, photographing, and collecting.

Effective sketchbooks do not resemble typical scrapbooks. They reflect ordinary as well as extraordinary experiences during the course of everyday working and living. Sketchbooks function as a collection, a repository of things found and observed, of the visible and invisible, the concrete and abstract. They are both public and private.

Sketchbooks contain a variety of content, from nonsensical doodles to visual schemas of scientific phenomena. Growing and expanding regularly, they reflect the individual designer's mental flights, observations, and voice (Fig. 12-2).

While a sketchbook is a continuing exercise in recording visual and verbal ideas, a process book records specific processes as they unfold (Fig. 12-3). Keeping a process book aids the designer in staying consciously aware of the activities and thinking leading to problem solutions.





**12-5** Polar opposition occurs in both the syntactic and semantic realms. In this example, the letters S and T stand syntactically in opposition in terms of shape and weight. The lightness and solitude of peace stand in opposition to the heaviness and aggressiveness of war.

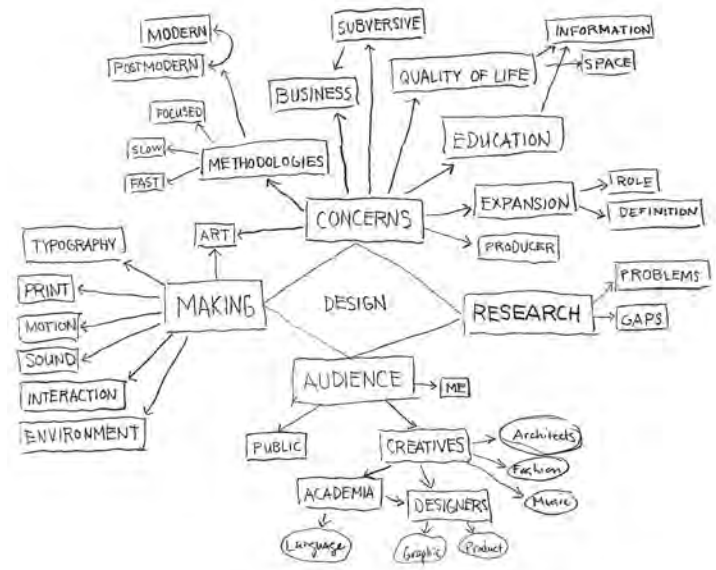
**Brainstorming.** Brainstorming is perhaps the most familiar ideation strategy for design teams. Though it has its detractors, it remains an effective approach if conducted according to basic ground rules. These include deferring judgment of all ideas during a session, generating as many ideas as possible, and being open to both good and bad ideas. The basic theory is that the group is a deep reservoir of experience, and that one idea leads to new and unique possibilities.

**Mind mapping.** Related to free association, mind mapping is a nonlinear brainstorming process with a word or concept at its nucleus. By making lightning-quick associations of the concept, a web of related themes reflecting mental patterns emerges (Fig. 12-4). The satellite concepts generated from mind mapping help designers identify areas of possible content, both visual and verbal.

**Word lists and interaction matrix structures.** Making lists of analogous words and descriptive phrases related to specific umbrella topics, or spontaneously generating random words derived from brainstorming or mind mapping, can stimulate thinking and open the mind to broader visual possibilities. When lists of words are integrated into the structure of a matrix, new and improbable relationships can be forged between unlikely and contrasting word pairs. Often the most intriguing concepts emerge from the interaction of polar or nearly polar opposites. A sign is understood more clearly and achieves greater impact when juxtaposed with an opposite sign (Fig. 12-5). Interaction matrix structures can also accommodate the interaction of words with images, or images with other images. Collecting an abundance of material related to given content and applying it to an interaction matrix can aid the designer in identifying and defining a problem, or in developing fresh ideas outside of conventional thinking. When engaging in these processes, it is helpful to unleash the play instinct, release the child within, and hush any tendency toward self-criticism. In the sample matrix structure, the red dots are placed at points of potential interaction (Fig. 12-6).

**Visual notations and comprehensives.** Ideas that remain in the mind and are not articulated visually do little to move the process ahead. Design students often convey their ideas to teachers and classmates verbally. This is where ideas begin, but until they are expressed visually in the form of sketches or notations, their effectiveness cannot be evaluated. Thumbnail notations can be created with a variety of tools and materials, from pencil and paper to computer.

The design process can be thought of as beginning at the broad base of a pyramid. Options are expansive at first, but as one moves through the pyramid toward its apex, the vision of a viable outcome—the solution to a problem—becomes more specific. The process may begin as a mind-mapping session, progress into a series of general notations, and then advance to comprehensive sketches. A project conducted at Rutgers University by Professor Ned Drew is used to illustrate this progression. Visual notations and sketches leading to the design of banknotes are shown (Figs. 12-7 to 12-13; see also Figs. 11-60 and 11-61).



**12-4** Any subject can serve as the nucleus for a mind map. Mind mapping is an invaluable exercise wherein the designer's thought processes are revealed as an ever-expanding universe of possibility and potential. (Designer: Matt Klimas)

elephant										fear
giraffe										courage
possum										hate
chipmunk										lust
whale										resentment
eagle										anger
ant										trust
rattlesnake										seduction
iguana										happiness
porcupine										frustration

**12-6**

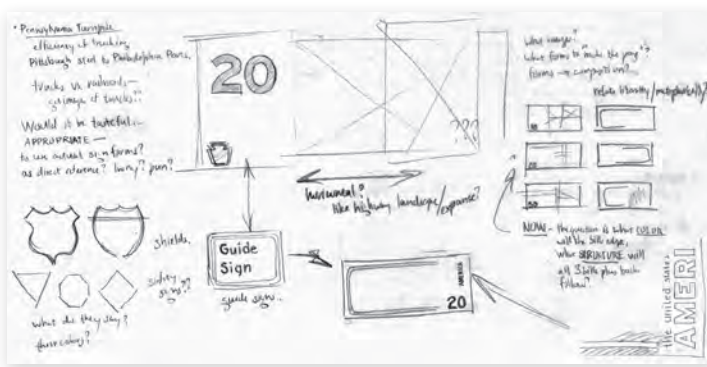


**12-7** Gathering images and organizing them thematically aids in generating ideas. (Designer: Jessica Salas)

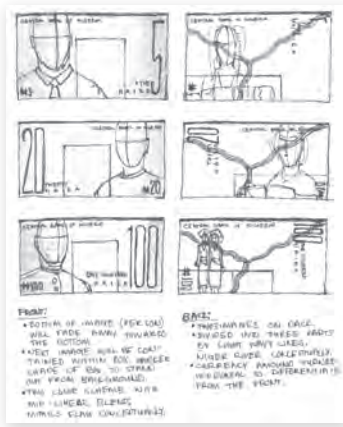


**12-12 and 12-13**  
A distinct progression in visual refinement can be seen in this comparison of a preliminary and a final composition. (Designer: Roland Illog)

**12-13**

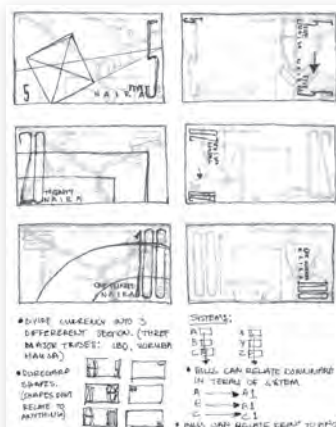


**12-8** Preliminary visual notations exploring a wide range of concepts and typographic concerns. (Designer: Alan Bayot)



**12-9 and 12-10** Sketches with accompanying notes explore thematic possibilities. (Designer: Chinedue Chukwu)

**12-10**

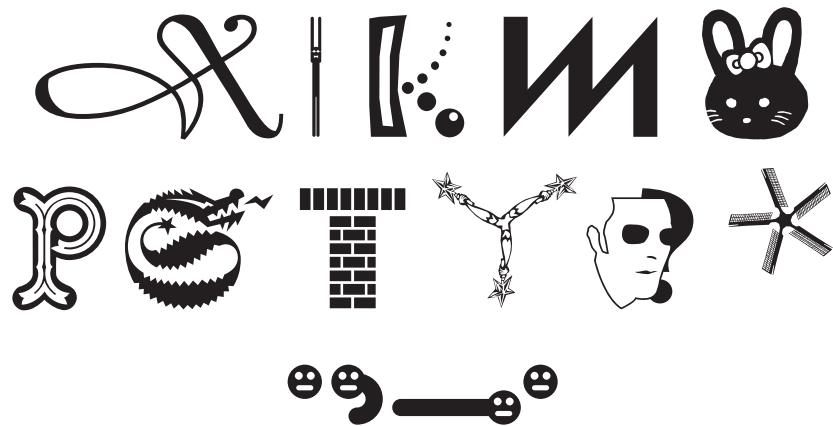


**12-11** Small but highly articulated thumbnail notations search for a typographic system that will unify the series of banknotes. (Designer: Roland Illog)

**Metaphorical thinking.** In language, a metaphor is a subset of analogy, a figure of speech suggesting that something appears, sounds, or behaves like something else. Letterforms can suggest objects and ideas beyond their function as symbols for spoken language. They possess visual qualities and can be manipulated to suggest other objects, sounds, and images. Typographic metaphors are derived through any number of syntactic manipulations, including those of spacing, position, rhythmic sequencing, and color. Metaphorical thinking is a conceptual process focused on finding relationships between dissimilar ideas and objects; some are highly abstract, others more concrete. Metaphors are successful when the mind makes a conceptual leap and perceives shifts in context. New contexts are established when visual signs are combined to make new signs or when the mind makes an association based on past experience. Fragmented and exploding letterforms suggest fireworks; forms organized into a syncopated rhythm imply a jazz orchestra. Every typeface is also a potential metaphor capable of suggesting meaning beyond the mere content of the words and text. Some typefaces march, others dance (Figs. 12-14 and 12-15).



**12-14** Reorganizing letters in the word redundancy translates into a typographic metaphor of the word. (Designer: Todd Timney)



**12-15** The typeface Dutch Doubles, with designs by thirty-seven Dutch type designers. Designers of the selected letters and symbols shown:

A: Jacques Le Bailly  
I: Assi Kootstra  
K: Sander Kessels  
M: Marc Lubbers

O: Harmen Liemburg  
P: Peter Bil'ak  
S: Swip Stolk  
T: Richard Niessen

Y: Mark van Wageningen  
?: Rutger Middendorp  
\*: Martin Majoor  
, . \_ : Max Kisman



**12-16** A pasteboard in an application measuring approximately 36 x 16 inches serves as a large digital sketch pad for the development and processing of form and ideas. (Designer: Guilherme Villar)

**Typographic processes and the computer.**

With the computer as a major design tool, designers often employ hybrid problem-solving methods. Some begin with hand-drawn sketches and proceed to the computer to refine and produce the final designs. Others scan rough sketches and import them as templates into chosen applications. In a reciprocal process, Swiss designer Jean-Benoît Lévy often begins with hand sketches, redraws them on a computer, prints them out, applies changes and color by hand, and returns to the computer once again. Designer Guilherme Villar creates digital pasteboards, often containing hundreds of elements that are combined and manipulated in search of problem solutions (Fig. 12-16). It is not unusual for designers to begin the problem-solving process by going directly to the computer and developing ideas by means of digital sketches and permutations. All approaches are valid as long as the process delivers an effective and creative solution. Each designer is faced with embracing a unique relationship with the computer and all other methods, tools, and new techniques that emerge.

When using a computer as a design tool, file management becomes an essential part of the design process and a design problem in and of itself. Diligently saving each permutation as its own file for possible future reference or using a revision control system such as Git are strategies for cataloging every step of the process. Another major challenge facing designers is how to adequately archive digital files for future reference and, as appropriate, for posterity.

**Morphologies.** A morphology is a menu of visual possibilities. It consists of a list of syntactic and/or semantic variables that can be systematically or randomly explored in a search for typographic solutions (Fig. 12-17). Morphologies can be tailored in size and scope to accommodate a wide range of problems and applications. Just as the twenty-six letters of the alphabet are combined to form an infinite number of words, so too can morphological factors be employed to achieve a vast number of typographic effects. When used freely and creatively, morphologies liberate rather than constrain the creative mind. Several precedents exist for the development and use of morphologies in typographic design practice, including the pioneering work of Karl Gerstner, who developed logical morphologies based on the formal language of type. Gerstner believes that working with “morphological boxes” enables randomness, serendipity, and a kind of invention. He wrote, “Working by the morphological method is value-free and unprejudiced—and at least makes it easier to find pioneer solutions where they are possible.”

**12-17** This morphology features a collection of typographic factors that can be freely appropriated in the course of solving typographic problems. The challenge and joy of using a morphology is to combine the components of the various categories in a search for visual alternatives.

The boxes filled with black represent other possibilities that may be added as needed.

Typographic factors									
1.1 case	1.1.1 upper	1.1.2 lower	1.1.3 combination						
1.2 face	1.2.1 serif	1.2.2 sans serif	1.2.3 script	1.2.4 decorative	1.2.5 combination				
1.3 size	1.3.1 small	1.3.2 medium	1.3.3 large	1.3.4 combination					
1.4 slant	1.4.1 slight	1.4.2 medium	1.4.3 extreme	1.4.4 combination					
1.5 weight	1.5.1 light	1.5.2 medium	1.5.3 heavy	1.5.4 combination					
1.6 width	1.6.1 narrow	1.6.2 medium	1.6.3 wide	1.6.4 combination					
Form factors									
2.1 blending	2.1.1 linear	2.1.2 radial	2.1.3 combination						
2.2 distortion	2.2.1 fragmenting	2.2.2 skewing	2.2.3 bending	2.2.4 stretching	2.2.5 blurring	2.2.6 inverting	2.2.7 mutilating	2.2.8 combination	
2.3 elaboration	2.3.1 addition	2.3.2 subtraction	2.3.3 extension	2.3.4 combination					
2.4 outline	2.4.1 thin	2.4.2 medium	2.4.3 thick	2.4.4 broken	2.4.5 combination				
2.5 texture	2.5.1 fine	2.5.2 coarse	2.5.3 regular	2.5.4 irregular	2.5.5 combination				
2.6 dimensionality	2.6.1 volumetric	2.6.2 shadowing	2.6.3 combination						
2.7 tonality	2.7.1 light	2.7.2 medium	2.7.3 dark	2.7.4 combination					
Space factors									
3.1 balance	3.1.1 symmetrical	3.1.2 asymmetrical	3.1.3 combination						
3.2 direction	3.2.1 horizontal	3.2.2 vertical	3.2.3 diagonal	3.2.4 circular	3.2.5 combination				
3.3 ground	3.3.1 advancing	3.3.2 receding	3.3.3 combination						
3.4 grouping	3.4.1 consonant	3.4.2 dissonant	3.4.3 combination						
3.5 proximity	3.5.1 overlapping	3.5.2 touching	3.5.3 separating	3.5.4 combination					
3.6 repetition	3.6.1 few	3.6.2 many	3.6.3 random	3.6.4 pattern	3.6.5 combination				
3.7 rhythm	3.7.1 regular	3.7.2 irregular	3.7.3 alternating	3.7.4 progressive	3.7.5 combination				
3.8 rotation	3.8.1 slight	3.8.2 moderate	3.8.3 extreme	3.8.4 combination					
Support factors									
4.1 ruled lines	4.1.1 horizontal	4.1.2 vertical	4.1.3 diagonal	4.1.4 curved	4.1.5 stair-stepped	4.1.6 thin	4.1.7 medium	4.1.8 thick	
4.2 shapes	4.2.1 geometric	4.2.2 organic	4.2.3 background	4.2.4 adjacent	4.2.5 combination				
4.3 symbols	4.3.1 normal	4.3.2 manipulated	4.3.3 combination						
4.4 images	4.4.1 background	4.4.2 adjacent	4.4.3 contained	4.4.4 manipulated	4.4.5 combination				



## TYPOGRAPHIC DESIGN PROCESS: CASE STUDY

### Exploring typographic permutations

This project commenced in the postgraduate program in graphic design at the Basel School of Design in Switzerland. The encouragement and criticism of Wolfgang Weingart are gratefully acknowledged.

12-18



The range of potential solutions to a typographic problem is seemingly infinite. Variations, permutations, and transformations can be developed, exploring changes in both fundamental aspects and subtle details. Processing typographic form in search of solutions involves a process of insertion, substitution, and omission. After freely exploring ideas and selecting those for further development, the designer explores many permutations by inserting elements into the typographic space. The space may be organized by a predetermined grid structure, or the visual dynamics of the elements may define their own structures. This initial process enables the designer to consider the placement of parts, and most important, the relationship of the parts to the whole. Limiting initial elements to the same size and weight provides a solid base for the expansion of syntactic possibilities.

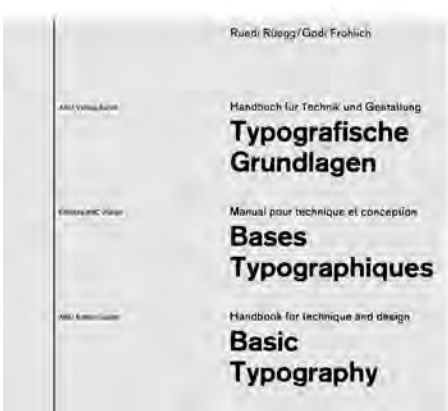
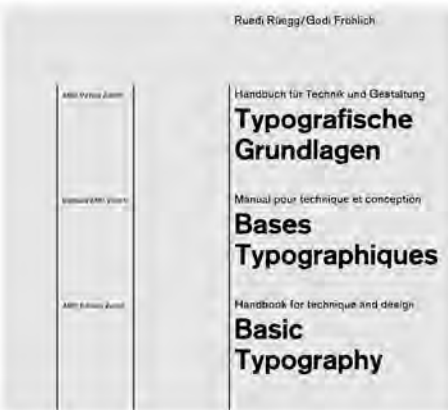
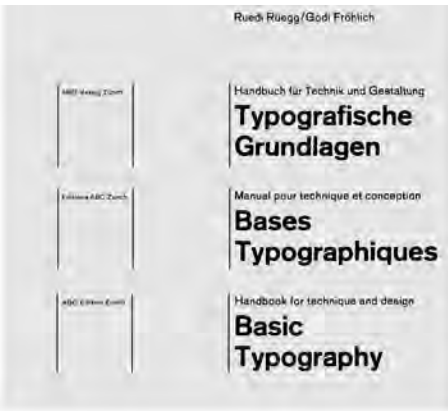
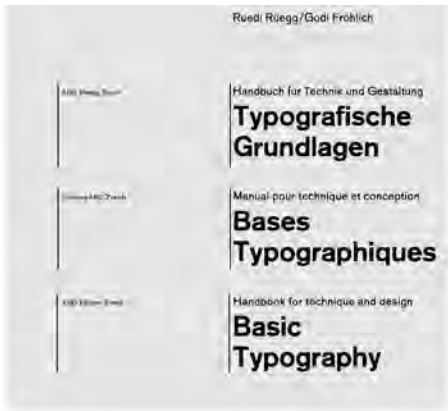
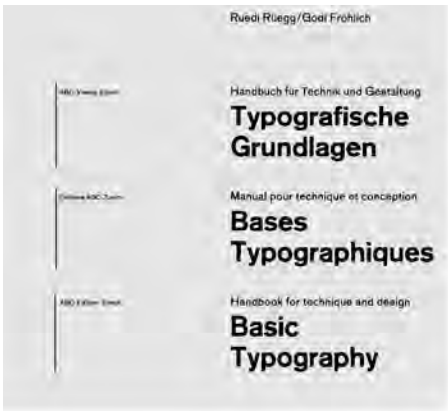
The substitution process replaces initial elements with alternative elements in an effort to test and improve the hierarchy and legibility of the text, as well as to heighten visual resonance. This is achieved by assigning different sizes, weights, spacings, positions, and other syntactic variations.

The omission phase eliminates superfluous or meaningless elements, reduces elements to their essential form, and simplifies the typographic field as a whole. The process then repeats itself until all possibilities are exhausted and a viable solution to the problem is revealed.

To create a title page, designer Thomas Detrie developed a sequence of possible solutions. Detrie's approach to the design process is based on his beliefs that "solutions come from within the problem" and "ideas come from working with the material and are not supplied or preconceived."

Detrie's personal problem-solving method is a three-stage design process: preliminary exploration, message investigation, and visualization of solutions. In his preliminary exploration, Detrie considered the nature and content of the problem and made sketches to explore possible directions. Typographic information (title, subtitle, authors, and publisher) was assigned priority.

Detrie raised the question, "For the book *Basic Typography*, what is basic to typography that can be signified in a visual solution?" His answer established parameters appropriate to the given problem: a right-angled system, black on white, printed and unprinted areas, and a clear message. These considerations became the criteria for the investigation.



To investigate the range of typographic possibilities for the clear presentation of the manuscript, actual type was set and used in the initial visualizations for accuracy. A sans serif face was chosen, and the message was printed in three sizes and two weights for use as raw material in these typographic studies. While maintaining the message priorities determined in the first stage, a variety of visual solutions were executed.

Decisions were made through subtle comparisons of type sizes and weights to select those that provided the best visual balance and message conveyance. Detrie did not place the type upon a predetermined grid; rather, he allowed the organizational structure to evolve from the process of working with the type proofs. Selecting the basic typographic arrangement was an intermediate step in the design process (Fig. 12-18).

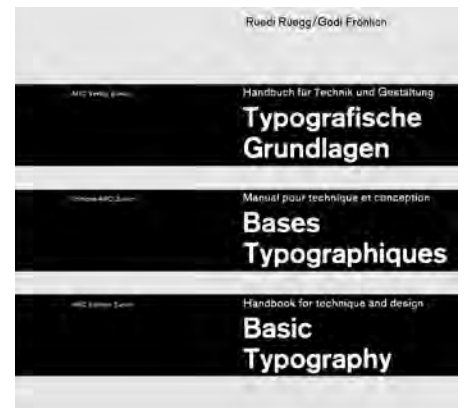
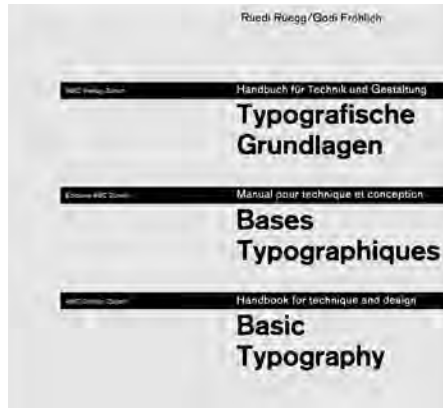
Next, Detrie developed a series of variations of this arrangement by investigating the application of horizontal and vertical lines, positive and negative shapes with positive type, and positive and negative shapes with positive and reversed type. Figure 12-19 demonstrates nine permutations with the application of vertical lines to the basic typographic schema. Permutations range from type alone to the addition of linear and rectilinear elements to a solid black page with reversed type (Fig. 12-20). A graded arrangement of twenty-four of the many solutions is shown in Figure 12-21. Observe the horizontal and vertical sequencing.

Unlimited solutions are possible in typographic design, and selection becomes an integral part of the design process. Not every possible solution is appropriate; the designer must continually evaluate each one against the problem criteria.



12-20





Ernest Bernhardi engaged in a series of free typographic experiments with the intent of broadening his understanding of typographic syntax and exploring new forms of typographic expression. For this project, he thought of typography not as an end or a result but rather as part of a continuous, transformative process shared by other forms of expression: automatic writing/drawing, collage, and photography.

To carve out a focused span of time for intense investigation, Bernhardi isolated himself in his work space for a period of several months. He states, “I purposely shut myself off from the outside in an effort to enter fractions of bliss, and to lead my thoughts effortlessly into a state of peace and humility. The process, the activity of graphic design, became my sanctuary.”

Seldom sitting, Bernhardi worked on his feet. He explains, “standing forces me out of the comfortable chair—the chair where slouching and chin-resting-on-the-hand occurs. These seemingly irrelevant and harmless behaviors mark the beginning of disengagement in the design process.” Over time, his dance-like movements formed patterns of behavior resembling a performance.

Bernhardi’s minimal studio, located in a small attic space, was primarily analog in scope. It was equipped with paper, a copy machine, traditional tools and supplies, and two studio lights. He also used digital tools: a computer, digital camera, printer, and scanner. He utilized these conventional tools and materials as a brazen nonconformist.

He began, without predetermined expectations or intentions, a process of automatic writing and sketching. Responding to visual and verbal stimuli, he sought to master the art of response rather than the art of planning, for response suggests process, and planning suggests product. This exercise encouraged mental and physical agility, and response through action and improvisation (Figs. 12-22 to 12-25). These highly focused yet unconscious notations then served as typographic material for new explorations in typographic form and structure (Fig. 12-26).

