JAMES CRAIG
BRUCE BARTON

THIRTY
CENTURIES
OF
GRAPHIC
DESIGN

AN ILLUSTRATED SURVEY

THIRTY
CENTURIES
OF
**GRAPHIC
DESIGN**

Also by James Craig

Designing with Type: A Basic Course in Typography
Production for the Graphic Designer
Phototypesetting: A Design Manual
Graphic Design Career Guide

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Dedicated to everyone who has ever
practiced the art of graphic design—
regardless of what the profession was called—
and to students and graphic designers who
wish to know more about their heritage.

CONTENTS

This book was first conceived in the early 1980s as a single chapter in James Craig's *Graphic Design Career Guide*. Later we decided to make it a rather short book which would offer the reader a brief overview of the history of graphic design. Along the way, *Thirty Centuries of Graphic Design* grew both in concept and content.

We would like especially to thank two people who gave generously of their time and expertise: Denise Schmandt-Besserat, the University of Texas at Austin, for clarifying the Sumerian contribution to our written language, and Janet Ing, the Princeton University Library, for sharing with us the most recent knowledge on Gutenberg and other printers of incunabula.

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Our thanks, also, to all the graphic designers who willingly proofread copy and sent samples of their work to be included in this book. And to the many friends and colleagues who contributed in ways too numerous to mention: Edward Greene, M.D., Alan Haley, Betsy Kelly, Eli Kince, Yasuo Kubota, George Tscherny, Mr. and Mrs. Theodore Wagman, and the many whose names we shall remember too late and with embarrassment after the book has been printed.

The story of graphic design is one of endless fascination: the magic of the first visual images; the beauty of the Egyptian hieroglyphics; the evolution of the phonetic alphabet; the genius of Gutenberg's invention; the long-sought-after mechanization of typesetting; and the explosion of imaging in the twentieth century.

With a heritage so rich, it is unfortunate that many of today's graphic designers know more about the history of painting than about the history of graphic design.

One of the reasons for this paradox may be the belief that graphic design is a twentieth-century innovation and a profession without a history. This is simply not true. Graphic design—or visual communication—began in prehistoric times and has been practiced over the centuries by artisans, scribes, printers, commercial artists, and even fine artists.

Unfortunately, design history is seldom taught in art schools, and there are few books on the subject that appeal to students. Most that exist are written by scholars for scholars and tend to be highly specialized and visually intimidating.

The books that do try to reach graphic designers often deal with the subject as if it were unrelated to history and the other arts. This narrow, one-dimensional focus denies the reader the opportunity of seeing graphic design as an integral part of history.

For example, knowing that Gutenberg invented printing from movable type approximately forty years before Christopher Columbus discovered America and Leonardo da Vinci painted his *Last Supper* puts an important graphic design event into the mainstream of history, thus making it more meaningful and easier to remember.

To help the reader experience the fascination and richness of design history, *Thirty Centuries of Graphic Design* is organized in a practical way. It begins with the division of the material into manageable time periods; first by millenia and later by centuries and decades. Although the story begins at 30,000 B.C., the emphasis is on the thirty centuries following the development of the phonetic alphabet.

Each major section opens with a short survey of the major events that helped shape the time period. Next is an overview of the fine arts, primarily painting, which has been a traditional source of inspiration for graphic designers. The fine arts section is followed by a discussion of graphic arts, which are examined in greater detail and, when appropriate, on a nation-by-nation basis. Designers and illustrators have been carefully selected to show diversity and to create a feeling for a specific period. Each time period ends with the names of famous artists, writers, composers, graphic designers, and other notables, along with a chronology of important or interesting events.

It is hoped that this approach will make *Thirty Centuries of Graphic Design* instructive, entertaining, and stimulating to read and use.
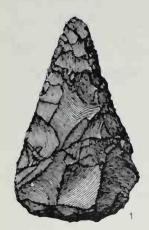
THE OLD STONE AGE

The art of graphic design—visual communication—has its roots deep in the past, beginning with prehistoric images carved on fragments of bone or painted on the walls of caves. These images represent humanity's first attempts to communicate a message visually, which is the essence of graphic design.

In the Prehistoric period, all knowledge was transmitted orally from generation to generation. Because nothing was written down, everything known about this period is the result of excavations, chance discoveries, or conjecture. The period may be divided into two parts: the end of the Old Stone Age, or Paleolithic, from 30,000 to 10,000 B.C. and the New Stone Age, or Neolithic, from 10,000 to 5000 B.C.

Around 30,000 B.C., during the last Ice Age, a great ice sheet more than a mile thick was slowly receding to the polar cap. As the climate moderated, a race of people called Cro-Magnons began to replace the less adaptable Neanderthals, who had been dominant for more than 100,000 years. The Cro-Magnons, our direct ancestors, developed innovations in technology, social organization, and the arts. They were also the first people to communicate visually.

Little is known about the Cro-Magnons, only that they kept animals and gathered food. They lived mainly in southern France and northern Spain, where the herds were plentiful and the limestone caves provided excellent shelter from the elements.

What tools and weapons they had were fashioned from stone, bone, or antler to form blades, arrows, axes, spears, and harpoons (1). It is believed the Cro-Magnons lived and worked together as small family units but banded together when necessary for survival or for ceremonies and hunting.

1

1 Perhaps the first tool used by early humans was the all-purpose handaxe.

2 The images of animals painted on the walls and ceilings of the Lascaux caves in southern France are believed to have played a major role in religious or magical rites. Archaeologists have dated these images from approximately 15,000 B.C.

2

FINE ARTS

Early humans made no distinction between what are now called the fine arts and the graphic arts.

Webster's defines *fine art* as "painting [and] sculpture . . . concerned primarily with the creation of beautiful objects." Based upon this definition it would be difficult, if not impossible, to attribute the term *fine art* to any of the images produced by prehistoric people. Yet the history of both the fine and graphic arts starts with the creation of these images.

How and why images were created is open to speculation. To begin with, they may have been produced by someone casually scratching the ground with a stick creating a recognizable form inadvertently. From there, the images may have been drawn on wood or animal skins, and later on more permanent surfaces, such as the walls of caves.

It is also possible that the more imaginative individuals recognized familiar images accidently created by nature, which they then attempted to copy.

Whatever their origins, it does seem unlikely that the artist's *primary* concern was the creation of beautiful objects. More likely the images served some pragmatic function—religious, magical, or symbolic—thus making them the earliest form of visual communication.

GRAPHIC ARTS

The earliest graphic images that have survived—lines incised on pieces of bone, stone, or ivory—are believed to date from some time around 30,000 B.C. Their meaning remains a mystery: They may represent an early recording system designed to keep track of such events as the changing seasons, lunar cycles, animal migrations, or the number of kills, the same way a modern hunter would notch a gunstock.

It is also possible that the lines or images served as a memory aid for someone who wished to recall an incident or tell a story. Devices of this sort are referred to as *mnemonic*. A common example of a mnemonic device is the tying of a string around your finger as a memory aid.

Perhaps the most dramatic example of early images can be found on the walls and ceilings of the caves at Lascaux in southern France and Altamira in northern Spain. Around 15,000 B.C., cave dwellers using charcoal, mineral pigments, and water created images that ranged from simple stick figures to highly expressive paintings of the animals they hunted (2).

All images, large or small, created by these early humans were symbols of things that existed in their world. We now refer to these images as *pictographs* (3). A pictograph conjures up a mental image of a thing, which in turn could evoke the spoken word.

The image of a bison, for example, would first trigger the thought of a real bison, which then suggests the spoken word for bison. "Readable" images, that is, images associated with spoken words, were the first step in the long road to developing a written language.

3

3 A pictograph is a symbol representing a person, animal, plant, or inanimate object.

THE NEW STONE AGE

FINE ARTS

Around 10,000 B.C., during the New Stone Age, an important social change began to take place: People no longer followed the migrating herds but settled down to farm. This new way of life first came about in the Ancient Near East, where small farming communities began to flourish in an area called the Fertile Crescent (4).

Farming created a new element of stability. Planting seeds and domesticating animals made a predictable supply of food available, which in turn led to surpluses and trade with neighboring communities.

As society became more complex, new needs arose and specialized crafts were developed: pottery to store and cook food, metal working (copper) to create more efficient tools, and weaving and dyeing for clothes and blankets.

With the success of farming, manufacturing, and trading came new social orders.

Early humans clearly possessed a sense of beauty and design, as evidenced by the cave paintings of the Old Stone Age and the elaborate geometric decorations found on tools, weapons, and utensils from the New Stone Age (5).

It is not known what purpose, if any, these markings served. Some could very well be the first examples of art for its own sake—created by people who had an urge to express themselves artistically for the simple joy and pride it brought.
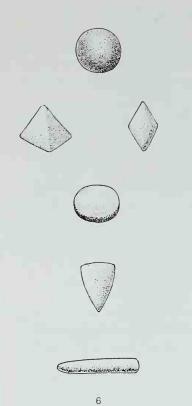
4 Map of the ancient world where civilization first began. The areas stretched from Egypt and Phoenicia in the west to Mesopotamia in the east.

4

As cultures grew and trade expanded, the need for keeping records arose. It was in Mesopotamia (in what is today Iraq), around 9000 B.C., that the first practical system of record keeping—and the precursor of written language—developed.

The system was based on the use of clay tokens modeled into an assortment of simple shapes such as discs, spheres, and cones, each representing a different animal, plant, or object (6). With these tokens an individual could account for possessions or engage in trade.

This method of record keeping probably grew out of the early use of tokens by shepherds to keep track of their herds. The number and kind of tokens held by a shepherd represented the total number and type of animals in a herd. As the animals were slaughtered or new ones born, tokens would be removed or added. Today, illiterate shepherds still use pebbles in the same manner to account for their animals.

6

Historical Events

B.C.

30,000-20,000 Blade tools of bone and antler. Bone fragments with markings. First sculpture: female figurines. Stone spear points. Body ornaments. Ceramic articles. Complex burials with grave offerings.

20,000-10,000 Invention of eyed needle. Tailored skin clothing. Spear-throwing device. Stone oil lamps. Cave paintings. Barbed harpoons. Bow and arrows. Early rope. First settlers in New World. Six-hole flute.

10,000-5000 End of Ice Age. Domestication of sheep and goats. Cultivation of wheat and barley. Introduction of pottery. Mining of copper.

5

5 Although pottery was first introduced around 8000 B.C., it was not until later that it was decorated with geometric patterns. Shown here are two pots from around 4000 B.C.

6 Simple clay tokens, first used around 9000 B.C., are now believed to represent the beginning of written language.

THE SUMERIANS

The early part of the period 5000-1000 B.C. saw the rise of two great civilizations: Sumerian and Egyptian. Both were centered on river valleys, and both were shaped and colored by a totally religious view of life.

Later, the Phoenician civilization arose. A seafaring people who lived around the Mediterranean, the Phoenicians' interests were largely secular.

All three civilizations made unique contributions to the development of our written language.

Records from sometime after 3300 B.C. are the earliest to document a fully developed civilization—one having an administrative structure, a unified religion, a well-organized chain of trading partners, and a written language.

This civilization existed in Mesopotamia, located in what was then a fertile plane between the rivers Tigris and Euphrates (see page 12). This area was called Sumer, and its major city, Uruk, functioned as an administrative, religious, and commercial center. The society was administered and controlled by priests in the name of their gods.

The Sumerians have been credited with a number of major achievements (1): for example, the wheel, monumental brick architecture, the potter's wheel, metal tools, and a system of numbers.

For the graphic designer, however, their greatest contribution was the invention of a written language, which has given us their literature, laws, annals, and economic and administrative records—in other words, the first history of a people.

1 The Sumerians were among the first to brew beer. This 4,500-year-old plaque shows a gazelle offering a scorpion-man two beakers of what is believed to be beer.

The surviving Sumerian art is incomplete. All we have are small-scale sculptures, bas reliefs, and fragments of portable objects.

A large number of gods and worshipers that were carved in soft stone or modeled in clay have survived (2). The figures are short, compact, and highly stylized, with large, staring eyes. One can only assume that the lost Sumerian paintings shared many of the same characteristics.

The Sumerians had a love for decorating the surfaces of musical instruments, ritual objects, and furniture with mother-of-pearl and lapis lazuli. The subject matter were geometric patterns, flat figures of gods, worshipers, and fighting heroes, or a combination of all these.

A unique art form credited to the Sumerians was the rolling cylinder seal that was pressed into wet clay to form a relief image (3). These cylinders might be considered the earliest known means of creating multiple images.

2 Sumerian sculpture of standing man with large, staring eyes. This piece, carved in soft stone, dates from around 3000 B.C. and stands about one foot high.

3 The Sumerian cylinder seal was used by an individual to produce a mark of identification. By rolling the cylinder in soft clay the image could be printed repeatedly.

2

3

15

GRAPHIC ARTS

Sheep

Metal ingot

Jar of oil

Garment

Measure of honey

4

It was the Sumerians who developed the first written language, which historians now believe grew out of the use of clay tokens for keeping records and for the control of goods.

Tokens were first used around 8000 B.C. by shepherds and farmers to keep track of animals and produce. With the success of farming and the rise of manufacturing, tokens took on new shapes, and their uses became more diverse, such as keeping track of tithes levied by the local administration (4). Furthermore, as most tokens have been found in temple areas, it is believed that they were also used to keep track of gifts made to the gods, probably at harvest time.

By 3500 B.C., tokens were being placed in hollow, ball-shaped clay envelopes, which were then closed with a lump of clay and rolled with a personal seal (5). Later, imprints of the tokens were made on the outside of the clay envelope before placing them inside. This permitted the contents to be read without having to break the envelope.

By 3100 B.C., this system was replaced by an even better system: the complete elimination of both tokens and envelopes in favor of solid clay tablets upon which outline images of tokens were drawn with a pointed stick, or *stylus* (6).

Before long, the Sumerians found that drawing even the simplest outline images was too slow and time-consuming. They discovered that they could create abstract forms of the images by pressing a wedge-shaped stylus into wet clay (7). These new signs could be *written* faster than the old outline images could be *drawn*. These signs, called *cuneiform*, which means "wedge shaped," made up the first written language based on abstract signs.

Later, the Sumerians carried cuneiform one step further, letting a particular sign represent both an object and a spoken sound, a syllable. This development established the first link between a spoken sound and a written sign. This represented a major step toward the development of alphabetic writing, where one sign represents one sound.

The idea of having pictures representing sounds should be familiar to anyone who has ever read a children's book in which pictures represent words. This form of writing, called *rebus*, was widely used by many primitive people and has had a role in the development of many written languages.

Cuneiform signs ultimately had no influence on the form of the Roman alphabet. Cuneiform, however, was adapted to the writing of other ancient languages, such as Akkadian, Elamite, and Hittite. But as these civilizations faded, so did the use of cuneiform signs. By the beginning of the Christian era, cuneiform had completely died out.
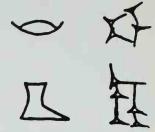
5

6

7

The earliest images that have survived are called pictographs, *symbols representing things. Above on the left are pictographs representing the sun and a foot. On the right are the early cuneiform signs for these images. The symbol for "foot" can be seen carved in the tablet below.*
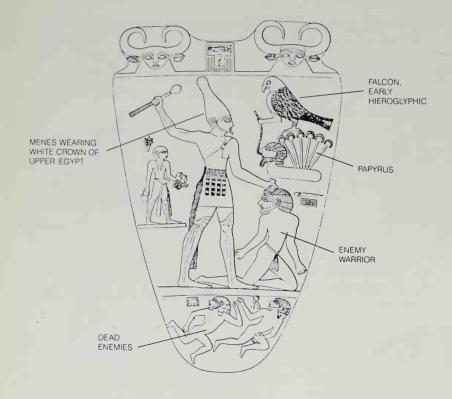
As society became more complex, so did visual communication. Pictographs began to take on extended meanings. No longer were they limited to representing objects or things; now they could express more complex thoughts, such as actions or ideas.
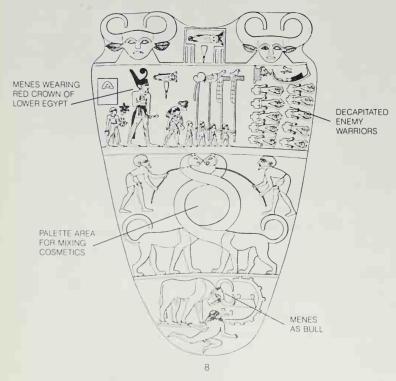
For example, the simplified drawing of the sun need no longer represent only the sun; it could also mean day or time. Or the symbol of a foot could mean to stand or to walk.

We now refer to these expanded pictographs as ideographs, *because they express ideas or actions. Chinese is an example of a modern written language that is primarily ideographic.*

This evolution in visual communication from pictographs to ideographs represents a major step in the development of a written language.

4 As civilization became more complex so did tokens. Here are five tokens shown at actual size with their assumed meanings. All date from around 5000 B.C.

5 This clay envelope, designed to hold tokens, dates from around 3300 B.C. The rosette patterns were made by a seal.

6 Clay tablet from around 3000 B.C. with tokens both drawn and pressed into soft clay. The rectangle at top center represents five sheep.

7 This fully developed cuneiform was written with a stylus in soft clay. It dates from sometime after 3000 B.C.

MENES WEARING
WHITE CROWN OF
UPPER EGYPT

FALCON.
EARLY
HIEROGLYPHIC

PAPYRUS

ENEMY
WARRIOR

DEAD
ENEMIES

MENES WEARING
RED CROWN OF
LOWER EGYPT

DECAPITATED
ENEMY
WARRIORS

PALETTE AREA
FOR MIXING
COSMETICS

MENES
AS BULL

8

8 The Narmer palette, dated
around 3000 B.C., depicts the
exploits of the first Pharaoh,
Menes, who defeated his
enemies and unified Upper and
Lower Egypt

THE EGYPTIANS

Egypt was known to its inhabitants as the Land of the Two Kingdoms. In the north, centered on the mouth of the Nile River, was Lower Egypt. In the south, stretching thousands of miles along the Nile toward Ethiopia, was Upper Egypt (see map page 12). It is believed that around 3200 B.C., Menes, a king of Upper Egypt, conquered Lower Egypt and became the first pharaoh, thus establishing the First Dynasty (8).

The success of the union was assured, for both nations had well-organized bureaucracies made of officials and scribes who spoke and wrote the language. Efficient administration was made possible by the invention of papyrus, which allowed written communication to be carried over great distances. This new, lightweight writing surface was far superior to the bulky clay tablets of the Sumerians.
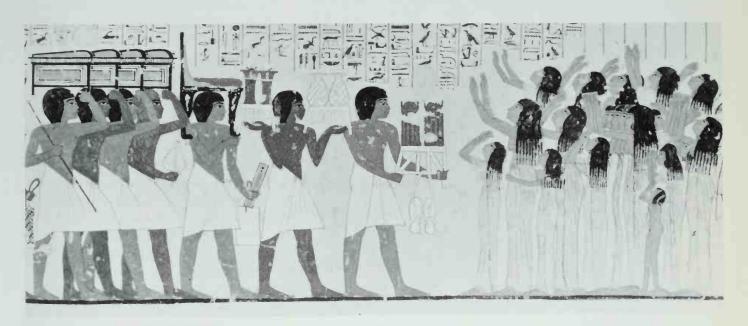
The Egyptians were an inventive people. Besides papyrus, they developed an early calendar based on the heavenly bodies and the annual rise and fall of the Nile. They shared with the Sumerians many of the same technological advances, such as irrigation, flood control, monumental architecture in stone instead of brick, and the wheel.

The Egyptians were a conservative people in the most profound sense: They discarded nothing, and therefore little changed over the centuries. New gods and ideas were simply integrated into established beliefs and ways of thinking. Egyptian religion was centered on death and the preparation for life after death. Initially, this ritual was the exclusive prerogative of the pharaohs, but with the passing of time it was extended to all Egyptians.

The Egyptians produced a vast amount of architecture, sculpture, and painting, most of it dedicated to their obsession with life after death. They built monumental stone temples and tombs, the most spectacular being the pyramids, built during the Old Kingdom by the pharaohs of the Fourth Dynasty.

The interiors of the tombs were covered with wall paintings illustrating the daily events of this life, which they hoped would continue into the next. The figures combined front and side views, thus creating a sense of dignity and permanence (9).
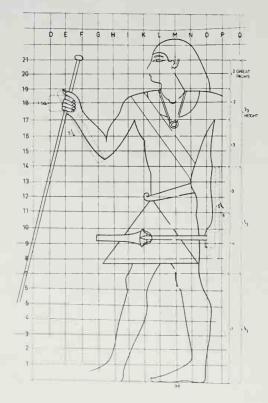
9

9 This Egyptian painting from a tomb at Thebes, dated from around 1370 B.C., shows a burial scene in which furnishings and objects of everyday life are being brought to the tomb. Women and children are seen mourning on the right.

10

10 Detail of a low-relief carving from a tomb dated from around 2400 B.C. A scribe with a palette at his knee writes on a sheet of papyrus. On the table rests a jar of water and some rolls of papyrus. Hieroglyphics can be seen above his head. Composition was determined by a grid and a system of proportions.

The earliest Egyptian writing, dating from some time before 3000 B C., was a picture-writing system that utilized both pictographs and ideographs (see page 17). This form of writing is called *hieroglyphic* (10), which in Greek means "sacred carving."

Sometime after 3000 B.C. a major development took place. In some cases, a hieroglyph could also represent a spoken sound, that is, a syllable. For example, the sign for an owl could represent the owl itself (pictograph), the characteristics associated with an owl, such as wisdom (ideograph), or *m*, the dominant consonant sound in the Egyptian word for owl (syllable). In order for the reader to know which way the hieroglyph was intended to be read, a sign called a *determinative* was added.

Hieroglyphics were highly stylized in form and readily lent themselves to the decoration of temples, tombs, and monuments. They have been found chiseled in stone, painted on plaster, cut in wood, and written with brush and pen on papyrus (11). Most commonly, hieroglyphics were arranged vertically in columns to be read from top to bottom, right to left.

Aesthetics played a major role in the writing of hieroglyphics; beauty was as important as clarity. To achieve this goal, scribes underwent rigorous training from early childhood, first to learn the hundreds of hieroglyphs and then to develop the necessary skills to render them elegantly.

While hieroglyphics functioned well as decorative inscriptions on the walls of temples and tombs, they proved impractical for record keeping and other business purposes. Hieroglyphics were just too complex and did not lend themselves to being written rapidly with a reed pen or brush on papyrus.
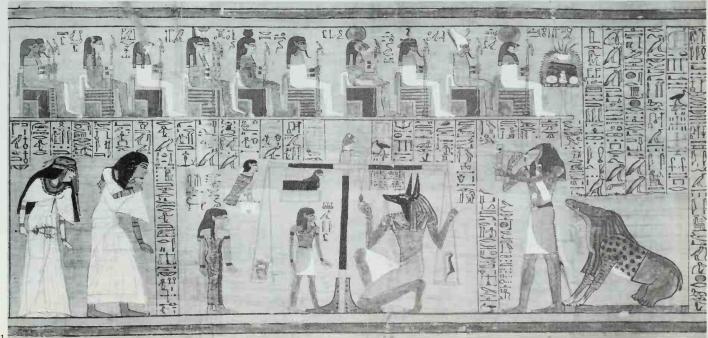
The solution was the development of a second, more functional writing style, called *hieratic*, which in Greek means "of the priesthood" (12). Hieratic, which evolved sometime before 2000 B.C., was a simplified, outline version of hieroglyphics, and became the dominant script for business, law, and science. Hieroglyphics, on the other hand, continued to be used for religious texts and official inscriptions.
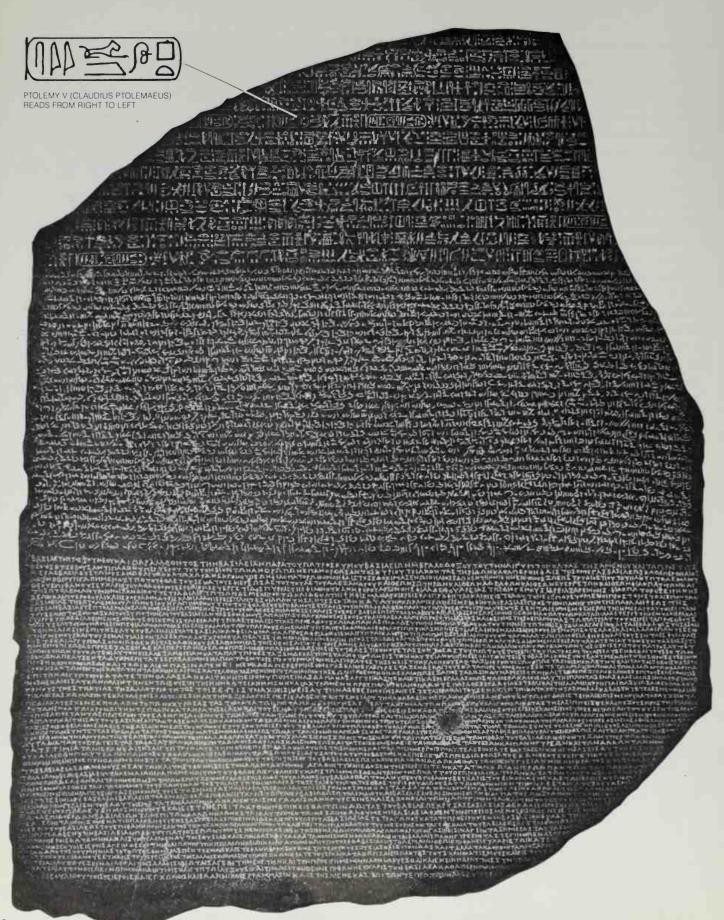
As time passed and more people acquired writing skills, even the hieratic writing style was not adequate to keep up with the demands of everyday writing. Around 500 B.C., a new writing style, called *demotic*, came into use (see page 22). Demotic, in Greek, means "of the people" and reflects the democratization of writing. It was a simplified version of hieratic that permitted individual letters to be linked for more rapid writing.