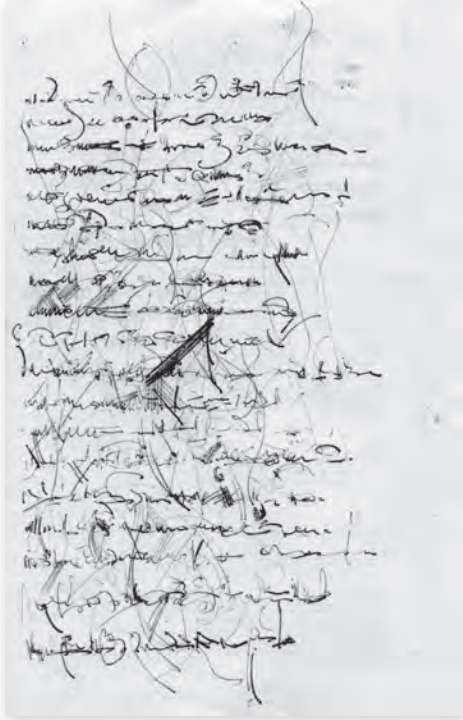


**12-22** A kinetic notation reveals the process of thought transformed into visible language.



**12-23**

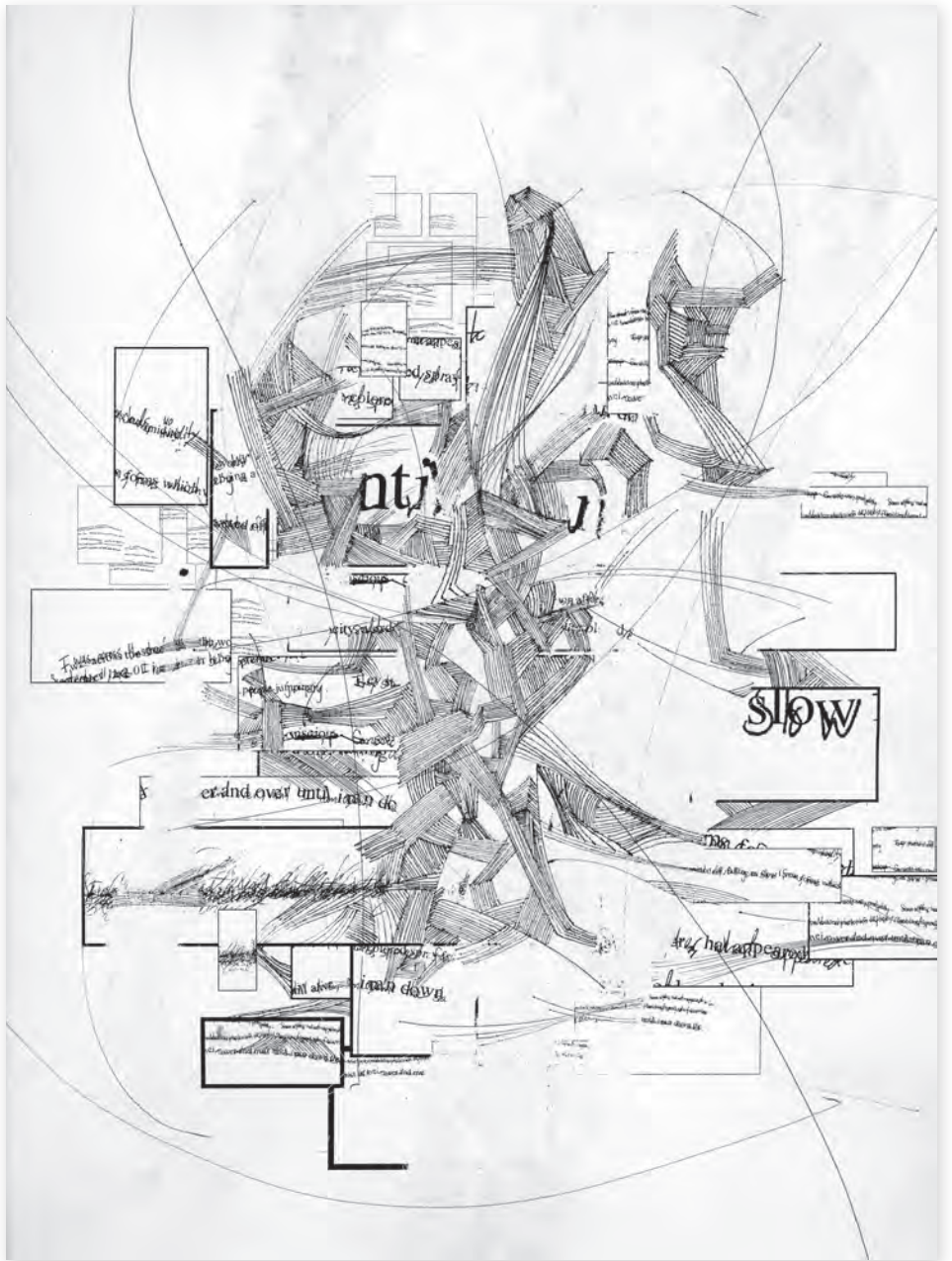
12-23 to 12-25 Having roots in Surrealist automatism, "visual sentences" emerge through automatic writing.



12-24



12-25



12-26 Automatic writing and sketching combined with spontaneous typographic fragments unveils an intricate and expressive typographic environment.

---

Bernhardi responded to various content using a wide variety of materials and processes. Hand-drawn and computer-generated elements were liberally combined in search of uncommon visual effects.

Operations were quickly executed and included cutting, slicing, tearing, crumpling, scratching, scribbling, and taping (Figs. **12-27 to 12-29**). He repeated particular actions until evocative and enigmatic forms emerged, and he remained open to abruptly breaking away in search of new typographic effects (Fig. **12-30**). Working with physical material drove the process.

Compositions developed by adding and subtracting elements. Discarded parts, such as excess paper trimmed from previous exercises, were often used in subsequent studies. Adding type provoked subtraction and an urge to further tear at the surface. Conversely, tearing suggested the adding of new layers. Eventually, an abstract, formal language emerged.

Previous experiments were combined and manipulated into new forms using a combination of tools and techniques. For example, using the copy machine unconventionally (Figs. **12-31 to 12-34**), manipulating paper to suggest topographic space (Fig. **12-35**), and photographing through “windows” to expose hidden layers (Fig. **12-36**) lent unusual visual effects.



**12-27**

**12-27 to 12-29** Armed with an attitude described by the late designer Paul Rand as the “play instinct,” Bernhardi, rather unconsciously and spontaneously, transformed typographic elements in search of possible new forms and meaning.

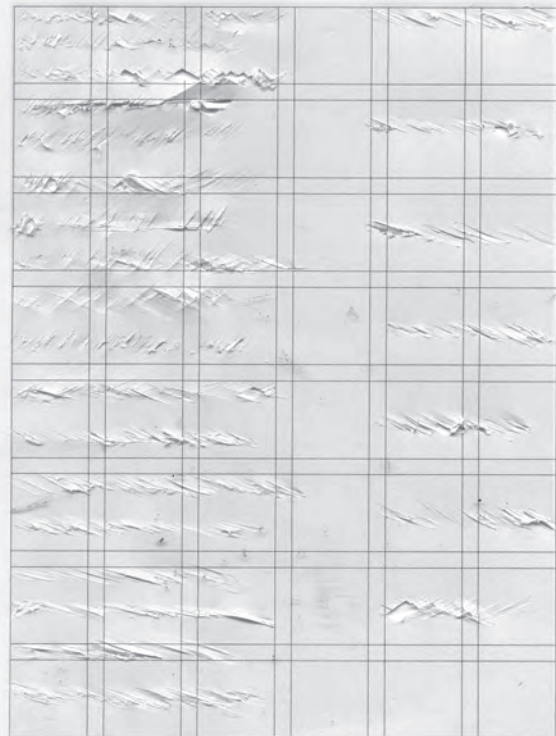


**12-28**



**12-29**

**12-30** In an extension of automatic writing, Bernhardi scratched sentences onto a typographic grid.





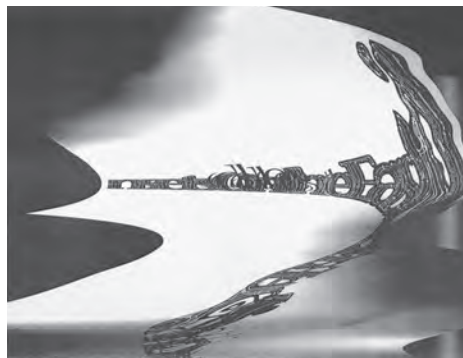


12-31

12-31 to 12-34 *Typographic elements are further processed into compelling images through the serendipitous effects of a copy machine.*



12-32



12-33



12-34

12-35 *Hand-molded strands of typographic text suggest three-dimensional topographical maps.*



12-36 *A digital camera is used to capture a typographic layer discovered through a "window."*

Visual transformations occurred instinctively and seamlessly. Various kinds of tape, including clear packaging tape, contributed to amorphous layers characterized by light, reflection, and fragmentation (Figs. 12-37 to 12-39). These mystifying surfaces force the viewer's eye into and out of focus, providing mystery and intrigue.

Bernhardi's typographic approach is one of adaptability and expansion. The attitude is similar to that of the composer John Cage, who viewed the random sounds of the surrounding environment—car horns, voices, falling objects, and footsteps—as a sonic system of signs comprising an abstract language. From within a seeming clutter, Bernhardi identified unexpected spatial relationships, the emergence of unusual forms and textures, and the potential for new meaning and applications.

The investigation culminated as a series of large-scale, tiled posters constructed from Bernhardi's amassed collection of typographic experiments (Figs. 12-40 to 12-43). These conclusive permutations visually and verbally recorded and expressed his growth and transformation as a typographic designer.



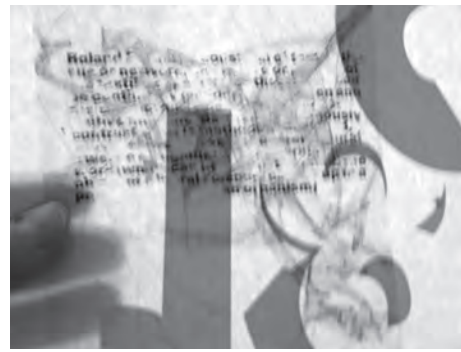
**12-37 and 12-38**  
*Layer upon layer of typographic forms and textures were embedded in clear tape. Details of this evolving tapestry provided new vignettes that were photographed and integrated as material in further explorations.*

**12-37**



**12-38**

**12-39** Bernhardi explored reflected light, shadow, and impromptu photography to provide typographic form with sensory qualities.



**12-40 to 12-43** These posters represent a final stage in Bernhardi's investigations, but they also beg further transformation in a perpetual design process.

**12-40**



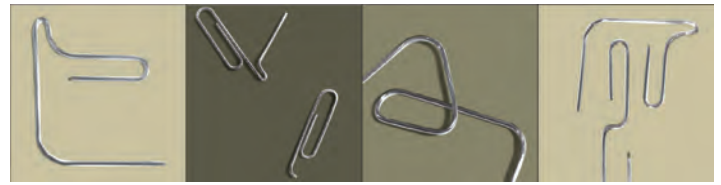
**12-41**





## TYPOGRAPHIC DESIGN PROCESS: CASE STUDY

### Ludd: a typographic expedition



12-44 Bent paper clips informed the original iteration of the Ludd typeface.

Ned Drew's self-initiated project began as a simple response to his dissatisfaction with the current design of U.S. currency. It grew, however, into an elaborate and multifaceted investigation incorporating various typographic and image studies as well as letterpress printing. Ultimately this process led to the creation of the typeface Ludd—an allusion to Ned Ludd, the symbolic leader of the Luddites, an early-nineteenth-century movement that protested the social and economic changes spurred by the new technology of the Industrial Revolution. Far from decrying technology in design, however, Drew's eponym invokes an attempt to balance the tension between the digital and letterpress technology that influenced the typeface's creation.

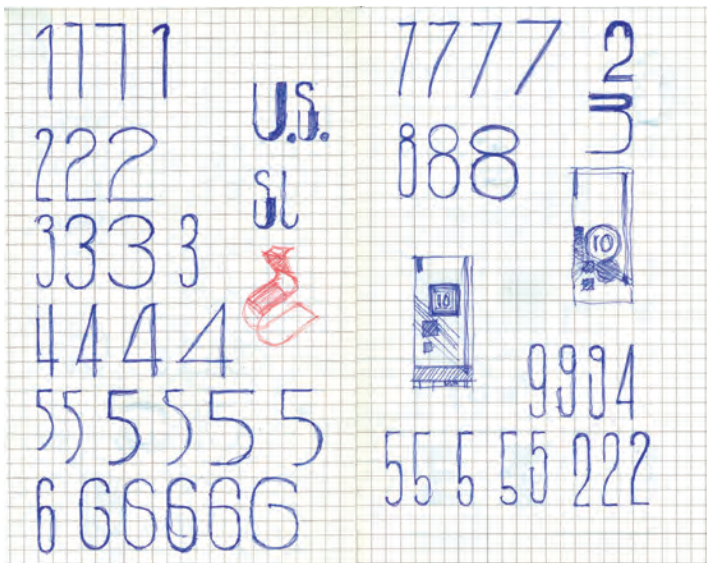
#### Inspiration

Everyday life often provides subtle but pivotal motivation for creation. A simple object or observation may facilitate a long journey of discovery and creation. For this project, a paper clip, with its curves, efficient proportions, and minimal form, was a catalyst in the creation

of a system of modular numerals for currency that works together with different weights and proportions. Bending a paper clip created unique shapes and letterforms (Fig. 12-44). Using these shapes/letterforms and a grid, a progressive sequence was developed (Fig. 12-45). The proportions were then refined by maneuvering the basic units found in the simple structure.

Objects and images Drew had collected and his memory of the design of other significant items formally expanded the previous structural investigations. These disparate, eclectic objects and observations manifested themselves in the overall look and feel of this system (Fig. 12-46). The roundness and soft forms of the early 1960s Volkswagen Bug, the graceful organic curves of human anatomy, and the beautifully refined proportions and elegant simplicity of the Japanese national flag were all inspirations. Additionally, Unifers, with its extended family and system of organization, the construction and geometric strokes and fragments of Futura, and the curvilinear elegance found in the ball terminals of Bodoni's namesake typeface all informed the design.

12-45 A grid brought unity to early letterforms.



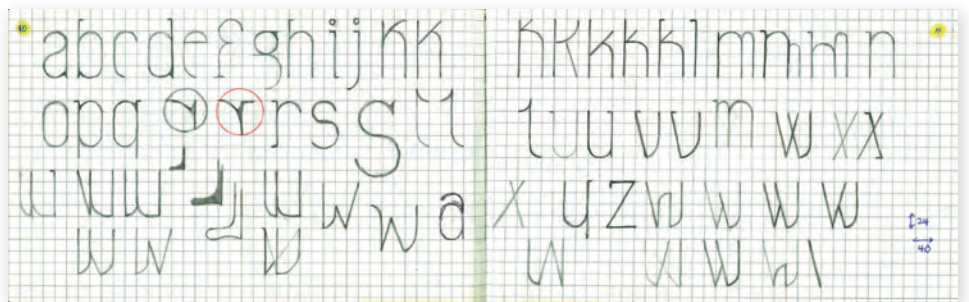
12-46 Samples of objects that further inspired the Ludd typeface.



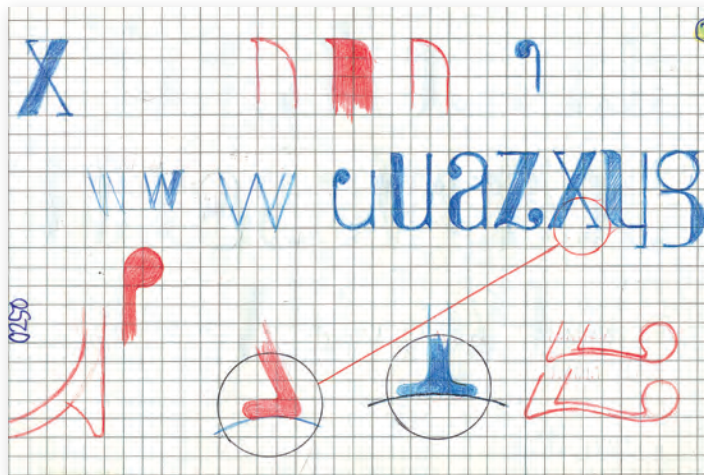
### Type and the design process

To transform these disparate inspirations and studies into a typeface, Drew had to remove them from their original context. Establishing a modular grid imposed a structural system that organized these eclectic references and established Ludd's visual vocabulary. Because of the grid, Ludd has a substantial geometric look and feel that is expressed through unique interpretations of typographic forms.

Remaining open to new discoveries and eclectic combinations was essential to the process. Several letterforms are unconventional, displaying a quirky incompleteness and progressive typographic appearance (Fig. 12-47). The Ludd typeface, as an element of the currency project, bears the identity of the process and influences contributing to its creation. But by also leveraging the history and conventions of typographic design, this project offers the unique challenge of working both with and against established models, patterns, and conformities (Fig. 12-48).



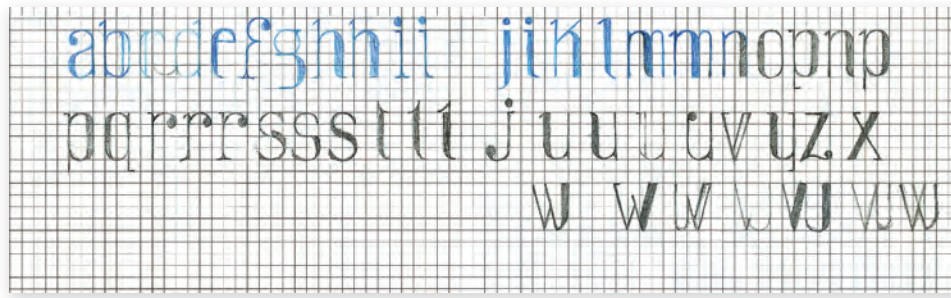
12-47 Exploration of letterform quirks.



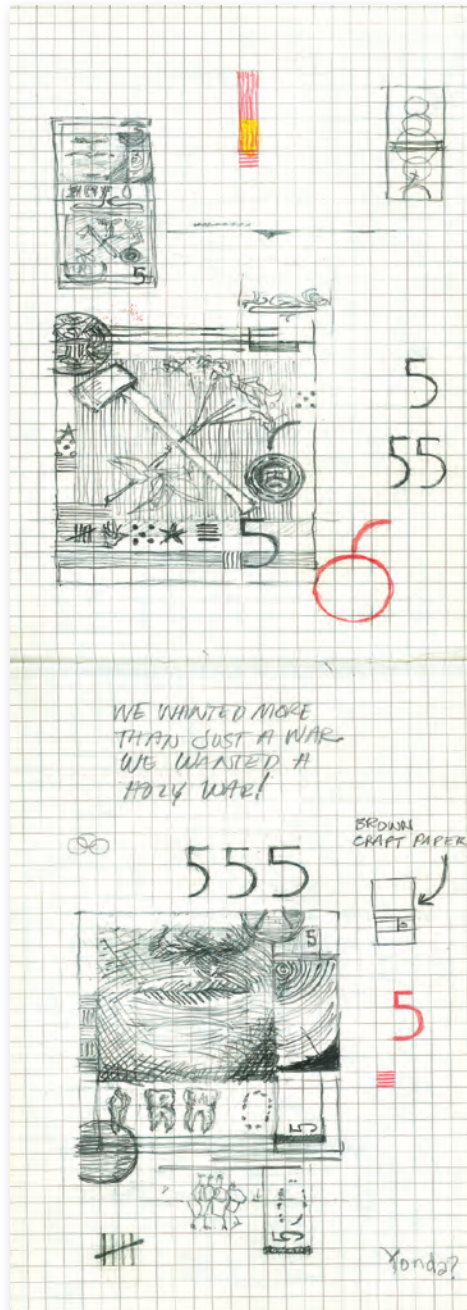
12-48 The Ludd typeface is informed by a deep understanding of typeface design conventions through working both with and against them.



12-49 The letter a shown in all weights and orientations of the type family.



**12-50 and 12-51**  
*Drawing allowed both more nimble experimentation and more deliberate development.*



**Expanding the system**

Drew's initial Ludd typeface experiments with the design of numerals grew into planning and creating an entire type family. Starting with the mono weighted Ludd 1.1 and working to the heavier Ludd 1.7 (with their corresponding obliques), Drew followed a natural progression from an extremely light style to a heavy style. As he proceeded to explore, he forged an unusual path, adding weight asymmetrically to the existing frames and creating unusual and seemingly incomplete versions (Ludd 2.3 through 2.6). These versions gave way to developing a semi-san serif version (Ludd 3.3 through 3.6) with contrasting weights (thicks and thins) similar to a serif face but with tapered ascenders and descenders, stems, finials, and strokes, and the inclusion of ball terminals. Finally, he designed a serif version with three different weights (Ludd 4.3 through 4.8) (Fig. 12-49).

**Learning through making**

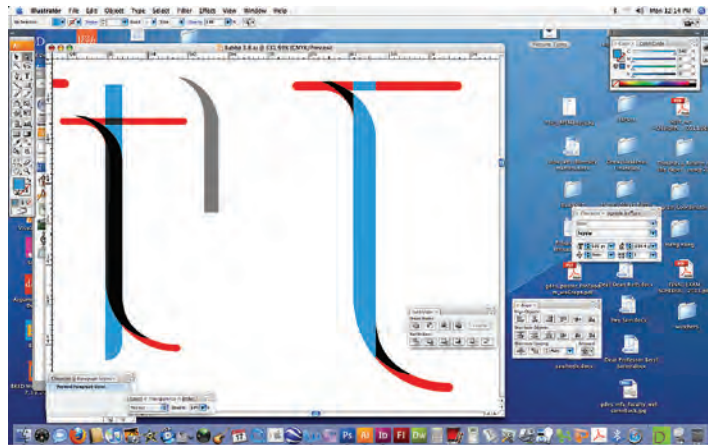
Throughout Drew's investigation, one of his major concerns was to reconnect with making, drawing, and visualizing ideas. The sketching phase was critical because this manual design process allowed him thoughtful review and evaluation during each step of the evolution. A slower pace created a sphere in which missteps, chance combinations, and unsatisfactory strategies could inform new directions of exploration. Drawing was a way to fuse the physical making with the thinking, to build trust in the creative process, and to push beyond the sense of isolation and uncertainty that he sometimes felt as the project unfolded (Figs. 12-50 and 12-51).

As a broad approach, this ensured both quality and control of each step of the process while also reconnecting with manual craft. As mechanical and technical refinements were being made to the typeface (Fig. 12-52), Drew further engaged hands-on creation by making test character samples of the Ludd typeface from polymer (Fig. 12-53) and laser-cut plates (Fig. 12-54), then using letterpress printing to apply the type design and critique it (Fig. 12-55).

In the manner of a letterpress operator's "make-ready" process where alignments, inks, and other mechanical aspects of the printing process are tweaked, Drew used letterpress printing as a test and application of the visual characteristics of Ludd as it evolved toward its final versions. Thinking on press, adjusting the alignments, calibrating the pressure, and adjusting the mixing and color of the inks all fostered pensive exploration (Fig. 12-56).



**12-52** Refinements were made to the Ludd typeface both in drawing and on computer.



**12-53** Polymer letterforms.



**12-54** Laser-cut letterform plates.



**12-55** Letterpress printing of the plates.



**12-56** Letterpress “make-ready” prints that further informed the design of the Ludd typeface.



By leaving behind the immediate feedback of working with a computer, Drew learned through making, via both hand drawing and letterpress printing, slowing down the design process. Experimentation at the press mimicked the physical and intellectual engagement of drawing. At the press, a multisensory experience was engaged through the smell of the inks, the tactile qualities of the impressions on paper, and the rumbling physical presence of the press itself. Formal discoveries made at the press informed the computerized version of the typeface. Nearing final versions, Drew carved some of his plates by hand in poplar (Fig. 12-57), while his letterpress explorations grew to combinations built from six to eight different colors (Fig. 12-58).

**12-57** *Hand-carved letterform plates.*



**Application (returning full circle)**

Once Ludd reached maturity, Drew applied it in the context that inspired it—a currency project. Quirky and playful like Ludd itself, the bills combine layered imagery that reflects shared cultural associations and historical references. They have balanced yet dynamic compositions, bold yet refined palettes, and a sense of decorum tempered by a bit of irreverence (Fig. 12-59).

In retrospect, Drew thinks the heart of his investigation was an overarching concern for a more holistic design process—a process outside the computer screen or laser printer, in which the needs of the project dictate its direction, and in which interdependently designed elements shape one another. The currency project led to a type family, which encouraged letterpress printing, which came back full circle to the implementation of the currency.

**12-58** *Letterpress exploration.*





**12-59** Samples of the final currency design utilizing the Ludd typeface.



Designer David W. Steadman devised an experiment that yielded visual compositions via a process that deliberately creates unpredictable results. Similar to a collage, these compositions are multiple layers of image and typographic elements merged to form a composite whose purpose is to explore the convergence and alignment of graphic elements manipulated to adhere to the same geometric guidelines. His composites allowed him to observe a combination of visual references that symbiotically created a hybrid, or multifaceted, message.

Steadman randomly chose topics that are rich in visual resources. Common themes in his work include diagrammatic patterns, language transmissions, iconography, and geographic references.

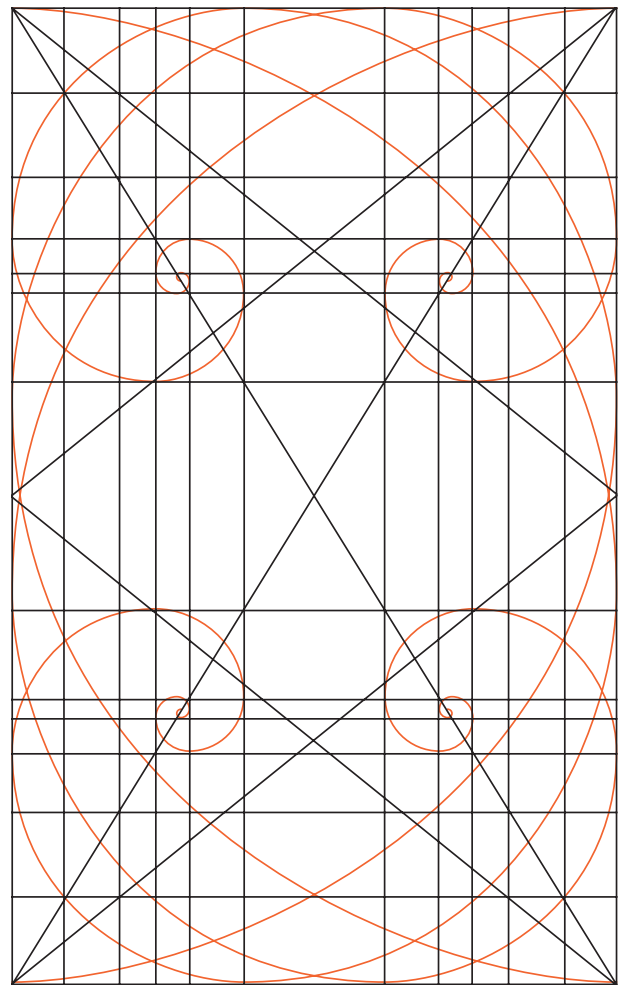
**Constraints**

Creation of the composites mirrored a traditional design process, but with the addition of rules and constraints that forced Steadman to work with unpredictable outcomes. Realized entirely on computer, the final digital composites are informed by a wide range of subjects. Through the design process, he explored the intersection of geometry, subject matter, and time.

**Geometry.** A geometric grid of fixed size based on the golden rectangle, which has side-length proportions (approximately 1:1.618) derived from the Fibonacci sequence, provide the basis for Steadman’s composites (Fig. 12-60).

**Subject matter.** Steadman chose a specific subject matter for each composite. Examples of concepts he explored are social media, astronomy, sonar, airports, Navaho Yei, and Beauchene disarticulation, an “exploded” visualization used by anatomist Claude Beauchene to illustrate the structure of the human skull.

**Time.** Each composite was created during a five-day span.



**12-60** Grid used for each composite.

## Process

To create each composite, Steadman went through the exact same process. Using an illustration software program, he created five blank canvases that shared the same dimensions and grid. Each canvas was assigned a day of the week, Monday through Friday. He then selected a subject matter that would be the focus of study for the duration of the five-canvas project. Visual and textual research related to the subject became the building blocks of each composition (Fig. 12-61).

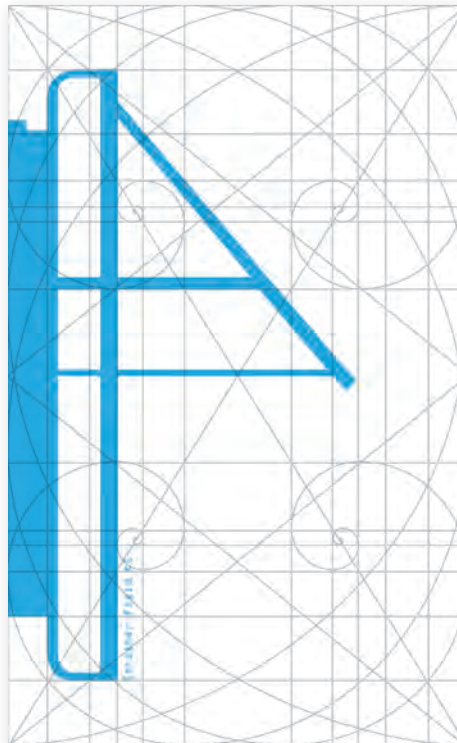
Starting on a Monday, Steadman selected a visual or textual reference to the subject and applied it to the canvas. Using the grid guidelines, he manipulated the form or set the type to adhere to the guidelines. On Tuesday, he opened a blank canvas and applied a new visual or textual reference. By Friday, he had four separate canvases containing graphic elements (Figs. 12-62 and 12-63).



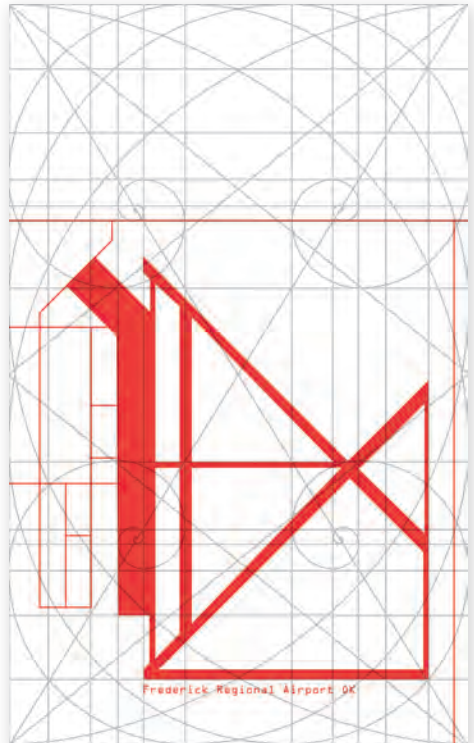
Monday



Tuesday



Monday



Tuesday

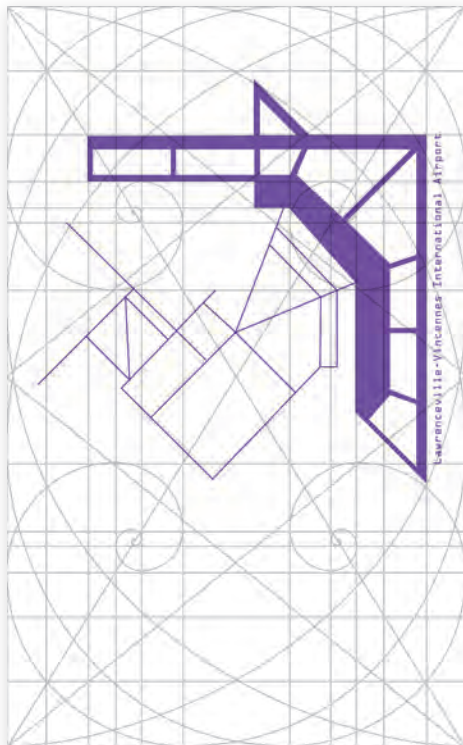


Wednesday

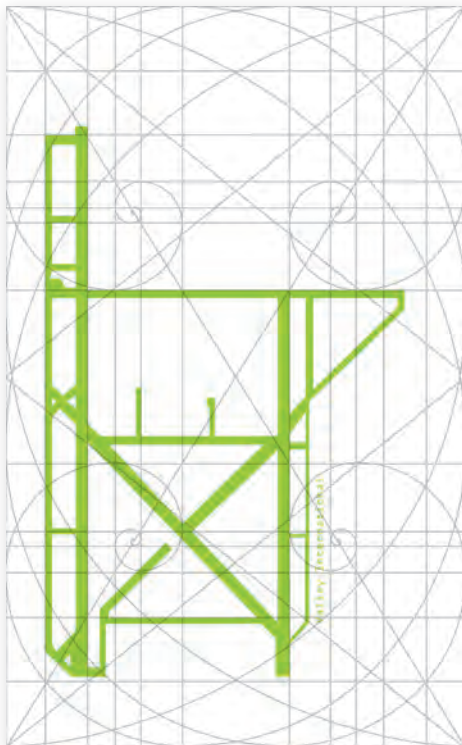


Thursday

**12-61** Visual and textual items related to the subject "airports" gathered by Steadman as research.



Wednesday



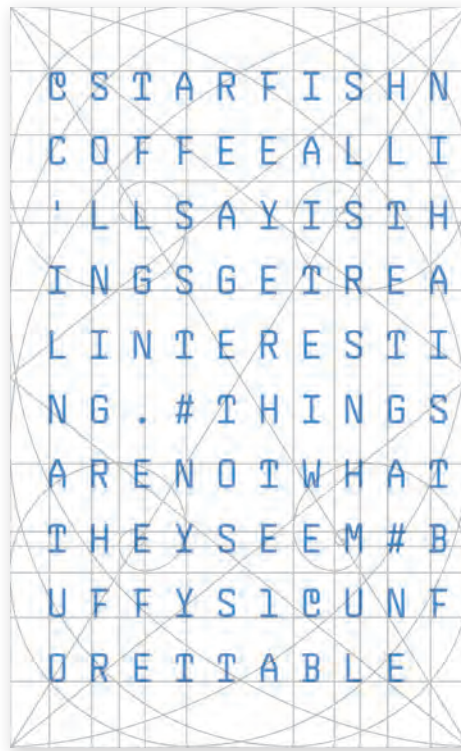
Thursday

**12-62** Monday through Thursday compositions for the subject "airports."

The four separate canvases of graphic elements were layered to make a final canvas. In a single canvas, he tweaked the composition by making minor adjustments to the graphic elements, applying transparency effects to certain layers, and changing the stacking order of all layers. The resulting canvas contains all the elements from previous days (Figs. 12-64 to 12-67).

The final composites vary in visual composition and topic while sharing the same geometric properties. As a result, the composites together have continuity in form, while separately each has unique properties specific to the topic.

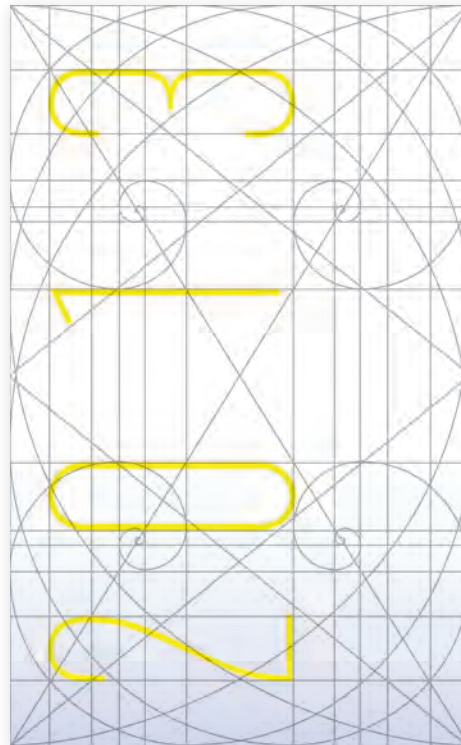
Composites can be used as a narrative form or as a way to communicate multiple aspects of a single subject. References to the topic can range from literal to figurative, forming a unique hybrid message.



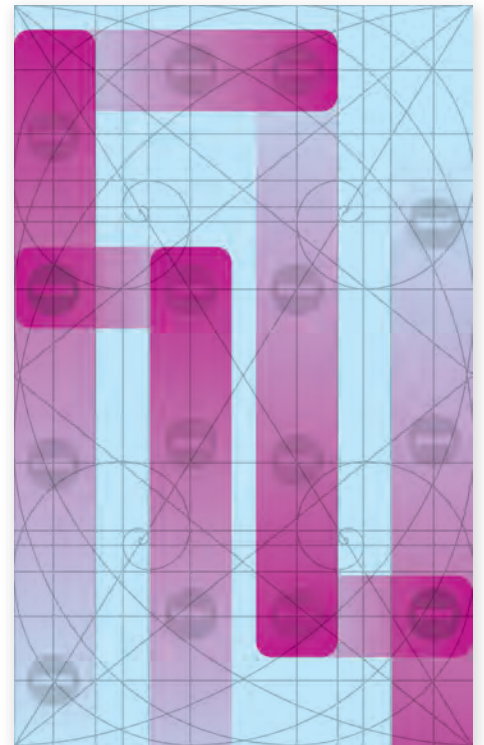
*Monday*



*Tuesday*



*Wednesday*



*Thursday*

**12-63** Monday through Thursday compositions for the subject "social media."

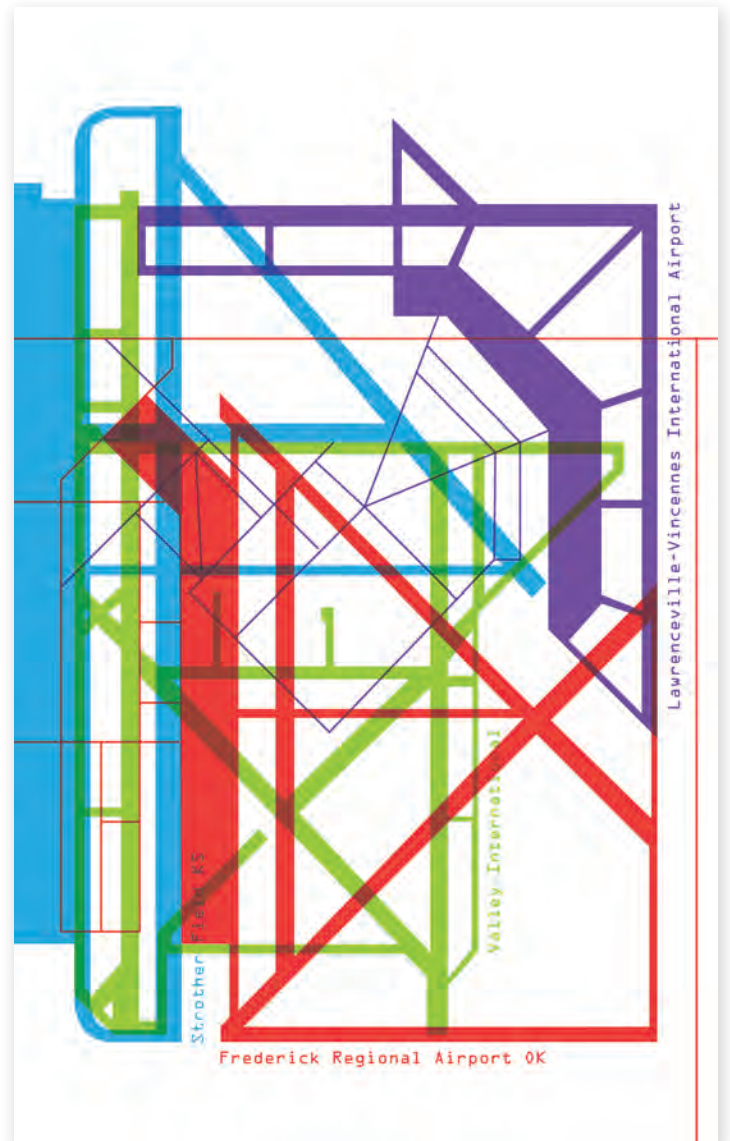




12-64 Final composite for the subject "social media."



12-65 Final composite for the subject "Navaho Yei."



12-66 Final composite for the subject "airports."



The way graphic designers use typographic specimens has changed dramatically in the age of digital typography. Earlier generations of designers used specimens to determine which fonts and sizes to specify and order from typesetting companies, and for reference or tracing purposes when drawing layouts. A limited range of sizes were manufactured, and specimen sheets or books showed all available sizes.

Computers make an infinite range of sizes and style variations available, and designers can study and purchase fonts from digital typefoundry websites. Today, printed specimens are used for study and comparison purposes. The typeface specimens in this chapter were selected from outstanding type families to provide examples of the major historical classifications: Old Style, transitional, Modern, Egyptian, and sans serif. More extensive specimens of Old Style and sans serif fonts are included, for these are the most widely used categories.

A bewildering number of typeface variations are available today, including versions originally designed for hand-, machine-, or phototype composition. Excellent newer varieties have been designed specifically for digital media. Designers should study the subtlety of form and spacing in fonts, because their quality can vary widely.

Although Old Style typefaces trace their heritage to the printers of the Italian Renaissance, their origins extend to an earlier time, for Roman inscriptional letterforms (see Fig. 1-18) inspired their capital-letter design. The Caroline minuscules (see Fig. 1-27) from medieval manuscripts inspired writing styles during the fifteenth century, and these became the model for Old Style lowercase letters.

Many Old Style typefaces bear the name of Claude Garamond, a leading typeface designer and punch cutter working in Paris when the book *Arithmetica* (Fig. 13-1) was published. In the heading material, the designer has used bold capitals for the author's name, two sizes of capitals for the title, and italics for the subhead. The spatial intervals between these units have been established with great care. Fleurons (printer's flowers), paragraph marks, a woodcut headpiece, and a large initial letter intricately carved on a woodblock bring vibrancy to this elegant example of French Renaissance book design and letterpress printing.

For more than five hundred years, designers have created lively typeface variations inspired by Italian and French Old Style fonts of the fifteenth and sixteenth centuries. The specimens in this section display digitized versions of traditional typefaces with distinctive design attributes.



13-1 Page 3 of *Arithmetica*, by Oronce Fine, printed by Simon de Colines in Paris, 1535.

---

G

abcdefghijkl

klmnopq

rstuvwxyz

\$1234567

890(., ” ” - ; : ) ! ?

A B C D E F

G H I J K L

M N O P Q

R S T U V

W X Y Z &

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN OPQRSTU  
VWXYZ\$1234567890  
(., ” -;:)! ? &

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
VWXYZ\$12345  
67890(., ” -;:)! ? &



*abcdefghijklmnopqrstvwxyz*  
*ABCDEFGHIJKLMNopQRSTUV*  
*WXYZ1234567890*  
*(, ” - ; : ) ! ? &*

24 point

---

*abcdefghijklmnop*  
*opqrstuvwxyz*  
*ABCDEFGHIJK*  
*LMNOPQRSTU*  
*VWXYZ\$12345*  
*67890(, ” - ; : ) ! ? &*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
WXYZ\$1234567890  
(.,””-;:;!)?&

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRST  
UVWXYZ\$1234  
567890(.,””-;:;!)?&

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(, " ' - : ! ) ? &  
*abcdefghijklmnopqrstuvwxyz*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*\$1234567890(, " ' - : ! ) ? &*

8 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(, " ' - : ! ) ? &  
*abcdefghijklmnopqrstuvwxyz*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*\$1234567890(, " ' - : ! ) ? &*

9 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(, " ' - : ! ) ? &  
*abcdefghijklmnopqrstuvwxyz*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*\$1234567890(, " ' - : ! ) ? &*

10 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
VWXYZ.\$1234567890(, " ' - : ! ) ? &  
*abcdefghijklmnopqrstuvwxyz*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*WXYZ\$1234567890(, " ' - : ! ) ? &*

12 point

The whole duty of typography, *as with calligraphy*, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the especial beauty of the headings of chapters, capital or initial letters, and so on, and an opening for the illustrator as we shall see by and by. Further, in the case ear, 8/10

The whole duty of typography, *as with calligraphy*, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the first the 8/12

The whole duty of typography, *as with calligraphy*, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of 9/11

The whole duty of typography, *as with calligraphy*, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose 9/13

The whole duty of typography, *as with calligraphy*, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some 10/12

The whole duty of typography, *as with calligraphy*, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage 10/14

The whole duty of typography, *as with calligraphy*, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of 12/14

The whole duty of typography, *as with calligraphy*, is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be 12/16

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
\$1234567890(.,'”-;:;!)?&

*Adobe Minion Regular*

**abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
\$1234567890(.,'”-;:;!)?&**

*Adobe Minion Bold*

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
YZ\$1234567890(.,'”-;:;!)?&

*Caslon Regular*

**abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
YZ\$1234567890(.,'”-;:;!)?&**

*Caslon Bold*

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
\$I234567890(.,'”-;:;!)?&

*Centaur*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'”-;:;!)?&

*Centaur Bold*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
YZ\$1234567890(.,'”-;:;!)?&

*Sabon*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
WXYZ\$1234567890(.,'”-;:;!)?&

*Sabon Bold*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'”-;:;!)?&

*Times New Roman*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'”-;:;!)?&

*Times New Roman Bold*

## Additional sans serif fonts

Sans serif typefaces have elemental letterforms stripped of serifs and decorations. Although sans serifs first appeared early in the nineteenth century, their use accelerated during the 1920s. "Form follows function" became the design dictum, and the functional simplicity of sans serif typefaces led many designers to look upon them as the ideal typographic expression of a scientific and technological century.

In Jan Tschichold's influential book *Die neue Typographie*, he advocated a new functional style for a rational era. In the prospectus for the book, he used sans serif type as an expression of the age (Fig. 13-2). The page also demonstrates asymmetrical balancing of elements on a grid system, visual contrasts of type size and weight, and the importance of spatial intervals and white space as design elements.

During the 1950s, Univers and Helvetica were both designed as more contemporary versions of Akzidenz Grottesque, a German turn-of-the-century sans serif. Compare the text setting and the display specimens of Helvetica with their Univers counterparts. There are subtle differences in the drawing of many letterforms. The Univers family is renowned for its remarkable graphic unity, which enables the typographic designer to use all twenty-one fonts together as a flexible, integrated typographic system.

Sans serif typefaces, like serif typefaces, have distinct visual attributes and can be further classified as Grottesque, Neo-grottesque, Humanist, or Geometric (see Chapter 2).

VORZUGS-ANGEBOT

Im VERLAG DES BILDUNGSVERBANDES der Deutschen Buchdrucker,  
Berlin SW 61, Dreilindstr. 5, erscheint demnächst:

**JAN TSCHICHOLD**  
Lehrer an der Meisterschule für Deutschlands Buchdrucker in München

## DIE NEUE TYPOGRAPHIE

**Handbuch für die gesamte Fachwelt  
und die drucksachenverbrauchenden Kreise**

Das Problem der neuen gestaltenden Typographie hat eine lobhafte Diskussion bei allen Beteiligten hervorgerufen. Wir glauben dem Bedürfnis, die aufgeworfenen Fragen ausführlich behandelt zu sehen, zu entsprechen, wenn wir jetzt ein Handbuch der **NEUEN TYPOGRAPHIE** herausbringen.

Es kam dem Verfasser, einem ihrer bekanntesten Vertreter, in diesem Buche zunächst darauf an, den engen Zusammenhang der neuen Typographie mit dem **Gesamtkomplex heutigen Lebens** aufzuzeigen und zu beweiseln, daß die neue Typographie ein ebenso notwendiger Ausdruck einer neuen Gesinnung ist wie die neue Baukunst und alles Neue, das mit unserer Zeit anbricht. Diese geschichtliche Notwendigkeit der neuen Typographie belegt weiterhin eine kritische Darstellung der **alten Typographie**. Die Entwicklung der **neuen Maleurel**, die für alles Neue unserer Zeit geistig bahnbrechend gewesen ist, wird in einem reich illustrierten Aufsatz des Buches leicht fälschlich dargestellt. Ein kurzer Abschnitt „**Zur Geschichte der neuen Typographie**“ leitet zu dem wichtigsten Teile des Buches, den **Grundbegriffen der neuen Typographie** über. Diese werden klar herausgeschält, richtige und falsche Beispiele einander gegenübergestellt. Zwei weitere Artikel behandeln „**Photographie und Typographie**“ und „**Neue Typographie und Normung**“.

Der Hauptwert des Buches für den Praktiker besteht in dem zweiten Teil „**Typographische Hauptformen**“ (siehe das nebenstehende Inhaltsverzeichnis). Es fehlte bisher an einem Werke, das wie dieses Buch die schon bei einfachen Satzaufgaben auftauchenden gestalterischen Fragen in gebührender Ausführlichkeit behandelte. Jeder Teilausschnitt enthält neben **allgemeinen typographischen Regeln** vor allem die Abbildungen aller in Betracht kommenden **Normblätter** des Deutschen Normenausschusses, alle ändern (z. B. postalischen) **Vorschriften** und zahlreiche Beispiele, Gegenbeispiele und Schemen.

Für jeden Buchdrucker, insbesondere jeden Akzidenzsetzer, wird „Die neue Typographie“ ein **unentbehrliches Handbuch** sein. Von nicht geringerer Bedeutung ist es für Reklamefachleute, Gebrauchsgraphiker, Kaufleute, Photographen, Architekten, Ingenieure und Schriftsetzer, also für alle, die mit dem Buchdruck in Berührung kommen.

**INHALT DES BUCHES**

**Warden und Wesen der neuen Typographie**  
Das neue Weltbild  
Die alte Typographie (Rückblick und Kritik)  
Die neue Kunst  
Zur Geschichte der neuen Typographie  
Die Grundgriffe der neuen Typographie  
Photographie und Typographie  
Neue Typographie und Normung

**Typographische Hauptformen**  
Das Typosignet  
Der Geschäftsbrief  
Der Halbbrief  
Briefhüllen ohne Fenster  
Fensterbriefhüllen  
Die Postkarte  
Die Postkarte mit Klapp  
Die Geschäftskarte  
Die Besuchskarte  
Werkzeichen (Karten, Blätter, Prospekte, Kataloge)  
Das Typoplat  
Das Einloplatt  
Schidformate, Tafeln und Rahmen  
Inserate  
Die Zeitschrift  
Die Tageszeitung  
Die illustrierte Zeitung  
Tafelansatz  
Das neue Buch

**Bibliographie**  
**Verzeichnis der Abbildungen**  
**Register**

Wp. Tschichold

**Das Buch enthält über 125 Abbildungen, von denen etwa ein Viertel zweifarbig gedruckt ist, und umfaßt gegen 200 Seiten auf gutem Kunstdruckpapier. Es erscheint im Format DIN A5 (148x210 mm) und ist blesam in Ganzleinen gebunden.**

**Preis** bei Vorbestellung bis 1. Juni 1928: **5.00 RM**  
durch den Buchhandel nur zum Preise von **6.50 RM**

**Bestellschein umstehend** ➔

13-2 Prospect designed by Jan Tschichold for his book *Die neue Typographie*, 1928.

---

**F**

abcdefghijklmnopghij  
klmnopqrs  
tuvwxyz\$  
12345678  
90 ( . , ' " - ; : ) ! ?



A B C D E F

G H I J K L M

N O P Q R S

T U V W X

Y Z &

abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
YZ\$1234567890  
(.,'”-;:)!?!&

24 point

---

abcdefghijklmnop  
lmnopqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
vwxyz\$12345  
67890(.,'”-;:)!?!&

abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
YZ1234567890  
(.,'”-;:!)?&

24 point

---

*abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
VWXYZ\$12345  
67890(.,'”-;:!)?&*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUVW  
XYZ\$1234567890  
(.,'”-;:!)!?!&

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
VWXYZ\$12345  
67890(.,'”-;:!)!?!&

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNopqrstuvwxyz  
\$1234567890(.,'";:!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNopqrstuvwxyz  
\$1234567890(.,'";:!)?&

8 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNopqrstuvwxyz  
\$1234567890(.,'";:!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNopqrstuvwxyz  
\$1234567890(.,'";:!)?&

9 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNopqrstuvwxyz  
\$1234567890(.,'";:!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNopqrstuvwxyz  
\$1234567890(.,'";:!)?&

10 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNopqrstuvwxyz  
YZ\$1234567890(.,'";:!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNopqrstuvwxyz  
YZ\$1234567890(.,'";:!)?&

12 point

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and

8/10

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some

8/12

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own

9/11

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand,

9/13

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of

10/12

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness

10/14

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed

12/14

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest

12/16

abcdefghijklmnop

qrstuvwxyz

12345

67890!?

A B C D E F

G H I J K L M

N O P Q R S

T U V W X

Y Z & ( . , ' " : ; )

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMNOPQRSTU  
WXYZ\$1234567890  
(.,'""-;:;!)?&

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJKLM  
MNOPQRSTUV  
WXYZ\$1234567  
890(.,'""-;:;!)?&



abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMNOSTUV  
WXYZ1234567890  
(.,'""-;:!)!?!&

24 point

---

*abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJKL  
MNOPQRSTU  
WXYZ\$1234567  
890(.,'""-;:!)!?!&*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNQRSTU  
VWXYZ\$1234567890  
(.,'" -;:)!?!&

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJKLM  
MNOPQRSTUV  
WXYZ\$1234567  
890(.,'" -;:)!?!&

abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&  
 abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&

8 point

abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&  
 abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&

9 point

abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 YZ\$1234567890(.,'";:!)?&  
 abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 YZ\$1234567890(.,'";:!)?&

10 point

abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTU  
 VWXYZ\$1234567890(.,'";:!)?&  
 abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTU  
 VWXYZ\$1234567890(.,'";:!)?&

12 point

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the

8/10

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or

8/12

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication

9/11

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the

9/13

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for

10/12

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for

10/14

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing

12/14

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substi-

12/16

abcdefghijklmnopq

rstuvwxyz

\$1234567

890!?

A B C D E F

G H I J K L M N

O P Q R S T U

V W X Y Z &

( . , ” ” - ; : )

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNQPQRSTUVWXYZ  
\$1234567890  
(.,””-;:!)!?!&

24 point

---

abcdefghijklmnop  
qrstuvwxyzABCDE  
FGHIJKLMNQPQRS  
TUVWXYZ\$123456  
7890(.,””-;:!)!?!&

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNPOQRSTUVWXYZ  
1234567890  
(.,””-;:!)!?!&

24 point

---

*abcdefghijklmnop  
qrstuvwxyzABCDE  
FGHIJKLMNOPQRS  
TUVWXYZ\$123456  
7890(.,””-;:!)!?!&*

abcdefghijklmnopqrstu  
vwxyzABCDEFGHIJKLMN  
OPQRST  
TUVWXYZ\$123456789  
0  
(.,'”-;:!)!?!&

24 point

---

abcdefghijklmnop  
qrstuvwxyzABCD  
EFGHIJKLMNOPQ  
RSTUVWXYZ\$123  
4567890(.,'”-;:!)!?!&



## Meta

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,",:;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,",:;!)?&  
8 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,",:;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,",:;!)?&  
9 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,",:;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,",:;!)?&  
10 point  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
YZ\$1234567890(.,",:;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
YZ\$1234567890(.,",:;!)?&  
12 point

---

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the especial beauty of the headings of chapters, capital or by

8/10

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a and

8/12

---

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own

9/11

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage

9/13

---

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of

10/12

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness

10/14

---

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed

12/14

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest

12/16

abcdefghijklmnop  
ijklmnop  
qrstuvwxyz  
yz \$ 1 2 3 4  
6 7 8 9 0 ! ?