Although hieroglyphic, hieratic, and demotic writing styles appeared at different times in Egyptian history, they did not replace one another, but continued to be used side by side. It was not until the fourth century that the Roman alphabet finally replaced all three.

12

11 The Egyptians were the first to combine text with illustrations. Shown here is the final judgment from the *Book of the Dead* written by the scribe Ani around 1400 B.C. Illustrated is the jackal-headed god Anubis, weighing the dead man's soul against the weight of a feather.

12 Detail of a scroll showing hieratic script, a simplified version of hieroglyphics designed for more rapid writing.

11

PTOLEMY V (CLAUDIUS PTOLEMAEUS)
READS FROM RIGHT TO LEFT

The Rosetta Stone

The Rosetta Stone was discovered in a wall near the town of Rosetta by the mouth of the Nile in 1799 by Broussard, a French officer in Napoleon's army. The stone was appropriated by the English after the French surrender in 1802 and is now in the British Museum.

The inscription, honoring the pharaoh Ptolemy V as the savior of Egypt, contains fourteen lines of hieroglyphics, thirty-two lines of demotic, and fifty-four lines of Greek. Since the same text was repeated in Greek, a known language, and Egyptian, an unknown language, it provided scholars with the key to deciphering both the hieroglyphics and the demotic scripts.

Two men are largely credited with solving the mystery. Dr. Thomas Young (1773–1829), an Englishman, partly deciphered the demotic, and the French scholar Jean François Champollion (1790–1832) solved the riddle of the hieroglyphics.

Papyrus Scrolls

The Egyptians are credited with the creation around 2500 B.C. of the illustrated papyrus scroll, made from the papyrus plant that flourished in the marshy districts along the Nile.

The preparation of the papyrus as a writing surface began with the removal of the outer rind. Next, the soft inner part, the pith, was cut into strips and laid side by side in cross layers to form a sheet which was then pressed, dried in the sun, and polished to a smooth surface. The individual sheets were then pasted together to form one continuous roll measuring anywhere from five to seventeen inches in width and up to one hundred feet in length. (The average was much shorter.)

Papyrus scrolls represent the earliest example of combining text with illustrations to tell a story. Perhaps the best-known example of this art is the Book of the Dead, which contains hymns, prayers, and magic formulas to be used by the dead when they reached the afterlife (see page 21).

Egyptian Historical Periods

Egyptologists have divided ancient Egyptian history into the following periods:

Predynastic	ca. 4500-3110 B.C.
Old Kingdom	3110-2258 B.C.
Middle Kingdom	2258-1786 B.C.
New Kingdom or Empire	1570-1085 B.C.
Late Dynastic	1085-332 B.C.
Foreign Dynasties	332-30 B.C.
Roman	A.D. 30-395

Egyptian periods are further subdivided into dynasties, during which pharaohs of the same family ruled. For example, it was during the Fourth Dynasty of the Old Kingdom that the pharaohs Kafre, Khufu, and Menkaure built the great pyramids at Giza. Similarly, it was during the Eighteenth Dynasty of the New Kingdom that the boy pharaoh, Tutankhamen, or King Tut, briefly ruled.

THE PHOENICIANS

An aggressive and adventurous nation of Semitic seafarers called Phoenicians settled along the coast of what is now Lebanon and northern Israel. Their major cities were Tyre, Sidon, and Byblos.

The Phoenicians established an extensive network of trading colonies around the Mediterranean, of which Carthage was the most important. They reached their zenith around 1000 B.C. and remained powerful until their subjugation by the Babylonian king Nebuchadnezzar in 575 B.C. The city of Carthage fell much later to the Romans in 146 B.C.

History has not served the Phoenicians well. Their literature—such as it was—was destroyed by Babylonian and Roman conquerors. The only records that have survived are commercial documents.

FINE ARTS

The Phoenicians were gifted artists and craftsmen who worked in an eclectic style, borrowing subjects and forms from neighboring civilizations, especially from Egypt and Mesopotamia. They were particularly skillful in carving ivory bas reliefs and using it as a veneer on furniture, musical instruments, and architectural panels. Unfortunately, very little of their work has survived.

13 The Phoenicians are credited with being the first people to develop a written language based on the principle that one sign represents one sound. Below each sign is its sound value, name, and meaning.

14 Detail of oldest surviving Phoenician/Semitic writing dating from 1200 B.C. It reads from right to left.

Z ZAYIN WEAPON	W WAW HOOK	H HE UNKNOWN	D DALETH DOOR	G GIMEL THROW-STICK	B BETH HOUSE	STOP ALEPH OX
N NUN FISH	M MEM WATER	L LAMEDH OX-GOAD	K KAPH PALM OF HAND	Y YODH HAND	T TETH UNKNOWN	H HETH FENCE
T TAW MARK	SH SHIN TOOTH	R RESH HEAD	Q QOPH MONKEY	S SADHE FISHHOOK	P PEH MOUTH	MUTE AYIN EYE

(S SAMEKH SUPPORT)

13

As successful merchants, the Phoenicians required an efficient writing system to keep records. To satisfy this need, they borrowed from the Sumerians and Egyptians the concept of using signs to represent the sounds of syllables, but they carried it one step further.

The Phoenicians realized that only twenty-two important sounds existed in their spoken language. It was obvious that if they were to designate a different sign for each of these sounds, they could write their language using just twenty-two signs (13, 14). This simple yet brilliant idea—what we now call *phonetic* writing—made pictographic/ideographic/syllabic writing outmoded.

To understand better how they created their alphabet, analyze its first two letters: *aleph*, (meaning "ox") and *beth* (meaning "house"). To record the sound A as it occurred at the beginning of the spoken word *aleph*, the Phoenicians gave the sound the existing sign for "ox." For the sound B, which occurred at the beginning of the word *beth*, they followed the same pattern, using the existing sign for "house".

Besides drastically reducing the number of signs required to write their language, the Phoenicians simplified the letterforms, making both reading and writing easier. They also adopted the convention of writing from right to left, the direction still used today for Semitic languages.

14

Phaistos disc

THE GREEKS

Greece, Etruria, and Rome were the three great civilizations that made up the ancient classical world (1). Western civilization began with the Greeks and flowed through the Etruscans and the Romans to form the foundations of European civilization. The contributions of these three areas were many and varied. However, for the graphic designer, perhaps the most important was the creation of the Roman alphabet.

Around the year 1000 B.C. a Greek-speaking people called Hellenes settled in Hellas, the Greek peninsula, and the neighboring Aegean islands. As the population expanded, settlements such as Athens, Corinth, and Sparta grew into city-states.

The Greeks, like the Phoenicians, were great sailors and traders, and it wasn't long before the individual city-states began to establish their own colonies around the Mediterranean and the Black Sea. The Greeks never saw themselves as a unified nation but as a loose confederation of fiercely independent city-states. The one unifying factor was their common culture and language.

The Greeks used their written language for more than commerce. They gave Western civilization its first great body of writings on philosophy, medicine, science, law, history, and literature.

A few of the Greek contributions are Homer's epics, the *Illiad* and the *Odyssey*; the philosophies of Socrates, Plato, and Aristotle; the tragedies of Sophocles, Euripides, and Aeschylus; the comedies of Aristophanes and Menander; and the poetry of Sappho and Pindar.

1 Map of Greece, Etruria, and Rome.

1 Map of Greece, Etruria, and Rome.

2 Greek Dipylon vase from the eighth century B.C. in the Geometric style. This form of vase was used for funerary purposes, as can be seen from this scene depicting the deceased surrounded by mourners. The scene below shows the traditional funerary games

It is Greek art that forms the foundation of the Western European artistic tradition. As no frescoes have survived, the graphic qualities of Greek art can best be understood by looking at the drawing on their ceramic vases.

Greek vase painting can be divided into four periods. The first, the Geometric period (1000–725 B.C.), utilizes simple geometric patterns as design motifs (2). The second, the Orientalizing period (725–550 B.C.), shows the influence of Middle Eastern motifs, such as flowers, palmettes, and heraldic animals.

The third, the Black Figure period (550–530 B.C.), saw the emergence of Athens as the manufacturing and exporting center of vases introducing the human figure painted in black on the natural red surface (3).

The fourth, the Red Figure period (530–475 B.C.), reversed the process to permit greater attention to detail: Figures were now red on a black ground (4). Although vases continued to be made after 475 B.C., the great periods of black and red figure vase painting were over.

By studying the drawings on the vases along with floor mosaics and the late Roman frescoes recovered from the buried city of Pompeii, we can gain some idea of the lost Greek paintings. We know the Greeks had mastered anatomy and foreshortening but somehow never comprehended the principles underlying perspective.

3

4

3 Detail of Black Figure period vase from around 530 B.C. showing two warriors in combat.

4 Detail of Red Figure period vase from 490 B.C. showing a musician playing a cithara.

GRAPHIC ARTS

The Greeks adapted the Phoenician alphabet sometime after 800 B.C. during a period of commercial expansion. Along with the letterforms, the Greeks also adopted the Phoenician names. For example, the Greek word *alpha* is derived from the Phoenician word *aleph* and *beta* from *beth*, and so on. The earliest known example of Greek writing based on the Phoenician alphabet is found on a Dipylon vase from around 700 B.C. (5).

The Greeks made one important modification in the Phoenician letterforms and names they adopted. As the vowels were emphasized in the Greek spoken language, they added signs for five of them: *A, E, I, O, U.* By doing this, the Greeks created an alphabet of twenty-five characters that accounted for all the important sounds in their language.

Adding the signs for vowels to the signs for consonants was the final step in the creation of a true phonetic alphabet. Now all the pieces were in place. Theoretically, any spoken language could be written with a phonetic alphabet. The Greeks also adopted the right-to-left Phoenician direction of writing.

Later, they experimented with lines that alternated first in one direction and then the other. This also required alternating the direction in which the characters faced. They called this style of writing *boustrophedon*, which means "as the ox plows." (See figure 6.)

The Greeks did not remain with boustrophedon long and finally settled on writing from left to right. It is theorized that writing from left to right proved more natural than right to left for predominantly right-handed people.

The various Greek city-states not only spoke their own dialects but felt free to develop their own versions of the letterforms—and there were many. By the fifth century B.C. the number of alphabets had been reduced to two: the Ionic in the east and the Chalcidian in the west.

In 403 B.C. Athens officially adopted the Ionic version, and because of Athenian prestige the Ionic alphabet all but replaced the Chalcidian (7).

The Ionic alphabet consisted only of capitals; small letters were not developed until the Carolingian period during the Early Middle Ages. There were no separations between words and sentences, nor was there any punctuation. Furthermore, abbreviations were common.

The Greeks developed two writing styles: the classical capitals and a more cursive form, called *uncials*. The classical capitals, when used for carving inscriptions in stone, are called *lapidary* (7). They were basically *sans serif*, which means "without serifs," with the emphasis placed on beauty, form, and proportion. The uncial, on the other hand, was developed for everyday writing with a reed pen or brush on papyrus and parchment, or with a stylus on a wax writing tablet (8).

The differences between the lapidary and the uncial letterforms illustrate how writing tools and surfaces affect letterforms. For example, carved letters tend to be more angular, while written letters are more cursive or flowing.

The Greeks, like the Egyptians, practiced the art of illustrating manuscripts. Unfortunately, most of the early examples have perished.

5

6

7

8

THE ETRUSCANS

FINE ARTS

Little is known about the origins of the Etruscans. We do know that they settled in Italy around 1300 B.C. and by 700 B.C. had established a loose confederacy of city-states stretching approximately from the Tiber to the Po Rivers. This confederacy was known as Etruria.
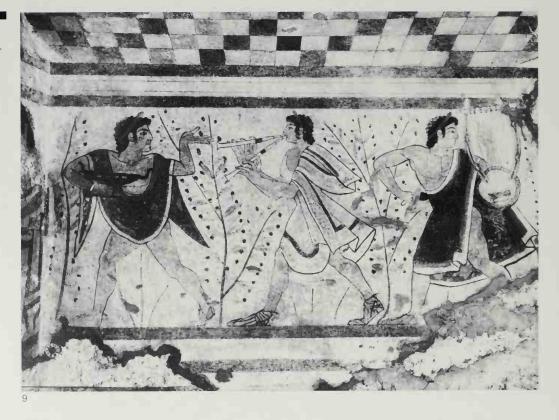
The Etruscans were the main conduit through which the Greek alphabet and culture flowed into Rome. In fact, many of the accomplishments traditionally attributed to the Romans seem to have originated with the Etruscans, for example, paved roads, sewers, and some military and legal practices.

From their art, one can deduce that the Etruscans were an exuberant, artistic, and highly civilized people who were strongly influenced by Greek art. In fact, the Etruscans had such admiration for the Greek vases that their dead were often buried with them. For this reason, most Greek vases were found in Italy and not in Greece.

The Etruscans decorated their tombs with painted frescoes depicting contemporary scenes of banqueting, dancing, and hunting (9). Another unique Etruscan art form was the sculpting of realistic portraits during life to be used after death as covers for funerary urns and sarcophaggi. The latter seems to have had an influence on early Roman sculpture.

9 This Etruscan fresco, decorating the interior of a tomb, depicts the exuberance of the Etruscan people.

9

The Etruscan language remains largely a mystery. Although many short inscriptions have been deciphered, no key text like the Rosetta stone has been found, and therefore the grammatical structure of the language is still unknown.

It is known that through trade the Etruscans had adopted an early form of the Greek alphabet, which can be seen on a child's toy figure (10) and the table at right (11). Like the Greeks, the Etruscans experimented with various writing directions before settling on writing from left to right.

PHOENICIAN	GREEK	ETRUSCAN	ROMAN

11

10

10 An early example of the Etruscan alphabet found on a child's toy jug. The forms, dating from around 600 B.C., are Greek in origin.

11 A comparative look at the Phoenician, Greek, Etruscan, and Roman alphabets.

THE ROMANS

Around 800 B.C., the Romans were a small, inconsequential Latin-speaking tribe living in Latium along the banks of the Tiber River. Their capital was Rome, a small village situated on seven hills ruled by Etruscan overlords. In the year 500 B.C. the Romans revolted, drove out the Etruscans, and established a republic.

The Republican period, from 500 B.C. to 60 B.C., was a time of expansion and consolidation. From their humble beginning as a small city-state, the Romans went on to rule the ancient world, controlling territories from Spain to the Middle East and from North Africa to the British Isles. With this expansion came the spread of Roman laws, engineering, technology, arts, literature, and administrative skills.

In 31 B.C., Augustus defeated Marc Antony at the Battle of Actium, thus effectively ending the Republican form of government. The Roman Empire was established in 27 B.C. with Augustus as the sole ruler.

From 27 B.C. to approximately A.D. 200, the Roman Empire reached its greatest extent and influence. Roman power and prestige was so effective that for two hundred years enemies of the empire were held at bay.

It was during this period, referred to as the Pax Romana, or Roman Peace, that Rome excelled in great civil engineering feats such as building a network of roads and bridges to connect the empire, aqueducts to supply fresh water to cities, walls and fortifications to keep out barbarians, amphitheaters and stadiums for entertainment, public baths and sewers for hygiene, and triumphal arches and columns to commemorate victories.

Around A.D. 200, the Roman Empire slowly began to decline. After a century of administrative chaos and a series of weak emperors, Constantine became sole ruler in 306. He proved to be a strong, dynamic emperor, who not only strengthened the empire, but who legalized Christianity in 313.

During his reign, Constantine built a second capital, which he appropriately called Constantinople, on the site of Byzantium, now Istanbul. The city of Constantinople became the administrative center for the Eastern division of the empire, while Rome continued to manage the West.

In 340, three years after Constantine's death, his sons fought for control, resulting in the division of the empire into East and West. Over the years there were several unsuccessful attempts to reunify it. Repeated attacks and invasions by the Huns, Goths, Vandals, Franks, and other barbarians further frustrated the goal of reunification. The Western Empire finally collapsed in 476 while the Eastern, or Byzantine, Empire continued to survive until 1453, the year it fell to the Ottoman Turks.

Roman literature was rich and varied. The first period, from 240 to 80 B.C., saw the comedies of Plautus and Terence and the orations of Cato the Censor.

These were followed by the Golden Age of Latin literature from 80 B.C. to A.D. 17 with the speeches and letters of Cicero, the military commentaries of Julius Caesar, the philosophical poem *On the Nature of Things* (*De rerum natura*) by Lucretius, the love poems of Catullus, the satires of Horace, and the amatory narratives of Ovid. The greatest single work of this period was Virgil's epic on the founding of Rome, the *Aeneid*.

The Golden Age was followed by a short Silver Age from A.D. 17 to 30, which saw the essays of Seneca, the histories and annals of Tacitus, and the *Lives of the Caesars* by Suetonius.

12 Head, personifying Spring, from a mosaic floor found in a Roman villa at Antioch. Dated after A.D. 100.

Few Roman drawings and paintings have survived; those that have, such as the frescoes at Pompeii, floor mosaics (12), and line engravings on metal mirrors and containers, all show how indebted Roman artists were to the Greeks.

The Pompeiian frescoes were created before A.D. 79, the year Vesuvius' eruption buried the city under volcanic ash, and are believed to have been painted by provincial Greek or Roman artists working in an earlier Greek style. The frescoes show the artists mastery of the human figure, composition, and modeling in light and shade (13).

Landscapes were a popular subject painted in a number of styles, one resembling the Impressionistic broken-brushstroke technique. Like the Greeks, the Romans never fully understood perspective.

Roman portraiture is best seen in the many encaustic heads—portraits painted in wax on wooden panels to be affixed to mummies (14). Most date between the first and third centuries and are from the Fayum oasis region of Egypt.

A realistic tradition combined with a desire to express psychological insight gives Roman portraiture its unique quality. All this changed after the third century with Christian and other foreign influences.

13

14

13 Wall painting from a villa at Boscoreale on the slope of Mount Vesuvius. Dated before A.D. 79, it shows a seated woman playing a cithara.

14 The earliest examples of portrait painting (from live models) date from the first century A.D. and come from Fayum, Egypt, during the Roman occupation. This portrait of a young boy was painted on a wooden panel in a wax medium, called "encaustic," to be placed over the face of his mummified body.

15

16

15 Earliest example of Latin writing, dating from around 700 B.C., was found on a clasp, or fibula, near Praeneste, Italy. The inscription reads from right to left, "Manius made me for Numasius."

16 Inscription from the base of the Trajan column in Rome. Cut in A.D. 114, the Trajan letterforms are considered to be the finest surviving example of Roman capitals. Shown below is a closeup of the fourth line from the top.

Sometime after 700 B.C., the Romans adopted the phonetic alphabet from the Greeks. Since the Romans spoke Latin, a language different from Greek, some adjustments had to be made.

The Romans took thirteen letterforms unchanged, modified eight others, and later added two of their own to create an alphabet of twenty-three letters, all that were needed to write Latin (*U*, *J*, and *W* were added much later). They dropped the Greek practice of calling the letters *alpha*, *beta*, and *gamma*, in favor of the simpler *A*, *B*, *C* used today. Perhaps the earliest example of the Roman alphabet can be found on the brooch from Praeneste near Rome (15). When translated, the inscription says "Manius made me for Numasius."

It was during the early empire, after centuries of refinement, that the Roman, or Latin, alphabet achieved its classical form. This can be seen most clearly in the carved, or lapidary, inscriptions found on public monuments. One of the finest, and perhaps the most famous, is the inscription carved in A.D. 114 on the base of Trajan's column in Rome (16).

Just as inscriptional letterforms were being refined, so were everyday writing styles for pen, brush, and stylus. It was these tools, along with writing surfaces such as papyrus, vellum, parchment, and wax tablets, that helped determine the final shape and character of the letterforms.

Among the more popular hands were *early Roman cursive, rustica (capitalis rustica) square capitals (capitalis quadrata), uncial,* and *half uncial.*

Early Roman cursive. One of the first scripts, early Roman cursive was developed around the first century B.C. Also known as popular cursive, this everyday writing style was commonly used for notes, letters, bookkeeping, and other informal tasks (17).

It was a fast, informal writing style based originally on Roman capitals. When written rapidly, these letterforms had a tendency to be slanted and were often connected. The monoline character of the strokes was the result of writing with a pointed stylus on a wax tablet, a popular writing surface for Romans. Wax tablets were convenient: The surface could be restored through smoothing and the tablets reused.
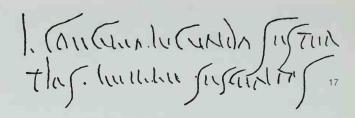
Early Roman cursive tempted the writer to embellish the letterforms and give free reign to self-expression. One of the results of this freedom was the first appearance of ascenders and descenders, that is, strokes that extend above and below the guidelines.

Rustica. Another letterform based on Roman caps and developed around the first century B.C. was rustica (18). This script was developed as an inexpensive and rapid means of making public notices, political slogans, and early forms of advertising. The information was usually painted in red with a flat brush on house walls or wooden tablets.

Rustica was easily written with a reed pen on both papyrus and vellum and quickly became a popular book script. It reached its greatest popularity during the fourth and fifth centuries and was still being used as late as the ninth century.

Square capitals. One of the most dignified of the early scripts was the *square capitals*, so named because the proportions of the letters tended to be more square than the Roman inscriptional caps, upon which they were based (19). Although introduced in the first century, they did not reach their most refined form until the fourth and fifth centuries.

Elegant as they were, square capitals were difficult to execute with any speed and therefore were used primarily for the writing of prestigious literary and religious texts. Square capitals remained popular until the sixth century, when they were supplanted by uncials.

17 Early Roman cursive, used for everyday writing, evolved from the formal Roman capitals. Many personal styles developed as writing became more rapid.

18 Rustica was a popular script used not only for writing books but for painting public notices and political slogans on walls.

19 Difficult to write, square capitals was an elegant hand used primarily for prestigious works.

20 Uncial, developed around the third century, lent itself to more rapid writing than square caps and was a popular liturgical hand until the tenth century. The uncial letterforms show the tentative beginning of the use of ascenders and descenders.

21 Half uncial first appeared around the fifth century. It evolved from the early Roman cursive and square capitals and not from the uncial as its name implies. With half uncials we see the full development of ascenders and descenders.

Uncial. By the third century, another writing style, called uncial, had evolved from rustica and square caps (20). As the letterforms were rounded, they lent themselves to more rapid writing, and there was also a tendency toward the use of ascenders and descenders.

By the fifth century, uncial had become the principle book hand, used especially for the writing of church literature. Uncial was popular as a text script until the tenth century, after which its chief function was for display.

Half uncial. By the fifth century another well-proportioned book hand had appeared, the *half uncial* (21). It is believed to have evolved independently from square caps and early Roman cursive and not from the uncial, as the name might suggest. Half uncial reached its culmination during the ninth century, with the writing of Irish/Anglo-Saxon manuscripts, such as the Book of Kells shown on page 41.

Apart from lending itself to even greater ease of writing, the half uncial is important because the letterforms had been modified to permit writing with fewer strokes and without lifting the pen as often. Like the uncial, the half uncial further developed the use of ascenders and descenders. This marked the beginning of alphabets with both capital (majuscule) and small (minuscule) letterforms.

The Romans are also credited with the development of the modern book form, which they called a *codex.* Earlier, texts had been written on papyrus scrolls, which were not only bulky, but made finding specific information difficult.

The codex was not only convenient to handle, but made finding information easy. The pages were made either from lambskin, called *parchment,* or calfskin, called *vellum*—the latter being the finer and more desirable of the two. The skins were stretched and the surfaces were prepared for writing. Then they were cut to size to be made into a book.

Historical Events

B.C.

1000 King David rules Israel and Judea.

925 Death of Solomon.

883 Ashurnasirpal II becomes king of Assyria.

776 First recorded Olympic Games.

753 Traditional date of founding of Rome.

ca. 750 Homer writes the *Iliad* and the *Odyssey*.

744 Beginning of Assyrian conquests.

672 Romans create twelve-month calendar.

628 Zoroaster, founder of Persian religion, born.

ca. 600 Aesop's Fables written. Sappho of Lesbos writes her poetry. Phoenicians circumnavigate Africa.

587 Jerusalem destroyed by Nebuchadnezzar II.

581 Pythagoras, mathematician and philosopher, born.

ca. 563 Birth of Buddha.

551 Birth of Confucius.

550 Nebuchadnezzar II builds palace with hanging gardens.

521 Buddha preaches first sermon.

509 Rome declared a republic.

ca. 500 Greek pottery figures change from black to red. Pindar writes odes. Ancient Hindu poem the *Ramayana* written.