A B C D E F

G H I J K L M

N O P Q R S

T U V W X Y

Z & ( . , ' " - ; : )

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUVW  
XYZ\$1234567890  
(.,'"-;:!)!?!&

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJKLM  
MNOPQRSTUV  
WXYZ\$123456  
7890(.,'"-;:!)!?!&

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
XYZ1234567890  
(.,'"-;:!)!?!&

24 point

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJKLM  
MNOPQRSTUV  
WXYZ\$123456  
7890(.,'"-;:!)!?!&

abcdefghijklmnopqrstuvwx  
yzABCDEFGHIJKLMNOPS  
TUVWXYZ\$1234567890  
(.,'""-;:!)!?!&

24 point

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJKLM  
MNOPQRSTUV  
WXYZ\$123456  
7890(.,'""-;:!)!?!&

abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&  
 abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&

8 point

abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&  
 abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&

9 point

abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&  
 abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 \$1234567890(.,'";:!)?&

10 point

abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 WXYZ\$1234567890(.,'";:!)?&  
 abcdefghijklmnopqrstuvwxyz  
 ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 WXYZ\$1234567890(.,'";:!)?&

12 point

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the especial beauty of the headings of

8/10

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its

8/12

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own

9/11

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and

9/13

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage

10/12

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness

10/14

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and

12/14

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for

12/16

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
\$1234567890(.,'""-;:!)?&

*Akzidenz Grotesk*

**abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
\$1234567890(.,'""-;:!)?&**

*Akzidenz Grotesk Bold*

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
\$1234567890(.,'""-;:!)?&

*DIN Regular*

**abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
\$1234567890(.,'""-;:!)?&**

*DIN Bold*

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN**OP**QRSTUVWXYZ  
\$1234567890(.,'""-;:!)?&

*Frutiger Roman*



**abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'""-;:!)!?!&**

*Frutiger Bold*

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'""-;:!)!?!&

*Rotis Sans Serif 55*

**abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'""-;:!)!?!&**

*Rotis Sans Serif Bold 65*

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'""-;:!)!?!&

*Scala Sans*

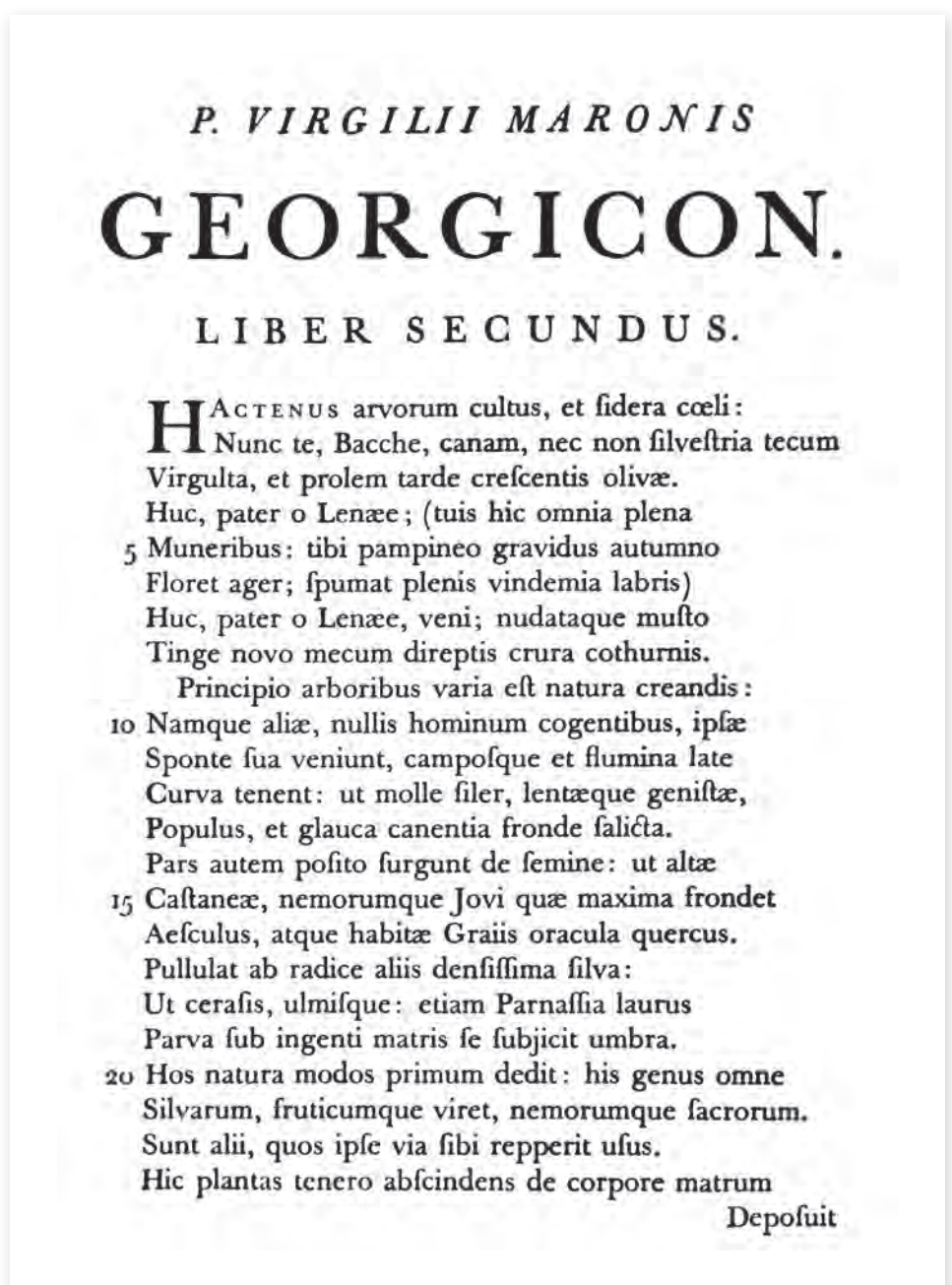
**abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'""-;:!)!?!&**

*Scala Sans Bold*

Transitional type appeared during the eighteenth century, a period of typographic evolution. Steady technical advances allowed more refined punches, matrices, and typesetting. Designers were able to gradually increase the contrast between thick and thin strokes, apply sharper and more horizontal serifs to their characters, and make the stress of rounded letterforms more vertical. By the century's end, Old Style typefaces had evolved into the Modern styles with hairline serifs and geometric proportions: typefaces designed during the middle of this period of evolving designs were transitional.

Simplicity and understated elegance were achieved through the use of John Baskerville's masterful transitional typefaces, seen in the title page of Virgil's *Georgics* (Fig. 13-3). Generous margins, careful letterspacing of display type, and thoughtfully considered interline and wordspacing are present. The great Roman poet is presented to the reader with clarity and dignity in a book that "went forth to astonish all the librarians of Europe."

If the words *transitional* and *Baskerville* have become interwoven in the lexicon of typography, it is because the transitional typefaces produced by John Baskerville of Birmingham, England, have an unsurpassed beauty and harmony. Many transitional typefaces in use today, including most of the specimens in this section, are inspired by the exquisite beauty of Baskerville's work.



13-3 Type page for the second book of Virgil's *Georgics*, designed and printed by John Baskerville, 1757.

---

D

abcdefghijklmnopq

rstuvwxyz

1234567

890(, ' " - : ; ) ! ?

A B C D E F

G H I J K L

M N O P Q

R S T U V

W X Y Z &

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMN<sup>o</sup>PQRSTU  
VWXYZ\$1234567890  
(.,'”-;:)!?!&

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
VWXYZ\$12345  
67890(.,'”-;:)!?!&

*abcdefghijklmnopqrstuvwxy z*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*WXYZ\$1234567890*  
*(, ’ ’ ’ - ; : ) ! ? &*

24 point

---

*abcdefghijklmnop*  
*opqrstuvwxyz*  
*ABCDEFGHIJK*  
*LMNOPQRSTU*  
*VWXYZ\$12345*  
*67890(, ’ ’ ’ - ; : ) ! ? &*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPS  
TUVWXYZ\$1234567890  
(.,'”-;:;!)?&

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
VWXYZ\$123456  
7890(.,'”-;:;!)?&



abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(, ""-:;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(, ""-:;!)?&

**8 point**

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(, ""-:;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(, ""-:;!)?&

**9 point**

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
YZ\$1234567890(, ""-:;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(, ""-:;!)?&

**10 point**

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTU  
VWXYZ\$1234567890(, ""-:;!)?&  
abcdefghijklmnopqrstu  
vwxyz  
ABCDEFGHIJKLMNOPQRSTU  
VWXYZ\$1234567890(, ""-:;!)?&

**12 point**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for the especial beauty of the headings of chapters, capital or initial letters, and so on  
**8/10**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory  
**8/12**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness  
**9/11**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage  
**9/13**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication  
**10/12**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other  
**10/14**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest typographyof the thing thought and intended to be conveyed by the symbol, a beauty or  
**12/14**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest typographyof the thing thought  
**12/16**

abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
YZ\$1234567890(.,'”-;:!)!?!&

*Bookman Light*

**abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
VWXYZ\$1234567890(.,'”-;:!)!?!&**

*Bookman Demi*

abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
\$1234567890(.,'”-;:!)!?!&

*Georgia Regular*

**abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
XYZ\$1234567890(.,'”-;:!)!?!&**

*Georgia Bold*

abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
\$1234567890(.,'”-;:!)!?!&

*Mrs Eaves Roman*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'”-;:;!)?&

*Mrs Eaves Bold*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
YZ\$1234567890(.,'”-;:;!)?&

*Melior*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
YZ\$1234567890(.,'”-;:;!)?&**

*Melior Bold*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
YZ\$1234567890(.,'”-;:;!)?&

*Plantin*

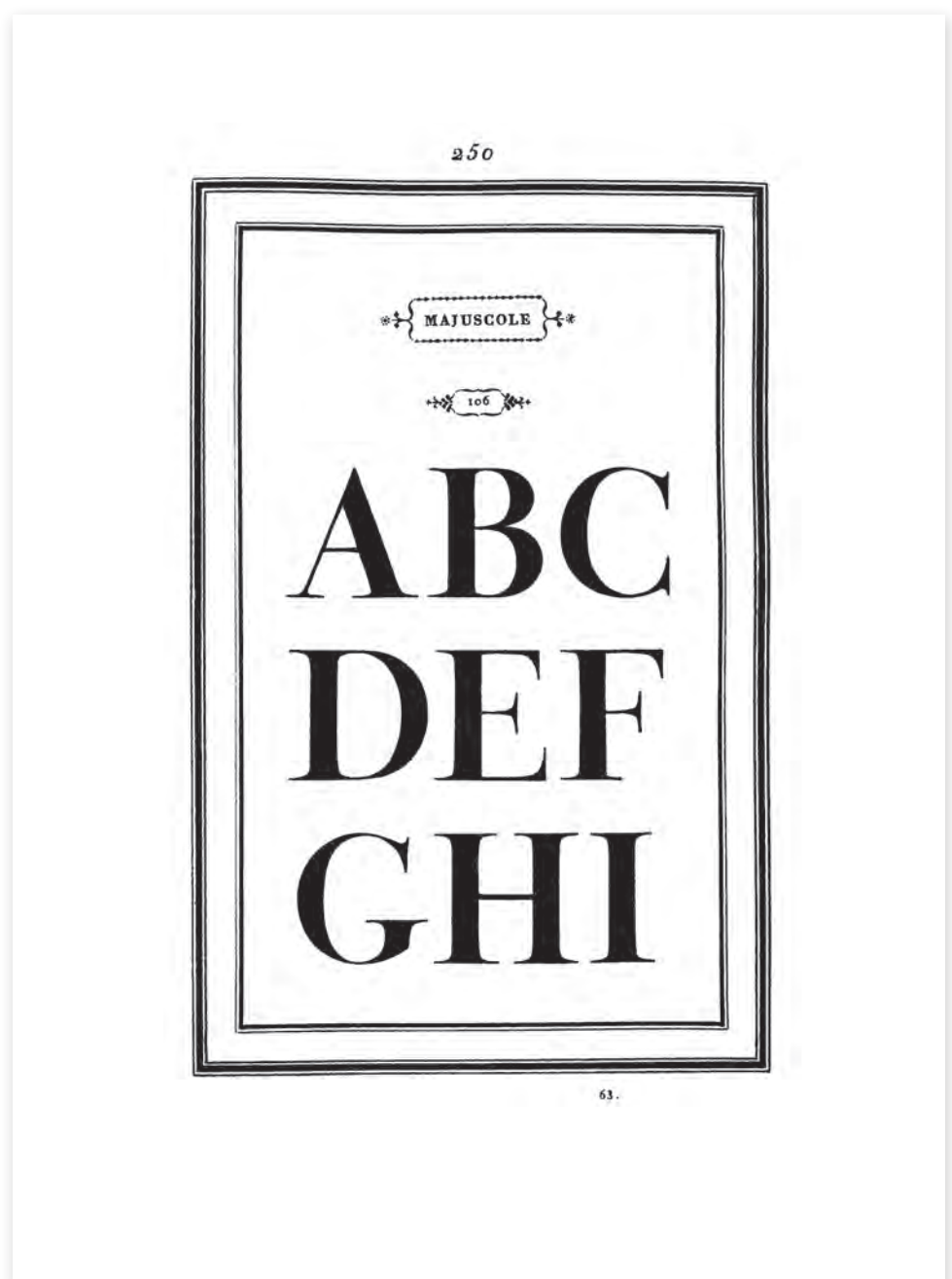
**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
XYZ\$1234567890(.,'”-;:;!)?&**

*Plantin Bold*

The word *modern* is a relative term. Often, we use it interchangeably with the word *contemporary*; sometimes it is used to identify movements in the arts representing a radical break with tradition. In typographic design, *Modern* identifies typefaces of the late 1700s with flat, unbracketed serifs, extreme contrasts between thick and thin strokes, and geometric construction. The influence of writing and calligraphy upon type design was replaced by mathematical measurement and the use of mechanical instruments to construct letterforms.

After the death of type designer and printer Giambattista Bodoni, his widow and foreman published the *Manuale tipografico*, displaying specimens of the approximately three hundred type fonts designed by Bodoni. The page reproduced here in its actual size shows the dazzling contrasts and vigorous proportions found in Modern Style typefaces (Fig. 13-4.). Thick-and-thin oxford rules (see Fig. 5-17) echo and complement the letters' stroke weight.

Modern Style typefaces were widely used for book text type during the nineteenth century and have enjoyed continued acceptance for more than two centuries. Numerous variations have been designed, from extreme fineline versions to ultrabolds, and from very narrow, condensed fonts to wide, expanded letterforms. Many contemporary fonts bear the names of eighteenth-century designers such as Bodoni, Didot, and Walbaum.



13-4 Page 250 from the *Manuale tipografico*, 1818.

---

**R**

a b c d e f g h i j

k l m n o p q

r s t u v w x y z

\$ 1 2 3 4 5 6 7

8 9 0 ( , ' " - : ; ) ! ?

A B C D E F

G H I J K L

M N O P Q

R S T U V

W X Y Z &

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
WXYZ1234567890  
(.,'”-;:;!)?&

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
VWXYZ\$12345  
67890(.,'”-;:;!)?&



*abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
1234567890  
(., ’”-;:)! ? &*

24 point

---

*abcdefghijklmnop  
nopqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
vwxyz \$12345  
67890 (., ’”-;:)! ? &*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUV  
WXYZ\$1234567890  
(., ’ ” - ; : ) ! ? &

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
VWXYZ\$12345  
67890(., ’ ” - ; : ) ! ? &

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'":;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'":;!)?&

**8 point**

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'":;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'":;!)?&

**9 point**

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'":;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'":;!)?&

**10 point**

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
VWXYZ\$1234567890(.,'":;!)?&  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
VWXYZ\$1234567890(.,'":;!)?&

**12 point**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty of the first and introductory page and of the title, and for

**8/10**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic &

**8/12**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic

**9/11**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle,

**9/13**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage

**10/12**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty

**10/14**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended

**12/14**

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty

**12/16**

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'”-;:;!)?&

*Bodoni Book*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
XYZ\$1234567890(.,'”-;:;!)?&**

*Bodoni Bold*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
WXYZ\$1234567890(.,'”-;:;!)?&**

*Bodoni Poster*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
XYZ\$1234567890(.,'”-;:;!)?&

*Century Schoolbook Regular*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
WXYZ\$1234567890(.,'”-;:;!)?&**

*Century Schoolbook Bold*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNQRSTU  
VWXYZ\$1234567890(.,'”-;:;!)?&

*Didot Roman*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNQRSTU  
VWXYZ\$1234567890(.,'”-;:;!)?&**

*Didot Bold*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNQRSTU  
VWXYZ\$1234567890(.,'”-;:;!)?&

*Filosofia Regular*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNQRSTU  
VWXYZ\$1234567890(.,'”-;:;!)?&**

*Filosofia Bold*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNQRSTU  
VWXYZ\$1234567890(.,'”-;:;!)?&

*Onyx*

## Additional Egyptian fonts

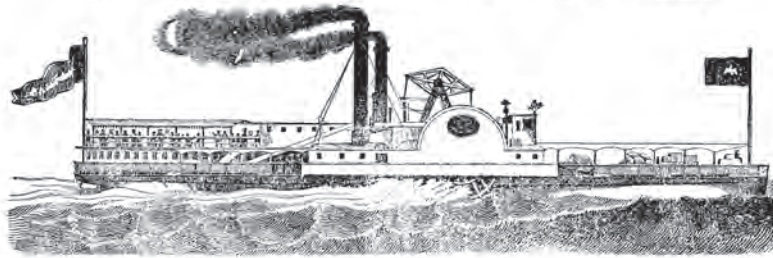
Egyptian or slab serif typefaces first appeared in the early nineteenth century and enjoyed great popularity. Their bold, machinelike qualities offered a dynamic expression of the industrial age. During the Industrial Revolution, letterpress printers delighted in using bold, slab serif display fonts to give their messages graphic impact (Fig. 13-5). Rectangular serifs, uniform or almost uniform stroke weight, and geometric letterform construction give Egyptian typefaces a bold, abstract quality. Egyptian styles whose abrupt right-angle joinery is tempered by curved bracketing include the Clarendon, Century, and Cheltenham type families.

# NEW LINE BETWEEN ALBANY & NEWBURG

LANDING AT

**Hamburgh, Marlborough, Milton, Poughkeepsie, Hyde Park, Kingston, Rhinebeck, Barrytown, Redhook, Bristol, Westcamp Catskill, Hudson, Coxsackie, Stuyvesant, Baltimore & Coeymans.**

*On and after MONDAY, October 15th,*



The Superior Low Pressure Steamer

# ST. NICHOLAS

CAPTAIN WILSON,

*Will run as a Passage and Freight Boat between Newburgh and Albany, leaving Newburgh*

**MONDAYS, WEDNESDAYS & FRIDAYS**

AT SEVEN O'CLOCK A.M.,

And **ALBANY** on Tuesdays, Thursdays & Saturdays,  
at half-past 9 o'clock A.M.

*Albany, Oct. 9th, 1849.*

**13-5** Broadsheet, 1849. This slab serif display type has been lightly inked, and the textured grain of the wooden type is clearly visible, as in the words St. Nicholas.



abcdefghijklmnop  
ghijklmnopqr  
stuvwxyz  
\$12345678  
90(.,'"-:;!?)



A B C D E F

G H I J K L

M N O P Q R

S T U V W X

Y Z &

abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRST  
UVWXYZ1234567890  
(.,'”-;:!)!?!&

24 point

---

abcdefghijklmnop  
nopqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
vwxyz\$12345  
67890(.,'”-;:!)!?!&

abcdefghijklmnopqrstuvwxy  
ABCDEFGHIJKLMNQRST  
UVWXYZ1234567890  
(.,'”-;:!)!?!&

24 point

*abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
VWXYZ\$12345  
67890(.,'”-;:!)!?!&*

abcdefghijklmnopqrstu  
vwxyzABCDEFGHIJKLMNO  
PQRSTUVWXYZ  
\$1234567890  
(.,'""-;:;!)?&

24 point

---

abcdefghijklmnop  
opqrstuvwxyz  
ABCDEFGHIJK  
LMNOPQRSTU  
vwxyz\$12345  
67890(.,'""-;:;!)?&

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNPOQRSTUVWXYZ  
\$1234567890(, ' " - ; : ) ! ? &  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNPOQRSTUVWXYZ  
\$1234567890(, ' " - ; : ) ! ? &

8 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNPOQRSTUVWXYZ  
\$1234567890(, ' " - ; : ) ! ? &  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNPOQRSTUVWXYZ  
\$1234567890(, ' " - ; : ) ! ? &

9 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNPOQRSTUVWXYZ  
YZ\$1234567890(, ' " - ; : ) ! ? &  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNPOQRSTUVWXYZ  
YZ\$1234567890(, ' " - ; : ) ! ? &

10 point

abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNPOQRSTU  
VWXYZ\$1234567890(, ' " - ; : ) ! ? &  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNPOQRSTU  
VWXYZ\$1234567890(, ' " - ; : ) ! ? &

12 point

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication to interpose some characteristic & restful beauty in its own art. We thus have a reason for the clearness and beauty  
8/10

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication  
8/12

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of the vehicle, and on the other hand, to take advantage of every pause or stage in that communication  
9/11

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and  
9/13

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for that communication by the clearness and beauty of  
10/12

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing thought and intended to be conveyed by the symbol, a beauty or interest of its own, but, on the one hand, to win access for  
10/14

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substitute for the beauty or interest of the thing  
12/14

**The whole duty of typography, as with calligraphy,** is to communicate to the imagination, without loss by the way, the thought or image intended to be communicated by the author. And the whole duty of beautiful typography is not to substi-  
12/16

Additional Egyptian fonts

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
\$1234567890(.,'”-;:;!)?&

*Archer Book*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
XYZ\$1234567890(.,'”-;:;!)?&**

*Archer Bold*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUV  
WXYZ\$1234567890(.,'”-;:;!)?&

*City Light*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUV  
XYZ\$1234567890(.,'”-;:;!)?&**

*City Bold*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUV  
WXYZ\$1234567890(.,'”-;:;!)?&**

*Clarendon*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUV  
WXYZ\$1234567890(.,' "-;:!)!?!&**

*Clarendon Bold*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUV  
WXYZ\$1234567890(.,' "-;:!)!?!&

*Memphis Light*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUVWXYZ  
\$1234567890(.,' "-;:!)!?!&

*Memphis Medium*

abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUVWXYZ  
\$1234567890(.,' "-;:!)!?!&

*Rockwell Light*

**abcdefghijklmnopqrstvwxyz  
ABCDEFGHIJKLMNOSTUV  
WXYZ\$1234567890(.,' "-;:!)!?!&**

*Rockwell Bold*

## SELECTED DECORATIVE FONTS

Typefaces that defy historical classification are sometimes called decorative or novelty typefaces. Most often these are used as display types or as text when appropriate. These typefaces provide context for typographic messages, adding visual accent and charisma.

abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
YZ\$1234567890(.,'""-;:;!?)&

*Anonymous (Designer: Mark Simonson)*

**abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
WXYZ\$1234567890(.,-;:;!?)&**

*Glas (Designer: AtelierMACHauer)*

**ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
WXYZ\$1234567890(.,)!?&**

*Maus (Designer: James Arbogast)*

*abcdefghijklmnopqrstuvwxy  
z  
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
\$1234567890(.,'""-;:;!?)&*

*Montessori Script (Designer: Stefan Hattenbach)*



A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
A B C D E F G H I J K L M N O P Q R S T U V  
W X Y Z \$ 1 2 3 4 5 6 7 8 9 0 ( . , ' - ; : ) ! ? &

Morpheus (Designer: Eric Oehler)

a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
\$ 1 2 3 4 5 6 7 8 9 0 ( . , ' - ; : ) ! ? &

Mosaico (Designer: Alexjandro Paul)

a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V  
W X Y Z \$ 1 2 3 4 5 6 7 8 9 0 ( . , = ; : ) ! ? &

Overwork (Designer: Bagel & Co.)

A B C D E F G H I J K L M N O P Q R S T U V W  
X Y Z  
\$ 1 2 3 4 5 6 7 8 9 0 ! ?

Plexifont BV (Designer: Jess Latham)

a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S  
T U V W X Y Z \$ 1 2 3 4 5 6 7 8 9 0

Torn Univers (Designer: Matt Gardner)

**A**

**@font-face.** A cascading style sheet (CSS) rule that allows fonts from a third-party website to be viewed with a user's browser, allowing designers to select fonts that may not be widely available.

**ABA form.** A design principle of form interrelationships, involving repetition and contrast.

**Accents.** Small marks over, under, or through a letterform, indicating specific punctuation or changes in stress.

**Agate.** A vertical unit used to measure space in newspaper columns, originally 5 1/2-point type. Fourteen agate lines equal approximately one inch.

**Alignment.** Precise arrangement of letterforms upon an imaginary horizontal or vertical line.

**Alphabet length.** Horizontal measure of the lowercase alphabet in a type font, used to approximate the horizontal measure of type set in that font.

**Ampersand.** A typographic character (&) representing the word *and*.

**Antialiasing.** The blurring of a jagged line or edge on a screen to give the appearance of a smooth line.

**App.** Abbreviation for mobile application. A self-contained program designed for mobile phones, tablets, and some computers that performs a specific task assigned by its developer.

**Application program.** Computer software used to create and modify documents.

**Ascender.** A stroke on a lowercase letter that rises above the meanline.

**Aspect ratio.** The ratio of an image, screen, or other medium's height to its width. Images will become distorted if forced into a different aspect ratio during enlargement, reduction, or transfers.

**Auto-flow.** A page-layout program setting for placing blocks of text from page to page without user intervention.

**Auto-runaround.** A page-layout program feature that flows text smoothly around graphics or headlines placed within the normal text area.

**B**

**Backslant.** Letterforms having a diagonal slant to the left.

**Baseline.** An imaginary horizontal line upon which the base of each capital letter rests.

**Bezier curves.** A type of curve with nonuniform arcs and defined by specifying control points that set the shape of the curve. Used to create letter shapes and other vector graphics.

**Binary code.** Number system using two digits: zero and one.

**Bit.** Contraction of binary digit, which is the smallest unit of information that a computer can hold. The value of a bit (1 or 0) represents a two-way choice, such as yes or no, on or off, positive or negative.

**Bitmap.** A computerized image made up of dots. These are "mapped" onto the screen directly from corresponding bits in memory.

**Body size.** The depth of a piece of metal type, usually measured in points.

**Body type.** Text material, usually set in sizes from 6 to 12 points. Also called text type.

**Boldface.** Type with thicker, heavier strokes than the regular font.

**Byte.** Unit of computer information. The number of bits used to represent a character. For personal computers, a byte is usually eight bits.

**C**

**Cap height.** The height of the capital letters, measured from the baseline to the capline.

**Capitals.** Letters larger than, and often differing from, the corresponding lowercase letters. Also called uppercase.

**Capline.** An imaginary horizontal line defined by the height of the capital letters.

**Caps.** See *Capitals*.

**Caption.** A title, explanation, or description accompanying an illustration or photograph.

**Character.** A symbol, sign, or mark in a language system.

**Character count.** The number of characters in a block of text. In typography, spaces are counted but other nonprinting characters usually are not.