490 Greeks defeat Persians in Battle of Marathon.

487 Aeschylus' *Oresteia* trilogy performed.

484 Herodotus, father of history, born.

483 Death of Buddha.

479 Death of Confucius.

447 Greeks build Parthenon on the Acropolis. Sculptures by Phidias.

443 Pericles becomes Athenian general.

431 Peloponnesian War begins.

ca. 430 Socrates discusses moral philosophy. Hippocrates lectures on rational medicine. Democritus introduces atomic theory. Aristophanes writes comedies, Euripides, tragedies, and Thucydides, history.

ca. 427 Plato born.

401 Peloponnesian War ends in Spartan victory over Athens.

399 Trial and execution of Socrates.

387 Plato writes *Symposium*.

343 Aristotle becomes teacher of young Alexander.

336 Alexander the Great becomes ruler of Macedonia.

326 Alexander extends empire to Indus Valley.

323 Alexander dies at thirty-three. Euclid writes the *Elements*, foundation of geometry.

ca. 287 Birth of Archimedes, Greek mathematician.

264 First Punic War between Rome and Carthage.

ca. 255 Old Testament translated into Greek.

224 Colossus of Rhodes destroyed by earthquake.

215 Great Wall of China under construction.

218 Second Punic War. Hannibal crosses Alps with elephants.

149 Third Punic War and destruction of Carthage.

147 Greece comes under Roman control.

140 Venus de Milo sculpted.

ca. 100 Birth of Julius Caesar.

71 Spartacus leads slave revolt.

58 Caesar begins conquest of Gaul.

49 Caesar crosses Rubicon River, starting civil war.

46 Julian calendar established by Caesar.

44 Caesar assassinated by Brutus on Ides of March.

37 Antony becomes Cleopatra's lover.

6 Judea becomes a Roman province.

4 Probable birthdate of Jesus Christ.

A.D.

30 Probable date of Christ's crucifixion.

43 Rome invades Britain.

64 Nero accuses Christians of setting fire to Rome.

79 Vesuvius erupts, destroys Pompeii.

122 Hadrian builds wall between England and Scotland.

212 Roman citizenship conferred on all freeborn subjects.

248 Rome celebrates its first millennium.

313 Constantine ends persecution of Christians.

330 St. Peter's Church in Rome founded.

331 Capital of Roman Empire moved to Constantinople.

410 Rome sacked by Alaric, king of the Visigoths.

411 St. Augustine writes *The City of God*.

432 St. Patrick begins mission to Christianize Ireland.

435 Attila, king of the Huns, raids Roman provinces.

455 Vandals sack Rome.

476 Romulus Augustulus, last emperor of Rome, deposed.

487 Theodoric launches Ostrogothic Kingdom in Italy.

Literature (Greek)

Aeschylus (525-456 B.C.)
Aesop (legendary)
Anaxagoras (500-428 B.C.)
Aristophanes (ca. 450-385 B.C.)
Aristotle (384-322 B.C.)
Democritus (460-370 B.C.)
Empedocles (ca. 493-ca. 433 B.C.)
Epicurus (342-271 B.C.)
Euripides (485-406 B.C.)
Heraclitus (ca. 534-ca. 475 B.C.)
Herodotus (ca. 484-430 B.C.)
Hesiod (ca. 700 B.C.)
Homer (ca. 8th century B.C.)
Menander (342-291)
Pindar (ca. 518-438 B.C.)
Plato (428-348 B.C.)
Pythagoras (ca. 6th century B.C.)
Sappho (ca. 500 B.C.)

Literature (Roman)

Apuleius (A.D. ca. 125)
St. Augustine (A.D. 354-430)
Cato the Elder (234-149 B.C.)
Catullus (ca. 84-54 B.C.)
Cicero (106-43 B.C.)
Horace (65-8 B.C.)
St. Jerome (A.D. ca. 347-420)
Julius Caesar (100-44 B.C.)
Juvenal (A.D. ca. 55-140)
Livy (59 B.C.-A.D. 17)
Lucan (A.D. 39-65)
Martial (A.D. ca. 40-104)
Ovid (43 B.C.-A.D. 17)
Petronius (A.D. ca. 50)
Plautus (ca. 255-184 B.C.)
Pliny the Younger (A.D. ca. 62-114)
Sallust (86-34 B.C.)
Seneca (4 B.C.-A.D. 65)
Statius (A.D. ca. 45-96)
Tacitus (A.D. ca. 55-117)
Terence (ca. 190-159 B.C.)
Tertullian (A.D. ca. 160-230)
Virgil (70-19 B.C.)

Fine Arts (Greek)

Ictinus (ca. 440 B.C.)
Phidias (ca. 500-432 B.C.)
Polygnotus (ca. 5th century B.C.)
Praxiteles (ca. 4th century B.C.)

THE EARLY MIDDLE AGES

The period between the fall of the Roman Empire in 476 and the Early Renaissance in 1300 is commonly referred to as the *Middle Ages*, a term originated by scholars during the Renaissance to describe the years intervening between their own time and the classical periods of Greece and Rome. If the fall of the Roman Empire signaled the end of the ancient world, the Middle Ages heralded the beginning of the modern world (1).

Although historical periods do not have precise beginnings and endings, but tend to overlap, the Middle Ages can be divided roughly into three parts: Early Middle Ages, High Middle Ages (Romanesque), and Late Middle Ages (Gothic).

Until recently, the Early Middle Ages, from 500 to 1000, were referred to as the Dark Ages. They were thought to be a time of political confusion, economic collapse, and cultural decline. This period is now seen more as a time of transition from ancient to modern and from old to new, and the more neutral term, the *Early Middle Ages*, is preferred.

During this period there was a regrouping of political forces, and new social and economic structures began to emerge. The Roman Empire was disintegrating into independent kingdoms, and the Latin language evolving into regional dialects leading ultimately to the development of modern French, Spanish, Italian, and other Romance languages.

The rise of the feudal system saw powerful lords extending protection to weaker individuals, called vassals, in exchange for ownership and control of their land. As people returned to the land for survival, cities became deserted. Trade, which had been the lifeblood of the empire, almost ceased to exist. Money was no longer minted, and people bartered for essentials.

The major event of the Early Middle Ages was the rise of the Frankish Kingdom under Charlemagne, or Charles the Great. By the year 800, Charlemagne had combined many of the lands of the old Roman Empire with his own Frankish territories and created the Holy Roman Empire. Charlemagne's reign was a time of unification, administrative reform, and strengthening of education.

After Charlemagne's death in 814 his empire was divided among his three sons and the Carolingian Dynasty slowly dwindled in power and prestige.

In 919, a German noble, Henry the Fowler, became king and established the Saxon Dynasty. Henry was followed in 936 by his son, Otto I, who gave his name to the Ottonian period. The Saxon Dynasty ended in 1024 with the death of Henry II.

1 Map of Europe in 800 when Charlemagne was made Emperor of the Holy Roman Empire.
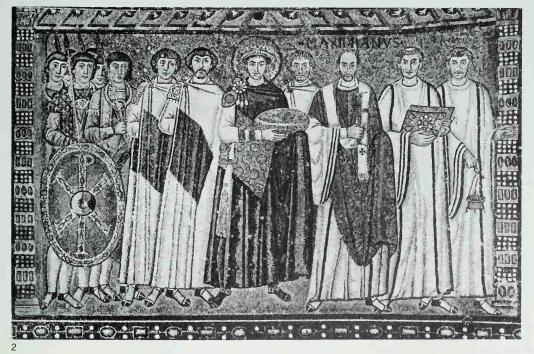
The art of the Early Middle Ages may best be appreciated in the wall mosaics of the church of San Vitale in Ravenna, Italy (2). Executed in 547, they show a strongly Early Christian/Byzantine style, that is, figures that are flat, frontal, and formal.

On a smaller scale, this style can be seen in portable objects, such as carved ivory panels, statuettes, coins, and metal and enamel objects used for the Mass or personal adornment (3). Most are highly stylized, suggesting a combination of late Roman, Byzantine, and barbarian influences.

3
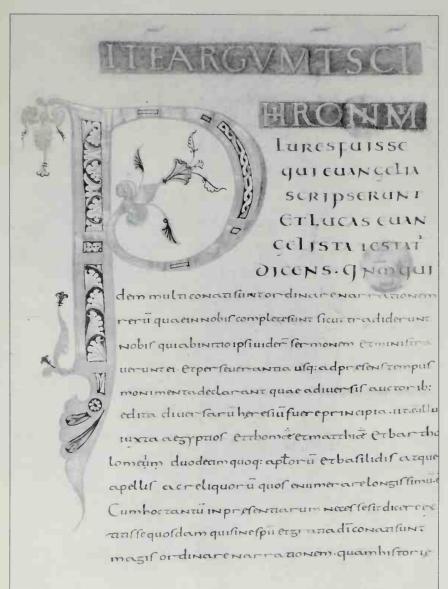
Emperor Charlemagne

2

2 Mosaic showing Emperor Justinian presenting gifts to the church of San Vitale in Ravenna, Italy. The stylized figures and shallow space are typical of Byzantine art during the early sixth century.

3 French ivory panel carved around 980 shows St. Gregory writing the divine word as it is being dictated by the Holy Spirit in the form of a dove. Three scribes at his feet hold quills and share an ink horn.

It was during the Early Middle Ages that priests and monks found themselves heirs to the culture and traditions of the Roman Empire. Through their network of churches and monasteries they spread Christianity and kept alive the Latin language and the remnants of classical learning. Monasteries were literary and writing centers where scribes, working in scriptoria, copied religious and secular works by hand (see figures 3 and 10).

At first, the most popular writing styles were the Roman square capitals, uncial, and half uncial. However, as time passed, these evolved into regional hands, such as Irish Insular, Anglo-Saxon, Merovingian, Visigothic, and Beneventan. As regional hands proliferated, written communication became a problem.

After 800, Emperor Charlemagne turned his attention to unifying his territories. One means of holding together this newly formed empire was the adoption of a single official writing style to be used throughout the realm. After studying the many existing styles, Charlemagne and Alcuin of York, an Irish-trained monk who served as one of his chief ministers, recommended a script that combined the best features of the uncial and half uncial. We call this new hand *Carolingian*, named in honor of Charlemagne (4).
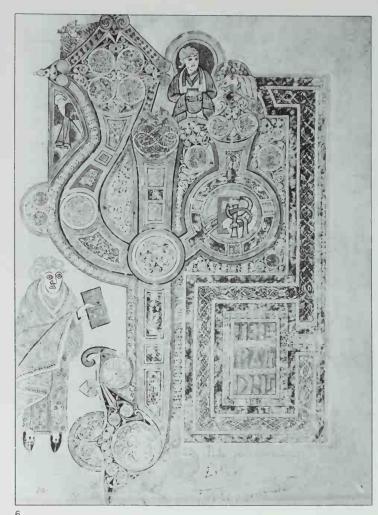
There is a certain irony in the fact that an emperor of the Holy Roman Empire who never learned to read or write and an Irish-trained English monk should have been instrumental in determining the shape of our letterforms. But that was exactly the case with Charlemagne and his minister, Alcuin of York.

The Carolingian writing style is important to the graphic designer because it represents the first fully developed script that combines small letters with roman capitals. Carolingian letterforms became the model for the first roman lowercase printing types.

4 Carolingian manuscript showing the hand that was approved by Charlemagne for adoption in his empire.

Unfortunately, Charlemagne's attempt at a centralized administration with a unified writing style quickly dissolved during the reigns of his descendants. As the empire disintegrated, a flood of new writing styles developed, many of which were variations of the Carolingian but showed regional and national characteristics. There was also a tendency toward narrower letterforms, which permitted more copy to be written in the same amount of space, thus conserving scarce and costly parchment and vellum.

No look at graphic arts in the Early Middle Ages would be complete without recognizing the unique Irish contribution to the art of writing. Because Ireland was never a part of the Roman Empire, it was not until the fifth century that the Irish were exposed to Christianity and the Latin alphabet, both introduced by the missionary St. Patrick.

Besides spreading religion and culture, Irish monks introduced their version of the uncial and half uncial. These hands can best be seen and appreciated in the *Lindisfarne Gospels*, created around 700, and the great *Book of Kells*, executed a century later (5, 6).

6

5 Spread from the great Book of Kells created around 800 in the Irish half-uncial style with elaborate display initials.

6 Opening page of St. Matthew's Gospel from the *Book of Kells*. The simple words "Liber generationis" have been worked into a complex design of elaborate beauty.

THE HIGH MIDDLE AGES

FINE ARTS

The High Middle Ages, or Romanesque period (named for the monumental architecture considered to have been in the Roman manner), ran from approximately 1000 to 1200.

The magic associated with the Millennium—the year 1000—and the prediction of the second coming of Christ as revealed in the Book of Revelation combined to create a mood of excitement, optimism, and religious fervor in which the Roman Catholic Church achieved its greatest influence and power. This was an age of faith, a time of pilgrimages and the first crusades.

This was also an age of chivalry, tournaments, troubadours, and romantic love. The European population slowly began to grow, new cities were founded, craft guilds were established, and agriculture and commerce flourished, and in 1066, William of Normandy defeated King Harold and the English forces at the Battle of Hastings and proclaimed himself King of England (7).

It was during the High Middle Ages that the first universities were founded in Bologna in 1088, in Paris in 1150, and in Oxford in 1167.

The Romanesque style can best be seen in the churches and monasteries with heavy walls, low, rounded arches, and barrel vaults—structures that often looked more like fortresses than places of worship. Many entrances were decorated with highly stylized statues of prophets and saints.

The few surviving mosaics and frescoes show the continuation of trends started during the Early Middle Ages; figures were based on Early Christian/Byzantine conventions rather than on observed nature. Production of small portable objects of ivory, enamel, and precious metals for churches and nobility continued as well (8).

8

7 Bayeux tapestry celebrating the Norman victory at the Battle of Hastings in 1066. King Harold is being informed of the pending invasion of William of Normandy. English subjects show concern over the sudden appearance of an omen, what we now know was Halley's comet.

8 Enamel plaque from around 1150. Plaques were often attached to the covers of books.

9 Manuscript page, written and illuminated near Siena in 1090, shows the movement away from the round, open Carolingian toward a more angular style.

10 Detail from a French illuminated manuscript shows a monk (at left) dictating to a lay scribe using a quill and knife to make corrections.

7

By the Romanesque period, the round, open forms of the Carolingian minuscule were becoming more compressed and angular (9). This was particularly true in the north. There was also a reduction in letterspacing, wordspacing, and line-spacing, which caused the page to appear darker and denser. In contrast, the display initials were becoming more decorative, floral, and, at times, inhabited by strange beasts.

The Romanesque period saw an increase in the number of churches and monasteries being built, which in turn led to an increase in the production of manuscripts. The monks working in the scriptoria created books for two major markets: luxurious manuscripts for nobles and kings, and theological and devotional books for the clergy.

During periods of increased demand, monks invited lay scribes into the monastery to train and work alongside them (10). As the church's monopoly on learning gradually began to decline and the secular market grew, many lay scribes saw the opportunity to set up their own workshops close to universities and centers of commerce.

By the end of the period, these professional scribes were well established in guilds along with their fellow craftsmen, who had such fanciful titles as illuminators, rubricators, and flourishers.

The work of the scribes consisted mainly of writing legal documents, textbooks, and even some devotional books for merchants, lawyers, and nobles. Their workshops were often family businesses to which husbands, wives, sons, and daughters contributed. These craftsmen operated very much like today's free-lance graphic designers, paid by the job or on a piecework basis. Sadly, like today, some went unpaid for long periods; some died in poverty.

9

THE LATE MIDDLE AGES

FINE ARTS

11

12

11 The *Santa Trinita Madonna*, painted in 1285 by Cimabue, illustrates the slow movement toward naturalism and away from the Byzantine style

12 In the *Rucellai Madonna*, Duccio introduced figures that are softer, more rounded, and more naturalistic

The exact dates of the Late Middle Ages, or Gothic period, are not well defined: Most scholars place its beginning in Paris around 1140, with the construction of the choir of the Abbey Church of St.-Denis by Abbot Suger. The end was more gradual, coming first in Italy, where it had never really taken hold, then in France, and eventually in the Scandinavian north, where its influence lingered until the 1600s.

While the Gothic period was one of outward splendor, magnificent cathedrals, and illuminated manuscripts, it was also a time of conflict and disintegration. The population that had risen during the High Middle Ages had stabilized. Kings, barons, and lords struggled for power, and in 1215 England's King John was forced to sign the Magna Carta, limiting royal power for the first time.

The introduction of gunpowder made wars more deadly and the armored knight obsolete. As towns and cities grew, merchants and craftsmen gained economic power and made increased demands for political power—with varying amounts of success. The feudal system began to deteriorate and the secularization of education continued to grow. Further weakening the church's authority was the ongoing feud between the papacy and royal power, which resulted in the transfer of the papal seat from Rome to Avignon in 1309.

Elsewhere, the Mongols under Genghis Khan had conquered much of China by 1215; Marco Polo traveled the silk route to India and China in 1271; and thirteen years later the Pied Piper of Hamelin is reputed to have bewitched the children of Hamelin in northern Germany.

If the Romanesque style was earthbound, then Gothic aspired toward heaven. The Gothic cathedrals of France, for example, have soaring spires, high naves, flying buttresses, and vast expanses of stained glass windows.

Unlike the Romanesque churches, the Gothic interiors and exteriors were embellished with sculptures of saints and prophets and decorated with architectural ornaments such as gargoyles, manticores, trefoils, crockets, and finials. Sculptural elegance and structural daring were the hallmarks of the Gothic architecture.

The two major Italian artists of this period, Giovanni Cimabue and Duccio di Buoninsegna, are generally credited with bringing a new freedom to the art of Italian painting.

Cimabue, who lived and worked in Florence, was praised by Dante Alighieri in the *Divine Comedy* as "believed to hold the field in painting." In his masterpiece of 1285, the *Santa Trinità Madonna*, the beginning of a movement away from the decorative, two-dimensional Byzantine style (see page 47) to a more naturalistic way of painting can be seen (11).

This trend was also exhibited by the Sienese painter Duccio, who in the same year was commissioned to paint the *Rucellai Madonna* for a Florentine church (12). Perhaps Duccio's greatest work was the *Maestà*, an altarpiece, which was completed in 1311; one of the panels can be seen on page 49.

Both Cimabue and Duccio prepared the way for the triumph of Naturalism and the revolutionary art of Giotto.

By the early Gothic period, letterforms had become narrow and angular. This dense book hand, with its short ascenders and descenders, was called *Textura*, from the Latin *texere*, "to weave." It is commonly referred to today as *Gothic* or *Old English* (13). One of the major advantages of Textura was economy—copy could fit in half the space required for Carolingian.
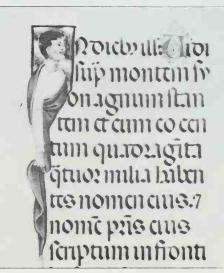
A disadvantage of Textura was that long lines were difficult to read and created a very dense page. This perhaps explains why so many books of this period were designed in a two-column format. Not only did narrow columns improve readability, but aesthetically, they were more in keeping with the strong verticality of Gothic art.

Textura was never popular in Italy, where scribes preferred a less condensed version of Gothic called *Rotunda* (14).

Gothic manuscripts continued to be decorated with large display initials, while the borders and margins were embellished with vines, exotic vegetation, grotesque beasts, and humans. The people in these illustrations are less elongated and show a noticeable move toward naturalism.

This trend toward naturalism had a strong influence on the design of early stained glass windows in churches and cathedrals (15). As time went on, the process reversed itself: As stained glass windows showed even greater naturalism, they in turn influenced the direction of manuscript illustration.

13

13 Illuminated manuscript written in the narrow angular letterform called Textura, more commonly referred to as Gothic or Old English.

14 Detail of manuscript written in the more rounded gothic, called Rotunda, and favored by the Italians.

14

15 Methuselah from the Ancestry of Christ stained glass window series in Canterbury Cathedral. Originally influenced by manuscript illustrations, stained glass artists soon developed their own style.

History of Paper

It was the invention of paper that made printing possible, and it was printing that popularized paper. The word paper *is derived from the Greek word* papyros, *meaning "reed," from which the Egyptians, Greeks, and early Romans prepared a writing surface.*

The invention of paper as we know it has been credited to Ts'ai Lun, in China, in the year 105. It was made at that time from a variety of vegetable fibers such as mulberry bark, bamboo, silk, cotton, linen, and rope.

The fibers were beaten until they formed a pulpy substance, which was then mixed with water in a large vat. Next, a shallow, porous mold was dipped into the pulp. As the mold was raised, the water drained through the screen bottom, leaving behind a mat of fibers. When removed from the mold and dried, this mat became a sheet of paper.

In 751, the papermaking craft reached Samarkand in central Asia, where some Chinese papermakers had been taken prisoner by Arabs. The Arabs in turn introduced the craft into Moorish Spain in 1150. From Spain, it spread throughout Europe. The first paper mills were established in France in 1189, in Fabriano, Italy, in 1276, and in Germany in 1391.

It was one hundred years before the first mill was established in England, and three hundred years before the first paper was made in Pennsylvania.

Historical Events

511 Clovis, King of Franks, dies.

527 Justinian becomes Byzantine emperor.

529 Benedictine order established. Justinian Code of Roman laws issued.

532 St. Sophia Basilica begun in Constantinople.

550 St. David christianizes Wales.

570 Muhammad, founder of Islam, born.

597 St. Augustine of Canterbury christianizes England.

600 Pope Gregory I institutes Gregorian chants.

622 The Hegira, Muhammad's flight from Mecca. First year of Muslim calendar.

632 Muhammad dies.

637 Jerusalem captured by Arabs.

642 Arabs destroy 300,000 scrolls at Alexandria library.

700 Greek replaces Latin in Eastern Roman Empire.

ca. 700 Heroic poem *Beowulf* written in Old English.

712 Arabs conquer Seville, Spain.

732 Charles Martel stems Arab expansion at Tours and Poitiers.

735 Venerable Bede dies.

790 Golden Age of Arabic learning.

800 Charlemagne crowned emperor.

814 Building of Doge's Palace in Venice.

851 French start to use crossbow.

861 Vikings discover Iceland.

871 Alfred the Great crowned King of England.

900 Vikings discover Greenland.
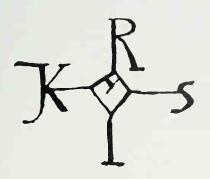
939 Arabs lose Madrid.

962 Otto the Great crowned Holy Roman Emperor.

1000 The Millennium. Leif Ericsson said to have discovered America.

1016 Danes defeat Aethelred and control England.

1026 Guido d'Arezzo introduces solfeggio: *do, re, mi.*

Charlemagne's mark

1040 Duncan murdered by Macbeth.

1050 Time values given to musical notes. *Chanson de Roland* written.

1057 Macbeth murdered by Malcolm.

1066 Battle of Hastings. William the Conqueror crowned King of England.

1078 Tower of London begun.

1086 Domesday Book compiled.

1094 St. Mark's Cathedral in Venice completed.

1095 First Crusade to Jerusalem begun.

1123 Omar Khayyam, Persian poet, dies.

1125 Troubadour and trouvère music arises in France.

1144 Failure of Second Crusade.

1150 Paper manufactured in Spain by Moors.

1151 Chinese use explosives in warfare.

1167 Genghis Khan, founder of Mongol Empire, born.

1155 Carmelite order founded.

1163 Notre-Dame de Paris built.

1170 Thomas à Beckett murdered in Canterbury Cathedral.

1170 *Lancelot* written by Chrétien de Troyes.

1174 Leaning Tower of Pisa built.

1178 Bridge at Avignon built.

1185 *Tristan und Isolde* written.

1189 Richard the Lionheart crowned King of England.

1200 Cambridge University founded.

1202 Fourth Crusade.

1211 Genghis Khan invades China.

1214 Roger Bacon born.

1215 King John of England signs Magna Carta.

1216 Dominican Friars founded.

1218 Genghis Khan conquers Persia.

1221 Sonnet develops in Italy.

1227 Genghis Khan dies. Empire divided among three sons and grandsons.

1240 Motet popular music form.

1255 Kublai Khan emperor of China. St. Thomas Aquinas begins *Summa theologica.*

1271 Marco Polo travels to China, visits Kublai Khan.

ca. 1285 Pied Piper of Hamelin.

1290 Invention of spectacles.

1291 Last crusade.

Literature

St. Thomas Aquinas (1225-1274)
Roger Bacon (ca. 1214-1294)
Omar Khayyam (fl. 1220s)
Marco Polo (ca. 1254-ca. 1324)

Music

Adam de la Halle (ca. 1230-1288)

Fine Arts

Bonno of Pisa (fl. 1180s)
Giovanni Cimabue (ca. 1240-1302)
Pietro Cavallini (1273-1308)
Duccio di Buoninsegna (1255-1319)
Bernard Gilduin (fl. 1090s)
Gislebertus (fl. 1130s)
Giovanni Pisano (1245-1314)
Nicola Pisano (1220-1284)
Jean Pucelle (1320s)
Villard de Honnecourt (fl. 1230s)

Madonna and Child in Byzantine style by unknown thirteenth century artist.

Although the ideals and institutions of the Late Middle Ages continued to dominate most of Europe, they began to decay in Italy around 1300, when a new critical spirit began to find expression. The emphasis moved away from the sacred and otherworldly toward the individual and the natural world.

This new spirit was initiated by a group of scholars known as Humanists, who, unlike the medieval clerics, were not attached to a religious order. They immersed themselves in the study of Greek and Latin classics in order to acquire the ability to think and write like the ancients. Although their spoken language was Italian, their literary language was Latin, in which they wrote essays, poems, histories, and plays.

Humanists researched and studied not for the salvation of their souls but for the sake of knowledge and their own self-development. As teachers in secular universities and schools, they helped spread the Humanist spirit and usher in the Renaissance—the rebirth and flowering of literature, art, and science.

It was during the Early Renaissance that some writers and poets began to express themselves in their native Italian tongue rather than in Latin. And with literature in the vernacular came a new expressiveness. In Italy, Dante Alighieri wrote his great religious poem, the *Divine Comedy*, Petrarch (Francesco Petrarca) wrote his love sonnets to Laura, and Giovanni Boccaccio wrote his humorous and bawdy *Decameron* (1). Influenced by the Italians, Geoffrey Chaucer wrote his English masterpiece, the *Canterbury Tales*.

It was during this century that the bubonic plague, more commonly referred to as the Black Death, devastated Europe. It is estimated that between 1347 and 1377 more than 40 percent of the population died, that is, more than 25 million people.

Conflict continued within the papacy. The French succeeded in electing their own pope and moved the holy see from Rome to Avignon in the south of France in 1309. After the papacy returned to Rome in 1378, there followed the Great Schism (1378–1417), during which French and Italian popes fought for control of the church.

1 Detail from a fresco by Andrea da Firenza showing some of the major figures of the early Renaissance: Cimabue (1); Giotto (2); Boccaccio (3); and Petrarch (4).

The same spirit that inspired the Humanists touched the visual arts. In painting, Giotto di Bondone was the first to create images that were three-dimensional and lifelike and that appeared to exist in a real space (2). This can be seen in Giotto's fresco, *Lamentation Over the Dead Christ* at the Arena Chapel, Padua. Giotto's naturalistic style was in sharp contrast to those of his fellow artists, who worked in either the Byzantine or Gothic style (3).

Giotto also brought a refreshing narrative style to painting: By capturing dramatic moments with recognizable characters, he humanized biblical events.

Giotto was so far ahead of his time that it took several generations of artists to understand and appreciate fully what he had achieved. Many artists borrowed facets of Giotto's art, which they combined with the contemporary Gothic style. This can be seen in the works of such artists as Simone Martini, Taddeo Gaddi, Bernardo Daddi, Gentile da Fabriano, and Lorenzo Monaco.

Two French artists worth noting are Jean de Bondol and Jean Pucelle, whose major achievements were in the illuminating of manuscripts and the designing of tapestries.

2

2 *Lamentation Over the Dead Christ* completed by Giotto in 1306. His work broke new ground by the introduction of more lifelike, emotional figures set in real space.

3 *Lamentation of Christ* completed by Duccio in 1311. Compared to Giotto, Duccio's painting continues to reflect the more conservative Byzantine style.

3

49

Graphic designers owe a special debt to the Humanists, for it was they who created the script that became the model for small letters.

This script came about through the Humanist passion for seeking out and copying ancient manuscripts of the classical authors they admired. They were also attracted to the clear, open handwriting of the manuscripts they believed had been written in Roman times. In actual fact, the manuscripts the Humanists admired were mostly from the Carolingian period, and their script, which we call *Humanistic*, was derived from the Carolingian hand (see page 40).

While the Humanistic script was used primarily for copying texts, a faster, more flowing version, called *Humanistic Cursive*, was developed for everyday writing chores (see page 73). It wasn't long before these two Humanistic scripts replaced the Gothic-style Rotunda, which the Humanists detested.

Ultimately, as we shall see, these two Humanistic scripts became models for the first true roman and italic typefaces.
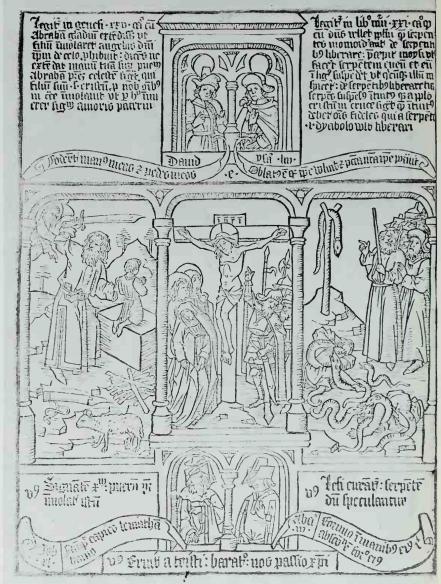
In France and Northern Europe, where the late Gothic style was still dominant, the art of the illuminated manuscript reached its peak. Religious and devotional books were commissioned by wealthy patrons and executed by major artists, who worked with egg tempera, gouache, and an early form of oil paint.

The illustrations were no longer marginal but often occupied entire pages and were treated with the same seriousness as panel paintings or altarpieces. Perhaps the finest, and certainly the most famous, was the *Très Riches Heures* commissioned by Jean, Duc de Berry, the brother of King Charles v of France (4). The book was created more as a work of art and an aid to religious contemplation than as a text to be studied. It glorified the patron and the artist as much as God.

4 The *Très Riches Heures*, commissioned by Jean, Duc de Berry and illustrated by the three Limbourg brothers, is an excellent example of French book art during the late Gothic period. Note how the narrow letterforms and columns underscore the strong verticality so characteristic of Gothic art and architecture. Also, the strong use of realism in the illustrations was an element that would eventually influence Flemish painting.

Ironically, the *Très Riches Heures* remained unfinished when the Duc de Berry and the artists, the three Limbourg brothers, all perished during another outbreak of the Black Death in 1416.

In an age when few individuals could afford illuminated manuscripts, there was a growing demand for inexpensive images, such as souvenirs of saints (5). To satisfy this need, woodcut printing became popular (6). It was the woodcut press along with the increased production of paper and the introduction of oil-base inks that laid the groundwork for Gutenberg's experiments in the next century (see page 52).

5

6

5 Detail of *Portrait of a Female Donor*, painted in 1455 by Petrus Christus, shows an inexpensive woodcut print of St. Catherine of Hungary attached to the wall as an icon.

6 A more elaborate form of the single woodcut print was the block book where individual pages were printed from blocks and then sewn together to form a book, such as the Biblia Pauperum (Poorman's Bible) shown here.

Woodcut Printing

Woodcut printing originated in China. It was first used before the Christian era began for stamping patterns on silk. From there it was a short step to printing images on paper. Although the earliest existing block print on paper is the Diamond Sutra *(below) scroll from 868, it is speculated that the art began closer to 700.*

The first woodcut prints appeared in Europe six hundred years later, shortly after the papermaking process arrived. The first prints were either playing cards or single-sheet souvenirs of patron saints that were sold at shrines (right). These may well represent the first popular graphic art.

Prints were created in two ways; either by placing a sheet of paper over the inked woodcut and rubbing it with a burnisher, such as a wooden spoon, or by placing the block on a press and turning the screw to apply pressure.

First woodcut with date cut in block. St. Christopher, 1423.
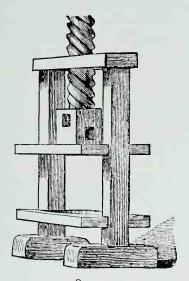
Diamond Sutra, earliest surviving woodcut. Chinese, 868.

French playing card, ca. 1450

Screw press

French playing card, ca. 1450

Historical Events

1300 Madrigals widely performed.
1305 Giotto paints frescoes in Arena Chapel, Padua.
1306 Robert the Bruce crowned king of Scots.
1307 Dante Alighieri writes the *Divine Comedy*.
1309 Seat of papacy moves to Avignon.
1315 Lyons establishes silk industry.
1321 Dante dies in exile at Ravenna.
1323 St. Thomas Aquinas canonized.
1327 Petrarch meets Laura.
1337 Giotto dies.
1348 Black Death sweeps Europe.
1353 Boccaccio writes *Decameron*.
1356 Black Prince defeats French at Poitiers.
1360 Guillaume de Machaut composes *Messe de Notre-Dame*.
1362 Langland writes *Piers Plowman*.
ca. 1369 The Bastille begun in Paris.
1375 Robin Hood story becomes popular.
1378 Papal seat returns to Rome. Great Schism sees two popes elected.
1380 Chaucer begins *Canterbury Tales*.
1381 Peasants' Revolt in England.
ca. 1397 Gutenberg born.

Literature

Giovanni Boccaccio (1313-1375)
Geoffrey Chaucer (1340-1400)
Dante Alighieri (1265-1321)
William Langland (1332-1400)
Petrarch (Francesco Petrarca) (1304-1374)

Music

Guillaume de Machaut (ca. 1300-1376)

Fine Arts

Maso di Banco (fl. 1340s)
Jean de Bondol (fl. 1368-1381)
Bernardo Daddi (fl. 1312-1348)
Gentile da Fabriano (ca. 1370-1427)
Taddeo Gaddi (1300-1366)
Andrea da Firenze (ca. 1320-1377)
Giotto di Bondone (ca. 1266-ca. 1337)
Limbourg Brothers (fl. 1380-1416)
Pietro Lorenzetti (ca. 1280-ca. 1348)
Ambrogio Lorenzetti (1319-1348)
Simone Martini (ca. 1283-1344)
Lippo Memmi (fl. 1317-1347)
Giovanni da Milano (fl. 1370-1427)
Lorenzo Monaco (1370-1422)
Orcagna (Andrea di Cicone) (ca. 1308-1368)
Andrea Pisano (ca. 1290-1348)

Dante painted by Giotto

The century between 1400 and 1500 saw the flowering of the Renaissance. Humanistic philosophy and learning spread north throughout Europe, slowly replacing a medieval outlook. The acceptance of Humanism was especially strong in the universities and other centers of learning. In no small way, the invention of printing from movable type aided this progression.

In Italy, it was a time of bitter commercial rivalries and political turbulence. Highly competitive city-states, such as Florence, Milan, Venice, Pisa, and Siena, struggled for power and prestige. This political turmoil led to constantly shifting alliances between the city-states and the growth of despotic governments (1).

In spite of the turmoil, the Humanist spirit thrived and art flourished. One of the forces that helped bring this about was the patronage of wealthy families such as the Medici of Florence (2), the Sforza of Milan, and the Este of Ferrara. Among the major ecclesiastical patrons were Popes Nicholas V, Pius II, and Alexander VI.

The century witnessed the first stirrings of national literature, although the subject matter was often medieval in outlook. In 1415, the Flemish mystic Thomas à Kempis produced his immensely popular and inspirational *De Imitatione Christi*. The German Humanist Sebastian Brant wrote his allegory *Ship of Fools* in 1494, lampooning the weaknesses and vices of his time.

In France, François Villon composed poems of love and protest, while in England Sir Thomas Malory compiled the first English prose epic, *Morte d'Arthur*, derived from the legends of King Arthur and the knights of the Round Table.

During the latter part of the century, the overland trade routes to India and the Far East were closed by the Islamic Turks, forcing trading nations to seek alternate sea routes. As a result, Europe experienced a great age of exploration and expansion.

In 1492, Christopher Columbus attempted to reach India by crossing the Atlantic but discovered the Americas instead (3). Five years later, a Portuguese explorer, Vasco da Gama, succeeded in reaching India by sailing around Africa. The horizons of Renaissance Europe had vastly expanded.

By the end of the century, the medieval kingdoms of Europe were well on their way to becoming modern nation-states. In Spain, Ferdinand and Isabella had driven out the last of the Islamic Moors and had united their country. In France, the end of the Hundred Years War eliminated the English claim to the French crown and allowed the French kings to begin the unification of their territories.

The Hapsburg family began to build their empire through conquest and marriage in the Austro-German areas. In England, Henry VII started the Tudor dynasty; his son, Henry VIII, began to build the country into a world power.

The feudal age was over, and modern Europe was launched.

Gutenberg's invention of printing from movable type revolutionized ways of thinking and learning—increasing literacy, spreading knowledge, and standardizing both letterforms and spelling.

Guttenberg not only created a new industry but a unique one, in which interchangeable parts (pieces of type) were used for the first time, thus pointing the way to later techniques of mass production. Furthermore, by manufacturing books without a particular buyer in mind, Gutenberg anticipated mass marketing.

Pope Alexander VI

1

3

2

1 Map showing major city-states and their territories in Italy during the Renaissance.

2 Detail of a fresco by Domenico Ghirlandaio showing Lorenzo de' Medici between two patrician Florentines of the Sassetti family. Lorenzo, known as The Magnificent, was a statesman, poet, and patron of the arts.

3 *Christopher Columbus* painted by Sebastiano del Piombo.

4

5

FINE ARTS

The 1400s saw a great surge of creativity. In Florence, there was a striving toward realism encouraged by the increased knowledge of anatomy, the modeling of forms with light and shade (chiaroscuro), and an understanding of perspective brought about by the research of Filippo Brunelleschi and the writings of Leone Battista Alberti.

These three important changes were all evident in the painting of Masaccio (Tommaso Guidi), who, unfortunately, died in 1428 at the age of twenty-seven (4). His work, however, greatly influenced other Italian artists, such as Paolo Uccello, Andrea del Castagno, and Piero della Francesca.

Among the major Italian artists of the second half of the century were the young Leonardo da Vinci (5), Sandro Botticelli (7), Andrea del Verrocchio, and the Bellini family of Venice.

In Flanders the introduction of painting with oils gave artists an entirely new means of expression. Up to then the artist had been limited to painting either with fresco on plaster walls or with egg tempera on small wooden panels.

Artists took an immediate liking to oils. The paint was slow drying and could be blended into fine gradations of tone and color. Oil paint could also be used to build up layers of semitransparent glazes, thus making possible greater realism.

It is not certain which Flemish artist was the first to experiment with oil; some believe it was Robert Campin. But the first undisputed masterpiece in oils was the altarpiece of the Church of St. Bavon in Ghent painted by the Van Eyck brothers in 1432 (6).

When the first Flemish oil paintings reached Italy, they created a sensation. It was not long before the technical details were revealed by Antonello da Messina, who had visited Flanders. By the end of the century, oils had all but replaced egg tempera for panel painting.

6

7
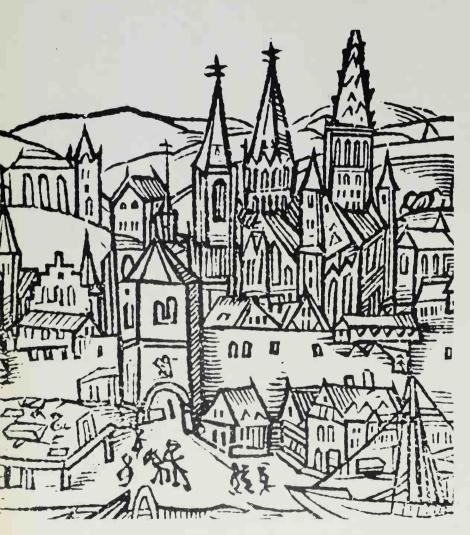
4 *Trinity with Donors*, painted in fresco by Massaccio in 1425, was the first painting to use scientific one-point perspective.

5 Portrait of *Ginevra de' Benci*, painted in 1474 by the young Leonardo da Vinci, shows his early mastery of anatomy and his ability to create an atmospheric effect, known as *sfumato*, from the Italian word for smoke.

6 The *Ghent Altarpiece*, painted by the Van Eyck brothers in 1432, is considered the first masterpiece in oils and a triumph of Flemish art.

7 Botticelli's *Adoration of the Magi*, painted around 1480, shows the painter's ability to compose on a monumental scale and still retain a sense of classical harmony.

GRAPHIC ARTS

Printing in Germany

The most significant event of the century—and one that dramatically affected the course of history—was Johann Gutenberg's invention of printing from individual pieces of cast type.

The success of Gutenberg's press was phenomenal. It is estimated that by the end of the century more than a thousand printing shops were operating in more than two hundred centers, and that some 40,000 editions, or 10 to 20 million books, had been printed—a total that represents more books than had ever been produced before Gutenberg's time.

JOHANN GUTENBERG was born in Mainz, Germany, some time around 1397 (8). Little is known about his early years, but it is clear that he was the right man in the right place at the right time.

Gutenberg was the right man because of his familiarity with the craft of the goldsmith and die maker. He was in the right place because Mainz was a cultural and commercial center. It was the right time because the Renaissance thirst for knowledge was creating a growing market for books that could not be satisfied with the traditional handwritten manuscripts.

Handwritten manuscripts were made to order and were usually expensive. They were laboriously copied by scribes who had either to read from a manuscript or have it read to them while copying. This process was not only time-consuming, but led to many errors, which had to be corrected.

Adding to the expense was the scarcity and high cost of vellum and parchment. As a result, handwritten manuscripts were limited to a select few: clergymen, scholars, and wealthy individuals.

A relatively inexpensive means of producing multiple copies of books seems to have been developed just a little before Gutenberg began his experiments with printing. This was the so-called block book whose pages had illustrations and minimal text cut together on the same block. The carved blocks were inked, and images were transferred onto paper in multiples by rubbing or by the use of a screw press. Block books are believed to have been made for semiliterate, preaching friars who brought the word of God to the urban working class and the poor.

City of Mainz

8

mag fich ûbergẽ nicht Vor dẽ gotlichẽ angeficht Criſtus wil do urtei ſpꝛechen· Vñ wil alle boſsheit rechen Die die ge= datẽ den willẽ ſin Den wil er gebẽ ewige pin Vñ wil den gudẽ gebẽ Gꝙ ym freude uñ ewig lebẽ Siſt die werlt uñ alle ding Die in dẽ werlt geſchaffẽ ſint Czu gꝛne uñ werdẽ auch zu nicht Als man wol
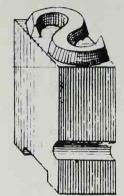
8 (*Above*) Controversial portrait of Johann Gutenberg as depicted in a copper engraving believed to be based on a lost contemporary painting. (*Above left*) A corner of Gutenberg's shop as reconstructed at the Gutenberg Museum in Mainz, West Germany. (*Left*) Fragment from *Weltgericht* dated around 1453 and believed to be the earliest example of Gutenberg's printing.

Casting Type
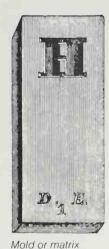
The first step in the process of casting type was to take a steel bar and create a raised letter on one end. This was called a steel die, or punch, and a punch was required for each letter of the alphabet.

Using one of the punches, the letter at the end of the punch was stamped into a small block of soft copper or brass to create a mold, or matrix. The matrix was locked inside a larger mold that could be adjusted to accommodate various character widths. A molten mixture of lead, tin, and antimony, called type metal, was poured into the mold and allowed to harden.

This casting process was repeated for each letter. Cast type was stored in cases—caps in an upper storage case and small letters in a lower case. Although the type was metal, the individual letters wore down. When that happened, new characters had to be cast.

Piece of type

Punch

Mold or matrix

Casting type by hand

Inks

There are two basic types of inks: water-base and oil-base. Water-base inks are older, believed to have been developed by the Chinese three hundred years before Christ. They consist of lampblack as a pigment, glue or gum as a binder, and water as a solvent.

By changing the pigment one could change the color of the ink. For example, by using cinnabar, the Chinese created a beautiful red, and from mollusks, the Phoenicians created Tyrian purple, a color so rare and expensive that it was used exclusively by royalty. Water-base inks, commonly used for writing manuscripts and printing woodblocks, are the forerunners of India inks, watercolors, and gouache.

For Gutenberg, water-base inks were unsuitable for printing because they would not adhere properly to metal type. Gutenberg developed a slow-drying, oil-base ink, which, it is believed, was similar to the linseed oil paint recently developed in Flanders.

While other printers of his time used carbon black as a pigment, Gutenberg formulated an ink that was rich in compounds of lead and copper. The results were dramatic; where other inks have turned brown over the centuries, Gutenberg's retains a rich black, metallic cast after five hundred years.

Gutenberg's unique ink has become a positive signature by which scholars and scientists can determine which works were printed by Gutenberg rather than by other printers.

9

Gutenberg's genius was realizing that printing would be more efficient if, instead of using a single woodblock to print an entire page, the individual letters were cast as separate blocks and then assembled into pages. In this manner, pages could be made up faster, errors could be corrected more rapidly, and, after printing, the type could be cleaned and reused.

Using his knowledge of die making, Gutenberg created pieces of type, not in wood but in metal (see left). It was this process of printing from cast type and not the process of printing per se—which already existed—that was Gutenberg's great contribution to the graphic arts (9).

Technically speaking, Gutenberg's invention, the *letterpress*, was so well conceived that it remained the dominant printing process for almost five hundred years.

With his chief assistant, PETER SCHOEFFER, and his financial backer, JOHANN FUST, Gutenberg was now ready to set up shop and embark on his great masterpiece, the forty-two-line Bible, so called because its columns were forty-two lines long (see page 63).

It is a great irony that just before the publication of the forty-two-line Bible around 1455, Gutenberg seems to have lost control of his establishment for nonpayment of his debt to Fust. The operation was then taken over by Fust and Schoeffer and unfortunately, there is no evidence as to whether Gutenberg oversaw the completion of the job or gained any financial rewards for his efforts.

After the judgment, it is believed that Gutenberg set up another shop and continued printing books and other matter for another ten years. In 1465, he received a generous pension from the local archbishop but died three years later. According to an early source, he was buried in the Franciscan church at Mainz.

Gutenberg's Bible

The first and most famous book printed by Johann Gutenberg was the forty-two-line Latin Bible, so called because it has forty-two lines of type per column. Published around 1455, the Bible consisted of two volumes having a total of 1,286 pages. The edition is estimated to have been around 180 copies, about three-quarters on paper and the balance on vellum. Today, only forty-eight copies are known to exist.

Gutenberg's intention was to make the printed Bible resemble a handwritten manuscript. In creating the letterforms, he chose as his model the gothic script as written by the local scribes. This can be seen in the Giant Bible of Mainz, written around 1452. To approximate the variety of letterforms found in a handwritten manuscript, Gutenberg created a font of about 270 characters that included combined letters, called ligatures, and variations of the same letter cut in different widths.

Further to enhance his efforts, Gutenberg left space at the beginning of books and chapters so that illuminated initials and other embellishments could be added by hand.

The sale of the Bible was a success with the paper edition priced at about one-third the cost of the vellum edition.

The Giant Bible of Mainz *handlettered on vellum around 1452.*

Type shown actual size.

(Right) Full page from Gutenberg's forty-two-line Bible measuring approximately thirty by forty centimeters (11¾" × 16"). Note ligatures, hanging punctuation, and handdrawn display initials.

egíptíí de manu ysmahelítaꝛ: a ꝗbꝛ
pductus erat . Fuitꝗ dñs cu eo: er erat
vir í cúctis prospe ageus. Habitauitꝗ
in domo dñí suí: quí optíme nouerat
dñm esse cu eo: er oía que gereret ab eo
dirigi í manu illí⁹. Inueuitꝗ ioseph
gracíã coram dño suo: ꝛ ministrabat
eí. A quo ꝺpositus omnibꝛ gubeena-
bat credita sibi domú: ꝛ vniuersa que
eí tradita fuerãt. Benedixitꝗ dñs do-
muí egíptíj ꝓpter ioseph: ꝛ multíplica-
uít tam í edibus ꝗ in agris cunctam
eí⁹ sũbstanciã . Nec quicꝗ aliud noue-
rat: nisí pane quo vescebat. Erat autẽ
ioseph pulcra facíe: er decorus aspectu.
Post multos itaꝗ dies · iniecit dña
oculos suos in ioseph: er ait. Dormí
mecú. Quí nequaꝗ acquiescens operí
nephario: dixit ad eã. Ecce dñs meu⁹
omnibꝛ míchí tradítis · ignorat ꝗd
habeat in domo sua: nec quicꝗ ẽ ꝗd
non sít in mea potestate: vel nõ tradí-
derít míchí : preter te que vxor eius es.
Quõ ergo possũ hoc malú facere: er pecca-
re í dñm meú? Huiuscemodi ꝟbis per
singlos dies loquebat: er mulier molesta
lesta erat adolescenti: er ille recusabat
stuprú. Accidit autẽ quadã die ut ín-
traret ioseph domú: ꝛ operis quippiã
absꝗ arbítris faceret: ꝛ illa apꝓhensa
lacinia vestimentí eíus dicet. Dormí
mecú. Quí relicto í manu eíus pallío
fugit: er egressus ẽ foras. Cúꝗ vidisset
mulier vesten in manibꝛ suís: ꝛ se esse
ꝛ temptam: vocauit ad se hoies domu⁹
sue: er ait ad eos. En introduxit virú
hebreú: ut illuderet nobis. Ingressus
est ad me: ut coiret mecú. Cumꝗ ego
succlamassem: ꝛ audisset vocem meã:
reliquit pallíú ꝗd tenebam: ꝛ fugít fo-
ras. In argumentú ergo fidei: retentú
pallíú ostendit marito reuertentí domú:
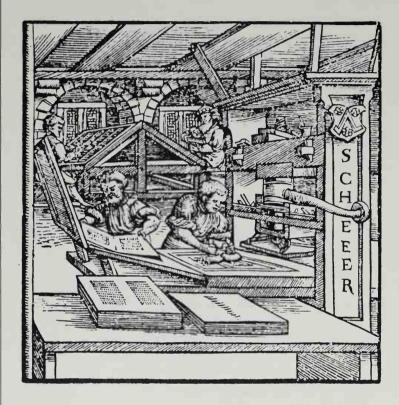
er aít. Ingressus ẽ ad me seru⁹ hebreu⁹.
que adduxisti: ut illuderet míchí. Cúꝗ
audísset me clamare: reliquit pallíú
ꝗd tenebam: ꝛ fugit foras. His audi-
tis dñs: ꝛ nímíú credulus verbis con-
iugis: iratus est valde: tradiditꝗ io-
seph in carcerem ubí vincti regis custo-
diebant: ꝛ erat ibi clausus. Fuit autẽ
dñs cu ioseph er misertus est illí⁹: ꝛ de-
dít eí gracíã in cõspectu príncipis car-
ceris. Quí tradidit in manu illí⁹ vni-
uersos vínctos quí í custodia tenebãt:
er quidꝗd fiebat: sub ipso erat: nec no-
uerat aliquid: cúctis eí creditis. Dñs
ení erat cu illo: ꝛ oía opa eí⁹ dirigebat.