**Chase.** A heavy metal frame into which metal type is locked for proofing or printing.

**Cicero.** A European typographic unit of measure, approximately equal to the American pica.

**Cold type.** Type that is set by means other than casting molten metal. A term most frequently used to indicate strike-on composition rather than photo or digital typesetting.

**Colophon.** An inscription, frequently placed at the end of a book, that contains facts about its production.

**Column guide.** Nonprinting lines that define the location of columns of type.

**Comp.** See *Comprehensive layout*.

**Compensation.** In visual organization, the counterbalancing of elements.

**Composing stick.** An adjustable handheld metal tray used to hold handset type as it is being composed.

**Comprehensive layout.** An accurate representation of a printed piece showing all type and pictures in their size and position. Comps are used to evaluate a design before producing final type and artwork.

**Condensed.** Letterforms whose horizontal width has been compressed.

**Connotation.** An idea that communicates implicit meaning and encourages associations based on personal experience.

**Consonance.** In design, harmonious interaction between elements.

**Copyfitting.** Calculating the area that will be occupied by a given manuscript when set in a specified size and style of type.

**Counter.** The space enclosed by the strokes of a letterform.

**Counterform.** Negative spatial area defined and shaped by letterforms, including both interior counters and spaces between characters.

**CSS.** Abbreviation for cascading style sheets. A style-sheet language used to describe the look and format of web pages, including typography specifications.

**Cursive.** Typestyles that imitate handwriting, although often with letters that do not connect.

**Cut-off rules.** Rules used to separate pages into various units, such as advertisements or news stories.

## D

**Dazzle.** A visual effect caused by extreme contrast in the strokes of letterforms.

**Denotation.** An idea that communicates objective meaning and is based on facts learned from collective experience.

**Descender.** A stroke on a lowercase letterform that falls below the baseline.

**Digital type.** Type stored electronically as digital dot or stroke patterns rather than as photographic images.

**Display type.** Type sizes 14 points and above, used primarily for headlines and titles.

**Dissolve.** A transition used in film in which the subject gradually changes into a new image.

**Dissonance.** In design, visual tension and contrast between typographic elements.

**Dithering.** A technique of making different colors for adjacent dots or pixels to give the illusion of a third color; for example, a printed field of alternating cyan and yellow dots appears green. Dithering gives the effect of shades of gray on a black-and-white display or the effect of more colors on a color display.

**Dot-matrix printer.** A printer that forms characters out of a pattern of dots; many have pins that strike against an inked ribbon to transfer the pattern of dots making up each character onto paper.

**Dots per inch (dpi).** A measure of the resolution of a screen image or printed page. Dots are also known as pixels.

**Drop initial.** A display letterform set into the text. Also called *drop cap*.

## E

**Egyptian.** Typefaces characterized by slab-like serifs similar in weight to the main strokes.

**Elite.** A size of typewriter type approximately equal to 10-point typography.

**Ellipses.** Three dots used to indicate an omission in quoted material.

**Em.** The square of the body size of any type, used as a unit of measure. In some expanded or condensed faces, the em is also expanded or condensed from the square proportion.

**Em dash.** A dash one em long. Also called a *long dash*.

**Em leader.** Horizontal dots or dashes with one em between their centers.

**Em space.** A space equal to the width of an em quad.

**En.** One-half of an em. See *Em*.

**En dash.** A dash one en long. Also called a *short dash*.

**En leader.** Horizontal dots or dashes with one en between their centers.

**En space.** A space equal to the width of an en quad.

**EPS.** Abbreviation for encapsulated PostScript. A file format for encoding images. These can be stored, edited, transferred, and output in the form of structured PostScript code.

**Exception dictionary.** See *Hyphenation*.

**Expanded.** Letterforms whose horizontal width has been extended.

**Export.** To send text, graphics, or layouts created in one program from the computer memory in a form suitable for use with other programs.

## F

**Face.** The part of metal type that is inked for printing. Also called *typeface*.

**Fade in.** A transition used in film in which the subject gradually becomes lighter or darker to contrast with the background.

**Fade out.** A transition used in film in which the subject gradually becomes lighter or darker to match the background so it disappears.

**Family.** See *Type family*.

**Film font.** A photographic film master used in some typesetting machines. Characters from a film font are exposed through lenses of different sizes onto paper or film. Unlike digital typesetting, typesetting systems using film fonts cannot set an entire page complete with graphics.

**Fit.** The spatial relationships between letters after they are set into words and lines.

**Flush left (or right).** The even vertical alignment of lines of type at the left (or right) edge of a column.

**Folio.** Page number.

**Font.** A complete set of characters in one design, size, and style. In traditional metal type, a font meant a particular size and style; in digital typography, a font can output multiple sizes and even altered styles of a typeface design.

**Footer.** An identifying line, such as a page number and/or a chapter title, appearing in the bottom margin of a document. Footers repeated throughout a document are called running footers or running feet.

**Format.** The overall typographic and spatial schema established for a publication or any other application.

**Formatting.** In typesetting, the process of issuing specific commands that establish the typographic format.

**Foundry type.** Metal type used in hand composition.

**Frame.** The smallest segment of a film. Several frames make up a shot.

**Furniture.** Rectangular pieces of wood, metal, or plastic used to fill in excess space when locking up a form for letterpress printing.

## G

**Galley.** A three-sided, shallow metal tray used to hold metal type forms before printing.

**Galley proof.** Originally, a type proof pulled from metal type assembled in a galley. Frequently used today to indicate any first proof, regardless of the type system.

**Geometric.** Term used to describe sans serif typefaces composed of circles and rectangles. Characteristics include uniform stroke width and single-storied *a* and *g* characters.

**GIF.** Abbreviation for graphics interchange format. A graphic image format limited to 256 colors and widely used in websites and to create simple animations.

**Gigabyte (GB).** A unit of data storage equal to one thousand megabytes.

**Grayscale.** An arbitrary scale of monochrome (black and white) intensity ranging from black to white, with a fixed number of intermediate shades of gray.

**Greeking.** Type set using random or Greek characters to simulate typeset text in a layout or comp.

**Grid.** An underlying structure composed of a linear framework used by designers to organize text and images.

**Grotesque.** Term used to describe sans serif typefaces. Characteristics include strokes with varied contrast in width, and square-like curves that terminate obliquely.

**Gutter.** The interval of space separating two facing pages in a publication.

**Gutter margin.** The inner margin of a page in a publication.

## H

**Hairline.** The thinnest strokes on a typeface having strokes of varying weight.

**Hand composition.** A method of setting type by placing individual pieces of metal type from a type case into a composing stick.

**Hanging indent.** In composition, a column format in which the first line of type is set to a full measure while all additional lines are indented.

**Hanging punctuation.** Punctuation set outside the column measure to achieve optical alignment.

**Header.** An identifying line at the top margin of a document. A header can appear on every page and can include text, pictures, page numbers, the date, and the time. Headers repeated throughout a document are called running headers or running heads.

**Heading.** Copy that is given emphasis over the body of text, through changes in size, weight, or spatial interval.

**Headline.** The most significant type in the visual hierarchy of a printed communication.

**Hierarchy.** A system of different sizes, weights, and other attributes in a text that indicate what the reader should read first, second, and so on.

**Hinting.** A technique used to add greater realism to a digital image by smoothing jagged edges on curved lines and diagonals.

**Hot type.** Type produced by casting molten metal.

**HTML.** Abbreviation for hypertext markup language. The basic computer programming language used to design web sites.

**Humanist.** Term used to describe sans serif typefaces with proportions similar to handwritten Roman capitals. Characteristics include letterforms with diagonal stress and two-storied *a* and *g* characters.

**Hypertext.** Text on a computer screen that contains pointers enabling the user to jump to other text or pages by clicking on highlighted material.

**Hyphenation.** The syllabic division of words used when they must be broken at the end of a line. In typesetting, hyphenation can be determined by the designer or automatically by the computer.

## I

**Import.** To transfer text, graphics, or layouts into a program in a form suitable for its use.

**Imposition.** The arrangement of pages in a printed signature to achieve the proper sequencing after the sheets are folded and trimmed.

**Incunabula.** European books printed during the first half-century of typography, from Gutenberg's invention of movable type until the year 1500.

**Indent.** An interval of space at the beginning of a line to indicate a new paragraph. Also used to visually separate quotes, lists and other types of content.

**Inferior characters.** Small characters, usually slightly smaller than the x-height, positioned on or below the baseline and used for footnotes or fractions.

**Initial.** A large letter used at the beginning of a column, for example, at the beginning of a chapter. See *Drop initial*.

**Insertion point.** The location in a document where the next text or graphics will be placed, represented by a blinking vertical cursor.

**Interletter spacing.** The spatial interval between letters, also called *letterspacing*.

**Interline spacing.** The spatial interval between lines, also called *leading*.

**Interword spacing.** The spatial interval between words, also called *wordspacing*.

**Italic.** Letterforms having a pronounced diagonal slant to the right. See *Oblique*.

## J

**Jaggies.** The jagged "staircase" edges formed on raster-scan displays when displaying diagonal and curved lines. See *Antialiasing*.

**JavaScript.** A programming language used to create dynamic and interactive web pages.

**JPEG.** Abbreviation for joint photographic experts group. JPEG is a file format used to compress images. The amount of compression can be adjusted to allow for small or large file sizes and varying image quality.

**Justified text.** Copy in which all lines of a text, regardless of the words they contain, are exactly the same length, so that they align vertically at both the left and right margins.

## K

**K.** Abbreviation for kilobyte. A term for 1,024 bytes of memory.

**Kerning.** In typesetting, *kerning* refers to the process of adjusting space between specific pairs of characters so that the overall letterspacing appears to be even. Compare *Tracking*.

## L

**Latin.** Typestyle characterized by triangular, pointed serifs.

**Leader.** Typographic dots or periods that are repeated to connect other elements.

**Lead-in.** Introductory copy set in a contrasting typeface.

**Leading.** (Pronounced "LED-ing") In early typesetting, strips of lead were placed between lines of type to increase the interline spacing, hence the term. See *Linespacing*, *Interline spacing*.

**Letterpress.** The process of printing from a raised inked surface.

**Letterspacing.** See *Interletter spacing*.

**Ligature.** A typographic character produced by combining two or more letters.

**Line breaks.** The relationships of line endings in a *ragged-right* or *ragged-left* setting. Rhythmic line breaks are achieved by adjusting the length of individual lines of type.

**Line length.** The measure of the length of a line of type, usually expressed in picas.

**Linespacing.** The vertical distance between two lines of type measured from baseline to baseline. For example, "10/12" indicates 10-point type with 12 points base-to-base (that is, with 2 points of leading). See *Leading*, *Interline spacing*.

**Lining figures.** Numerals identical in size to the capitals and aligned on the baseline: 1 2 3 4 5 6 7 8 9 10.

**Linotype.** A machine that casts an entire line of raised type on a single metal slug.

**Logotype.** A distinct combination of two or more type characters that are combined as a sign and used to represent a company, institution, brand, or product in a variety of media.

**Lowercase.** The alphabet set of small letters, as opposed to capitals.

**Ludlow.** A typesetting machine that produces individual letters from hand-assembled matrices.

## M

**Machine composition.** General term for the mechanical casting of metal type.

**Majuscules.** A term in calligraphy for letterforms analogous to uppercase letterforms, usually drawn between two parallel lines, the capline and the baseline. See *Minuscules*.

**Margin.** The unprinted space surrounding type matter on a page.

**Master page.** In a page-layout program, a master page is a template providing standard columns, margins, and typographic elements that appear on a publication's individual pages.

**Masthead.** The visual identification of a magazine or newspaper, also called a *flag*. Also, a section placed near the front of a publication containing names and titles of publishers and staff, along with addresses.

**Matrix.** In typesetting, the master image from which type is produced. The matrix is a brass mold in linecasting and a glass plate bearing the font negative in phototypesetting.

**MB.** Abbreviation for megabyte. A unit of measurement equal to 1,024 kilobytes or 1,048,576 bytes.

**Meanline.** An imaginary line marking the tops of lowercase letters, not including the ascenders.

**Measure.** See *Line length*.

**Minuscules.** A term in calligraphy for letterforms analogous to lowercase letters and usually drawn between four parallel lines determining ascender height, x-height, baseline, and descender depth. See *Majuscules*.

**Minus spacing.** A reduction of interline spacing, resulting in a baseline-to-baseline measurement that is smaller than the point size of the type. See *Reverse leading*.

**Modern.** Term used to describe typefaces designed at the end of the eighteenth century. Characteristics include vertical stress, hairline serifs, and pronounced contrasts between thick and thin strokes.

**Monocase alphabet.** A language alphabet, such as Hebrew and Indic scripts, having only capital-height letters and no lowercase letterforms.

**Monochrome.** Refers to material or a display consisting of a single color, typically black or white.

**Monogram.** Two or more letterforms interwoven, combined, or connected into a single glyph, typically used as abbreviations or initials.

**Monoline.** Used to describe a typeface or letterform with a uniform stroke thickness.

**Monospacing.** The spacing in a font with characters that all have the same set width or horizontal measure; often found in typewriter and screen fonts. See *Proportional spacing*.

**Monotype.** A trade name for a keyboard-operated typesetting machine that casts individual letters from matrices.

**Montage.** A series of shots that combine into a sequence to condense space or time, or suggest a feeling or idea.

**Multiple master fonts.** An extension of PostScript fonts that contain two or more masters from which a wide range of typestyles can be created. Replaced by OpenType.

## N

**Neo-grotesque.** Term used to describe a derivation of Grotesque sans serif typefaces. Characteristics include less contrast in stroke width, curved strokes that terminate as a horizontal, higher x-heights, and shorter descenders.

## O

**Oblique.** A slanted roman character. Unlike many italics, oblique characters do not have cursive design properties.

**Offset lithography.** A printing method using flat photomechanical plates in which the inked image is transferred or offset from the printing plate onto a rubber blanket and then onto the paper.

**Old Style.** Typeface styles derived from fifteenth- to eighteenth-century designs and characterized by moderate thick-and-thin contrasts, bracketed serifs, and a handwriting influence.

**Old Style figures.** Numerals that exhibit a variation in size, including characters aligning with the lowercase x-height, and others with ascenders or descenders:  
1 2 3 4 5 6 7 8 9 10.

**OpenType.** A font file format created by Adobe Systems and Microsoft that works on both platforms and supports expanded character sets.

**Optical adjustment.** The precise visual alignment and spacing of typographic elements done by eye to achieve consistent spacing.

**Orphan.** A single word on a line, left over at the end of a paragraph, sometimes appearing at the top of a column of text. See *Widow*.

**Outline type.** Letterforms described by a contour line that encloses the entire character on all sides. The interior usually remains open.

## P

**Pagination.** The sequential numbering of pages. Sometimes presented as a diagram of small thumbnails of the cover and each spread.

**Panning shot.** A camera movement used in film or simulated in animation where the subject is stationary and the camera moves from left to right.

**Pantone Matching System (PMS).** The trademarked name of a system for specifying colors and inks that is a standard in the printing industry.

**Paragraph mark.** Typographic elements that signal the beginning of a paragraph. For example, ¶.

**Parallel construction.** In typography, the use of similar typographic elements or arrangements to create a visual unity or to convey a relationship in content.

**PDF.** Abbreviation for portable document format. A file format that encodes a description of the layout, typefaces, and images, allowing accurate display and printing of the file without the software used to create it.

**Photocomposition.** The process of setting type by projecting light onto light-sensitive film or paper.

**Photodisplay typesetting.** The process of setting headline type on film or paper by photographic means.

**Phototype.** Type matter set on film or paper by photographic projection of type characters.

**Pica.** A typographic unit of measurement: 12 points equal 1 pica; 6 picas equal approximately 1 inch. Line lengths and column widths are measured in picas.

**Pixel.** Abbreviation for picture element; the smallest dot that can be displayed on a screen.

**Point.** A measure of size used principally in typesetting. One point is equal to 1/12 of a pica, or approximately 1/72 of an inch. It is most often used to indicate the size of type or amount of leading added between lines.

**PostScript.** A page-description programming language created by Adobe Systems that handles text and graphics, placing them on the page with mathematical precision.

**Proof.** Traditionally, an impression from metal type for examination and correction; now applies to initial output for examination and correction before final output.

**Proportional spacing.** Spacing in a font adjusted to give wide letters (*M*) a larger set width than narrow letters (*I*).

## Q

**Quad.** In metal type, pieces of type metal shorter than type-high, which are used as spacing matter to separate elements and fill out lines.

**Quoins.** Wedges used to lock up metal type in the chase. These devices are tightened and loosened by a quoin key.

## R

**Ragged.** See *Unjustified type*.

**Recto.** In publication design, the right-hand page. Page one always appears on a recto, as do all odd-numbered pages. The left-hand page is called the verso.

**Resolution.** The degree of detail and clarity of a display; usually specified in dots per inch (dpi/ppi). The higher the resolution, or the greater the number of dpi, the sharper the image.

**Responsive design.** A design strategy in which content responds to the screen size it is being viewed on, fitting text and images into the frame for each device.

**Reverse.** Type or image that is dropped out of a printed area, revealing the paper surface.

**Reverse leading.** A reduction in the amount of interline space, making it less than normal for the point size. For example, 12-point type set on an 11-point body size becomes reverse leading of 1 point. See *Minus spacing*.

**Revival.** A little-used historic typeface previously unavailable in current font formats, now released for contemporary technology.

**River.** In text type, a series of interword spaces that accidentally align vertically or diagonally, creating an objectionable flow of white space within the column.

**Roman.** Upright letterforms, as distinguished from italics. More specifically, letters in an alphabet style based on the upright, serified letterforms of Roman inscriptions.

**Rule.** In handset metal type, a strip of metal that prints as a line. Generally, any line used as an element in typographic design.

**Runaround.** Type that is set with a shortened line measure to fit around a photograph, drawing, or other visual element inserted into the running text.

**Run in.** To set type without a paragraph indentation or other break. Also, to insert additional matter into the running text as part of an existing paragraph.

**Running foot or running footer.** A line of text repeated throughout a document and positioned at or near the bottom of a page. See *Footer*.

**Running head or running header.** Type at the head of sequential pages, providing a title or other information. See *Header*.

## S

**Sans serif.** Typefaces without serifs.

**Scene.** A segment of a film. Several shots make up a scene. Several scenes make up a sequence.

**Script.** Typefaces based on handwriting, usually having connecting strokes between the letters. Compare *Cursive*.

**Semantics.** The science of meaning in linguistics; the study of the relationships between signs and symbols, and what they represent.

**Sequence.** A segment of a film. Several scenes make up a sequence. Several sequences make up a film.

**Serifs.** Small elements added to the ends of the main strokes of a letterform in serified type styles.

**Set width.** In metal type, the width of the body upon which a letter is cast. In phototype and digital type, the horizontal width of a letterform measured in units, including the normal space before and after the character. This interletter space can be increased or decreased to control the tightness or looseness of the fit.

**Shot.** A segment of a film. Several frames make up a shot. Several shots make up a scene.

**Shoulder.** In metal type, the flat top of the type body that surrounds the raised printing surface of the letterform.

**Sidebar.** A narrow column of text, separated from the main text by a box or rule and containing a secondary article.

**Side head.** A title or other heading material placed to the side of a type column.

**Slab serifs.** Square or rectangular serifs that align horizontally and vertically to the baseline and are usually the same (or heavier) weight as the main strokes of the letterform. See *Egyptian*.

**Slug.** A line of metal type cast on a linecasting machine, such as the Linotype. Also, strips of metal spacing material in thicknesses of 6 points or more.

**Small capitals.** A set of capital letters having the same height as the lowercase x-height, frequently used for cross-reference and abbreviations. Also called *small caps*.

**Smoothing.** The electronic process of eliminating jaggies (the uneven staircase effect on diagonal or curved lines).

**Solid.** Lines of type that are set without additional interline space. Also called *set solid*.

**Sorts.** In metal type, material that is not part of a regular font, such as symbols, piece fractions, and spaces. Also, individual characters used to replace worn-out type in a font.

**Stet.** A proofreader's mark meaning that copy marked for correction should not be changed; rather, any instructions for changes should be ignored and the text should be left as originally set.

**Stress.** The gradual variation in the thickness of a curved character part or stroke; often used for any variation in the thickness of a character part or stroke.

**Style sheets.** Formatting instructions such as type weights, size, and leading for creating standardized documents.

**Subscript.** A small character beneath (or adjacent to and slightly below) another character.

**Superscript.** A small character above (or adjacent to and slightly above) another character.

**Swash letters.** Letters ornamented with flourishes or flowing tails.

**Syntax.** In grammar, the way in which words or phrases are put together to form sentences. In design, the connecting or ordering of typographic elements into a visual unity.

## T

**Text.** The main body of written or printed material, as opposed to display matter, footnotes, appendices, etc.

**Text type.** See *Body type*.

**Thumbnail.** A miniature image of a page, either a small planning sketch made by a designer or a reduction in a page-layout program.

**TIFF.** Abbreviation for tag image file format. A file format for encoding pictures as high-resolution bitmapped images.

**Tilting shot.** A camera movement used in film or simulated in animation where the subject is stationary and the camera moves up and down.

**Tracking.** The overall tightness or looseness of the spacing between all characters in a line or block of text. Sometimes used interchangeably with  *Kerning*, which more precisely is the reduction in spacing between a specific pair of letters.

**Tracking shot.** A camera movement used in film or simulated in animation where the subject is stationary and the camera moves forward or backward through space, or parallel to the action.

**Transitional.** Classification of typestyles combining aspects of both Old Style and Modern typefaces; for example, Baskerville.

**Type color.** Optical effect that gives the illusion of lighter or darker text and which is the result of visual qualities inherent in individual typefaces and the spacing of letters, words, and lines of type.

**Typeface.** The design of alphabetical and numerical characters unified by consistent visual properties.

**Type family.** The complete range of variations of a typeface design, including roman, italic, bold, expanded, condensed, and other versions.

**Type-high.** The standard foot-to-face height of metal types; 0.9186 inches in English-speaking countries.

**Typesetting.** The composing of type by any method or process.

**Type specimen.** A typeset sample produced to show the visual properties of a typeface.

**Typography.** Originally the composition of printed matter from movable type. Now the art and process of typesetting by any system or method.

## U

**Unjustified type.** Lines of type set with equal interword spacing, resulting in irregular line lengths. Also called *ragged*.

**Uppercase.** See *Capitals*.

**URL.** Abbreviation for uniform resource locator. A location pointer name used to identify the location of a file on a server connected to the World Wide Web.

## V

**Verso.** In publication design, the left-hand page. Page two always appears on a verso, as do all even-numbered pages. The right-hand page is called the recto.

## W

**Weight.** The lightness or heaviness of a typeface, which is determined by ratio of the stroke thickness to character height.

**White space.** The “negative” area surrounding a letterform. See *Counter* and *Counterform*.

**Widow.** A very short line that appears at the end of a paragraph, column, or page, or at the top of a column or page. These awkward typographic configurations should be corrected editorially.

**Width tables.** Collections of information about how much horizontal room each character in a font should occupy, often accompanied by information about special kerning pairs or other exceptions.

**Wipe.** A transition used in film in which the subject is replaced with another image in a systematic motion, usually from left to right.

**Woodtype.** Hand-set types cut from wood by a mechanical router. Formerly used for large display sizes that were not practical for metal casting.

**Wordspacing.** The spatial interval between words. In setting justified body type, space is added between words to extend each line to achieve flush left and right edges. See *Interword spacing*.

**WYSIWYG.** Abbreviation for “what you see is what you get,” pronounced Wizzywig. This means the image on the screen is identical to the image that will be produced as final output.

## X

**x-height.** The height of lowercase letters in a font, excluding characters with ascenders and descenders. This is most easily measured on the lowercase x.

## Z

**Zooming shot.** A camera movement used in film or simulated in animation where the subject is stationary and the camera gets closer to the subject over time.