H
ijs itaꝗ gestis: accidit ut
peccarẽt duo eunuchí: pincerna
regis egíptí er pistor: dño suo. Iratus-
ꝗ contra eos pharao: nam alter pin-
cernis ꝓerat: alter pistoribꝛ: mísit eos
iu carcerem príncipis mílítú: ín quo
erat vínctus ꝛ ioseph. At custos carce-
ris tradidit eos ioseph: ꝗ er ministra-
bat eís. Aliꝗntulú tpis fluxerat: er illi
in custodia tenebant. Viderútꝗ ambo
somníú nocte vna: iuxta interꝑtacio-
nem congruã sibí. Ad quos cu intro-
isset ioseph mane ꝛ vidísset eos trístes:
scíscitat⁹ ẽ dicens. Cur trístior ẽ hodie
solíto facíes vestra? Quí responderút.
Somníú vídimus⁹: er non est quí inter-
ꝑetur nobis. Dixitꝗ ad eos ioseph.
Nũquid nõ deí ẽ interꝑtacio? Referte
míchí quid viderítís. Narrauit príor
ꝓpositus pincernaꝛ somníú suú. Vi-
debam coram me vitem in qua erant
tres ꝓpagínes crescere paulatim í gem-
mas: ꝛ post flores vuas maturescere:
calicanꝗ pharaonis in manu mea.
Tuli ergo vuas ꝛ expressí í calicen que
tenebam: ꝛ tradidi poculú pharaoní.
Respondit ioseph. Hec est interꝑtacio

Early Printing Techniques

After Fust and Schoeffer took over Gutenberg's shop, the first book they printed and published was the *Mainz Psalter* of 1457. This psalter was notable for a number of reasons: It was the first book with a *colophon* showing the printer's name, location, date of publication, and printer's mark or device. It was also the first book in which the display initials were printed in color rather than painted by hand (10). The partners printed a number of important books, two of which were the Latin Bible of 1462 and a Cicero of 1465.

While on a book-selling trip to Paris in 1466, Fust died of the plague. After Fust's death, Schoeffer continued publishing until his own death in 1502.

Early printing was more an art than a science. Its quality depended largely on the skill of the printer and the quality of the paper, type, ink, and press.

The paper, being handmade, was not uniform. It had to be dampened in order to ensure a good impression. The type forme, *a metal frame that held the type, was laid on the bed of the press and inked with two leather inking balls. A frisket, or mask, was placed over the type form to protect those areas not to be printed.*

The press was madeready, *ensuring that the pressure on the type was even and the paper properly registered. The actual printing was accomplished by turning a large wooden screw attached to a flat wooden platen, which in turn applied pressure to the paper.*

After printing, the sheet was removed and hung up to dry. Later the sheet was redampened and the other side printed. This process was repeated until the required number of sheets were printed, at which point the form was taken apart and the type was cleaned and distributed into the type case.

When all the pages were printed, the sheets were folded and gathered into signatures. The client then took the signatures to a binder, where they were sewn and bound into a book.

reprobauerūt edificātes : hic factus est in
caput anguli A dño factū ē istud : et ē mi=
rabile in oclis nris Hec est dies quā fecit
dūs : exultem⁹ et leteur in ea O dūe saluū
me fac o dūe bene psperare : benedictus qui
venit in nomine dūi Benedixim⁹ vob
de dōmo dūi : te⁹ dūs et illuxit nob Con=
stituite diem solempnē in condensis : usqᵉ
ad cornu altaris Deus meus es tu et cō=
fitebor tibi : deus meus es tu et exaltabo te,
Cōfitebor tibi qm exaudisti me : ꝛ factus
es michi in salutē, Confitemini dūo qm
bonus : quoniā in seculū miscōia e⁹, Ps

Beati inmaclati in via : qui ambulāt
in lege dūi Beati qui scrutanť testi=
monia eius : in toto corde exquirūt eū Nō
eni qui opanť iniquitatē : ī vijs e⁹ ambu=
lauerunt Tu mandasti : mandata tua cu=
stodiri nimis Utinā diriganť vie mee :
ad custodiendas iustificacōes tuas Tūc

10 *Mainz Psalter* of 1457, by Fust
and Schoeffer, was the first book
to have a colophon (see left).

10

Besides Gutenberg, Fust, and Schoeffer, there were a number of other notable German printers of this period. ALBRECHT PFISTER of Bamberg, in 1461, is credited with printing *Edelstein*, the first book to be illustrated with woodcuts (11). In 1473, GÜNTHER ZAINER of Augsburg published the first bestseller, Thomas à Kempis' *De Imitatione Christi* (12). Five years later, HEINRICH QUENTELL of Cologne printed the first Bible in vernacular Low German (13).

ANTON KOBERGER, Germany's largest printer, publisher, and bookseller, published *The Nuremberg Chronicle* in 1493. Five years later Koberger and artist Albrecht Dürer worked together on the printing of *The Apocalypse*. Perhaps this edition is best remembered for a single print, Dürer's *The Four Horsemen*, which was sold widely throughout Europe (14). This exposure helped establish Dürer's reputation and extend his influence beyond Germany into Renaissance Italy.

The above books and others published before 1501 are known as *incunabula*.

12

11

Dat boeck.

Segge Israhelis kinderū du byst een volck ee nes harde nackes·ik schal eens i middē dines vp staen vñ voerdplige dy·nu vpperstūt legge vā dy alle dine syrheit·dat ik wete wat ik dō schal·Darūme leyde Israhelis kinder alle ere syrheit vā en·vā dē berge oreb�†dat is de kro nen de en vp ere houet gesat werē an dē berge oreb·Moyses nā dat tabernakel vñ serte dat verne butē de woningē vñ richtede dat vp·vñ nomede synen name dat tabernackel des voz bundes·Dñ alle dat volck dat vēmge klaghe hadde genck vth to dē tabernakel des voz bū des butē de wonynge·Dñ wenne als Moyses vth wolde gaen tho dem tabernakel der voz buntnisse·so stunde al dat volck vp·een iewe lick in der doere synes pauluyns·vnde seghen Moysi na vp synē rugge byth he in de tentē genck·Vñ als he in was gegangē in dat tabre nakel des getuchnisse·so stech nedder een sul eenes wolcke·vñ stund voz der doer·vnde de here sprack mit Moysi vñ allermallik sach dat dat de sufle des wolke stund voz der doer des tabernakels·vñ so stunde vñ bede vth dē doe ren erer wonyngen·Vñ de here sprak to Moy si vā angesichte m angesichte recht als een mysche plach to sprekē to syne vrunde·Dñ als he do wedder quā to den wonynge·syn dener Josue Nums sone een kint dat en geck nicht van dem tabernakel·Vñ do sprak Moyses tho dem herē·gebudestu dat ik dat volck vth ley de vñ seggest my nicht wen du mit my wyl lest senden·vñ bysunder na deme du sprekest·

Ick bekenne dy vth dynē namē vñ du heuest gnade vundē by my·Is dat ik nu gnade vun den hebbe in dynem angesichte·so wyse my dyn angesichte vp dat ik dy wytte·vñ dat ik gnade vynde voz dynē oge·se an dyn volk desse lude·Dñ do sprak god·Myn angesichte schal voz dy hen gaen·vñ schal dy raste ge uen·vñde Moyses sprak·vñ efte du vns nicht sulue voz en geyst so leyde vns nicht vth des ser stede·war ynne mogen wy denne wetē dy volck vñ ick dat wy gnade hebben vundē in dynem angesichte·du en wandeles den myt vns dat wy geeert weeden van allem volcke· de wonet vp der erden·Dñ do sprak de here tho Moysen·See dat wozt dartu gesprakē heuest schal ik doen·du heuest gnade vundē voz my vñ ik hebbe dy bekand vth dynem name·vñ he sprak·Bewyse my dyn glorie·vñ hee ant worde·ik schal dy alle gud wysen vñ voz dy geessehet werde in den name des herē·vñ schal gnedich syn in de dat my behaget vnde sprak voztmer·Du en machst my angesichte nicht seen·my en schal neen mysche seen vñ leuen· vnde voztmer sprak he·See dat is een stad by my·vnde dar schaltu staen vp dem steene·vñ als myn glorie en wech geyt·so schal ick dy setten in den spt des steenes·vnde schal dy be schermen myt myner rechterhant byth ick gae·vnde ick schal myn hant aff doen·vnde du schalt my vp den rugge seen·myn anghe sichte en machstu nicht seen·

13

14

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11 The first illustrated book, *Edelstein*, was printed in 1461 by Albrecht Pfister.

12 The first bestseller, Thomas à Kempis' *De Imitatione Christi,* printed in 1473 by Günther Zainer.

13 The first Bible printed in a vernacular Low German, by Heinrich Quentell of Cologne in 1478.

14 *The Four Horsemen* (War, Famine, Pestilence, and Death) from *The Apocalypse*, a series of woodcuts by Albrecht Dürer and printed by Anton Koberger in 1498.

Incunabula

The word incunabula *is Latin for "swaddling clothes, cradle, or birthplace," and by extension, the beginning of anything. In English it has come to mean all books printed before the year 1501, in a period of approximately fifty years.*

Most incunabula were of a religious or devotional nature; however, by the end of the century, there was a slowly developing market for secular books—textbooks, histories, and Greek and Roman classics.

Many incunabula do not contain information regarding the printer's name, place of operation, or date of publishing. Fortunately, the individuality of the early typefaces allows typographic scholars to identify most of the printers.

Shown below is a copper engraving by Albrecht Dürer showing the Humanist scholar Erasmus in his study. In the foreground are bound volumes, some of which may be incunabula.

It did not take long for the world to see the advantages of printing. Its spread was aided in 1462 by political unrest in Mainz, which forced printers to flee and take with them their "black art," as printing had become known.

The German printers who chose Italy as their new home soon discovered that their Italian clients considered the gothic letters objectionable and difficult to read, preferring the more familiar Humanistic style. Wishing to accommodate their new clients, the German printers adopted the Humanistic letterforms.

The first roman typeface based on Humanistic letterforms was cut in 1466 by CONRAD SWEYNHEIM and ARNOLD PANNARTZ, who set up the first Italian printing press in a monastery at Subiaco, near Rome (15). The results were not entirely satisfactory, as the letterforms still had too many undesirable gothic characteristics, such as being heavy and condensed. It was a Frenchman, Nicholas Jenson, living in Italy who cut the first successful roman typeface.

Albrecht Dürer's 1526 portrait of Erasmus

fatalis : ſm eor
dicūt eſſe fortu
uel nō ex aliq

15 Page from St. Augustine's *De civitate Dei* of 1467 shows the first roman typeface used in Italy. (See enlarged detail at left.)

VSEBIVM Pamphili de euangelica præparatione
latinum ex græco beatiffime pater iuffu tuo effeci.
Nam quom eum uirum tum eloquétia: tú multaq;
rerum peritia: et ïgenii mirabili flumine ex his quæ
iam traducta funt præftátiffimum fanctitas tua iu-
dicet: atq; ideo quæcúq; apud græcos ipfius opera
extét latina facere iftituerit: euangelicá præpationé
quæ in urbe forte reperta eft: primum aggreffi tra-
duximus. Quo quidem in libro quafi quodam in fpeculo uariam atq;
multiplicem doctriná illius uiri licet admirari. Cuncta enim quæ ante
ipfú facta iuentaq; fuerunt quæ tamen græce fcripta túc inueniretur:
multo certius atque diftinctius ipfis etiam auctoribus qui fcripferunt
percepiffe mihi uidetur. Ita quom conftet nihil fere præclarum unq
geftum fuiffe quod illis temporibus græce fcriptum non extaret: nihil
in rebus magnis naturaq; abditis quod a philofophis non effet expli-
catum: omnia ille tum memoriæ tenacitate: tú métis pcepit acumine:
ac ut apes folent fingulis infidere floribus: indeq; quod ad rem fuam
conducit colligere: nó aliter ille undiq; certiora uerifimilioraue deligés
mirabilem fibi atq; inauditú fcientiæ cumulum confecit: multiplices
utriúfq; philofophorum fectas nó ignorauit: infinitos pene gentium
omnium religionis errores tenuit: orbis terrarum hiftoriam ferie fua
difpofitam folus cognouit & cæteris tradidit. Nam quom non effet
nefcius geftæ rerum hiftoriam titubare fáctiffime pater nifi diftincta
téporibus pateat. Quippe quom natura téporis faciat ut quæ i tépore
fuerunt nifi quando fuerút fcias: nec fuiffe qdem ppter confufionem
uideantur: eo ingenio: ftudio: induftria huic incubuit rei: ut omnium
fcriptorum peritiam in unum congeftam facile fupauerit: diftictiusq;
cuncta ipfis fuis ut diximus cognouerit auctoribus. Conferendo enim
inter fe fingulos: ueritatem quæ ab omnibus fimul emergebat: nec ab
ullo exprimebatur: confecutus eft. Quæ omnia ab aliis quæ fcripfit &
ab hoc opere perfpicere licet. Quod ille ideo fufcepit: quoniam quom
apud gentiú præclaros philofophia uiros nobiliffimus effet: ac prifcá
paternamq; deorú religionem catholicæ ueritatis amore cótempfent:
partim accufátibus fuum propofitum refpondere: partim noftra pro
uiribus fuis uoluit cófirmare. Itaq; i duas uniuerfum partis negotium
partitus eft: quarum primam quæ nunc traducta nobis eft: qua illis

NICHOLAS JENSON was born in France in 1420 and as a young man was employed in the mint at Tours, where he made dies for stamping coins. In 1458 it is believed Jenson was sent to Mainz by King Charles VII to learn the new craft of printing and type founding. By 1470, he was well established in Venice as a successful printer-publisher.

The first truly successful roman typeface was cut in 1470 by Jenson for his edition of *Eusebius* (16). The design was an artistic and commercial success and caught the spirit of the roman letterforms as found in the Humanistic scripts of his time (17). In 1475, Jenson was called to Rome by Pope Sixtus IV to establish a printing office, where he remained until his death in 1480.

ALDUS MANUTIUS, a Venetian, was one of the giants of the Renaissance (18). He began his career not as a printer but as a publisher whose goal was to stimulate a revival of classical learning through printing. To achieve this end, he joined forces with a financial backer and a printer. Together they printed books of exceptional quality for the growing market of Humanist scholars.

17

16 The first successful roman typeface was cut by Nicholas Jenson and is shown on the opening page of his edition of *Eusebius* in 1470. The beauty of his typeface was reflected in the even color and great legibility of the letterforms. Display initials and border decorations were handpainted.

17 An example of the formal Humanistic script that Italian scholars favored. It was the inspiration for Jenson's roman types.

18 Printer's device of Aldus Manutius.

AENE.

E recta, ingenti tedis, atq; ilice secta,
I ntenditq; locum sertis, et fronde coronat
F unerea, super exuuias, ensemq; relictum,
E ffigiemq; toro locat haud ignara futuri.
S tant aræ arcum, et crines effusa sacerdos
T er centum tonat ore deos, Herebumq;, Chaosq;,
T er geminamq; Hecaten tria Virginis ora Dianæ.
S parserat et latices simulatos fontis Auerni,
F alcibus et messæ ad lunam quæruntur ahenis
P ubentes herbæ nigri cum lacte ueneni,
Q uæritur et nascentis equi de fronte reuulsus,
E t matri præreptus amor.
I psa mola, manibusq; piis altaria iuxta
V num exuta pedem uinclis in ueste recincta
T estatur moritura deos, et conscia fati
S ydera, tum si quod non æquo fœdere amantis
C uræ numen habet, iustumq; memorq; precatur.
N ox erat, et placidum carpebant fessa soporem
C orpora per terras, syluæq; et sæua quierant
A equora, cum medio uoluuntur sydera lapsu,
C um tacet omnis ager, pecudes, pictæq; uolucres,
Q uæq; lacus late liquidos, quæq; aspera dumis
R ura tenent, somno positæ sub nocte silenti
L enibant curas, et corda oblita laborum.
A t non infelix animi Phœnissa, nec unquam
S oluitur in somnos, oculisue, aut pectore noctem
A ccipit, ingeminant curæ, rursusq; resurgens
S æuit amor, magnoq; irarum fluctuat æstu.
S ic adeo insistit, secumq; ita corde uolutat,
E n quid agam? rursusne procos irrisa priores
Experiar

LIB .IIII.

E xperiar? numadumq; petam connubia supplex,
Q uos ego sum toties iam dedignata maritos?
I liacas igitur classes, atq; ultima Teucrum
I ussa sequar? quia ne auxilio iuuat ante leuatos,
E t bene apud memores ueteris stat gratia facti.
Q uis me autem (fac uelle) sinet? ratibusq; superbis
I rrisam accipiet? nescis heu perdita, nec dum
L aomedonteæ sentis periuria gentis?
Q uid tum? sola fuga nautas comitabor ouantes?
A n Tyriis, omniq; manu stipata meorum
I nsequar? et quos Sidonia uix urbe reuelli,
R ursus agam pelago, et uentis dare uela iubebo?
Q uin morere, ut merita es, ferroq; auerte dolorem.
T u lachrymis euicta meis, tu prima furentem
H is germana malis oneras, atq; obiicis hosti.
N on licuit thalami expertem sine crimine uitam
D egere more feræ, tales nec tangere curas,
N on seruata fides cineri promissa Sichæo.
T antos illa suo rumpebat pectore questus,
A eneas celsa in puppi, iam certus eundi,
C arpebat somnos, rebus iam rite paratis,
H uic se forma dei uultu redeuntis eodem
O btulit in somnis, rursusq; ita uisa monere est,
O mnia Mercurio similis, uocemq; coloremq;,
E t crines flauos, et membra decora iuuentæ.
N ate Dea, potes hoc sub casu ducere somnos?
N ec quæ circumstent te deinde pericula cernis
D emens? nec zephyros audis spirare secundos?
I lla dolos, dirumq; nefas in pectore uersat,
C erta mori, uarioq; irarum fluctuat æstu.
G

19

19 Virgil's *Opera*, printed in 1501 by Aldus Manutius, is an excellent example of the small-format book (octavo) that introduced lowercase italic as a book face. The typeface was designed by Francesco Griffo and retained roman caps.

20 Woodcut showing the traditional large-format book (folio) designed to be read aloud at a lectern.

20

Aldus Manutius also saw a market for small, well-produced, scholarly books that would replace the large tomes traditionally read aloud at a lectern (19, 20). He published an inexpensive, small book that could conveniently be held in the hand or carried in one's pocket.

For these books, he commissioned a punch cutter from Bologna named FRANCESCO GRIFFO to design a new text typeface. Just as Jenson had used the formal Humanistic script to create the first successful roman typeface, Griffo used a cursive Humanistic script, *Cancellaresca Corsiva*, to create the first italic typeface (21).

Griffo's italic typeface consisted only of lowercase letters, which were then set with regular roman caps. It was not until 1524 that a Viennese printer would use matching italic caps.

Aldus and Griffo collaborated on two other successful typeface designs: one for *De Aetna* by Cardinal Bembo in 1495, and the other for *Hypnerotomachia Poliphili* by Colonna in 1499 (22, 23). The qualities that made these typefaces successful were their lightness in weight, harmony of design, and legibility.

Jenson and Griffo not only had a major influence on typeface design, but they are credited as well with making roman type dominant everywhere in Europe except Germany, Scandinavia, and the Slavic countries, where the Gothic style lingered.

21

21 Humanistic cursive, called Cancellaresca Corsiva. was the writing style used by Griffo as the model for his italic typeface.

22

23

POLIPHILO INCOMINCIA IL SECONDO LIBRO DI
LA SVA HYPNEROTOMACHIA. NEL QVALE PO-
LIA ET LVI DISERTABONDI, IN QVALE MODO ET
VARIO CASO NARRANO INTERCALARIAMEN-
TE IL SVO INAMORAMENTO.

NARRA QVIVI LA DIVA POLIA LA NOBILE ET
ANTIQVA ORIGINE SVA. ET COMO PER LI PREDE
CESSORI SVI TRIVISIO FVE EDIFICATO. ET DI QVEL
LA GENTE LELIA ORIVNDA. ET PER QVALE MO-
DO DISAVEDVTA ET INSCIA DISCONCIAMENTE
SE INAMOROE DI LEI IL SVO DILECTO POLIPHILO.

E MIE DEBILE VOCE TALE O GRA
tiofe & diue Nymphe abfone peruenerano &
inconcine alla uoftra benigna audietia, quale
laterrifica raucitate del urinante Efacho al fua-
ue canto dela piangeuole Philomela. Nondi
meno uolendo io cum tuti gli mei exili cona-
ti del intellecto, & cum la mia paucula fuffici e
tia di fatiffare alle uoftre piaceuole petitione,
non riftaro al potere. Le quale femota qualuque hefitatione epfe piu che
fi congruerebbe altronde, dignamente meritano piu uberrimo fluuio di
eloquentia, cum troppo piu rotunda elegantia & cum piu exornata poli
tura di pronutiato, che in me per alcuno pacto non fi troua, di cofeguire
il fuo gratiofo affecto. Ma a uui Celibe Nymphe & ad me alquato, quan
tuche & confufa & incomptamete fringultiete haro in qualche portiun-
cula gratificato affai. Quando uolontarofa & diuota a gli defii uoftri &
poftulato me preftaro piu prefto cum lanimo no mediocre prompto hu-
mile parendo, che cum enucleata terfa, & uenufta eloquentia placedo. La
prifca dunque & ueterrima geneologia, & profapia, & il fatale mio amore
garrulando ordire. Onde gia effendo nel uoftro uenerando conuentuale
confpecto, & uederme fterile & ieiuna di eloquio & ad tanto preftate & di
uo ceto di uui O Nymphe fedule famularie dil accefo cupidine. Et itan-
to benigno & delecteuole & facro fito, di fincere aure & florigeri fpirami-
ni afflato. Io acconciamente compulfa di affumere uno uenerabile aufo,
& tranquillo timore de dire. Dunque auante il tuto uenia date, o belliffi-
me & beatiffime Nymphe a quefto mio blacterare & agli femelli & terri-
geni, & pufilluli Conati, fi aduene che in alchuna parte io incautamente

A

22 *Hypnerotomachia Poliphili*, a
large-format book published in
1499 by Aldus Manutius, is
considered to be the finest of the
incunabula. The exquisite
woodcuts harmonize perfectly
with the pages of type, creating a
mood of quiet grace.

23 The text type and foliated
initials were designed by
Francesco Griffo. A fine
typographic innovation was to
design the caps shorter than the
ascenders and thereby making
them less assertive

The first English-language book was not printed in England but in Bruges, Flanders, around 1475, by an Englishman, WILLIAM CAXTON. The book was *The Recuyell of the Historyes of Troye* and was set in a heavy cursive gothic face called *Batarde*. After having spent thirty years in Bruges, Caxton returned to England in 1476, where he set up the first English press in London near Westminster Abbey.

In 1478 William Caxton printed Geoffrey Chaucer's *Canterbury Tales*, an event that had a dramatic effect on both English printing and spelling (24). As the typeface chosen by Caxton was gothic rather than roman, gothic type remained the English preference for more than one hundred years. Furthermore, as English spelling was not yet fixed, Caxton's preferences had a strong influence on how words were spelled in the future.

Caxton spent fifteen years in England; he printed more than one hundred books before his death in 1491. He was succeeded by his foreman, WYNKYN DE WORDE, who carried on his work.

24

24 Chaucer's *Canterbury Tales* was printed in 1478 by William Caxton, England's first printer. Both Chaucer and Caxton are credited with having a major influence on the growth and structure of the English language. The text is set in Batarde while the running heads and display initials are handlettered in a second color. Caxton's printer's mark is shown at left.

Printing came to France in 1470 when three Germans, FREIBURGER, GERING, and KRANZ, set up a press at the University of Paris. The first books to come off this press were Latin classics and Humanistic texts set in roman type.

It wasn't long before French printers set up their own presses. The first book printed in French was the *Croniques de France*, compiled and printed by PASQUIER BONHOMME in 1476.

Two other important printers of this period were JEAN DUPRÉ and ANTOINE VÉRARD. Dupré specialized in the production of elaborately illustrated religious books, such as St. Augustine's *La Cité de Dieu* printed in 1486 (25). Antoine Vérard was best known as a prolific publisher who virtually controlled the French book market for almost a quarter of a century, especially in the production of religious books of hours (26).