- Aicher, Otl. *Typographie*. Berlin: Ernst & Sohn, 1988.
- Anderson, Donald M. *The Art of Written Forms*. New York: Holt, Reinhart and Winston, 1969.
- . *A Renaissance Alphabet*. Madison, WI: University of Wisconsin Press, 1971.
- Arnheim, Rudolf. *The Power of the Center: A Study of Composition in the Visual Arts*. Berkeley, CA: University of California Press, 1982.
- Bellantoni, Jeff, and Woolman, Matt. *Moving Type: Designing for Time and Space*. Crans-Près-Céligny, Switzerland: RotoVision, 2000.
- . *Type in Motion*. London: Thames & Hudson, 2000.
- Bevington, William. *Typography: The Principles. A Basic Guide to Using Type*. New York: The Center for Design and Typography, The Cooper Union, 1991.
- Bigelow, Charles, Duensing, Paul Hayden, and Gentry, Linnea. *Fine Print on Type: The Best of Fine Print on Type and Typography*. San Francisco: Fine Print/Bedford Arts, 1988.
- Binns, Betty. *Better Type*. New York: Watson-Guptill, 1989.
- Blackwell, Lewis. *20th Century Type*. New York: Rizzoli, 1992.
- Blauvelt, Andrew, and Lupton, Ellen, eds. *Graphic Design: Now in Production*. Minneapolis: Walker Art Center, 2011.
- Bojko, Szymon. *New Graphic Design in Revolutionary Russia*. New York: Praeger, 1972.
- Bringhurst, Robert. *The Elements of Typographic Style*. Port Roberts, WA: Hartley and Marks, 1992.
- Brody, Neville, and Blackwell, Lewis. *G3: New Dimensions in Graphic Design*. New York: Rizzoli, 1996.
- Bruckner, D. J. R. *Frederic Goudy*. New York: Abrams, 1990.
- Burns, Aaron. *Typography*. New York: Van Nostrand Reinhold, 1961.
- Carter, Rob. *American Typography Today*. New York: Van Nostrand Reinhold, 1989.
- . *Digital Color and Type*. Crans-Près-Céligny, Switzerland: RotoVision, 2002.
- . *Working with Type*, Volumes 1–5, Crans-Près-Céligny, Switzerland: RotoVision; and New York: Watson Guptill, 1995–99.
- Carter, Sebastian. *Twentieth Century Type Designers*. New York: W. W. Norton & Co., 1995.
- Chang, Amos I. *The Tao of Architecture*. Princeton, NJ: Princeton University Press, 1981.
- Craig, James, Korol Scala, Irene, and Bevington, William. *Designing with Type: The Essential Guide to Typography*. New York: Watson-Guptill Publications, 2006.
- Dair, Carl. *Design with Type*. Toronto: University of Toronto Press, 1967.
- Damase, Jacques. *Revolution Typographique*. Geneva: Galerie Mott, 1966.
- Doczi, Gregory. *The Power of Limits: Proportional Harmonies in Nature, Art and Architecture*. Boulder, CO: Shambhala Publications, 1981.
- Dooijes, Dick. *Mijn Leven Met Letters*. Amsterdam: De Buitenkant, 1991.
- Dowding, Geoffrey. *Fine Points in the Spacing and Arrangement of Type*. Point Roberts, WA: Hartley and Marks, 1993.
- Drogin, Marc. *Medieval Calligraphy: Its History and Technique*. Montclair, NJ: Allanheld and Schram, 1980.
- Dwiggins, William Addison. *Layout in Advertising*. New York: Harper and Brothers, 1948.
- Elam, Kimberly. *Expressive Typography: The Word as Image*. New York: Van Nostrand Reinhold, 1990.
- . *Grid Systems: Principles of Organizing Type*. New York: Princeton Architectural Press, 2004.
- Felici, James. *The Complete Manual of Typography*. Berkeley, CA: Peachpit Press, 2003.
- Friedl, Friedrich, Ott, Nicolaus, and Stein, Bernard. *Typography: An Encyclopedic Survey*. New York: Black Dog, 1998.
- Friedman, Mildred, ed. *De Stijl: 1917–1931, Visions of Utopia*. New York: Abbeville Press, 1982.
- Frutiger, Adrian. *Signs & Symbols: Their Design & Meaning*. New York: Van Nostrand Reinhold, 1989.
- . *Type, Sign, Symbol*. Zurich: ABC Verlag, 1980.
- Gardner, William. *Alphabet at Work*. New York: St. Martins Press, 1982.
- Gerstner, Karl. *Compendium for Literates: A System for Writing*. Translated by Dennis Q. Stephenson. Cambridge, MA: MIT Press, 1974.
- Gill, Eric. *An Essay on Typography*. Boston: David R. Godine, 1988.
- Goines, David Lance. *A Constructed Roman Alphabet*. Boston: David R. Godine, 1981.
- Goudy, Frederic W. *The Alphabet and Elements of Lettering*. New York: Dover, 1963.
- . *Typologia: Studies in Type Design and Type Making*. Berkeley, CA: University of California Press, 1940.
- Gray, Nicolette. *A History of Lettering: Creative Experiment and Letter Identity*. Boston: David R. Godine, 1986.
- . *Nineteenth Century Ornamented Typefaces*. Berkeley, CA: University of California Press, 1977.
- Harlan, Calvin. *Vision and Invention: A Course in Art Fundamentals*. New York: Prentice Hall, 1969.
- Heller, Steven, and Meggs, Philip B., eds. *Texts on Type: Critical Writings on Typography*. New York: Allworth, 2001.
- Hiebert, Kenneth J. *Graphic Design Processes: Universal to Unique*. New York: Van Nostrand Reinhold, 1992.
- Hinrichs, Kit. *Typewise*. Cincinnati: North Light, 1990.
- Hochuli, Jost. *Detail in Typography*. London: Hyphen Press, 2008.
- Hoffman, Armin. *Armin Hoffman: His Work, Quest, and Philosophy*. Basel: Birkhäuser Verlag, 1989.
- . *Graphic Design Manual: Principles and Practice*. New York: Van Nostrand Reinhold, 1992.
- Jaspert, W. Pincus, Berry, W. Turner, Jaspert, W. P., and Johnson, A. F. *The Encyclopaedia of Typefaces*. New York: Blandford Press, 1986.
- Johnston, Ollie, and Thomas, Frank. *The Illusion of Life: Disney Animation*. New York: Abbeville, 1981.
- Kane, John. *A Type Primer*. Upper Saddle River, NJ: Prentice Hall, 2003.
- Kelly, Rob Roy. *American Wood Type 1828–1900*. New York: Van Nostrand Reinhold, 1969.
- Kepes, Gyorgy. *Sign, Symbol, Image*. New York: George Braziller, 1966.
- Kinross, Robin. *Modern Typography: An Essay in Critical History*. London: Hyphen Press, 1992.
- Knobler, Nathan. *The Visual Dialogue*. New York: Holt, Reinhart and Winston, 1967.
- Krasner, Jon. *Motion Graphic Design: Applied History and Aesthetics*. London: Focal Press, 2008.
- Kunz, Willi. *Typography: Macro+Micro Aesthetics*. Switzerland: Verlag Arthur Niggli, 1998.
- Lawson, Alexander. *Anatomy of a Typeface*. Boston: David R. Godine, 1990.
- Lewis, John. *Anatomy of Printing: The Influence of Art and History on Its Design*. New York: Watson-Guptill, 1970.
- Lobell, Frank. *Between Silence and Light: Spirit in the Architecture of Louis I. Kahn*. Boulder, CO: Shambhala Publications, 1979.
- Malsy, Victor, Teufel, Philipp, and Gejko, Fjodor. *Helmut Schmid: Design Is Attitude*. Basel: Birkhäuser Publishers, 2002.



- Marshall, Lindsey, and Meachem, Lester. *How to Use Type*. London: Laurence King, 2012.
- McGrew, Mac. *American Metal Typefaces of the Twentieth Century*. New Castle, DE: Oak Knoll Books, 1993.
- McLean, Ruari. *Jan Tschichold: A Life in Typography*. New York: Princeton Architectural Press, 1997.
- . *Jan Tschichold: Typographer*. Boston: David R. Godine, 1975.
- . *The Thames and Hudson Manual of Typography*. London: Thames and Hudson, 1980.
- Meggs, Philip B. *A History of Graphic Design*, 5th edition. New York: John Wiley & Sons, 2012.
- . *Type and Image: The Language of Graphic Design*. New York: John Wiley & Sons, 1989.
- Meggs, Philip B., and Carter, Rob. *Typographic Specimens: The Great Typefaces*. New York: John Wiley & Sons, 1993.
- Meggs, Philip B., and McKelvey, Roy, eds. *Revival of the Fittest: Digital Versions of Classic Typefaces*. New York: RC Publications, 2000.
- Morison, Stanley. *First Principles of Typography*. Cambridge, England: Cambridge University Press, 1936.
- Morison, Stanley, and Day, Kenneth. *The Typographic Book: 1450–1935*. Chicago: University of Chicago Press, 1964.
- Müller-Brockmann, Josef. *Grid Systems in Graphic Design: A Visual Communications Manual*. Niederteufen, Switzerland: Arthur Niggli Ltd., 1981.
- Nesbitt, Alexander. *The History and Technique of Lettering*. New York: Dover, 1950.
- Perfect, Christopher, and Austen, Jeremy. *The Complete Typographer: A Manual for Designing with Type*. Englewood Cliffs, NJ: Prentice Hall, 1992.
- Petersen, Ad. *Sandberg: Designer + Director of the Stedelijk*. Rotterdam: 010 Publishers, 2004.
- Quay, David, and Broos, Kees. *Wim Crouwel Alphabets*. Amsterdam: BIS Publishers, 2003.
- Rehe, Rolf F. *Typography: How to Make It Most Legible*. Carmel, CA: Design Research Publications, 1974.
- Richardson, Margaret. *Type Graphics: The Power of Type in Graphic Design*. Gloucester, MA: Rockport, 2000.
- Roberts, Raymond. *Typographic Design: Handbooks to Printing*. London: Ernest Bend Limited, 1966.
- Rogers, Bruce. *Paragraphs on Printing*. New York: Dover, 1980.
- Ruder, Emil. *Typography: A Manual of Design*. Switzerland: Verlag Arthur Niggli, 1967.
- Ruegg, Ruedi. *Basic Typography: Design with Letters*. New York: Van Nostrand Reinhold, 1989.
- Schmid, Helmut. *Typography Today*. Tokyo: Seibundo Shinkosha, 1980.
- Solt, Mary Ellen. *Concrete Poetry*. Bloomington, IN: University of Indiana Press, 1971.
- Spencer, Herbert. *Pioneers of Modern Typography*. London: Lund Humphries, 1969; Cambridge, MA: MIT Press, 1983.
- . *The Visible Word*. New York: Hastings House, 1969.
- Spencer, Herbert, ed. *The Liberated Page*. San Francisco: Bedford, 1987.
- Spiekermann, Erik, and Ginger, E. M. *Stop Stealing Sheep and Find Out How Type Works*. Mountain View, CA: Adobe Press, 1993.
- Stone, Summer. *On Stone*. San Francisco: Bedford Arts, 1991.
- Sutnar, Ladislav. *Visual Design in Action: Principles, Purposes*. New York: Hastings House, 1961.
- Swann, Cal. *Techniques of Typography*. New York: Watson-Guption, 1969.
- Tschichold, Jan. *The New Typography*. Translated by Ruari McLean. Berkeley, CA: University of California Press, 1998.
- Updike, Daniel. *Printing Types: Their History, Form, and Use*. New York: Dover, 1980.
- VanderLans, Rudy, ed. *Emigre No. 70: The Look Back Issue*. Berkeley, CA: Ginko Press, 2009.
- VanderLans, Rudy, Licko, Zuzana, and Gray, Mary E. *Emigre: Graphic Design in the Digital Realm*. New York: Van Nostrand Reinhold, 1993.
- Van Kooten, Kees, and Spieker, Ewald. *Letter Lust*. Antwerp: Uitgeverij Manteau, 2003.
- Venezky, Martin. *It Is Beautiful... Then Gone*. New York: Princeton Architectural Press, 2005.
- Wallis, Lawrence W. *Modern Encyclopedia of Typefaces: 1960–90*. New York: Van Nostrand Reinhold, 1990.
- Weingart, Wolfgang. *Wolfgang Weingart: My Way to Typography*. Baden, Switzerland: Lars Müller, 2000.
- Wolff, Laetitia. *Massin*. London: Phaidon, 2007.

**Frontispiece.** *Saint Barbara*, 15th-century German or French polychromed walnut sculpture. 127.0 x 58.4 x 33.0 cm (50 x 23 x 13 in.). The Virginia Museum of Fine Arts, Richmond. The Williams Fund, 1968.

### Chapter One

**1-1.** Impressed tablet from Godin Tepe, Iran. West Asian Department, Royal Ontario Museum, Toronto.

**1-2.** Facsimile of the cuneiform impression on a clay tablet, after Hansard.

**1-3.** The Pyramids at Giza, from *The Iconographic Encyclopaedia of Science, Literature, and Art* by Johann Georg Heck, 1851.

**1-4.** Egyptian Old Kingdom *False Door Stele*, limestone. The Virginia Museum of Fine Arts, Richmond. Museum Purchase: The Williams Fund.

**1-5.** Cuneiform tablet. Sumero-Akkadian. The Metropolitan Museum of Art, New York. Acquired by exchange with J. Pierpont Morgan Library, 1911.

**1-6.** Photograph of Stonehenge; courtesy of the British Tourist Authority.

**1-7.** Egyptian polychromed wood sculpture, XVIII–XIX Dynasty. Ushabti. The Virginia Museum of Fine Arts, Richmond. Museum Purchase: The Williams Fund, 1955.

**1-8.** *The Book of the Dead of Tutmosis III*. Museum of Fine Arts, Boston. Gift of Horace L. Meyer.

**1-10.** Phoenician inscription. The Metropolitan Museum of Art, New York. The Cesnola Collection. Purchased by subscription, 1874–76.

**1-12.** Photograph of the Parthenon; courtesy of the Greek National Tourist Office.

**1-13.** Photograph of Greek record of sale; Agora Excavations, American School of Classical Studies, Athens.

**1-15.** Photograph of a wall in Pompeii, by James Mosley.

**1-17.** Photographer anonymous; c. 1895. Private collection.

**1-18.** *Funerary inscription of Lollia Genialis*. Marble. The Metropolitan Museum of Art, New York.

**1-19.** Photographer anonymous; c. 1895. Private collection.

**1-20.** Photograph; courtesy of the Italian Government Travel Office.

**1-24.** Detail, “Christ attended by angels,” from the Book of Kells, fol. 32v; photograph; courtesy of the Irish Tourist Board.

**1-25** and **1-26.** Photographs; courtesy of the Irish Tourist Board.

**1-28.** Photograph; courtesy of the French Government Tourist Office.

**1-30.** Bronze and copper Crucifix. The Virginia Museum of Fine Art, Richmond. Museum Purchase: The Williams Fund, 1968.

**1-32.** *Madonna and Child on a Curved Throne*. Wood, 0.815 x 0.490 m (32 1/8 x 19 3/8 in.). National Gallery of Art, Washington. Andrew W. Mellon Collection, 1937.

**1-34.** Lippo Memmi; Sienese, active 1317–47. *Saint John the Baptist*. Wood, 0.95 x 0.46 m (37 1/4 x 18 in.). National Gallery of Art, Washington. Samuel H. Kress Collection, 1939.

**1-35.** Photograph courtesy of the Italian Government Tourist Office.

**1-37.** Fra Filippo Lippi; Florentine c. 1406–69. *Madonna and Child*. Wood, 0.80 x 0.51 m (31 3/8 x 20 1/8 in.). National Gallery of Art, Washington. Samuel H. Kress Collection, 1939.

**1-38.** The Rosenwald Collection; The Library of Congress, Washington, DC.

**1-39.** Woodcut illustration from *Standebuch* by Jost Amman, 1568.

**1-40.** Photographer anonymous; c. 1895. Private collection.

**1-42.** Typograph from *Lactantu*. . . . Printed by Sweynheym and Pannartz; Rome, 1468. The Library of Congress Rare Book and Special Collections Division, Washington, DC.

**1-43.** From *De evangelica praeparatione* by Eusebius Pamphilii. Printed by Nicolas Jenson; Venice, 1470.

**1-44.** From *The Recuyell of the Histories of Troye* by Raoul Le Fevre. Printed by William Caxton and Colard Mansion; Bruges, c. 1475.

**1-45.** Filippino Lippi; *Portrait of a Youth*. Wood, 0.510 x 0.355 m (20 x 13 7/8 in.). National Gallery of Art, Washington, DC. Andrew Mellon Collection, 1937.

**1-46.** Erhard Ratdolt, earliest extant type specimen sheet. Published April 1, 1486, in Augsburg, Germany. Bayerische Staatsbibliothek, Munich.

**1-47.** Woodcut portrait of Aldus Manutius. Published by Antoine Lafrery; Rome, 16th century.

**1-48.** From *De aetna* by Pietro Bembo. Published by Aldus Manutius, Venice, 1495.

**1-49.** Page from *Virgil*. Published by Aldus Manutius; Venice, 1501.

**1-50.** Photograph by Rommler and Jonas; 1892. Private collection.

**1-53.** From *Underweisung der Messung* by Albrecht Dürer; Nuremburg, 1525.

**1-54.** From *Champ Fleury* by Geoffroy Tory; Paris, 1529.

**1-57.** Titian; Venetian, c. 1477–1565. *Cardinal Pietro Bembo*. Canvas, 0.945 x 0.765 m (37 1/8 x 30 1/8 in.). National Gallery of Art, Washington, DC. Samuel H. Kress Collection, 1952.

**1-58.** Title page for *Elementary Geometry* by Oronce Fine. Printed by Simone de Colines; Paris, 1544.

**1-59.** From *Hypnerotomachia Poliphili* by Fra Francesco Colonna. Printed by Jacques Kerver; Paris, 1546.

**1-60.** El Greco, Spanish, 1541–1614. *Saint Martin and the Beggar*. Canvas, 1.935 x 1.030 m (76 1/8 x 40 1/2 in.). National Gallery of Art, Washington, DC. Widener Collection, 1942.

**1-61.** From *Nejw Kunstliches Alphabet* by Johann Theodor de Bry; Germany, 1595.

**1-62.** Photographer anonymous; c. 1895. Private collection.

**1-63.** Detail, typographic specimens of Jean Jannon; Sedan, 1621.

**1-64.** Page from *Stamperia Vaticana Specimen*; Rome, 1628.

**1-65.** Photograph; courtesy of the Government of India Tourist Office.

**1-66.** Sir Anthony van Dyck; Flemish, 1599–1641. *Henri II de Lorraine, Duc de Guise*. Canvas, 2.046 x 1.238 m (80 5/8 x 48 5/8 in.). National Gallery of Art, Washington, DC. Gift of Cornelius Vanderbilt Whitney, 1947.

**1-67.** Jan Vermeer, Dutch 1632–75. *Woman Holding a Balance*, c. 1664. Canvas, 0.425 x 0.380 m (16 3/4 x 15 in.). National Gallery of Art, Washington, DC. Widener Collection, 1942.

**1-69.** Photograph; courtesy of the British Tourist Authority.

**1-71.** Photographer anonymous; 1896. Private collection.

**1-72.** From the 1764 specimen book of W. Caslon and Son, London.

**1-73.** Photograph; courtesy of the Irish Tourist Board.

**1-74.** Title page for *Cato Major, or His Discourse on Old Age* by M. T. Cicero. Printed by Benjamin Franklin; Philadelphia, 1744.

**1-75.** Francois Boucher; French 1703–70. *The Love Letter*, 1750. Canvas, 0.813 x 0.741 m (32 x 29 1/8 in.). National Gallery of Art, Washington, DC. Timken Collection, 1959.

**1-76.** Anonymous; engraved portrait of John Baskerville.

**1-77.** From the specimen book of Thomas Cottrell, English typefounder; London, c. 1765.

**1-78.** Detail, title page of *Historie de Louis de Bourbon*. . . ., using types and ornaments designed by Pierre Simon Fournier le Jeune. Published by Lottin; Paris, 1768.

**1-79.** Johann David Steingruber, 1702–87. Engraved letter *A* from *Architektonisches Alphabet*, Schwabach, 1773. The Metropolitan Museum of Art. The Elisha Whittelsey Collection, 1955. The Elisha Whittelsey Fund.

**1-80.** Photograph; courtesy of the Library of Congress, Washington, DC.

**1-82.** Detail, title page using type designed by Bodoni. Dante's *Divine Comedy*; Pisa, Italy, 1804.

**1-83.** From Thorowgood's *New Specimen of Printing Types, late R. Thome's, No. 2*; London, 1821.

**1-84.** Jacques-Louis David, French 1748–1825. *Napoleon in his Study*, 1812. Canvas, 2.039 x 1.251 m (80 1/4 x 49 1/4 in.). National Gallery of Art, Washington, DC. Samuel H. Kress Collection, 1961.

**1-85** and **1-86.** From *Specimen of Printing Types* by Vincent Figgins; London, 1815.

**1-87.** From *Specimen of Printing Types* by William Caslon IV; London, 1816.

**1-88.** From *Manuale Tipografico*. Published by Signora Bodoni and Luigi Orsi; Parma, Italy, 1818.

- 1-89.** From Thorowgood's *New Specimen of Printing Types, late R. Thome's, No. 2*; London, 1821.
- 1-90.** Photograph; courtesy of the Virginia State Travel Service.
- 1-91.** From *Bower, Bacon & Bower's Specimen of Printing Types*; Sheffield, England, c. 1825.
- 1-92.** Wood engraving of Darius Wells, from *The Inland Printer*; Chicago, July 1888.
- 1-93.** From *Specimen of Printing Types* by Vincent Figgins; London, 1833.
- 1-94.** Poster by the Davy & Berry Printing Office; Albion, England, 1836.
- 1-95.** From *Specimen of Printing Types by V. & J. Figgins, successors to Vincent Figgins, Letter-Founder*; London, 1836.
- 1-96.** Courtesy of the Library of Congress Rare Book and Special Collections Division, Washington, DC.
- 1-97.** Photograph; courtesy of the British Tourist Authority.
- 1-98.** From *The Specimen Book of Types Cast at the Austin Foundry by Wood & Sharwoods*; London, c. 1841.
- 1-99.** From *A General Specimen of Printing Types*. Published by W. Thorowgood and Company; London, 1848.
- 1-100.** Photograph; The Library of Congress Rare Book and Special Collections Division, Washington, DC.
- 1-101.** Photograph; The Library of Congress Rare Book and Special Collections Division, Washington, DC.
- 1-102.** From the wood type specimen book of William H. Page & Company; Greenville, CT, 1859.
- 1-103.** Private collection.
- 1-104.** Honoré Daumier; French 1808–79. *The Third-Class Carriage*. Oil on canvas, 65.4 x 90.2 m (25 3/4 x 35 1/2 in.). The Metropolitan Museum of Art, New York. Bequest of Mrs. H. O. Havemeyer, 1929. The H. O. Havemeyer Collection.
- 1-105.** Private collection.
- 1-106.** Private collection.
- 1-107.** Courtesy of The New York Convention and Visitors Bureau.
- 1-108.** Private collection.
- 1-109.** Private collection.
- 1-110.** Wood engraving from *The Inland Printer*; Chicago, December 1889.
- 1-112.** Courtesy of the French Government Tourist Office.
- 1-113.** Photograph; courtesy of the Archives: The Coca-Cola Company.
- 1-114.** Paul Gauguin, French 1848–1903. *Fatata Te Miti (By the Sea)*, 1892. Canvas, 0.679 x 0.915 m (26 3/4 x 36 in.). National Gallery of Art, Washington, DC. The Chester Dale Collection, 1962.
- 1-117.** William Morris. *News from Nowhere*. Published by Kelmscott Press; London, 1892.
- 1-118.** Title page from *Van nu en Straks*. Designed by Henri van de Velde, 1893.
- 1-119.** Title page from *Limbes de Lumières* by Gustave Kahn; Brussels, 1897.
- 1-120.** From *The Inland Printer*; Chicago, June 1900.
- 1-121.** Title page from *A Lady of Quality* by Frances Hodgson Burnett. Published by Charles Scribner's Sons; New York, 1897.
- 1-122.** Cover for *Vienna Secession Catalog No. 5*; Vienna, 1899.
- 1-123.** Photograph; courtesy of the French Government Tourist Office.
- 1-124.** © 2007 Artists Rights Society (ARS), New York / Dedication page from *Feste des Lebens und der Kunst: Ein Betrachtung des Theaters als höchsten Kultursymbols (Celebrations of Life and Art: A Consideration of the Theater as the Highest Cultural Symbol)* by Peter Behrens; Darmstadt, 1900.
- 1-125.** © 2007 Artists Rights Society (ARS), New York / Filippo Marinetti, Futurist poem, S.T.F., 1914.
- 1-126.** Cover, *Delikatessen Haus Erich Fromm, Haupt-List 2*; Cologne, c. 1910.
- 1-127.** © 2007 Artists Rights Society (ARS), New York / Wassily Kandinsky. *Improvisation 31 (Sea Battle)*, 1913. National Gallery of Art, Washington, DC. Ailsa Mellon Bruce Fund.
- 1-128.** War Bond Fund Drive poster for the British government by Bert Thomas, c. 1916.
- 1-129.** © 2007 Artists Rights Society (ARS), New York / Advertisement for the *Kleine Grosz Mappe (Small Grosz Portfolio)* from *Die Neue Jugend*. Designed by John Heartfield. Published by Der Malik-Verlag, Berlin, June 1917.
- 1-130.** First cover for *De Stijl*, the journal of the de Stijl movement. Designed by Vilmos Huszar. Published/edited by Theo van Doesburg, The Netherlands; October 1917.
- 1-131.** © 2007 Artists Rights Society (ARS), New York / Raoul Hausmann. *Poème Phonetique*, 1919.
- 1-132.** Piet Mondrian, Dutch, 1872–1944. *Diamond Painting in Red, Yellow, and Blue*. Oil on canvas, 40 x 40 in. National Gallery of Art, Washington, DC. Gift of Herbert and Nannette Rothschild, 1971.
- 1-133.** Poster announcing availability of books, by Alexander Rodchenko; Moscow, c. 1923. Private collection.
- 1-135.** © 2007 Artists Rights Society (ARS), New York / Title page from *Die Kunstsmen* by El Lissitzky and Hans Arp. Published by Eugen Rentsch Verlag; Zurich, 1925.
- 1-136.** Proposed universal alphabet. Designed by Herbert Bayer as a student at the Bauhaus.
- 1-137.** © 2007 Artists Rights Society (ARS), New York / Constantin Brancusi; Romanian 1876–1957. *Bird in Space*. Marble, stone, and wood, hgt. 3.446m (136 1/2 in.). National Gallery of Art, Washington, DC. Gift of Eugene and Agnes Meyer, 1967.
- 1-138.** Title page for special insert, "Elementare Typographie" from *Typographische Mitteilungen*; Leipzig, October 1925.
- 1-139** and **1-140.** © 2007 Artists Rights Society (ARS), New York / Advertisements by Piet Zwart; courtesy of N. V. Nederlandsche Kabelfabriek, Delft.
- 1-141.** Trial setting using Futura. Designed by Paul Renner. Published by Bauersche Giesserei; Frankfurt am Main, 1930.
- 1-142.** Photograph; courtesy of New York Convention and Visitors Bureau.
- 1-143.** © 2007 Artists Rights Society (ARS), New York / Max Bill. Poster for an exhibition of African art at the Kunstgewerbemuseum, Zurich.
- 1-144.** Alexey Brodovitch. Poster for an industrial design exhibition at the Philadelphia Museum of Art.
- 1-145.** Walker Evans. Photograph, *Fields Family, Sharecroppers*, Hale County, Alabama. The Library of Congress, Washington, DC.
- 1-146.** Jean Carlu. Advertisement for Container Corporation of America, December 21, 1942.
- 1-147.** © 2007 Artists Rights Society (ARS), New York / Max Bill. Poster for an exhibition of Art Concrete at the Kunsthalle, Basel.
- 1-148.** Paul Rand. Title page for *On My Way* by Hans Arp. Published by Wittenborn, Schultz Inc.; New York, 1948.
- 1-149.** © 2007 Artists Rights Society (ARS), New York / Willem de Kooning. *Painting*, 1948. Enamel and oil on canvas, 42 5/8 x 56 1/8 in. Collection; Museum of Modern Art, New York. Purchase.
- 1-150.** Ladislav Sutnar. Cover for *Catalog Design Progress* by K. Lonberg-Holm and Ladislav Sutnar. Published by Sweet's Catalog Service; New York, 1950.
- 1-151.** Illustration by Stephen Chovanec.
- 1-152.** © 2007 Artists Rights Society (ARS), New York / Henri Matisse; French 1869–1954. *Woman with Amphora and Pomegranates*. Paper on canvas (collage), 2.436 x 0.963 m (96 x 37 7/8 in.). National Gallery of Art, Washington, DC. Ailsa Mellon Bruce Fund, 1973.
- 1-153.** © 2007 Artists Rights Society (ARS), New York / Josef Müller-Brockmann. Poster for a musical concert; Zürich, January 1955.
- 1-154.** Saul Bass. Advertisement from the *Great Ideas of Western Man* series, Container Corporation of America.
- 1-155.** Willem Sandberg. Back and front covers for *Experimenta Typographica*. Published by Verlag Galerie der Spiegel; Cologne, 1956.
- 1-156.** Saul Bass, designer. Film title for *Anatomy of a Murder*. Produced and directed by Otto Preminger, 1959.
- 1-157.** © 2007 Artists Rights Society (ARS), New York / Photograph; courtesy of the New York Convention and Visitors Bureau.
- 1-158.** © 2007 Artists Rights Society (ARS), New York / Carlo L. Vivarelli. Cover for *Neue Grafik*. Published by Verlag Otto Walter AG; Olten, Switzerland, 1959.
- 1-159.** Henry Wolf. Cover for *Harper's Bazaar* magazine, December 1959.
- 1-160.** Gerald Holton. Symbol for the Campaign for Nuclear Disarmament; Great Britain, c. 1959.
- 1-161.** Otto Storch. Typography from *McCall's* magazine; July 1959.
- 1-162.** Karl Gerstner. Poster for the newspaper *National Zeitung*; Zürich, 1960.
- 1-163.** Herb Lubalin. Advertisement for Sudler and Hennessey Advertising Inc.; New York.
- 1-164.** George Lois. Advertisement for A.H. Robins Company Incorporated.
- 1-165.** Photograph; courtesy of the Virginia State Travel Service.
- 1-166.** Seymour Chwast and Milton Glaser, Push Pin Studios Inc. Poster for the Lincoln Center for the Performing Arts, New York.
- 1-167.** George Lois. Cover for *Esquire* magazine, October 1966.
- 1-168.** Seymour Chwast and Milton Glaser, Push Pin Studios Inc. Poster for Filmsense, New York.
- 1-169.** Photograph; courtesy of the Public Relations Department, City of Montreal, Canada.
- 1-170.** Designer not known. Symbol widely used in the environmental movement.
- 1-171.** Photograph; courtesy of the National Aeronautics and Space Administration.
- 1-172.** Wolfgang Weingart. Experimental interpretation of a poem by Elsbeth Bornoz; Basel, Switzerland.
- 1-173.** Herb Lubalin. Volume 1, Number 1, of *U&Ic*. Published by the International Typeface Corporation, New York.
- 1-174.** Cook and Shanosky, commissioned by the American Institute of Graphic Arts under contract to the U.S. Department of Transportation. From *Symbol Signs*, a series of thirty-four passenger-oriented symbols for use in transportation facilities.
- 1-175.** Bruce Blackburn, then of Chermayeff and Geismar Associates. Symbol for the U.S. Bicentennial Commission and stamp for the U.S. Postal Service, first released in 1971.
- 1-176.** Photograph; courtesy of the French Government Tourist Office.

**1-177.** Trademark reproduced by permission of Frederic Ryder Company; Chicago, IL.

**1-178.** Willi Kuntz. Poster for an exhibition of photographs by Fredrich Cantor, FOTO Gallery, New York.

**1-179.** Title film for *All That Jazz*, Twentieth Century-Fox. Director/designer Richard Greenberg, R/Greenberg Associates Inc., New York.

**1-180.** MTV logo courtesy of Pat Gorman, Manhattan Center, New York.

**1-181.** Photograph; courtesy of the Office of the Mayor, Portland, OR.

**1-182.** Warren Lehrer, designer. Published by ear/say, Purchase, NY, and Visual Studies Workshop, Rochester, NY.

**1-183.** Emperor 8, 10, 15, and 19 designed by Zuzana Licko in 1985. Courtesy of Emigre Inc., Berkeley, CA.

**1-184.** David Carson, designer; Art Brewer, photographer. *Beach Culture* next issue page, 1990.

**1-185.** Ted Mader and Tom Draper, designers. Ted Mader + Associates, Seattle, WA. Published by Peachpit Press Inc., Berkeley, CA.

**1-186.** Template Gothic designed by Barry Deck in 1990. Courtesy of Emigre Inc., Berkeley, CA.

**1-187.** Exocet Heavy designed by Jonathan Barnbrook in 1991. Courtesy of Emigre Inc., Berkeley, CA.

**1-188.** Fetish typeface designed by Jonathan Hoefler. Copyright 1994, The Hoefler Type Foundry Inc.

**1-189.** Meta typeface designed by Erik Spiekerman and released by FontShop, c. 1991.

**1-190.** Robert Slimbach and Carol Twombly, designers. Myriad Multiple Master typeface designed by courtesy of Adobe Systems Inc., San Jose, CA.

**1-191.** Ron Kellum, designer. Courtesy of Kellum McClain, Inc., New York.

**1-192.** James Victore, designer. *Racism* poster, 1993.

**1-193.** Registered logo of Netscape, used by permission of America Online Inc.

**1-194.** Matthew Carter, designer. Walker typefaces, 1994.

**1-195.** Landor Associates, designers. Courtesy of Xerox/The Document Company.

**1-196.** Stefan Sagmeister, designer. Courtesy of Sagmeister Inc.

**1-197.** Frank Gehry, architect. Guggenheim Museum in Bilbao, Spain, 1997. Photograph courtesy of the Tourist Office of Spain, New York.

**1-198.** Paula Scher and Keith Daigle, designers. Courtesy of Pentagram Design Inc., New York.

**1-199.** Robert Slimbach, designer. Adobe Garamond, 1989. Courtesy of Adobe Systems Inc., San Jose, CA.

**1-200.** Janice Fishman, Holly Goldsmith, Jim Parkinson, and Sumner Stone, designers. ITC Bodoni, 1994–95.

**1-201.** Mrs Eaves Roman designed by Zuzana Licko in 1996. Courtesy of Emigre Inc., Berkeley, CA.

**1-202.** Neville Brody, designer. *Fuse 98: Beyond Typography* poster, 1998.

**1-203.** Wolfgang Weingart, designer.

**1-204.** Jennifer Sterling, designer. Fox River Paper Company calendar, 2001.

**1-205.** Jim Sherraden. Courtesy of Hatch Show Print, a division of the Country Music Foundation, Inc.

**1-206.** Emil Ruder, designer. Courtesy of Daniel Ruder.

**1-207.** Irma Boom, designer.

**1-208.** © 2007 Artists Rights Society (ARS), New York / Philippe Apeloig, designer.

**1-209.** Max Kisman, designer.

**1-210.** Hesign Design Team. Courtesy of Hesign International, GmbH.

**1-211.** Rob Carter, Photographer.

**1-212.** Lawrence Weiner, designer/artist. Courtesy of Anderson Gallery.

**1-213.** Mevis & Van Deursen, designers. Courtesy of Mevis & Van Deursen.

**1-214.** Jean-Benoît Lévy, designer. Courtesy of AND Traffic Grafic.

**1-215.** Martin Venezky, designer. Courtesy of Appetite Engineers.

**1-216.** Joost Grootens, designer; Arjen van Susteren, author. Courtesy of 010 Publishers.

**1-217.** Helmut Schmid, designer. With permission of Victor Malsy, Philipp Teufel, and Fjodor Gejko. Courtesy of Birkhäuser Publishers.

**1-218.** Experimental Jetset, designers.

**1-219.** Lanny Sommese, designer.

**1-220.** Ed Fella, designer.

**1-221.** Harmen Liemburg, designer.

**1-222.** Mirko Ilić, designer. Courtesy of the *New York Times*.

**1-223.** Stephen Vitiello, sound artist; Paul Green, photographer. Courtesy of Sydney Park Brickworks, 20th Kaldor Public Art Project.

**1-224.** Skolos and Wedell, designers. Poster honoring Matthew Carter.

**1-225.** Doug and Mike Starns, artists. © 2011 Doug + Mike Starns. Courtesy of the *New York Times Magazine*.

**1-227.** Rick Valicenti, designer and art director; Jackson Cavanaugh/Okay Type, lettering; Rogelio Guzman/Classic Color, 3D modeler. Courtesy of Thirst.

**1-228.** Studio Dumbar, designers; Pieter Claessen, photographer (portraits).

**1-229.** Bill Gicker, creative director; Antonio Alcalá, art director; Michael Dyer, designer; Helen McNiell, color consultant.

**1-230.** Experimental Jetset, graphic identity designers; Jens Mortensen, photographer. Courtesy of the Whitney Museum of American Art.

**1-231.** Realmac, designer.

**1-232.** Martin Venezky's Appetite Engineers, designers.

### Chapter Three

**3-26.** Rob Carter, designer; Ann Zwinger, text.

### Chapter Four

**4-1.** Designer: Jan Tschichold. Title page for special insert, "Elementare Typographie," from *Typographische Mitteilungen*; Leipzig, October 1925.

**4-7.** Psalterium, 12th century. Spencer Collection, The New York Public Library, Astor, Lenox and Tilden Foundations.

**4-10.** Paul Rand, designer. Courtesy of the Estate of Paul Rand.

**4-11.** Martin Venezky's Appetite Engineers, designers.

**4-15.** Cover and spread from *Die Weise von Liebe und Tod des Cornets Christoph Rilke* (Insel-Bucherei Nr. 1) 1957. Courtesy of Insel Verlag, Frankfurt.

**4-16.** Rob Carter, designer; Leo Divendal, photographer.

**4-17.** Victor Levie, designer. Courtesy of Anne Frank House, Amsterdam.

**4-23.** Wigger Bierma, designer.

**4-24.** Christian Beckwith, creative director; Sam Serebin, designer. Courtesy of *Alpnist*.

**4-25.** Typography, Interiority & Other Serious Matters, designers. Courtesy of Stichting De Best Verzorgde Boeken.

**4-26.** Photograph; courtesy of the Burdick Group.

**4-28.** © 2007 Artists Rights Society (ARS), New York / Josef Müller-Brockmann, designer. Courtesy of Verlag Niggli AG, Switzerland.

**4-31.** Keith Jones, designer.

**4-32.** Photograph; courtesy of Graphic Thought Facility, London.

**4-33.** Photograph; courtesy of Main Street Design, Inc., Cambridge, MA.

**4-34.** Juan Benedit, website design. Courtesy of Demographik.

**4-35.** Mark Sanders, website designer.

**4-36.** Mevis & Van Deursen, designers.

**4-37.** David Colley, designer.

### Chapter Five

**5-1.** Robert Boyle, designer.

**5-2.** Gail Collins, designer.

**5-3, 5-14, 5-21.** Frank Armstrong, designer. Courtesy of Armstrong Design Consultants, New Canaan, CT.

**5-4.** Willi Kuntz, designer. Poster; 14 x 16 1/2 in.

**5-5.** Paul Rand, designer. Courtesy of the Estate of Paul Rand.

**5-6.** Q Collective, designers.

**5-7.** John Rodgers, designer.

**5-8, 5-34.** Sergio de Jesus, designer.

**5-9.** Walter Ballmer, designer. Courtesy of Olivetti.

**5-11, 5-48, 5-52.** Ivy Li, designer.

**5-12.** Cheryl Van Arnam, designer.

**5-13, 5-37, 5-50.** Wolfgang Weingart, designer.

**5-15.** Warren Lehrer, designer.

**5-18.** Spread from the book *Eva Zeisel: Life, Design, and Beauty*. Pirco Wolframm, designer. Courtesy of Pirco Wolframm.

**5-19.** John Malinoski, designer. Courtesy of Anderson Gallery.

**5-20.** David Colley, designer.

**5-22.** Ben Day, art director; Anne Stewart, designer.

**5-27.** Jeff Barnes, designer.

**5-28.** Jean Brueggjenjohann, designer.

**5-29.** Spread from the book *Eva Zeisel: Life, Design, and Beauty*. Pirco Wolframm, designer. Courtesy of Pirco Wolframm.

**5-30.** Frank Armstrong, designer; Sally Anderson-Bruce, photographer. Courtesy of Armstrong Design Consultants, New Canaan, CT.

**5-31, 5-47, 5-49.** Lark Pflieger, designer.

**5-32.** Philip B. Meggs, designer.

**5-33.** Jennifer Mugford Wieland, designer.

**5-35.** Ben Day, designer.

**5-51, 5-56.** Paul Rand, designer. Courtesy of the Estate of Paul Rand.

**5-53.** Bryan Leister and Rebecca Lantz, designers.

**5-54.** Erik Brandt, designer. Courtesy of the designer.

**5-55.** Nick Schrenk, design.

**5-57.** Danne and Blackburn designer. Courtesy of NASA.

**5-62.** Ben Day, designer.

**5-67.** David Colley, designer.

### Chapter Six

**6-1.** Eugen Gomringer. "ping pong," from *Concrete Poetry: A World View*. Edited by Mary Ellen Solt, Indiana University Press, 1970.

**6-2.** © 2007 Artists Rights Society (ARS), New York / Filippo Tommaso Marinetti, "*Les mots en liberté futuristes*."

**6-3.** © 2007 Artists Rights Society (ARS), New York / *Der Dada*, #1, cover.

**6-4.** Theo van Doesburg, designer.

**6-5.** © 2007 Artists Rights Society (ARS), New York / El Lissitzky, *Veshch*, cover, 1921–22.

**6-7.** Jerzy Janiszewski, designer.  
**6-10.** Carol Anthony, Linda Dronenburg, and Rebecca Sponga, designers.  
**6-11.** Donna Funk, designer.  
**6-12.** Lou Dorfsman, designer.  
**6-13.** Rick Valicenti, design director; John Pobojewski and Rick Valicenti, designers. Courtesy of Thirst.  
**6-15.** Herb Lubalin, designer. Courtesy of *Reader's Digest*.  
**6-16, 6-24.** Steff Geissbuhler, designer.  
**6-17.** David Colley, designer.  
**6-18.** Don Weller, designer.  
**6-19.** Mark Sanders, designer.  
**6-20.** Photograph; courtesy of Olivetti.  
**6-21.** Q Collective, designers.  
**6-22.** Richard Rumble, designer.  
**6-23.** David Colley, designer.  
**6-25.** © 2007 Artists Rights Society (ARS), New York / Gerrit Rietveld, designer. *Red and Blue Chair*, 1918. Collection Stedelijk Museum, Amsterdam.  
**6-26.** Image courtesy of *Eye Magazine Ltd.*, *Eye Logo*: concept by Nick Bell, drawn by Magnus Rakeng, melkeveien.no.  
**6-28.** Jean-Benoît Lévy, designer.  
**6-29.** J. Abbott Miller, James Hicks, Paul Carlos, and Scott Davendorf, designers. Courtesy of Pentagram Design Inc., New York.  
**6-30.** Rick Valicenti, design director; John Pobojewski and Rick Valicenti, designers. Courtesy of Thirst.  
**6-31.** Sandra Maxa, designer.  
**6-32.** Rob Carter, designer.  
**6-33.** Mirko Ilić, designer.

#### Chapter Seven

**7-4 to 7-6.** Photographs; courtesy of Mergenthaler Linotype Company.  
**7-9.** George Nan, photographer.  
**7-18.** Courtesy of Autologic Inc., Newbury Park, CA.  
**7-24.** Mark Sanders, designer.  
**7-25.** Tim Collins, designer.  
**7-26.** Berger & Föhr, designers.  
**7-27.** Luke Beard, designer. Courtesy of Elepath Inc.

#### Chapter Eight

**8-1 to 8-4, 8-6.** Matt Woolman, designer.  
**8-7.** Matthew Carter, designer. Copyright Microsoft.  
**8-9.** Emperor 8, 10, 15, and 19 designed by Zuzana Licko in 1985. Courtesy of Emigre Inc., Berkeley, CA.  
**8-12.** Courtesy of medium.com.  
**8-13.** Ben Higgins, designer.  
**8-19.** Gina Kang, designer.  
**8-21.** Duane King, Ian Coyle, Shane Bzdok, and Frank Chimero, designers.  
**8-22.** Laura Peters, designer.  
**8-23.** Tristan Scow, designer.  
**8-24.** Experimental Jetset, designers.  
**8-31 to 8-34.** Andreas Kohl and Benjamin Schudel, designers.  
**8-35 to 8-40.** Students of the course *Schmid Today* under Victor Malsy and Philipp Teufel, Professors at Fachhochschule, Duesseldorf, designers.  
**8-41 to 8-43.** Nicholas Davidson, designer.  
**8-44 to 8-49.** Philippe Vendrolini and Martin Venezky, designers.

#### Chapter Nine

**9-2.** Carlos Carrà. *Interventionist Demonstration (Manifestazione interventista)*, 1914. Gianni Mattioli Collection (on long-term loan at the Peggy Guggenheim Collection, Venice).  
**9-7, 9-8, 9-21.** Level Design Group, design. Courtesy of Level Design Group.

**9-10.** Sandra Maxa, designer.  
**9-12.** Erica Peterson, designer; completed with Rachele Riley. Courtesy of Rachele Riley.  
**9-13 and 9-14.** Hong Wei, designer.  
**9-15.** Jason M. Gottlieb, designer.  
**9-16.** Anna Bitskaya, designer.  
**9-17.** Tiffany Small, designer.  
**9-22.** Sandra Maxa, photographer.  
**9-23.** Jamie Carusi, designer.  
**9-24.** Xiaozhou Li, designer; completed with Jennifer Bernstein. Courtesy of Jennifer Bernstein.  
**9-30.** Joshua Howard, designer; completed with Jennifer Bernstein. Courtesy of Jennifer Bernstein.  
**9-31.** Eduardo Palma, designer; completed with Jennifer Bernstein. Courtesy of Jennifer Bernstein.  
**9-32.** Angad Medi, designer.  
**9-33 and 9-34.** © 2014 The Museum of Modern Art. Julia Hoffmann, creative director; Samuel Sherman, art director; Tony Lee, designer and animator; David Yen, programmer; Martin Seck, photographer. Courtesy of The Museum of Modern Art, MoMA, Department of Advertising and Graphic Design.

#### Chapter Ten

**10-1 to 10-7.** Courtesy of Jean-Benoît Lévy, designer.  
**10-8 to 10-12.** Courtesy of United States National Park Service.  
**10-13 to 10-18.** Courtesy of Stephen Farrell, designer. Coauthors, Stephen Farrell and Steve Tomasula.  
**10-19 to 10-23.** Courtesy of Richard Greenberg, designer.  
**10-24 to 10-34.** Courtesy of Diseño Shakespear, Buenos Aires, Argentina.  
**10-35 to 10-40.** Joost Grootens, designer. Courtesy of 010 Publishers. Arjen van Susteren, author.  
**10-41 to 10-50.** Courtesy of John Malinoski, designer.

#### Chapter Eleven

**11-1 and 11-2.** Penny Knudsen, designer.  
**11-3.** Colene Kirwin, designer.  
**11-4.** Linda Evans, designer.  
**11-5.** J. P. Williams, designer.  
**11-6 to 11-9.** Li Zhang, designer.  
**11-10.** Joe Easter, designer.  
**11-11.** Paul Dean, designer.  
**11-12 and 11-13.** Brandon Luhring, designer.  
**11-14.** Trina Denison, designer.  
**11-15.** Kara Holtzman, designer.  
**11-16 to 11-20.** Virginia Commonwealth University sophomores, designers.  
**11-21 to 11-23.** University of Cincinnati sophomores, designers.  
**11-24.** Steve Cox, designer.  
**11-25.** Bill Jolley, designer.  
**11-26.** Susan Dewey, designer.  
**11-27.** Kyle Wiley, designer.  
**11-28.** Elisa Robels, designer.  
**11-29.** Kelly Olsen, designer.  
**11-30.** Cheri Olsen, designer.  
**11-31.** Paris Jones, designer.  
**11-32.** Xiaozhou Li, designer. Courtesy of Jennifer Bernstein.  
**11-33.** Napasawan Sirisukont, designer. Courtesy of Jennifer Bernstein.  
**11-34.** Heinz Klinton, designer.  
**11-35 to 11-40.** Anna Rising, designer.  
**11-41.** Jeremy Doan, designer.  
**11-42 to 11-45.** Ryoji Ohashi, designer.  
**11-46.** Todd Duchynski, designer.  
**11-47.** Monique Maiorana, designer.

**11-48.** Erin Roach, designer.  
**11-49.** Susan Ulsh, designer.  
**11-50.** Craig McLawhorn and Matt Monk, designers.  
**11-51 to 11-54.** Sarah Boley, designer.  
**11-55 to 11-59.** Laurie Duggins, designer.  
**11-60.** Alan Bayot, designer.  
**11-61.** Christian Pearson, designer.  
**11-62.** Aisha Bushawareb, Aldana Al-Malki, Fatema Al-Doh, Fatma Al-Remaihi, Fatma Al-Jassim, Kholoud Al Sada, Mariam Gasan, Maryam Al-Homaid, Reem AlHajri, Rihab Mohamed, Rouda Al Thani, Sarah Husni, Abeer Al-Kubaisi, Angela Guy, Asma Al-Thani, Esra Abduljawad, Fatima Zainal, Hadeer Omar, Najla Al-Kuwari, Riam Ghani, Sahwa Elnakhli, and Sara Qubrosi, designers.  
**11-63.** Beth April Smolev, designer.  
**11-64.** Katherine St. James, designer.  
**11-65.** Bruce Morgan, designer.  
**11-66.** Fatima Bukhshaisha, designer.  
**11-67.** Khadija Safri, designer.  
**11-68.** Joanne Bermejo, designer.  
**11-69.** Allison Holing, designer.  
**11-70.** Chul Kam, designer.  
**11-71.** Kyra Jacobs, designer.  
**11-72.** C.J. Hawn, designer.  
**11-73.** Jung Kwon, designer.  
**11-74 to 11-76.** Erin Hall, designer.  
**11-77 to 11-79.** Ginny Winston, designer.  
**11-80 to 11-82.** Chiu-Ping Chiu, designer.  
**11-83.** University of Cincinnati juniors, designers.  
**11-84.** Kerry DeBruce, designer.  
**11-85.** Nakyoung Sung, designer.  
**11-86.** Kayla Kern, designer.  
**11-87.** Brian Mueller, designer.  
**11-88.** Sara Zahedi, designer.

#### Chapter Twelve

**12-2.** Yoon-Young Chai, Brent McCormick, and Matthew Stay, designers.  
**12-3.** Rob Carter, designer.  
**12-4.** Matt Klimas, designer.  
**12-7.** Jessica Salas, designer.  
**12-8.** Alan Bayot, designer.  
**12-9 and 12-10.** Chinedue Chukwu, designer.  
**12-11 to 12-13.** Roland Ilog, designer.  
**12-14.** Todd Timney, designer.  
**12-15.** Courtesy of Holland Fonts.  
**12-16.** Guilherme Villar, designer.  
**12-18 to 11-21.** Courtesy of Thomas Detrie.  
**12-22 to 11-43.** Courtesy of Ernest Bernhardt.  
**12-44 to 11-59.** Courtesy of Ned Drew.  
**12-60 to 11-67.** Courtesy of David W. Steadman.

#### Chapter Thirteen

**13-5.** From *American Advertising Posters of the Nineteenth Century* by Mary Black; courtesy of Dover Publications Inc., New York.

#### Sources for specimen quotations

Pages iv, 263, 273, 279, 285, 291, 301, 311, and 321. From *The Book Beautiful* by Thomas James Cobden-Sanderson. Hammersmith: Hammersmith Publishing Society, 1902.

- ABA form  
communication, 106–110, 114  
typographic grids, 80
- Accented characters, 35, 64
- Acropolis (Athens, Greece), 3
- Adobe, 25, 60, 129, 130
- Akkurat, 191
- Alcalá, Antonio, 30
- Aldine Press, 7
- Alphabets. *See also* Letter  
Bayer's universal, 19  
defined, 31–32  
legibility, 50–51, 50–51  
optical relationships, 36  
Phoenician, 3
- Angle, typefaces, 46, 46
- Anthony, Carol, 115
- Antialiasing, legibility, 134, 135, 135,  
140, 145
- Apeloir, Philippe, 27
- Apex, 33, 36
- Apollinaire, Guillaume, 156, 157
- Arch of Constantine (Rome), 4
- Arm, 33
- Armstrong, Frank, 87, 91, 94, 97
- Arp, Hans, 86, 87
- Art deco, 20
- Art nouveau style, 17
- Ascenders, 33, 34, 35, 41, 50, 51, 53–55
- Avant Garde, 45, 45  
Demi, 184
- Background  
legibility, 55–58, 56–57  
on-screen, 135, 145
- Baldwin, Polly, 82
- Ballmer, Walter, 89, 117
- Ball State University, 200
- Barnbrook, Jonathan, 25
- Barnes, Jeff, 95
- Baseline, 32, 32, 60, 142
- Baseline grid, 64, 74, 74, 79
- Baskerville, 38, 45, 45, 50, 54, 294–301  
*Italic*, 46, 46
- Baskerville, John, 11, 36, 36, 294, 291
- Bass, Saul, 21, 157
- Bauhaus, 66
- Bayer, Herbert, 19, 58
- Bayot, Alan, 212, 225
- Beard line, 32, 32
- Beckwith, Christian, 77
- Behrens, Peter, 18
- Bell, Nick, 118
- Belser, Burkey, 118
- Bembo, Pietro, 7
- Benton, Morris F., 46, 268
- Benedit, Juan, 82
- Berger & Föhr, 131
- Bermejo, Joanne, 214
- Bernhardi, Ernest, 234, 236, 238, 239,  
234–240
- Bernstein, Jennifer, 204
- Besley, Robert, 14
- Bierma, Wigger, 77
- Bil'ak, Peter, 226
- Bill, Max, 20, 66
- Binder, Maurice, 157, 158
- Bitskaya, Anna, 163
- Bitstream, 24
- Blackburn, Bruce, 23
- “Block style,” 18
- Bodoni, 26, 34, 38, 50, 139  
Bauer Bodoni, 304–311  
*Italic*, 46, 46  
ITC, 26
- Bodoni, Giambattista, 11, 12, 241, 304
- Bonnell, Bill, 24
- Book design, case study, 179–182
- Boom, Irma, 27
- Bowl, 33
- Boyle, Robert, 86
- Bradley, Will, 17
- Brainstorming, 224
- Brancusi, Constantin, 19
- Brandt, Erik, 104, 210, 220
- Brodovitch, Alexey, 20
- Brody, Neville, 26
- Brueggjenjohann, Jean, 96
- Brush writing, 3, 32, 32
- Buenos Aires Underground (Subte)  
186–189
- Bukhshaisha, Fatima, 214
- Burdick, Bruce, 78
- Burdick, Susan, 78
- Bzdok, Shane, 142
- Cabinet of Dr. Caligari, The*, 157
- Capitalis monumentalis*, 4
- Capitalis rustica*, 3
- Capitals, 32, 34, 35, 36, 37, 37  
legibility, 52, 53, 141
- Capline, 32, 35, 36
- Carlu, Jean, 20
- Caroline minuscules, 5, 7, 256
- Carrà, Carlo, 156, 156
- Carson, David, 25
- Carter, Matthew, 26, 30, 129, 129,  
135, 135
- Carter, Rob, 61, 73, 120, 198, 216, 217, 223
- Cartesian coordinate system, 74
- Cascading Style Sheets (CSS), 145
- Carusi, Jamie, 165
- Case studies  
book design, 179–182  
environmental design, 186–189  
film titles, 183–185  
information design, 190–193  
poster design, 172–175  
typographic program, 194–196  
Unigrid System, 176–178  
web site design, 148–154
- Caslon, 11, 17
- Caslon, William, 10
- Caslon, William IV, 12, 39
- Caxton, William, 7
- Chai, Yoon-Young, 222
- Chang, Amos, 96
- “Chap book” style, 17
- Character width, legibility, 55
- Chase, 122
- Chaucer type, 16
- Cheltenham, 46, 46, 314
- Chimero, Frank, 142
- Chisel, 32, 32
- Chiu, Chiu-Ping, 218
- Chromolithography, 15
- Chukwu, Chinedue, 225
- Chwast, Seymour, 22, 23
- Cincinnati, University of, 201, 219
- Citizen Kane, 157
- Clarendon, 14, 314
- Clear, 30
- Colines, Simon de, 9, 256
- Colley, David, 84, 84, 93, 110, 116, 117
- Collins, Gail, 86
- Collins, Tim, 131
- Color, legibility, 56–58
- Column  
legibility, 54, 55, 58  
typographic grid, 71, 72, 74–78  
typographic syntax, 92, 93, 94–95
- Column interval, grids, 75, 76
- Communication. *See also* Typographic  
syntax  
ABA form, 106–110, 114  
typographic message, 111–120  
visual hierarchy, 85, 100, 101, 102,  
103, 105, 114, 131, 133, 137, 138,  
139–141, 143, 146, 147, 162, 219
- Concurrent grids, 76, 76, 83
- Condensed style, 34, 47
- Conradi, Jan, 200
- Constantine (emperor of Rome), 4
- Constructivism, 19, 66, 112
- Contrast, legibility, 56
- Cook and Shanosky, 23
- Cottrell, Thomas, 11
- Counter, 33, 42, 57, 89
- Counterpoint relationships, 103
- Cox, Steve, 202
- Coyle, Ian, 142
- Cranbrook Academy of Art, 208
- Crossbar, 33, 60,
- Cuneiform, 2, 66
- Dadaism, 18, 66, 112
- Daigle, Keith, 26
- Dancer analogy, legibility, 51
- Danne and Blackburn, 105
- D'Astolfo, Frank, 203
- Davidson, Nicholas, 152, 152
- Day, Ben, 94, 107
- Dean, Paul, 199
- De Bruce, Kerry 219
- De Bry, Johann Theodor, 9
- Deck, Barry, 25
- de Jesus, Sergio, 89, 98
- de Kooning, Willem, 21
- Deman, Edmond, 17
- Denison, Trina, 200
- Descenders, 32, 33, 34, 35, 41, 51, 53–55
- Design education, 197–220
- De Stijl, 18, 66, 70, 112, 112, 113, 118
- Detrie, Thomas, 229, 229, 230, 231, 231
- Dewey, Susan, 202
- Didot, François Ambroise, 11, 304
- Digital typography, 24–26, 255  
development of, 128–129  
legibility, 60
- Digraphs, 35
- Dingbats, 35
- Diseño Shakespear, 186–189
- Display phototypesetting, 125
- Divendal, Leo, 73
- Doan, Jeremy, 207
- Doczi, Gyorgy, 105
- Dorfsman, Lou, 116
- Drew, Ned, 212, 224, 241, 241–248