Although the Latin books had been set in roman type, these early French books were either set in regular gothic or a modified gothic, called *Lettre Batarde*. These types were used for French-language books until the end of the century, when the Italian influence encouraged the broader use of roman types.

25

25 Dupré is credited with beginning the French tradition of doing deluxe illustrated volumes. Shown here is his 1486 edition of St. Augustine's *La Cité de Dieu* set in Lettre Batarde and illustrated with woodcuts.

26 Although Antoine Vérard was best known for his religious books, he also published a French translation of Boccaccio in 1498. This, too, combined Lettre Batarde with woodcuts.

Typeface Design: Venetian Old Style

To understand the problems facing typeface designers such as Nicholas Jenson and Francesco Griffo, the limitations imposed on a given design by the press, paper, and ink must be taken into consideration. For example, a wooden press like Gutenberg's could not be counted on to exert steady pressure, nor would handmade paper accept ink evenly.

Type designers soon found that the fine strokes possible with pen on vellum or parchment could not be made with their presses. Jenson and Griffo typefaces have very little contrast between thick and thin "strokes," and the serifs are rather heavy. Today designs like theirs are referred to as Venetian Old Style.

Hindu-Arabic Numerals

Just as writing followed the development of speech, so did numerals come long after people learned to count. The earliest numerals seem to be Egyptian. They date from around 3400 B.C. A single vertical line was used to represent one and was simply repeated for small numbers up to nine. Ten was represented by an inverted U, one hundred by a spiral, and one thousand by a lotus blossom.

Most ancient civilizations had their own systems. One of the few that remains is Roman numerals, still used today as a companion to Arabic figures.

Arabic numerals seem to have originated in India around 2,000 years ago, arriving in the West shortly before the year 1000. One possible route was from India across North Africa and into Moorish Spain. Around 800, some Indian astronomical tables were translated into Arabic in Baghdad, and by 976 the Arabic numerals shown below had appeared in a Spanish manuscript. Being Arabic, they are written from right to left.

During the following centuries, the forms continued to vary, and it was not until the fifteenth century that the symbols evolved into those used today. Although the numerals are commonly referred to as Arabic, they are more accurately called Hindu-Arabic.

1234567890

Hindus are credited with inventing the concept of zero, which made possible our decimal system and modern mathematics.

PEOPLE AND EVENTS

Historical Events

1400 Chaucer dies. Jean Froissart finishes *Chronicles*.

1408 Donatello sculpts *David*.

1412 Brunelleschi develops rules of perspective.

1415 Henry V defeats French at Agincourt. Jan Hus burned at stake.

1418 End of Great Schism.

1420 Thomas à Kempis writes *Imitation of Christ*.

1431 Joan of Arc burned at the stake.

1440 Eton founded.

1450 Francesco Sforza becomes duke of Milan.

1452 Ghiberti completes *Gates of Paradise*.

1453 Gutenberg prints forty-two-line Bible.

1455 War of Roses begins.

1456 Uccello paints *The Battle of San Romano*.

1456 François Villon writes *Le Petit Testament*.

1460 Oxford confers first Doctor of Music degree.

1469 Lorenzo de' Medici becomes ruler of Florence.

1477 Botticelli paints *La Primavera*.

1478 Ferdinand and Isabella institute Spanish Inquisition.

1483 Richard III accused of murdering his nephews.

1485 Henry VII starts Tudor dynasty.

1492 Moors expelled. Kingdom of Spain unified; Columbus sets foot in New World on October 12.

1495 Leonardo da Vinci paints *The Last Supper*.

1498 Savanarola burned at the stake.

1498 Michelangelo sculpts *Pietà*.

Christopher Columbus discovers America.

Literature

Sebastian Brant (1457-1521)
Lorenzo de' Medici (1449-1492)
Thomas à Kempis (1380-1471)
Sir Thomas Malory (d. 1471)
François Villon (1431-ca. 1463)

Music

Josquin Desprez (ca. 1440-1521)
Johannes Ockeghem (ca. 1430-1495)

Fine Arts

Antonello da Messina (ca. 1430-1479)
Leone Battista Alberti (1404-1472)
Fra Angelico (1400-1455)
Jacopo Bellini (ca. 1400-1470)
Gentile Bellini (1429-1507)
Giovanni Bellini (1430-1516)
Hieronymus Bosch (ca. 1450-1516)
Sandro Botticelli (1445-1510)
Donato Bramante (1444-1514)
Filippo Brunelleschi (1377-1446)
Robert Campin (1378-1444)
Andrea del Castagno (1419-1459)
Jacopo della Quercia (1374-1438)
Luca della Robbia (1399-1482)
Piero della Francesca (ca. 1420-1492)
Domenico Veneziano (1400-1461)
Donatello (1386-1466)
Albrecht Dürer (1471-1528)
Jan van Eyck (ca. 1390-1441)
Jean Fouquet (ca. 1420-ca. 1480)
Lorenzo Ghiberti (1378-1455)
Domenico Ghirlandaio (1449-1494)
Hugo van der Goes (d. 1482)
Benozzo Gozzoli (ca. 1421-1497)
Fra Filippo Lippi (1406-1469)
Filippino Lippi (ca. 1457-1504)
Andrea Mantegna (1431-1506)
Masaccio (Tommaso Guida) (1401-1428)
Hans Memling (1435-1494)
Perugino (1445-1523)
Bernardo Pintorriccho (ca. 1454-1513)
Sebastiano del Prombo (ca. 1485-1547)
Antonio Pisanello (1395-1455)
Antonio Pollaiuolo (1429-1498)
Antonio Rossellino (1427-1479)
Giuliano da Sangallo (1443-1516)
Sassetta (1399-1450)
Martin Schongauer (1430-1491)
Luca Signorelli (ca. 1441-1523)
Paolo Uccello (1397-1475)
Andrea del Verrocchio (1435-1488)
Roger van der Weyden (1399-1464)

Graphic Arts

William Caxton (ca. 1421-1491)
Pasquier Bonhomme (fl. 1476)
Jean Dupré (fl. 1481-1504)
Albrecht Dürer (1471-1528)
Johann Fust (ca. 1400-1466)
Francesco Griffo (ca. 1450-1518)
Johann Gutenberg (ca. 1397-1468)
Nicholas Jenson (1420-1480)
Anton Koberger (ca. 1445-1513)
Aldus Manutius (1450-1515)
Arnold Pannartz (d. 1476)
Albrecht Pfister (fl. 1461)
Heinrich Quentell (d. 1501)
Peter Schoeffer (ca. 1425-1502)
Conrad Sweynheim (d. 1477)
Anton Vérard (fl. 1486)
Wynkyn de Worde (fl. 1490)
Günther Zainer (fl. 1468-1478)

Aldus Manutius

Jenson's printer's device

1

The period between 1500 and 1600 included the High Renaissance, the Protestant Reformation, and the Catholic Counter-Reformation initiated by Rome. It was a century of religious wars and intolerance and one that saw the commercial and political decline of Italy. As power moved north and west, France, Spain, England, and the Netherlands grew in influence and wealth.

It was during the High Renaissance that the Protestant Reformation began. In 1517, Martin Luther nailed his ninety-five theses to the door of the Wittenberg church, suggesting reforms in Catholicism. Martin Luther was rebuffed by the Church but attracted the sympathy and support of the German people as well as their rulers.

Pope Leo X demanded that Luther retract his radical demands, but Luther refused and was excommunicated. He then created a new church, which later became known as the Lutheran.

Similar developments took place in France with the Huguenots and in Switzerland with the Calvinists. In England, Henry VIII, unable to resolve his marital and political problems with the papacy, established the Church of England in 1534.

These challenges to the unity of Western Christianity finally forced the Roman Catholic Church to restructure itself from within. To correct abuses, a new religious order, called the Jesuit, was founded in 1540 by St. Ignatius of Loyola. The reform movement, or the Counter-Reformation, began in earnest with the Council of Trent in 1545.

Change did not come easily. There was an atmosphere of fear and anxiety that led to extreme measures on both sides, for example, the dissolution of monasteries in England and the Inquisition in Spain.

In Italy, writers dealt with a wide range of topics. In 1513, Niccolò Machiavelli wrote *The Prince*, a cynical guide on political power, and in 1527 Baldassare Castiglione wrote *The Courtier*, a handbook on how to be a Renaissance gentleman. In 1550, Giorgio Vasari compiled the first major book on art history, *The Lives of the Most Excellent Painters, Sculptors and Architects*.

The Dutch scholar and Humanist Desiderius Erasmus, wrote his satiric and entertaining *The Praise of Folly*, while in France, François Rabelais wrote satires and Michel de Montaigne, essays.

By the second half of the century the Renaissance was well established in England. It found its first expression in the writers of the Elizabethan Age. It was the time of the poets Edmund Spenser, Sir Philip Sidney, and John Donne, the essayist Sir Francis Bacon, and the playwrights Christopher Marlowe, Ben Jonson, and, of course, the glory of the English language, William Shakespeare.

It was also the time of sea and land ventures. Sir Francis Drake circumnavigated the globe and was instrumental in the defeat of the Spanish Armada in 1588. England, in a late attempt to settle North America, sent out Sir Humphrey Gilbert in 1578 to settle Newfoundland, while Sir Walter Raleigh attempted to settle Roanoke Island off the coast of Virginia. Both failed, but success was achieved at Jamestown, Virginia, a few years later in 1607.

The High Renaissance saw the triumph of the Humanistic spirit in the works of three great masters: One was Leonardo da Vinci's *Last Supper*, painted in 1495 for the monastery of Santa Maria delle Grazie in Milan. The second was Raphael Santi's *School of Athens*, commissioned in 1509 by Pope Julius II for the Vatican in Rome (2). Both works reflect the balance and symmetry of a well-ordered universe, which was the ideal of the High Renaissance. The third masterpiece was by Michelangelo, who brought a new dramatic intensity to art when he painted the Sistine Chapel ceiling in 1512.

In northern Italy, the artistic center was Venice, where artists stressed such qualities as light, atmosphere, and color. Giovanni Bellini used these elements in his late works to infuse his figures with a sense of monumentality.

A painter of the next generation, Giorgione, is credited with the development of a new, more painterly technique with nature rather than people as the dominant subject matter. This can be seen in his masterpiece, *The Tempest* (3).

Titian, a student of Giorgione, continued in the direction to which his master had pointed. Granted a long life, Titian became the dominant Venetian painter of the century. Other notables were Correggio (Antonio Allegri), Tintoretto (Jacopo Robusti), and Paolo Veronese.

The High Renaissance, which had begun around 1495, ended in 1527 with the Sack of Rome by German mercenary troops, who, being unpaid by Emperor Charles V, went on a rampage of rape, murder, and wanton destruction.

Many Italian artists, writers, and musicians fled Italy and found refuge in France under the patronage of François I. These artists brought with them the spirit of the High Renaissance that eventually replaced the lingering Gothic tradition. Italian influence can be seen in the paintings of Jean and François Clouet (1) and the school of Fontainebleau.

2

3

4

4 *Henry VIII* by Hans Holbein the Younger is a powerful example of the art of portraiture.

5 Detail of the damned from the *Last Judgment* in the Sistine Chapel. It was this late work, completed by Michelangelo in 1542, that helped establish Mannerism as an art style.

5

Elsewhere in Europe, the Renaissance spirit was combining with Gothic realism to produce such unique artists as Pieter Bruegel the Elder in the Netherlands, Hans Holbein the Younger in England (4), and Albrecht Dürer and Lucas Cranach the Younger in Germany.

In Italy, the Sack of Rome and the Counter-Reformation had a great effect on the visual arts. The High Renaissance sense of calm and order gave way to exaggeration, complexity, and grace. Art historians call this late Renaissance style *Mannerism* and find its earliest expression in the late works of Michelangelo and the art of Jacopo da Pontormo, Rosso Fiorentino, Parmigiano (Francesco Mazzola) and, later, Francesco Primaticcio, Bronzino (Agnolo di Cosimo di Mariano), and Giulio Romano.

A powerful example of Mannerism at its most heroic is Michelangelo's *Last Judgment*, where the damned writhe and struggle in an atmosphere of despair (5). A more personal expression of Mannerism can be found in the works of El Greco, whose elongated fingers have a haunted, agitated look.

By 1590 Mannerism had run its course, and young artists turned back to the works of the masters of the High Renaissance for inspiration and guidance. From this return came the Baroque style that dominated the following century.

After the death of Aldus Manutius in 1515, Venetian influence began to wane as France and then Flanders became the centers of printing and book publishing.

Germany, the birthplace of printing, continued to make valuable contributions to the graphic arts, while England struggled to establish a viable printing industry.

6

The Golden Age of French printing began during the reign of François 1, who ruled from 1515 to 1547. Not only was François 1 an enthusiast of the Italian Renaissance, but he exemplified the Humanist spirit of religious tolerance. This was fortunate, as many of the leading French printers were Protestants.

Among the major printers and publishers of this period were Henri and Robert Estienne, Geofroy Tory, Simon de Colines, Claude Garamond, and Robert Granjon. It was they who set the high standards of French printing that were to influence future generations.

HENRI ESTIENNE, the first French printer-publisher of importance, established his press in Paris in 1501. During his career he produced more than a hundred books that combined the French sense of clarity and order with the high standards and scholarship of Aldus Manutius and the Venetian school of printing. After Estienne's death in 1520, his partner, SIMON DE COLINES, managed the business for six years until Henri's son, Robert Estienne, became the proprietor. Colines then established his own press and continued printing until his death in 1546. (6).

As a friend of François 1 and his court, ROBERT ESTIENNE was appointed royal printer for Hebrew, Greek, and Latin publications. As a scholar-publisher. Estienne published many fine editions of ancient classics as well as Bibles and dictionaries for students and the educated public (7). It was also Estienne who commissioned Claude Garamond to cut the first *matching* roman and italic typefaces. Until this time, these two styles were cut independently of each other and not conceived of as part of a family designed to work together.

By the middle of the century, Robert Estienne had published more than four hundred books in his Paris workshop. Unfortunately, after the death of François 1, Estienne, who was a declared Calvinist, lost his royal protection.

Liber Deuteronomii, hebraice Elle haddebarim.

7

Estienne decided to flee rather than risk being burned at the stake as some other publishers and booksellers had been. Estienne reestablished his press in Protestant Geneva, leaving the Paris operation to other, Catholic members of his family.

Estienne has been characterized by one authority as the greatest printer of the century and perhaps of all time.

GEOFROY TORY was born in Bourges about 1480 and spent his early years studying in Italy, where he absorbed the Humanistic values of the Italian Renaissance. Tory was in many ways a Renaissance man: a poet, philosopher, translator, calligrapher, engraver, type designer, printer, and publisher.

Tory first worked for Henri Estienne and Simon de Colines as a proofreader, and later, in 1529, he set up his own press in Paris, where he produced his masterpiece, *Champs Fleury* (8). His primary reason for producing this particular book was to promote his belief that roman capitals should be based on the proportions of the ideal human body. The same idea had been argued earlier by Leonardo da Vinci (9), Luca de Pacioli, and Albrecht Dürer.

Tory is credited with the introduction of the accent, cedilla, and apostrophe into the French language. He was also instrumental in moving French printers away from the lingering use of gothic typefaces, especially for religious publications. As a reward for his many contributions, he was awarded the title of Royal Printer for French Publications to François I. Tory died in 1533, four years after the publication of *Champs Fleury*.

Little is known about CLAUDE GARAMOND other than that he was born in 1480, the same year as Geofroy Tory, and that he began cutting punches as a youth. Garamond worked for Robert Estienne, where he learned to cut typefaces, and later he seems to have established himself as a punch cutter, printer, and operator of a type foundry.

Garamond is credited with being among the first printers who designed and cast typefaces to be sold to other printers. Among his many successes was the design of a beautiful Greek typeface called *Grec du Roi*, commissioned by François I (10).

Perhaps Garamond's greatest contribution was the freeing of type design from its dependence on calligraphic forms. Instead of trying to make type look like writing, he allowed the metal to dictate the letterforms. Just as writing has responded to the qualities of the reed pen, type now responded to the qualities of metal.

Despite his many accomplishments, Garamond's life ended in poverty; he died in Paris in 1561 at the age of eighty-one.

ROBERT GRANJON, another type-founder-printer, first set up his press in Paris, but moved to Lyons in 1556. There he designed a calligraphic typeface, called *Civilité*, based on the contemporary gothic cursive handwriting (11). Today, we find Civilité difficult to read, although it was popular in its day.

Later, Granjon moved to Antwerp at the invitation of the famous Flemish printer Christophe Plantin, for whom he designed numerous typefaces before accepting an invitation from Pope Gregory XIII in 1578 to relocate in Rome. Granjon's stay was brief; he died a year later.

The third quarter of the century saw, with few exceptions, the general decline of French printing. The major reasons were the growing religious censorship of printed matter and the continued turbulence between Protestants and Catholics after the death of François I's in 1547. This culminated in 1572 in the bloody Bartholomew's Day Massacre of Protestants all over France. As many of the finest printers and type designers were Calvinists, they were forced to flee France, thus ending the French dominance of printing.

8

9

8, 9 Geofroy Tory in his *Champs Fleury* of 1529 proposed that roman caps should be based on the proportions of the ideal man, such as found in Leonardo da Vinci's drawings after Vitruvius, of the human body.

10

Although the Golden Age of French printing lasted only sixty years, it saw the book evolve into its present form. French printers, such as Geofroy Tory, the Estiennes, and Simon de Colines, were no longer satisfied with imitating hand-written manuscripts but thought in terms of type on paper.

Layouts were more logical, with added attention given to page size, ornamentation, and illustration. Pages were handsomely decorated with engraved display initials, fine woodcuts, and elegant borders. All this was further enhanced by typefaces that were lighter and more close-fitting than the Venetian faces.

11

10 Claude Garamond was commissioned by François I to design a Greek typeface. Known as Grec du Roi, it was first used by Robert Estienne in 1544 in a Greek edition of Eusebius' *Ecclesiastical History.*

11 Civilité, designed by Robert Granjon. Although popular in its day, Civilité eventually died out.

With the decline of French printing, Antwerp, in Flanders (now Belgium), became the major center of printing in Europe. Part of Antwerp's attraction for artists, scholars, and printers was its prosperity and hospitable atmosphere.

The most important printer of this period was a Frenchman, CHRISTOPHE PLANTIN, who started his career in Paris as a bookseller and bookbinder. In 1549, Plantin moved his business to Antwerp, where he sold books, prints, and maps, including those by the famous cartographer Gerardus Mercator. Plantin established his own press in 1555, and before long he became the largest and most progressive printer-publisher on the Continent.

Plantin was strongly influenced by the excellence of French printing and typeface design, especially the work of Garamond and Granjon. One of Plantin's greatest works was the Polyglot Bible, printed in five languages in an edition of eight volumes, under the patronage of King Philip II of Spain (12). For the title page of the Bible, Plantin used copper engravings rather than the traditional woodcuts.

Although engraving plates required a separate run on an intaglio press, they did produce finer detail and were more resistant to wear. Ultimately, copper engravings ended the general use of woodcuts for fine printing.

Plantin died in 1589 and was succeeded by his son-in-law, Jan Moretus, who established the publishing house of Plantin-Moretus, which continued in business until 1875 and is today preserved as a museum.

12

12 Christophe Plantin's masterpiece was his massive, eight-volume Polyglot Bible issued in 1572. It contained five languages side by side: Latin, Greek, Hebrew, Syriac, and Aramaic. The engraved title page can be seen on page 88.

Intaglio

Before the Renaissance, illustrations were either drawn by hand or printed by woodblocks. During the 1400s a new printing technique, intaglio, was perfected. However, it wasn't until the 1500s that it was used in book publishing.

Intaglio involved printing from a metal plate on which the image was sunk below the surface. (This was in contrast to Gutenberg's letterpress and woodblocks, which were printed from a raised surface.)

The intaglio printing technique, using engraving and etching, permitted greater detail and a wider range of tones than had been possible with woodblocks. This can be seen by comparing the title page of Christophe Plantin's Polyglot Bible, shown above, with the woodcuts on the facing page. Furthermore, more prints could be made using metal plates than could be made using wood. The one disadvantage of intaglio for book publishing was that while the text was printed by letterpress, the illustrations had to be printed independently on a special rolling intaglio press.

The modern form of intaglio printing is gravure.

ANTON KOBERGER, who began his career at the end of the fifteenth century, continued to be Germany's largest printer, publisher, and bookseller. Koberger's printing operation in Nuremberg employed a staff of more than a hundred compositors, pressmen, bookbinders, and traveling salesmen. Before his death in 1513, Koberger had published more than two hundred titles, including fifteen Bibles.

After the success of his woodcuts for the *Apocalypse,* ALBRECHT DÜRER expanded his art to include metal engravings and etchings. Dürer wrote and illustrated books on perspective, human proportions, and the geometry of letterforms based on the human figure. By the time he died on April 6, 1528, he had elevated the art of illustration to new heights.

One of the most important books of the century was Martin Luther's translation of the Bible into German (13). The New Testament, a translation of the Greek text of Erasmus, was illustrated with woodcuts by Lucas Cranach the Elder. It was printed in 1522 by Melchior Lotther of Wittenberg. The Old Testament was printed twelve years later. Luther's translation of the Bible had a dramatic effect on the formation of the German language.

JOHANN FROBEN, a Bavarian, set up his press in Basel, Switzerland, in 1491, where he produced scholarly editions of the classics. Two of his finest works, the Greek editions of Aristotle and the New Testament, were supervised by Erasmus. Froben also used the services of Hans Holbein for woodcut illustrations, title page borders, and display initials (14). Froben continued publishing fine books until his death in 1527.

Das Buch

Da aber der Philister fursten sich versamleten/yhrem Gott Dagon eyn gros opffer zuthun vñ sich zu frewen/sprachen sie / Vnser Gott hatt vns vnsern feynd Simson ynn vnsere hende gegeben. Desselben gleichen als yhn das volck sahe/lobten sie yhren Gott/denn sie spra= chen/ Vnser Gott hat vns vnsern feynd ynn vnsere hende geben/der vns vnser land verderbet / vnd vnser viel erschlug / Da nu yhr hertz gutter dinge war/sprachen sie/last Simson holen das er fur vns spie= le. Da holeten sie Simson aus dem gefengnis / vnd er spielet fur yhn/ vnd sie stelleten yhn zwischen zwo seulen.

Simson aber sprach zu dem knaben der yhn bey der hand leyttet/las mich das ich die seulen taste/auff wilchen das haus stehet/ das ich mich dran lehne/Das haus aber war voll menner vnd weyber / Es waren auch der Philister fursten alle da/vnd auff dem dach bey drey tausent man vnd weyb / die zu sahen wie Simson spielet / Simson aber rieff den HERRN an vnd sprach HErr HERR gedencke meyn / vnd stercke mich doch Gott dis mal/das ich fur meyne beyde augen mich eynest reche an den Philistern.

Vnd er fasset die zwo mittel seule/auff wilchen das haus gesetzt war vnd drauff sich hielt / eyne ynn seyne rechte die ander ynn seyne lincke hand vñ sprach/Meyn seele sterbe mit den Philistern /vnd ney get sie

13

Ipse morietur. Quia nõ habuit disci-
plinam,& in multitudine stulticiæ
suæ decipietur.
PROVER.   V

Il mourra,Car il n'a receu
En soy aulcune discipline,
Et au nombre sera deceu
De folie qui le domine.
D iij

14

13 One of the major books of the century was Martin Luther's translation of the Bible into German. This Bible, printed in 1523 by Melchior Lotther of Wittenberg, had a dramatic effect on the formation of the German language. The illustration shows Samson destroying the Philistines and their building

14 Woodcuts created by Hans Holbein the Younger for Johann Froben and later used by M. and G. Trechsel of Lyon for this 1538 edition of *Dance of Death*. Froben's printer's device is shown above.

Printing in England

HERE is no thynge in the worlde so coueniet to a man as to be holy and to loue god and worshyppe hym.
Nihil in humanis religio ne sactius / nihil homini tam proprium q̃ pieta= tis cultus.
Man is naturallye dysposyd to haue a mynde and reuerence towarde god.
Homini ingenita est religionis cura.
There be many & diuerse maners of worshyppyng and doynge of sacryfyce.

15

❧ Hæc est Præfatio(ostendens) quemadmodum
Sanctus Gregorius hunc librum fecit, quem homines Pastorale nuncupant.

Elfredus Rex optat salutem Wulf- sigeo episcopo dignissimo beneuolè et amater.Et te scire volo quod mihi sæpenumero in mentem venit,qua- les sapiétes diu abhinc extiterunt in Anglica gente,tam de spirituali gra- du,quàm de temporali,quáq̃; fœlicia tùm tempora fu- erunt inter omnes Angliæ populos, quemadmodũq̃; reges qui tunc gubernationem habebant plebis, Deo & eius voluntati scriptæ obsecundarint,vtq̃; in sua pa- ce,& bellicis suis expeditionibus, atque regimine do-

16

Strict censorship exercised by the crown limited the printing industry in England to the cities of London, Oxford, and Cambridge. All manuscripts had to be submitted to a censor for licensing before they could be published. These repressive controls remained in effect until the late 1600s and did much to hinder the development of a vigorous printing industry.

Another factor that contributed to England's relative backwardness was the reluctance to join the Continent in substituting roman typefaces for the gothic type that had been introduced into England by William Caxton.

It was 1518 before RICHARD PYNSON, a London printer, used roman type in his two editions of *Oratio* by Richard Pace. Pynson's roman was a rather heavy, primitive face (15); it was not until 1574 that John Day cut distinctive English roman and italic typefaces (16).

15 One of the first, and rather weak, roman typefaces to be used in England was designed by Richard Pynson in 1518.

16 A much finer roman typeface showing a strong Continental influence was designed by John Day in 1574. His printer's device is shown at right.

Historical Events

1501 Michelangelo finishes *David*. Moors persecuted in Spain.

1503 Leonardo da Vinci paints *Mona Lisa*.

1504 Raphael paints *Marriage of the Virgin*.

1506 Christopher Columbus dies. St. Peter's Basilica in Rome rebuilt under Bramante.

1507 New World named America after Amerigo Vespucci.

1509 Henle of Nuremberg invents pocket watch. First slaves brought to America by the Spanish.

1511 Erasmus writes *The Praise of Folly*.

1512 Michelangelo finishes painting Sistine Chapel. Ponce de Leon discovers Florida.

1513 Balboa discovers Pacific Ocean. Machiavelli writes *The Prince*.

1514 Dürer creates *Melancholia*.

1516 Thomas More writes *Utopia*.

1517 Martin Luther protests sale of indulgences and posts his ninety-five theses on church door at Wittenberg. Beginning of Reformation. Cortes discovers Mexico.

1519 Magellan begins circumnavigation of globe. Charles v crowned Holy Roman Emperor.

1521 Spanish conquest of Aztecs.

1523 Europeans expelled from China.

1527 Charles v's troops sack Rome.

1530 Portugal establishes colonies in Brazil. Violin maker Andrea Amati born.

1533 Ivan the Terrible crowned in Moscow.

1534 Henry viii heads English Church. First book printed in Western Hemisphere in Mexico City. Order of Jesuits established.

1535 Jacques Cartier discovers St. Lawrence River.

1541 De Soto discovers Mississippi River.

1545 Council of Trent established to reform Catholic Church. Counter-Reformation begins. Cellini creates masterpiece, *Perseus*, and writes autobiography.

1550 Vasari writes *Lives of the Artists*.

1555 American tobacco introduced into Spain.

1558 Elizabeth i ascends throne of England.

1560 Scottish parliament adopts Calvinism.

1564 Shakespeare born. Michelangelo dies.

1565 Tobacco introduced into England. Manufacture of pencils in England.

1568 Mercator gives name to new map form.

1575 London population approximately 180,000.

1577 Francis Drake begins voyage around world. El Greco settles in Toledo.

1580 Montaigne publishes *Essays*.

1582 Gregorian calendar adopted in Catholic nations.

1584 Sir Walter Raleigh discovers Virginia.

1586 Kabuki theater established in Japan.

1588 Spanish Armada defeated by English.

1589 Henri iv becomes king of France.

1594 Shakespeare writes *Romeo and Juliet*.

1598 Edict of Nantes grants French freedom of worship.

Literature

Pietro Aretino (1492-1556)
Ludovico Ariosto (1474-1533)
Sir Francis Bacon (1561-1626)
Baldassare Castiglione (1478-1529)
John Donne (1572-1631)
Joachim Du Bellay (1522-1560)
Desiderius Erasmus (1466-1536)
Ben Jonson (1572-1637)
Niccolò Machiavelli (1469-1527)
Christopher Marlowe (1564-1593)
Michel de Montaigne (1533-1592)
Margaret of Navarre (1492-1549)
Thomas More (1478-1535)
François Rabelais (ca. 1490-1553)
Pierre de Ronsard (1524-1585)
William Shakespeare (1564-1616)
Sir Philip Sidney (1554-1586)
Edmund Spenser (1552-1599)
Torquato Tasso (1544-1595)
Georgio Vasari (1511-1574)
Thomas Wyatt (1503-1542)

Music

William Byrd (1543-1623)
John Dowland (1562-1626)
Giovanni Gabrieli (ca. 1554-1612)
Carlo Gesualdo (ca. 1560-1613)
Orlando di Lasso (ca. 1532-1594)
Claudio Monteverdi (ca. 1567-1643)
Thomas Morley (ca. 1557-ca. 1603)
Giovanni da Palestrina (ca. 1525-1594)
Thomas Tallis (ca. 1510-1585)

Fine Arts

Albrecht Altdorfer (1480-1538)
Pieter Bruegel the Elder (1525-1569)
Bronzino (Agnolo di Cosimo di Mariano) (1503-1572)
Vittore Carpaccio (ca. 1450-1522)
Benvenuto Cellini (1500-1571)
Jean Clouet (ca. 1485-1540)
François Clouet (ca. 1510-ca. 1572)
Correggio (Antonio Allegri) (ca. 1494-1534)
Lucas Cranach, the Younger (1472-1553)
Albrecht Dürer (1471-1528)
Giorgione (ca. 1478-1510)
El Greco (ca. 1541-1614)
Mathias Grünewald (ca. 1470-1528)
Giulio Romano (ca. 1492-1546)
Hans Holbein the Younger (1497-1543)
Leonardo da Vinci (1452-1519)
Michelangelo Buonarroti (1475-1564)
Andrea Palladio (1508-1580)
Parmigiano (Francesco Mazzola) (1503-1540)
Jacopo da Pontormo (1494-1556)
Francesco Primaticcio (1504-1570)
Raphael Santi (1483-1520)
Giovanni Battista Rosso (1495-1540)
Tintoretto (Jacopo Robusti) (1518-1594)
Titian (ca. 1490-1576)
Paolo Veronese (1528-1588)

Graphic Arts

John Day (b. 1522)
Henri Estienne (1470-1520)
Robert Estienne (1503-1559)
Johann Froben (1460-1527)
Claude Garamond (1480-1561)
Robert Granjon (d. 1579)
Simon de Colines (d. 1546)
Geofroy Tory (1480-1553)
Christophe Plantin (1514-1589)
Jan Moretus (d. 1610)
Gerardus Mercator (1512-1594)
Richard Pynson (fl. 1518)

Martin Luther

The 1600s saw the rise of absolute monarchs, who claimed they ruled by divine right. The most absolute was the Sun King, Louis XIV, who dominated France throughout his long reign from 1643 to 1715 (1). Ironically, at the same time in England came the first serious challenge to the concept of divine right, when Charles I was beheaded by an aroused Parliament in 1649.

The English monarchy was restored in 1660, with Charles II who was succeeded by James II, a Catholic. In 1688, an anti-Catholic Parliament asserted its power by inviting William of Orange, a Dutch Protestant with an English wife, Mary Stuart, to ascend the throne. This bloodless transfer of power is known as the Glorious Revolution.

The fury of the religious wars that raged during the previous century abated, and now a fragile peace existed between the Catholic and Protestant nations. The century saw the slow decline of Spanish power and the rise of France as a political and artistic force. In Europe, French became the language of culture and diplomacy.

Religious tolerance was not universally accepted, and there were notable lapses. French Protestants, called Huguenots, were forced to leave France when Louis XIV revoked the protective Edict of Nantes. Many Huguenots migrated to England and the New World, bringing with them their industry and crafts, among which was the art of printing.

With relative peace established, the European nations turned their attention to overseas expansion and commercial enterprise. Exploration gave way to colonization. The English settled Jamestown, Virginia, in 1607, and the Pilgrims landed at Plymouth, in what is now Massachusetts, in 1620.

The French continued to expand their territories in Canada, while the Dutch settled the East Indies, South Africa, and New Amsterdam (New York) in 1623.

It was the age of French classicism in the theater, with the tragedies of Pierre Corneille and Jean Racine and the comedies of Jean Molière. René Descartes and Blaise Pascal wrote philosophy, and Jean de La Fontaine wrote fables. Opera came of age with the music of Claudio Monteverdi, Jean Baptiste Lully, and Alessandro Scarlatti.

In England, the great poetic tradition continued with the epic poem *Paradise Lost* by John Milton. Samuel Pepys chronicled the plague and the Fire of London in his secret diary. In Spain, Miguel de Cervantes published his comic masterpiece, *Don Quixote*.

1

Mannerism, which flourished after the High Renaissance, was followed by a style now called Baroque, which grew out of the Counter-Reformation. It emphasized the spiritual and emotional aspects of a revived Roman Catholicism.

Baroque art strove to reinforce faith by appealing to the emotions rather than to reason and intellect. Its essence lies in its dramatic use of movement, chiaroscuro (light and shade), and vibrant colors.

In Italy, the three Carracci brothers, Agostino, Annibale, and Ludovico, prepared the way for Michelangelo da Caravaggio's highly emotional paintings (2). The Flemish painter Peter Paul Rubens, under the influence of Caravaggio and the Venetian school of painting, created a vigorous, sensual, and exuberant art.

Other Baroque artists were the Spanish painters Jusepe Ribera and Diego Velázquez and the Flemish painter Sir Anthony Van Dyck, who attained his greatest success in England.

Baroque art had many faces. In Italy, it was primarily concerned with religious themes, whereas in France, it reflected a classical and more sober spirit evident in the works of Nicolas Poussin, Claude Lorrain, Georges de la Tour, Hyacinthe Rigaud, and the three Le Nain brothers, Antoine, Louis, and Mathieu.

In Holland, a Protestant mercantile nation with a wealthy, educated middle class, there was little demand for religious paintings. Consequently, Dutch artists turned their energies to the creation of landscapes, interiors, portraits, and still lifes. Among the leading Dutch artists of this Golden Age were Rembrandt van Rijn (3), Frans Hals, and Jan Vermeer.
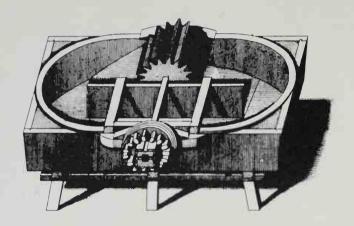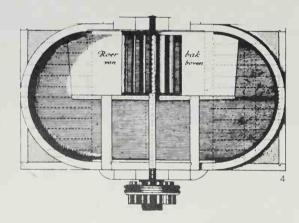

2

3

1 Portrait of Louis XIV, the Sun King, by Hyacinthe Rigaud.

2 *Boy Bitten by a Lizard* is typical of Caravaggio's highly emotional Baroque style that combines dramatic lighting and movement with often violent subject matter.

3 *Self-Portrait by Candlelight* is an early etching done by Rembrandt in 1630 when he was twenty-one.

GRAPHIC ARTS

Printing in Holland

During the 1600s, religious intolerance and government censorship played a major role in determining where printing would flourish and where it would languish. Holland became dominant, while England struggled to establish a viable printing industry.

In North America, the English colonies established their first printing press.

4 Two views of the Hollander beater which simplified the making of pulp.

The early part of the century saw Antwerp continue as the major printing center. By the middle of the century, however, the city had lost its preeminence to Amsterdam, which had become Europe's largest port and financial center.
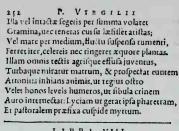
Amsterdam's dominance was due to the relatively tolerant atmosphere that existed in the Protestant Dutch Republic, which contrasted sharply with Spanish-controlled Catholic Antwerp, where religious and political censorship limited the number of books approved for publishing. Antwerp did retain the Catholic market, but it was small compared to the expanding Protestant market.

The most important publisher-printer in Amsterdam was LOUIS ELZEVIR, who, along with his family, became famous for publishing small-format editions for the growing reading public. These convenient vest-pocket books were printed with condensed type, narrow margins, and engraved title pages designed to attract the buyer (5, 6).

In many ways, the Elzevirs followed the tradition created by Aldus Manutius a century earlier, except that while Manutius created books for scholars, the Elzevirs concentrated on the larger reading public. They succeeded magnificently by publishing classics in exceptionally large editions at prices many Dutch could afford.

The type favored by the Elzevirs was derived from the French Garamond, but modified by the designer CHRISTOFFO VAN DYCK to serve small-format books. The type was condensed and had heavy serifs and little contrast between the thick and thin strokes. In many ways, its design reflected the Dutch characteristics of sturdiness and reliability.

Three other notable Dutch type designers were DURK and BARTHOLOMEW VOSKENS and ANTON JANSON, who was a student of Van Dyck's.

Illa vel intactæ segetis per summa volaret
Gramina, nec teneras cursu læsisset aristas;
Vel mare per medium, fluctu suspensa tumenti,
Ferret iter, celeres nec tingeret æquore plantas.
Illam omnis tectis agrisque effusa juventus,
Turbaque miratur matrum, & prospectat euntem
Attonitis inhians animis, ut regius ostro
Velet honos leveis humeros, ut fibula crinem
Auro internectat: Lyciam ut gerat ipsa pharetram,
Et pastoralem præfixa cuspide myrtum.

LIBRI VIII.

ARGVMENTVM.

*Heic Turni Æneaque bellicus apparatus describi-
tur, quorum ille sibi finitimarum urbium Dio-
medisq, auxilia: hic vero Arcades Euandrum-
que regem una cum Pallante adjungit.*

V T belli signum Laurenti Turnus ab arce
Extulit, & rauco strepuerunt cornua
cantu, (arma,
Vtq; acreis concussit equos, utq; impulit
Extemplo turbati animi: simul omne tumultu
Conjurat trepido Latium, sævitque juventus
Effera. ductores primi Messapus, & Vfens;
Contemptorque deum Mezentius, undique cogunt
Auxilia, & latos vastant cultoribus agros.
Mittitur & magni Venulus Diomedis ad urbem,
Qui petat auxilium, & Latio consistere Teucros,
Advectum Ænean classi, victosque Penateis
Inferre, & fatis regem se dicere posci,
Edoceat, multasque viro se adjungere genteis
Dardanio, & late Latio increbescere nomen.
Quid struat his cœptis, quem, si fortuna sequatur,
Eventum pugnæ cupiat, manifestius ipsi,
Quam Turno regi, aut regi apparere Latino.
                                        Talia

Talia per Latium: quæ Laomedontius heros
Cuncta videns, magno curarum fluctuat æstu:
Arq, animum nunc huc celere, nunc dividit illuc,
In parteisque rapit varias, perque omnia versat.
Sicut aquæ tremulum labris ubi lumen aënis
Sole repercussum, aut radiantis imagine Lunæ,
Omnia pervolitat late loca, jamque sub auras
Erigitur, summique ferit laquearia tecti.
Nox erat, & terras animalia fessa per omneis
Alituum pecudumque genus sopor altus habebat:
Cum pater in ripa gelidique sub ætheris axe
Æneas tristi turbatus pectora bello
Procubuit, seramque dedit per membra quietem.
Huic deus ipse loci, fluvio Tyberinus amœno,
Populeas inter senior se attollere frondeis
Vitus. eum tenuis glauco velabat amictu
Carbasus, & crineis umbrosa tegebat arundo.
Tum sic affari, & curas his demere dictis:
O sate gente deum, Trojanam ex hostibus urbem
Qui revehis nobis, æternaque Pergama servas;
Exspectate solo Laurenti, arvisque Latinis;
Hic tibi certa domus, certi, ne absiste, Penates:
Neu belli terrere minis. tumor omnis, & iræ
Concessere deum.
Iamque tibi, ne vana putes hæc fingere somnum,
Litoreis ingens inventa sub ilicibus sus,
Triginta capitum fetus enixa, jacebit;
Alba, solo recubans, albi circum ubera nati.
Heic locus urbis erit, requies ea certa laborum:
Ex quo ter denis urbem redeuntibus annis
Ascanius clari condet cognominis Albam.
Haud incerta cano. nunc qua ratione, quod instat,
Expedias victor, paucis, adverte, docebo.
Arcades his oris, genus à Pallante profectum,
Qui regem Euandrum comites, qui signa secuti,
Delegere locum, & posuere in montibus urbem;
                                        Pallan-

CONCORDIA RES PARVÆ CRESCVNT.

5

A major Dutch contribution to paper-making was the invention of the *Hollander beater* (4). Traditionally, cotton and linen rags were gathered, washed, and dumped into stamping mills, usually driven by waterwheels. The stampers reduced rags to pulp by slowly crushing the fibers. The pulp was then mixed with water in a large vat.

A technical improvement came in 1680 when an unknown Dutchman invented the Hollander beater. While the old stampers crushed rags into fibers of different lengths, the Hollander beater produced fibers of equal length, faster and with less power. As a result, beaters could be driven by windmills.
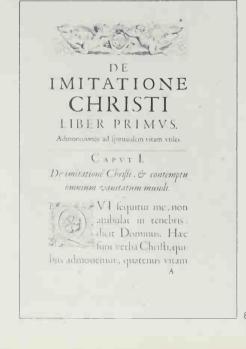
P. VIRGILII
MARONIS
OPERA;
nunc
emendatiora.

Mantuanus olor.

LVGD. BATAVOR.
Ex officina Elzeviriana Aº 1636.

6

5 This vest-pocket Virgil, printed and published by the Elzevir family in 1630, was aimed at the ever-expanding reading public. The book is shown slightly smaller than actual size.

6 The engraved title page for the Virgil added a touch of luxury to a relatively inexpensive book. The Elzevir printer's device is shown above.

Printing in France

LA PAIX DE L'ITALIE,
PAR LA MEDIATION DU ROY.

LA guerre allumée entre le Pape Urbain VIII, & le Duc de Parme au sujet du Duché de Castro, dont le Pape s'estoit emparé, avoit donné occasion aux Princes d'Italie de prendre les armes pour leur propre seûreté. Les Vénitiens, le grand Duc de Toscane, & le Duc de Modéne firent une ligue entr'eux en faveur du Duc de Parme. On commit reciproquement diverses hostilitez, & l'on prit des Places de part & d'autre. Le Duc de Parme s'estoit avancé jusqu'aux portes de Rome, où il avoit jetté la terreur, & cette guerre pouvoit devenir funeste à toute l'Italie, lorsque le Roy interposa sa médiation. Le Cardinal Bichi, nommé Plénipotentiaire par Sa Majesté, fit divers voyages à Rome, à Florence, à Venise, & près des Ducs de Parme, & de Modéne, & s'employa si efficacement dans cette négociation, qu'il conclut heureusement le Traité de Paix entre sa Sainteté, & les Princes liguez, avec l'entiere satisfaction de toutes les parties interessées. Le Pape rendit au Duc de Parme Castro & Montalto, & le grand Duc restitua au Pape plusieurs Places de l'Estat Ecclesiastique, qu'il avoit prises, ce qui restablit dans l'Italie une parfaite tranquillité.

C'est le sujet de cette Médaille. L'Italie avec ses attributs ordinaires y est representée assise. Les mots de la Légende, REX PACIS ARBITER, signifient, le Roy arbitre de la Paix. Ceux de l'Exergue, ITALIA PACATA. M.DC.XLIV. la Paix renduë à l'Italie. 1644.

7

7 The *Medailles* was a magnificent example of French book design and the first to use the Romain du Roi typeface. This typeface, ordered by Louis XIV, was designed on a grid (see right) and cut by Phillipe Grandjean.

8 *De Imitatione Christi* by Thomas à Kempis was the first book to be printed by the Imprimerie Royale, Paris, in 1639. It was a folio edition with types based on Garamond.

9 An engraving of the grid used for Romain du Roi.

DE
IMITATIONE
CHRISTI
LIBER PRIMVS.
Admonitiones ad spiritualem vitam vtiles.

CAPVT I

De imitatione Christi, & contemptu omnium vanitatum mundi.

VI sequitur me, non ambulat in tenebris, dicit Dominus. Hæc sunt verba Christi, quibus admonemur, quatenus vitam
A

8
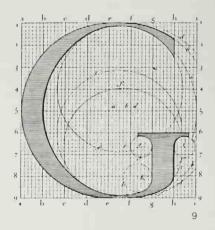
In Paris, CARDINAL RICHELIEU, aware of the success of the Elzevirs in Holland, saw the potential of a government-owned and controlled press that would not only raise the standard of French printing but also bring glory to the crown.

In 1639, Richelieu founded the Imprimerie Royale, or Royal Printing House, and had the presses set up in the Louvre. The first book came off the press in 1640; it was a sumptuous volume of *De Imitatione Christi*. The type was based on Garamond and the copperplate engravings were after designs by Poussin (8).

Toward the end of the century, Louis XIV, an enthusiast of fine printing, ordered the Academy of Sciences to create the perfect typeface for the exclusive use of the Imprimerie Royale.

A committee of academicians headed by a mathematician created a grid of more than 2,000 tiny squares, over which each character was drawn (9). The actual cutting of the type was given in 1693 to PHILIPPE GRANDJEAN, the royal punch cutter. The project, which ultimately consisted of twenty-one sizes, was completed in 1745 by LOUIS LUCE.

This typeface, called *Romain du Roi*, was probably the first type designed in a totally rational and logical manner. The supreme example of its use was the *Medailles*, which were begun in 1694 and took eight years to complete (7). Today, scholars point to Romain du Roi as having many of the characteristics now referred to as "transitional" in type design.
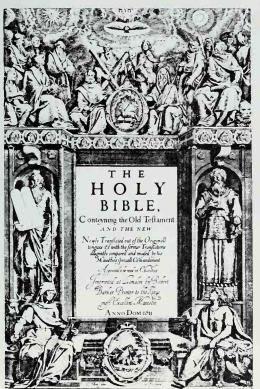

9

The English genius of this period seems to have manifested itself in the writing of great literature rather than in the printing of it. One of the reasons for the low quality of English printing was the continuation of the licensing act, established in the previous century, which limited the number of printers and the cities in which they could operate. (The restrictions were lifted in 1694.)

Another factor was the political and economic turmoil brought about by the Civil War of 1642 to 1649 and the Anglo-Dutch War from 1664 to 1667.

There were, however, two publishing events worth noting, not for their typography, but for the dramatic effect they would have on the formation of modern English.

The first happened in 1611, when Robert Barker printed the Authorized Version of the Bible, more commonly referred to as the King James Version (10, 11). Because it was a large folio edition the text was set in the traditional gothic type, or black letter, with roman reserved for chapter heads, shoulder

10 Engraved title page for the King James Bible.

11 Page from the first edition of the King James Bible. This folio edition was designed to be read in churches at a lectern. The Bible was set in the traditional black letters and printed by Robert Barker in 1611.

notes, and title page. In 1612, a small, quarto Bible was set entirely in roman type (12, 13).

The second publishing event was the printing of the First Folio of William Shakespeare's plays in 1623, seven years after the playwright's death (14). The First Folio, not being a religious text, was set in roman.

13

12

12 Diagram indicating how the folding of a sheet determines the page size and designation, such as folio, quarto, and octavo.

13 Page from the first quarto edition of the King James Version of the Bible. Designed for personal use, the text was set in roman type and was printed by Robert Barker in 1612.

14 Title page spread from the First Folio with an engraved portrait of William Shakespeare. It was printed in 1623 by Isaac Jaggard and Edward Blount seven years after Shakespeare's death.
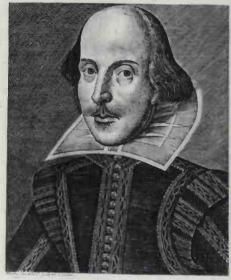

14

To the Reader.

This Figure, that thou here seest put,
It was for gentle Shakespeare cut;
Wherein the Grauer had a strife
with Nature, to out-doo the life :
O, could he but haue drawne his wit
As well in brasse, as he hath hit
His face ; the Print would then surpasse
All, that was euer writ in brasse.
But, since he cannot, Reader, looke
Not on his Picture, but his Booke.

B. I.

Mr. WILLIAM
SHAKESPEARES
COMEDIES,
HISTORIES, &
TRAGEDIES.

Published according to the True Originall Copies.

LONDON
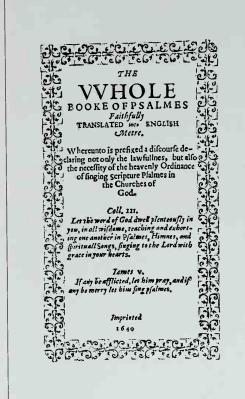Printed by Isaac Iaggard, and Ed. Blount. 1623

The first printing press in North America was not English, but Spanish, installed in Mexico City in 1534.

The first English press was purchased in England by Reverend Jesse Glover with the intention of setting it up in Cambridge, Massachusetts. Unfortunately, Glover died while making the voyage to America, and the press became the property of his wife. With the help of STEPHEN DAY, a printer who had accompanied the Glovers on the trip, the press was operating in 1638.

The first pieces to come off the press were a broadside, *The Freeman's Oath*, and Pierce's *Almanack* for 1639. No copies of either are known to exist. The following year brought the printing of *The Whole Booke of Psalmes, Faithfully Translated into English Metre*, more commonly referred to as the *Bay Psalm Book* (15, 16).

In 1642 SAMUEL GREEN became manager, and in 1663, with the assistance of Marmaduke Johnson, issued John Eliot's translation of the Bible into the Algonquin tongue (17). Known as the Eliot Indian Bible, it was the first Bible printed in British North America. Other commissions included works for Harvard College. Green remained with the press until it ceased operation in 1692.