- Dronenburg, Linda, 115  
 Duchynski, Todd, 209  
 Duggins, Laurie, 211  
 Dürer, Albrecht, 8  
 Dutch Old Style type, 10  
 Dyer, Michael, 30
- Eames, Charles, 215  
 Eames, Ray, 215  
 Ear, 33  
 Easter, Joe, 199  
 Education, 197–220  
 Egypt (ancient), 2  
 Egyptian (slab-serif) typeface, 12, 14, 39, 255, 314–323  
 Elaboration, typefaces, 46, 46  
 Electronic page design, development of, 24  
 Em, 43–44  
 Emperor, 24, 136, 136  
 En, 43–44  
 Engraving, 15  
 Environmental design, case study, 186–189  
 Evans, Linda, 198  
 Evans, Walker, 20  
 Exocet Heavy (Emigre), 25  
 Expanded style, 34, 34  
 Experimental Jetset, 28, 30, 144  
 Expression  
   motion, 169  
   typographic message, 61, 118, 119, 120  
 Eye, 33  
*Eye: The International Review of Graphic Design*, 118
- Facebook Analog Research Lab, 30  
 Farrell, Stephen, 179, 180, 179–182  
 Fat Face type, 12–14  
 Fella, Ed, 29  
 Fetish No. 338, 25  
 Fibonacci sequence, 68, 249  
 Figgins, Vincent, 12, 13, 39  
 Figurative typography, 22  
 Fillet, 33  
 Film titles, 21, 24, 167  
   case study, 183–185  
 Fine, Oronce, 256  
 Fishman, Janice, 26  
 Flow line, grids, 74, 74  
 Fontographer software, 24  
 Fonts, 35–37  
   character types, 35, 35  
   defined, 35  
   multiple master, 129, 129  
   on-screen, 134–136, 135, 136  
   optical relationships, 36, 36  
   unity within, 36, 37  
   web design, 145  
 Form/counterform relationship, legibility, 51  
 Fournier le Jeune, Pierre Simon, 11, 42  
 Fractions, 35  
 Fraktur, 72  
 Frank, Otto, 73  
 Franklin, Benjamin, 11  
 Frutiger, 188  
 Frutiger, Adrian, 47, 88, 274, 316  
 Fuller, R. Buckminster, 23
- Function, expression and, typographic message, 118–120  
 Funk, Donna, 115  
 Furniture, 122, 122  
 Futura, 20, 139, 140, 266, 286–291  
   Italic, 46, 46  
   Light, 115  
 Futurism, 18, 66, 112, 156
- Garamond, 9, 76, 34, 35, 50, 140, 256  
   Adobe, 26, 35, 35, 258–263  
 Garamond, Claude, 8, 253  
 Gehry, Frank, 26  
 Geissbuhler, Steff, 116, 117  
 Genoud, Alexandre, 174  
 Geometric, typefaces, 39, 46, 266, 286  
 Gerstner, Karl, 22, 96, 228  
 Gill Sans, 139  
   shadowed, 46, 46  
 Glaser, Milton, 22, 23  
 Gleason, Victor, 176, 178  
 Godard, Jean-Luc, 159  
 Godlewski, Josef, 207  
 Golden section, 68, 69, 71, 95, 147, 249  
 Golden type, 16  
 Goldsmith, Holly, 26  
 Gomringer, Eugen, 112  
 Goodhue, Bertram, 46  
 Gorman, Pat, 24  
 Gothic lettering, 5, 6  
 Gothic Textura Quadrata, 5  
 Gottlieb, Jason M., 163  
 Goudy, Frederick, 17, 52  
 Grandjean, Philippe, 10  
 Graphic Thought Facility, 82  
 Graves, Michael, 24  
 Gray, Jon, 30  
 Greece (ancient), 3, 32  
 Greenberg, Richard, 24, 183, 183–185, 185  
 Grid ratios, 68  
 Grids. *See* Typographic grids  
 Griffo, Francesco, 7, 8, 38  
 Groenendijk, Henk, 216, 217  
 Grootens, Joost, 28, 190, 190–193  
 Grotesque, typefaces, 39, 266, 268–273  
 Guimard, Hector, 17  
 Gutenberg, Johann, 1, 6, 42, 66, 122
- Hairline, 33  
 Hall, Erin, 217  
 Hammett, Levi, 213, 214  
 Hand composition, 122  
 Hausmann, Raoul, 18  
 Hawn, C.J., 216  
 He, Jianping, 27  
 Heartfield, John, 18  
 Helvetica, 46, 139, 148, 176, 177, 266  
   film, 28  
 Hieroglyphic writing, 2, 66  
 Higgins, Ben, 138  
 Higgins, Douglas, 219  
 Hill, Leland, 214  
 Hinting, 128, 134, 135, 135  
 Hitchcock, Alfred, 160  
 Hoefler, Jonathan, 25  
 Hoffmann, Josef, 17  
 Hofmann, Armin, 172  
 Holing, Allison, 215  
 Holt, John, 11  
 Holton, Gerald, 22
- Holtzman, Kara, 200  
 Howard, Joshua, 167  
 Humanist, typefaces, 39, 266, 280  
 Huszar, Vilmos, 18  
 Hyper Text Markup Language (HTML), 138, 144, 145, 147
- Ichiyama, Dennis Y., 199  
 Ilić, Mirko, 29, 120  
 Ilog, Roland, 225  
 Imsand, Jean-Pascal, 173, 174  
 Indentation, legibility, 64, 58  
 Industrial Revolution, 1, 12, 121, 241, 314  
 Inferior figures, 35  
 Information design, case study, 190–193  
 Insel Verlag, 72  
 Insular majuscules, 4  
 Interaction matrix structures, 224, 224  
 Interletter spacing, 43, 44, 44, 88, 126, 127  
   legibility, 53, 58, 62  
   on-screen, 141, 141, 145  
 Interline spacing, 43, 75, 91, 91, 94, 127, 294  
   legibility, 54, 55, 55, 58, 62  
   on-screen, 142, 145  
 Ireland, 5, 11  
 Italic type, 8, 38, 40, 45, 46  
   legibility, 55
- Jacobs, Kyra, 215  
 Janiszewski, Jerzy, 114  
 Jenson, Nicholas, 7  
 Jolley, Bill, 202  
 Jones, Keith, 80  
 Jones, Paris, 203  
 Justified typography, 90, 126  
   legibility, 58  
   on-screen, 142
- Kam, Chul, 215  
 Kandinsky, Wassily, 18  
 Kang, Gina, 141  
 Kellum, Ron, 25  
 Kelmscott Press, 16, 17  
 Kern, Kayla, 220  
 Kerning, 44, 53, 62, 91, 126, 127, 129  
 Kerver, Jacques, 9  
 Kessels, Sander, 226  
 Kimball, Ingalls, 46  
 King, Duane, 142  
 Kirwin, Colene, 198  
 Kisman, Max, 27, 217, 226  
 Klimas, Matt, 224  
 Klinkon, Heinz, 205  
 Knobler, Nathan, 98  
 Knudsen, Penny, 198  
 Koenig, Friedrich, 12  
 Kohli, Andreas, 148  
 Kootstra, Assi, 226  
 Kuleshov, Lev, 160, 160  
 Kunz, Willi, 24, 87  
 Kwon, Jung, 216
- Landor Associates, 26  
 Lanston, Tolbert, 16, 124  
 Lantz, Rebecca, 105  
 Laser systems, digital typesetting, 129  
 Lausen, Marcia, 215  
 Leading. *See* Interline spacing  
 Le Bailly, Jacques, 226  
 Le Corbusier, 21
- Leg, 33  
 Legibility, 49–64, 141–144  
   capital and lowercase letters, 53, 141  
   character width, 55, 142  
   color, 56–57  
   digital typography, 60  
   importance of, 49  
   interletter and interword spacing, 53–55, 141  
   italics, 55  
   justified and unjustified, 58, 142  
   letter, 50–52  
   paragraphs and indentation, 58  
   type size, line length, and interline spacing, 54, 55, 142, 143  
   typographic details, 62–64  
   weight, 55, 142  
   words, 52  
 Lehrer, Warren, 24, 91, 219  
 Leister, Bryan, 105  
 Letter. *See also* Alphabets  
   legibility, 50–52  
   typographic syntax, 86, 87  
 Letterforms, 32–34  
   evolution of, 32  
   parts of, 32, 33  
   proportions of, 34  
 Letterspacing. *See* Interletter spacing  
 Level Design Group, 159, 165  
 Levie, Victor, 73  
 Lévy, Jean-Benoît, 28, 119, 172, 174, 172–175, 227  
 Li, Ivy, 90, 102, 103  
 Li, Xiaozhou, 166, 204  
 Li, Zhang, 199  
 Licko, Zuzana, 24, 26, 136  
 Liemburg, Harmen, 29, 226  
 Ligatures, 35  
 Line, typographic syntax, 90, 91  
 Line length, legibility, 54, 55  
 Lining figures, 35  
 Link, 33  
 Linotype, 15, 53, 124, 296  
   development of, 122, 123, 123  
 Lissitzky, El, 19, 113  
 Lithography, 11, 125  
 Lois, George, 22  
 Loop, 33  
 Lowercase, 32, 33, 35, 37, 37  
   legibility, 51, 52, 53, 141  
 Lubalin, Herb, 22, 23, 116  
 Lubbers, Marc, 226  
 Ludd, 241–246, 241–248  
 Ludlow machine, development of, 124, 124  
 Luhring, Brandon, 200  
 Lumière brothers, 17
- MacKay-Lyons, Brian, 28  
 Mader, Ted, 25  
 Maiorana, Monique, 209  
 Major, Martin, 226  
 Malevich, Kasimir, 18  
 Malinoski, John, 93, 194, 194–196, 195  
 Manutius, Aldus, 7, 38  
 Margins  
   typographic grid, 66, 71, 72, 73, 74, 143  
   typographic syntax, 90–95, 90–95  
 Marinetti, Filippo, 18, 112, 112, 156

- Maryland Institute College of Art, 207
- Mathematical signs, 35
- Matisse, Henri, 21
- Maxa, Sandra, 120, 160, 218
- McCormick, Brent, 222
- McCoy, Katherine, 208
- McKee, Stuart, 78
- McLaughlin, Dennis, 176, 178
- McLawhorn, Craig, 209
- McManus, Brenda, 211
- Meanline, 32, 33
- Mechanical router, 13
- Medi, Angad, 169
- Meggs, Philip, 48
- Méliès, Georges, 156, 156
- Mercadante, Michael, 82
- Mergenthaler, Ottmar, 15, 123
- Meta (FontShop), 25, 139, 140, 266, 280–285
- Metal typographic measurement, 42, 43
- Metaphorical thinking, 226
- Metropolitan World Atlas*, 28, 190–193
- Mevis & Van Deursen, 28, 83
- Michelson, Malka E., 209
- Middendorp, Rutger, 226
- Miller, J. Abbott, 119
- Milo, Christopher, 73
- Mind mapping, 224, 224
- Minneapolis College of Art and Design, 210, 220
- Modern Style type, 10, 11, 38, 139, 255, 304–313
- Mondrian, Piet, 19, 70
- Monetary symbols, 35
- Monk, Matt, 209
- Monotype, 122, 296
  - development of, 124, 124
- Morgan, Bruce, 214
- Morphology, 228, 228
- Morris, William, 16
- Motion pictures, 17
- Movable type, 1, 2, 5, 6, 66, 122
- Mrs Eaves Roman, 26
- Mueller, Brian, 220
- Müller-Brockmann, Josef, 21, 78, 78
- Multiple master typeface, 25, 60, 129, 129
- Museum of Design Zurich, 148
- Museum of Modern Art, 169, 170
- Music structure analogy, 106–109
- Musselwhite, Phillip, 178
- Myriad, 25
- Nemeth, Titus, 213
- Neo-grotesque, typefaces, 39, 266, 274–279
- New York Times*, 29, 210
- Niépcé, Joseph, 13
- Niessen, Richard, 226
- North Carolina State University, 199, 209
- Notre Dame Cathedral (Paris), 5
- Ohashi, Ryoji, 208
- Old Style figures, 35
- Old Style type, 8, 10, 34, 38, 139, 255, 256–265
- Olinsky, Frank, 24
- Olsen, Cheri, 203
- Olsen, Kelly, 203
- Ornamented type, 11, 14, 119
- Ouchi, Akira, 201
- Outline type, 13, 14, 46, 60, 134, 135, 175
- Ozubko, Christopher, 202
- Pannartz, Arnold, 7
- Pantheon (Rome), 4
- Paper, invention of, 3
- Papermaking machine, 11
- Papyrus, 2
- Paragraph breaks, columns, 64, 95
- Paragraphs, legibility, 54, 58, 142, 142, 143
- Parchment, 3
- Parkinson, Jim, 26
- Parthenon (Athens, Greece), 3
- Pearson, Christian, 212
- Perspective type, 13
- Peters, Laura, 143
- Petersen, Erica, 161
- Pfleeger, Lark, 97, 102, 103
- Philadelphia University, 209
- Phoenician alphabet, 3
- Photographic printing plate, 13
- Phototypesetting, development of, 125–127, 125–127
- Pica, typographic measurement, 42, 42
- “ping pong” (poem), 112, 112
- Pixels
  - fonts, 136
  - legibility, 134, 134, 135, 138, 138, 139, 141, 142
- Pobojewski, John, 116, 119
- Point, typographic measurement, 42, 42, 43, 43
- Poster design, case study, 172–175
- Posture, typefaces, 40, 40
- Pratt Institute, 204, 211, 218
- Printing press, steam-powered, 12
- Process books, 222, 223, 223
- Proportion
  - grids 67–71, 68–72, 78
  - letterforms, 34, 34, 41
  - type family, 45, 45, 47
- Prygrocki, Greg, 199
- Psalterium, 12th century, 68
- Punctuation, 35, 63, 90, 91
  - visual, 104, 104, 105
- Purdue University, 199
- Pyramids at Giza, 2
- Q Collective, 88, 117
- Quads, 43, 44, 44
- Quoins, 122, 122
- Ragged, 58, 62, 90, 142. *See also* Unjustified
- Rakeng, Magnus, 118
- Rand, Paul, 20, 69, 69, 87, 103, 105
- Ratdolt, Erhard, 7
- Reed pen, 32, 32
- Remington, R. Roger, 205, 214
- Renaissance, 7–11, 34, 66, 256
- Renner, Paul, 20, 286
- Responsive grid system, 132, 146, 147
- Rhode Island School of Design, 198
- Rietveld, Gerrit, 19, 118, 118
- Riley, Rachele, 206
- Rising, Anna, 206
- Roach, Erin, 209
- Robels, Elisa, 203
- Robert, Nicolas-Louis, 11
- Rochester Institute of Technology, 205, 214
- Rococo Style, 10
- Rodchenko, Alexander, 19
- Rodecker, Bud, 30
- Rodgers, John, 89
- Rogers, Bruce, 17
- Romain du Roi type, 10
- Roman type, 7, 9, 34, 34, 38, 256
- Rome (ancient), 3, 4, 32
- Ruder, Emil, 27, 150
- Rumble, Richard, 117
- Rutgers University, 203, 212, 224
- RyderTypes, 24
- Saarinen, Eero, 22
- Safri, Khadija, 214
- Sara deBondt Studio, 30
- Sagmeister, Stefan, 26
- St. James, Katherine, 214
- Salas, Jessica, 225
- Salchow, Gordon, 201
- Sandberg, Willem, 21
- Sanders, Mark, 83, 117, 130, 207, 218
- Sans Serif type, 12, 18, 34, 39, 40, 140, 255, 266–293
  - legibility, 52, 139
- Scanning systems, digital typesetting, 129
- Scher, Paula, 26
- Schmid, Helmut, 28, 150, 150, 151
- Schoenberg, Arnold, 106
- Schrenk, Nick, 105
- Schudel, Benjamin, 148
- Scow, Tristan, 144
- Senefelder, Aloys, 11
- Serebin, Sam, 77
- Serifs, 4, 11, 12, 26, 33, 37–40
  - legibility, 52, 57, 138, 139, 139
- Shaded type, 12
- Shahn, Ben, 88
- Sherraden, Jim, 27
- Sholes, Christopher, 15
- Shoulder, 33
- Signs, typographic message, 111, 114, 115, 114–117
- Sirisukont, Napasawan, 204
- Sketchbooks, 222, 223
- Skolos and Wedell, 29
- Slimbach, Robert, 25, 26, 258
- Slugs, 123, 124, 127
- Small caps, 35
- Small, Tiffany, 164
- Smolev, Beth April, 214
- “Snap-on” serifs, 26
- Sommese, Lanny, 29
- Spacing
  - hand composition, 122
  - interletter and interword, legibility, 53–55
- Spatial typographic measurement, 43–44
- Spiekermann, Erik, 25, 280
- Spine, 33
- Sponga, Rebecca, 115
- Spur, 33
- Starns, Doug and Mike, 29
- Stay, Matthew, 222
- Steadman, David W., 249, 250, 249–254
- Steam-powered printing press, 12
- Steingruber, Johann David, 11
- Stem, 33
- Sterling, Jennifer, 27
- Stewart, Anne, 94
- Stolk, Swip, 226
- Stone chisel, 32, 32
- Stonehenge (England), 2
- Stone, Sumner, 26
- Storch, Otto, 22
- Storyboards, 161, 161
- Stress, 34, 41
- Stroke, 33
  - legibility, 55
- Stroke-to-height ratio, 34
- Stroke weight, 34, 134, 139
- Studio Dumbar, 30
- Sung, Nakyoung, 219
- SUNY Purchase, 219
- Superior figures, 35
- Suprematism, 18
- Surrealism, 19
- Sutnar, Ladislav, 21, 120
- Sweynheym, Konrad, 7
- Tail, 33
- Tatami mat, 69, 69
- Technology, 121–132
  - desktop publishing, 130
  - digital typesetting, 128–130
  - hand composition, 122
  - linotype, 123
  - Ludlow machine, 124
  - monotype, 124
  - phototypesetting, 125–127
- Teletypesetter, 123
- Template Gothic (Emigre), 25
- Terminal, 33
- Text columns, 74
- Thick/thin contrast, typefaces, 41
- Thirst, 30, 116, 119
- Thomas, Bert, 18
- Thompson, Bradbury, 59
- Thompson, Debra, 68
- Thoreau, Henry David, 49
- Thorne, Robert, 12
- Time-based media
  - expression, 169, 170
  - legibility, 167, 168
  - movement, 165–167
  - structures, 160
  - syntax, 161
- Times Roman Bold, 37, 37
- Timney, Todd, 226
- Tomasula, Steve, 179
- Tory, Geoffroy, 8
- Transitional type, 10, 11, 38, 139, 255, 294–303
- Troy type, 16
- Tschichold, Jan, 19, 66, 66, 90, 95, 266, 266
- Tuscan style, 12
- Twombly, Carol, 25
- Type case, 35, 122–124, 122
- Typefaces
  - families of, 45–47
  - historical classification of, 38–39
  - legibility, 50
  - modern classification of, 40–41
- Typesetting systems, 44
- Type size, legibility, 54–55
- Typewriter, 15
- Typographic design. *See also* Case studies
  - case studies in, 148–154, 171–196
  - education in, 197–220
- Typographic design process, 221
  - composites, 249–254
  - exploring typographic



- permutations, 229–233
- exploring typographic transformations, 234–240
- Ludd: a typographic expedition, 241–248
- traditional model, 222–228
- Typographic font. *See* Fonts
- Typographic grids, 91–110
  - background, 66
  - defined, 65
  - improvisational structures, 84
  - modular grids, 78–83
  - multicolumn grids, 74–78
  - proportion, 68
  - single-column grids, 71–73
  - square, 69, 70
  - structure and space, 67
  - web pages, 146, 147
- Typographic measurement, 42–44
  - metal, 42, 43
  - spatial, 43, 44
- Typographic message, 111–120
  - defined, 111
  - function and expression, 121–124
  - multidimensional language, 112–114
  - verbal/visual equations, 114–117
- Typographic processes and the computer, 227, 227
- Typographic program, case study, 194–196
- Typographic space, 96–99
- Typographic syntax. *See also*
  - Communication
    - column and margin, 92–95
    - defined, 85, 86
    - grids, 91–110, 146, 147
    - letter, 86, 87
    - line, 90, 91
    - typographic message, 111–120
    - typographic space, 96–99
    - visual hierarchy, 100–105
    - word, 88, 89
- Typographic technology. *See* Technology
- Typography
  - anatomy of, 31–48
  - evolution of, 1–30
  - on screen, 133–154
  - time and motion, 155–170
- Typography, Interiority, & Other Serious Matters, 78
- Ulsh, Susan, 208
- Unigrid System, case study, 176–178
- U.S. National Park Service Unigrid System, case study, 176–178
- Unit system, 44
- Univers, 34, 44, 44, 47, 47, 48, 54, 266, 274–279
- Universal alphabet, 19
- University of Illinois at Chicago, 215
- University of the Arts, 206
- Unjustified typography, legibility of, 58. *See also* Ragged
- Van Arnam, Cheryl, 90
- Van de Velde, Henri, 17
- Van Doesburg, Theo, 112, 113
- Van Dyck, Christoffel, 10
- Van Susteren, Arjen, 190
- Van Wageningen, Mark, 226
- Vatican Press, 9
- Vendrolini, Philippe, 153
- Venezky, Martin, 28, 30, 69, 69, 153, 153, 154
- Verbal/visual equations,
  - typographic message, 114–117
- Victore, James, 25
- Vignelli, Massimo, 176, 178, 187
- Villar, Guilherme, 227, 227
- Virgil, 294, 294
- Virginia Commonwealth University,
  - Richmond, Virginia, 198, 201, 201, 216, 217
  - Doha, Qatar, 213, 214
- Visual hierarchy, 100–105, 162
- Visual punctuation, 104, 104, 105
- Visual notations, 224, 225
- Vitiello, Stephen, 29
- Vitruvius, 68
- Vivarelli, Carlo, 21
- Wagner, Otto, 112
- Warde, Beatrice, 183
- Washington, University of, at Seattle, 202
- Web pages
  - case studies, 148–154
  - legibility, 137, 141–144
  - structures, 146, 147
  - technology, 145
  - typography, 134–136, 138–140
- Wedell, Tom, 172
- Wei, Hong, 162
- Weight
  - legibility, 52, 55, 62, 64
  - typefaces, 33, 34–36, 40, 45
- Weingart, Wolfgang, 23, 27, 90, 99, 103, 229
- Weller, Don, 117
- Wells, Darius, 13
- Werner, Franz, 173
- Whitemyer, David, 82
- White type, 13, 56
- Whitney Museum of American Art, 30
- Wieland, Jennifer Mugford, 98
- Wiener, Lawrence, 28
- Wiley, Kyle, 202
- Williams, J. P., 198
- Winston, Ginny, 217
- Wolf, Henry, 22
- Woodblock initial, 8, 256
- Woodblock printing, 6
- Woodcut, 9, 17, 256
- Wood type, 13, 314
- Wolfframm, Pirco, 92, 96
- Woolman, Matt, 134
- Word
  - legibility, 52
  - typographic syntax, 88, 89
- Word lists, 224
- Wright, Frank Lloyd, 21
- Writing, invention of, 1, 2
- Xerox, 26
- x-height, 32, 34, 35, 41, 47, 54, 55, 140
- Yen, David, 170
- Zahedi, Sara, 220
- Zhang, Li, 199
- Zwart, Piet, 19

---

**Printing:** Courier, Kendallville, Indiana

**Typography:** 8.5/11 Melior Medium with 7/10 Melior Italic captions, 7/10 Univers 75 figure numbers, and 9/11 Univers 75 headings

**Cover and book design:** 6th edition, Sandra Maxa and Mark Sanders

The authors wish to thank the following people for their contributions to the sixth edition of this book: At John Wiley & Sons, Executive Editor Margaret Cummins, Assistant Editor Lauren Poplawski, and Senior Production Editor David Sassian guided this book through the editorial and production phases. Rob Carter, Sandra Wheeler, and Libby Phillips Meggs were sage guides, providing invaluable insight and advice. Jeff Bellantoni and Jennifer Bernstein generously shared information and lent critical eyes to Chapter 9. Jo-Elle Burgard and Sharon Forrence provided research and design assistance. At Maryland Institute College of Art, Brockett Horne, Ellen Lupton, Jennifer Cole Phillips, and Zvezdana Stojmirovic offered support and encouragement. The authors extend special thanks to the many contributors of this book for sharing their significant typographic work.

# **WILEY END USER LICENSE AGREEMENT**

Go to [www.wiley.com/go/eula](http://www.wiley.com/go/eula) to access Wiley's ebook  
EULA.