With the growing popularity of printing came the need for a local source of paper. The first paper mill was established in 1690 near Philadelphia by WILLIAM RITTENHAUSEN and WILLIAM BRADFORD, a printer. Three years later William Bradford moved to New York, where he became the city's first printer.

15

15 Title page of the *Bay Psalm Book*, the first book printed in America. Stephen Day, who produced the book in 1640, was obviously short of capital Ws and had to combine two Vs.

16 Spread from the *Bay Psalm Book* with the Twenty-third Psalm "faithfully translated into English metre."

16

17 The first Bible printed in New England was the Eliot Indian Bible in the Algonquin tongue "for the propagation of the Gospel amongst the Indians"

Early Newspapers

The world's first newspaper of regular publication, Avisa Relation oder Zeitung, *was first published on January 15, 1609, by Johan Carolus of Strasbourg. It was a single sheet printed on both sides, similar to news sheets that had appeared from time to time for reporting special events (see page 101).*

Others were quick to follow. The most dynamic center of newspaper publishing was Holland. The first Dutch newspaper, Courante Uyt Italien, Duytslandt, *was founded in 1618; it appeared weekly for forty years.*

Holland's importance was due to its position as a maritime nation with access to international news and to its freedom from censorship. Holland not only printed newspapers in Dutch, but also in English, French, and German. These were then smuggled into England, France, and Germany. In fact, the first English-language newspaper was printed in Holland in 1620.

The first American newspaper, Publick Occurrences Both Forreign and Domestick, *had a short life. Published in 1690 by Benjamin Harris of Boston, the paper was declared illegal and publication suspended after a single issue. The paper had a small format, with four pages, the third being blank in case the purchaser wished to add news or comments before passing it along.*

The first successful American newspaper was the Boston News-Letter.

The first English daily, The Daily Courant, *published by Londoner Elizabeth Mallet, did not appear until 1702.*

Historical Events

1600 East India Company founded. Shakespeare writes *Hamlet*.

1603 Death of Queen Elizabeth I.

1605 Cervantes publishes *Don Quixote*.

1607 Jamestown colony founded in Virginia. Monteverdi composes first opera, *Orfeo*.

1609 Henry Hudson explores Hudson River.

1616 Death of Shakespeare and Cervantes.

1617 Death of Pocahontas.

1618 Sir Walter Raleigh executed for treason.

1620 *Mayflower* arrives at Plymouth. Harvey discovers circulation of blood.

1623 Shakespeare's First Folio published. Velázquez appointed court painter to Philip IV.

1626 Peter Minuit buys Manhattan for 60 guilders ($24.00).

1630 Taj Mahal begun.

1632 London's first coffee shop opens.

1636 Harvard College founded.

1638 Rubens paints *The Three Graces*.

1642 Montreal founded. England institutes income and property taxes. Rembrandt paints *The Night Watch*. Puritans close English theaters.

1643 Louis XIV becomes king at age five. Torricelli invents barometer.

1644 Ming Dynasty ends; Manchu begins. Descartes writes *Principia philosophicae*. Antonio Stradivari born. Paris has seventy-five printing shops.

1648 Quakers founded by George Fox.

1649 English replaces Latin as official language for legal documents.

1650 Tea introduced into England. World population about 500 million.

1651 Thomas Hobbes publishes *Leviathan*.

1652 Minuet danced in French courts.

1653 Izaak Walton writes *The Compleat Angler*.

1656 French Academy of Painting in Rome founded. Rembrandt declared bankrupt.

1657 Christiaan Huygéns regulates clock with pendulum.

1658 Oliver Cromwell dies.

1660 Samuel Pepys starts diary. Boers settle in South Africa. Royal Society founded.

1664 New Amsterdam becomes New York.

1665 The Great Plague of London kills more than 68,000.

1666 Moliére writes *The Misanthrope*. The Great Fire of London.

1667 John Milton writes *Paradise Lost*.

1668 La Fontaine writes *Fables*.

1670 Hudson's Bay Company founded. Pascal's *Pensées* published.

1673 Jolliet and Marquette discover headwaters of Mississippi.

1675 Christopher Wren rebuilds St. Paul's Cathedral.

1678 Comédie Française established. Dodo extinct.

1682 Louis XIV establishes Versailles as royal residence. Philadelphia founded by William Penn.

1685 Bach, Handel, and Scarlatti born.

1687 Sir Isaac Newton writes *Principia mathematica*.

1692 Salem witchcraft trials.

1694 Bank of England founded.

1696 Peter the Great becomes czar.

1697 Charles Perrault publishes *Mother Goose Tales*.

Literature

John Bunyan (1628-1688)
Miguel de Cervantes (1547-1616)
Pierre Corneille (1606-1684)
René Descartes (1596-1650)
John Dryden (1631-1700)
Thomas Hobbes (1588-1679)
Jean de La Fontaine (1621-1695)
Gottfried Wilhelm von Leibnitz (1646-1716)
John Locke (1632-1704)
John Milton (1608-1674)
Jean Molière (1622-1673)
Sir Isaac Newton (1642-1727)
Blaise Pascal (1623-1662)
Samuel Pepys (1633-1703)
Jean Racine (1639-1699)
William Shakespeare (1564-1616)
Baruch Spinoza (1632-1677)
Izaak Walton (1593-1683)

Music

Pier Cavalli (1602-1676)
Arcangelo Corelli (1653-1713)
Girolamo Frescobaldi (1583-1643)
Jean Baptiste Lully (1632-1687)
Claudio Monteverdi (1567-1643)
Michael Praetorius (1571-1621)
Henry Purcell (ca. 1659-1695)
Samuel Scheidt (1587-1654)
J. H. Shein (1586-1630)
Heinrich Schütz (1585-1672)
Alessandro Scarlatti (1660-1725)
Giuseppe Torelli (1658-1709)
Tomas Luis de Victoria (ca. 1562-1626)

Fine Arts

Michelangelo da Caravaggio (1573-1610)
Agostino Carracci (1557-1602)
Annibale Carracci (1560-1609)
Ludovico Carracci (1555-1619)
Frans Hals (1581-1666)
Claude Lorrain (1600-1682)
Antoine Le Nain (1588-1648)
Louis Le Nain (1593-1648)
Mathieu Le Nain (1607-1677)
Nicolas Poussin (1594-1665)
Rembrandt van Rijn (1609-1669)
Jusepe Ribera (1591-1652)
Peter Paul Rubens (1577-1640)
Georges de la Tour (1593-1652)
Anthony Van Dyck (1599-1641)
Diego Velázquez (1599-1660)
Jan Vermeer (1632-1675)

Graphic Arts

Robert Barker (d. 1645)
William Bradford (ca. 1594-1668)
Stephen Day (1594-1668)
Christoffo van Dyck (1540-1617)
Louis Elzevir (1540-1617)
Philippe Gradjean (fl. 1693)
Jean Jannon (fl. 1615)
Anton Janson (1620-1687)
Louis Luce (fl. 1745)

First newspaper, 1609

The French Enlightenment was primarily the product of intellectuals known as *philosophes*, who believed in material progress, the perfectability of man, and religious and political freedom. The *philosophes* had an overwhelming confidence in the ability of science and technology to solve the problems that had plagued humankind through the ages, such as hunger, disease, and war.

The French Enlightenment spread throughout the world and eventually helped create the climate for both the American and French revolutions. Among the major *philosophes* were Charles-Louis de Secondat Montesquieu, Voltaire (François Marie Arouet), Denis Diderot, and Jean Jacques Rousseau.

England's contribution at this time was both political and economic. The English, having established a constitutional monarchy controlled by Parliament, had created a two-party system made up of the Whigs and Tories. These two parties were the forerunners of the Liberal and Conservative parties. The concept of a loyal opposition, combined with the freedom of the press and a growing material prosperity, made England the envy of the Continent.

Three economic revolutions helped shape the century: the agricultural, the industrial, and the commercial. The agricultural revolution saw the introduction of scientific and efficient farming methods that increased productivity. The Industrial Revolution saw steam power and mechanization introduced into the textile and mining industries.

The commercial revolution, which began in the seventeenth century, was based on the importation of raw materials from the colonies and the manufacture of finished products for sale back to the colonies.

The two major political revolutions were the American and the French. The American Revolution of 1776 became a model for future uprisings, especially the French Revolution of 1789.

The American Revolution was brought on by what the colonists perceived to be the arbitrary acts passed by the British Parliament and King George III and his ministers. After five years of indecisive battles, the British finally surrendered at Yorktown, Virginia, in 1781, and two years later Britain officially recognized American independence.

Among the many benefits of the American Revolution were the documents drafted by the founding fathers: the Declaration of Independence and the Constitution with its Bill of Rights.

The French Revolution began in earnest on July 14, 1789, with the storming of the Bastille. The aims of the revolution were announced in a document called the Declaration of the Rights of Man.

In 1793, King Louis XVI, along with his wife Marie Antoinette and family, attempted to flee, but were captured, tried, and executed by guillotine. Under Robespierre, a brief reign of terror followed before a moderate regime, called the Directory, came to power. This government lasted until 1799, when a young general, Napoleon Bonaparte, assumed dictatorial powers.

Despite the turmoil brought on by the French Revolution, there were long-term benefits: the institution of a new and more reasonable code of laws, the reorganization of government and education, and the creation of the metric system.

In the literary world it was a great century for English prose: Daniel Defoe wrote *The Life and Strange Surprising Adventures of Robinson Crusoe*, Jonathan Swift wrote *Gulliver's Travels*, and Henry Fielding wrote *Tom Jones*. Samuel Richardson, a London printer, is credited with creating the first true novel, *Pamela*, and Dr. Samuel Johnson compiled the first English dictionary in 1755. It was also the century that gave birth to the *Encyclopaedia Britannica* in 1768.

After the death of the Sun King, Louis XIV, in 1715, the Baroque style which dominated the previous century, gave way to a lighter, more playful, *Rococo*.

In France, the Rococo is synonymous with the reign of Louis XV, when fashions were strongly dictated by influential women such as Madame du Pompadour and Madame du Barry. Among the major artists of the Rococo period were Antoine Watteau, François Boucher, Jean Fragonard, Jean-Baptiste Greuze, and Jean-Baptiste-Siméon Chardin (2).

The Rococo style gave way to two opposing schools: the *Neoclassic* and the *Romantic*. As a reaction to the frivolity of the Rococo, Neoclassicists such as Jacques-Louis David looked back to ancient Greece and Rome for inspiration (4).

The Romantics, on the other hand, drew inspiration from the Middle Ages and exotic cultures, such as the American Indian. Three early Romantic painters were Pierre Prud'hon, Louis Girodet, and Antoine-Jean Gros.

In Italy the Rococo painters of note were mainly Venetian: Giovanni Tiepolo, Canaletto (Antonio Canale), and Francesco Guardi. Rome, however, remained the international mecca for foreign artists, who came to the city to study its ancient ruins and Renaissance art. An outstanding Roman artist inspired by the ruins was Giovanni Piranesi.

Spain produced one of the greatest artists of the century, Francisco Goya. He was also one of the foremost graphic artists of all time (3). As an etcher, he exploited to the fullest the new technique of aquatint, producing such masterpieces as *The Disasters of War* series.

England's first artist of importance was William Hogarth, followed later by Joshua Reynolds, Thomas Gainsborough, Thomas Rowlandson, and William Blake.

Three American artists who studied in England and painted in the English manner were John Singleton Copley, Benjamin West, and Gilbert Stuart (1).

2

3

4

2 *The House of Cards* by Chardin is an example of eighteenth-century genre style painting. Chardin's shallow space and strong composition would later influence Paul Cézanne and the Cubists.

3 This self-portrait of Goya shows an early use of aquatint as a means of producing tones in etchings.

4 *The Oath of the Horatii* painted by Jacques-Louis David in 1786 embodies the Neoclassic style with emphasis on heroic subject matter. It is moralistic in tone and rendered in a straightforward, precise manner.

GRAPHIC ARTS

Printing in England

By the 1700s, printing had become a major industry throughout Europe with no particular nation in a position of dominance. With the increased demand for printed matter and a more discriminating reading public, printers and publishers became aware of the need for better typefaces, paper, and presswork.

The City of London replaced Amsterdam as Europe's major financial and printing center. In England printing flourished, stimulated by the newly won freedom of the press in 1694.

New forms of printed matter appeared: JOSEPH ADDISON and RICHARD STEELE wrote and published the first successful periodic journals, the *Tatler* in 1709 and the *Spectator* in 1711. The English novel developed as a popular literary form.

With the increased volume of printing and a heightened sense of national pride, English printers sensed the need for native English typeface designs. Until this time England had been content to import the matrices for typefaces from Holland and have the type cast at local foundries. But Holland was a rival for markets and colonies around the world and not a reliable source.

A first step in independence came in 1720, when WILLIAM BOWYER, a London printer, advanced the sum of £500 to enable WILLIAM CASLON, an engraver, to set up his own foundry. By 1725 Caslon had designed, cut, and cast his first roman and italic typefaces.

Although strongly influenced by Dutch designs, *Caslon* became the quintessential English typeface and dominated English printing throughout the century (5). Caslon is considered the last of the major *old style* type designs.

The man who probably did the most for English printing, JOHN BASKERVILLE, was considered in his time to be an amateur. He began his career as a writing master, but gave that up as a young man to make his fortune at the japanning business in Birmingham. After retiring at the age of forty-four, Baskerville returned to his first love, letterforms, and began printing as a wealthy amateur.

Extremely dissatisfied with the state of English printing and typography, Baskerville set out to do something about it.

5 Detail from a Caslon specimen sheet with type sizes specified not in points, but by names such as cannon, primer, and pica. Caslon is considered the last of the old style faces.

He decided to print his own books to show by example what could be done when one took pains with every stage of production. To achieve the best possible results, Baskerville designed his own typefaces, experimented with inks and paper, and, above all, demanded excellence in presswork.

In 1757, Baskerville published his first book, the works of Virgil (7), and went on to publish many more books including the Juvenal satires (6).

At first Baskerville's books received a mixed response. Many felt that the high contrast created by the intense black ink and brilliant white paper Baskerville used in his books dazzled the eyes and made reading difficult. Much of the criticism has been attributed to professional jealousy. Today, both Baskerville's types and books are universally acclaimed.

Baskerville also experimented with with various printing surfaces and is credited by some with being the first printer to use wove paper.

For centuries handmade paper was produced on a parallel wire screen supported by stronger wires, called chains. This produced a sheet of paper, referred to as *laid*, with an uneven surface that retained the impression of the screen, especially the chain marks.

Baskerville realized that a finely woven screen would produce a smoother paper and eliminate the wire and chain impression. This new type of paper was called *wove*. To make the surface of the paper even smoother and glossier, the paper was pressed between hot copper plates, a process we now call *calendering*.

Baskerville first used wove paper on his *Virgil* of 1757 and later for his *Paradise Regained* in 1759.

6

JUVENALIS SATYRA VI. 73

Jamque eadem fummis pariter, minimifque libido:
Nec melior pedibus filicem quæ conterit atrum;
Quam quæ longorum vehitur cervice Syrorum.
Ut fpectet ludos, conducit Ogulnia veftem,
Conducit comites, fellam, cervical, amicas,
Nutricem, et flavam, cui det mandata, puellam.
Hæc tamen argenti fupereft quodcumque paterni
Lævibus athletis, ac vafa noviffima donat.
Multis res angufta domi eft: fed nulla pudorem
Paupertatis habet; nec fe metitur ad illum,
Quem dedit hæc pofuitque modum. Tamen utile quid fit,
Profpiciunt aliquando viri; frigufque, famemque,
Formica tandem quidam expavere magiftra.
Prodiga non fentit pereuntem fœmina cenfum:
At velut exhaufta redivivus pullulet arca
Nummus, et e pleno femper tollatur acervo,
Non unquam reputat, quanti fibi gaudia conftent.
Sunt quas eunuchi imbelles, ac mollia femper
Ofcula delectent, et defperatio barbæ,
Et quod abortivo non eft opus. Illa voluptas
Summa tamen, quod jam calida et matura juventa
Inguina traduntur medicis, jam pectine nigro.
                    K   Ergo

7

PUBLII VIRGILII

MARONIS

BUCOLICA,

GEORGICA,

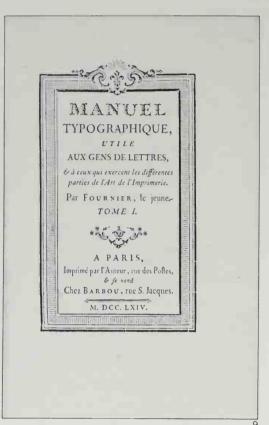ET

AENEIS.

BIRMINGHAMIAE.
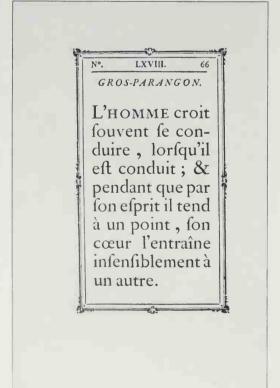Typis JOHANNIS BASKERVILLE.
MDCCLVII.

6 The clear, open forms of Baskerville's type, as seen in this page from Juvenal's *Satires*, demonstrates why Baskerville has remained a popular book typeface. Baskerville is now classified as a transitional typeface.

7 Title page from Baskerville's first book, a Virgil, which was published in 1757. It was received with mixed reviews; many found the paper too white, the ink too black, and the type too dazzling.

Printing in France

In France, two great families left their mark on the graphic arts: the Fourniers and the Didots.

PIERRE-SIMON FOURNIER is the most interesting of the three Fournier brothers. He created the first point system for measuring type in an attempt to bring order to an industry where each foundry established its own type sizes and terminology. Unfortunately, Fournier's proposed point system found no support. In 1764 Fournier also published the *Manuel typographique*, an illustrated handbook on the art of type founding and printing (8, 9, 10).

FRANÇOIS DIDOT refined Fournier's point system for measuring type into an acceptable system. He was the first to identify type sizes solely in points rather than by the old system of names such as pica, primer, nonpareil, and so on.

François' son, Firmin Didot, is renowned for having designed the first typeface we classify as *modern* (11). Firmin Didot's typeface—with extreme contrast between strokes and unbracketed hairline serifs—combined the refinements of *Baskerville* with the French Neoclassical sense of clarity and formality. With the introduction of modern faces, typefaces such as Baskerville are now classified as *transitional*, as they form a bridge between the old style faces and the modern.

Perhaps the major publishing event of the century occured in France in 1751, when the first volume of Denis Diderot's great *Encyclopédie* came off the press. Diderot attempted to document and illustrate all the arts, sciences, and trades of his time. It took another twenty-five years and many encounters with the censors before the entire edition of twenty-one volumes of text and twelve volumes of engraved plates was completed.

8

9

8 Pierre Simon Fournier is credited with introducing the first point system for standardizing type sizes. His *Manuel typographique*, published in 1764, illustrates how he divided the French inch first in twelve "lines" and then each line into six points. He then assigned a fixed point size to the various designations. Unfortunately, Fournier's point system found little support.

9 Title page from *Manuel typographique* illustrates the popular use of rules and ornaments to decorate the page.

10 Type specimen from *Manuel typographique* illustrating the type size called gros-paragnon.

10

OEUVRES

DE

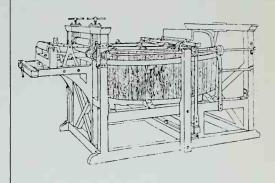# JEAN RACINE.

TOME PREMIER.

À PARIS,

DE L'IMPRIMERIE DE PIERRE DIDOT L'AINÉ,

AU PALAIS NATIONAL DES SCIENCES ET ARTS.

AN IX; M. DCCCI.

11

11 Firmin Didot was one of the first designers to create a modern typeface, that is, one having extreme contrast between the thick and thin strokes and unbracketed serifs. It is interesting to compare the Rococo design of Fournier's title page in figure 8 with the classic approach of Didot in his masterpiece, *Oeuvres de Jean Racine.*

The Mechanization of Papermaking

By the end of the eighteenth century, the demand for paper had become so great that the mills supplying handmade paper could not meet the demand. The time had come to mechanize the papermaking process.

One of the developments that made mechanization possible was the woven wire screen, similar to the one used by Baskerville. The woven screen permitted paper to be made in large sheets or as a continuous web.

The first practical papermaking machine was designed in 1798 by the Frenchman Nicholas Louis Robert (above). Unfortunately, for complex financial and political reasons it never succeeded and the initiative moved to England.

The first English papermaking machine was built in 1803 by the engineer Brian Donkin with financing by two London stationers, the Fourdrinier brothers, Henry and Sealy. Although it produced a fairly good paper, forty-eight inches wide, it was not a total success. It required another ten years before the first commercially successful papermaking machine was put into operation at the Marchant Warell Mill at Two Waters, Hertfordshire.

The first American machine was built by Donkin and arrived in Saugerties, New York, in 1827. It produced a sixty-inch sheet.

Printing in Italy

135

CORALE

Quousque tan-
dem abutére, Ca-
tilina , patientiá
nostrá? quamdiu
etiam furor iste
tuus nos eludet?
quem ad finem se-

COMACCHIO

12

12 Giambattista Bodoni, a rival of Firmin Didot, retained a delicately bracketed serif to create a less austere modern typeface. This can be seen in his *Manuel tipografico*, designed by him, but issued by his wife after his death in 1813.

13 Text page from *Manuel tipografico*. Note the generous linespacing, so important with modern style typefaces.

GIAMBATTISTA BODONI was Italy's most renowned type designer and printer. At the age of twenty-eight, he was called to Parma by Duke Ferdinand and was invited to set up a private press and type foundry. The operation was called *Stamperia Reale* and was generously subsidized by the duke.

It was here that Bodoni designed his famous typefaces. They show many of the same characteristics found in Didot's typefaces designed a few years earlier. Because of Bodoni's fame as a printer, it is his name, rather than Didot's, that's most often associated with modern typeface design.

A great part of Bodoni's fame rests on the superb printing of his magnificent folios of Horace and Virgil and the two-volume edition of his *Manuele tipografico* (12, 13). By using smooth, hard-surfaced paper, rich black ink, large type, and generous leading, Bodoni created layouts that were open, formal, and free of unnecessary decoration.

delle lettere: a dimostrar il quale se possono i doviziosi cercare sfoggiati volumi superbamente impressi, sarà ufficio dell'arte tipografica il somministrarne. Converralle adunque perciò trovar il bello nel grande, come abbiam veduto che per lo comodo ella dee trovarlo nel piccolo.

Ma il bello in che direm noi che consista? Forse più che in altro in due cose: nella convenienza, che la mente appaga, soddisfatta quando riflettendo ella scorge le parti tutte d'un'opera cospirare a uno stesso intento, e nella proporzione, che contenta gli sguardi, o più veramente la fantasia, la qual serba in sè certe immagini e figure, alle quali ciò che più conformasi più le piace. E la

13

By 1700 printing was well established in the American colonies, and in 1704 the first continuing newspaper, the *Boston News-Letter*, was published by JOHN CAMPBELL. A newspaper had been attempted earlier on September 25, 1690, but had been suppressed by the government after a single issue.

The most important printer in colonial America, better remembered today as a statesman and a signer of the Declaration of Independence, was BENJAMIN FRANKLIN. Born in Boston in 1706, he served as an apprentice printer with one of his brothers. Franklin failed to complete his apprenticeship and sailed for England in 1726, where he supported himself as a printer in London (14).

Upon his return to America, Franklin established his own printing shop in Philadelphia, where he printed and published books, pamphlets, and a newspaper called the *Pennsylvania Gazette*.

As there were no domestic type foundries, Franklin had to import type from England. From his printing experience, he became familiar with Baskerville, Fournier, Didot, and Bodoni, but his preference seems to have been for Old Style Caslon—the most popular typeface in the colonies. In fact, the Declaration of Independence was set in Caslon (15).

Besides being one of the colonies' leading printers and publishers, Benjamin Franklin was also a scientist and the author of the bestselling *Poor Richard's Almanack*.

14

14 Title page for an essay written, set, and probably printed by Benjamin Franklin in 1725 while working as a trade compositor in London, England.

15 The Declaration of Independence set in what was then America's most popular typeface, Caslon.

15

The Birth of Lithography

Lithography, *which means "stone writing," was developed by a Bavarian named Aloys Senefelder in 1798 as an inexpensive means of reproducing his writings.*

Senefelder's process was a radical departure from other printing techniques, such as printing from a raised image (letterpress) or printing from a lowered image (intaglio). Senefelder's method, which he called polyautography, *reproduced images from a smooth surface. It was based on the principle that water and grease do not mix.*

Here's how it works. The image to be printed is drawn directly on a slab of smooth limestone with a grease crayon or liquid tusche. The stone is then sponged with a solution of water, gum arabic, and acid. The water solution is rejected by the greasy image and accepted in the nonimage areas. When the stone is inked, the opposite happens: The image accepts the ink and the nonimage areas reject the ink.

To print the image, a sheet of paper is placed over the stone, pressure is applied, and the image is transferred to the paper.

Lithography had a number of advantages over letterpress and intaglio. First, there was the direct technique: Whatever was drawn on the stone could be reproduced without an intermediary having to make plates—and in the process losing some of the artist's subtleties. Corrections were easy to make and inexpensive. And finally, a lithograph stone was capable of printing hundreds of high-quality prints without wear and tear on the stone.

The only disadvantages were that the image had to be drawn backwards (wrong-reading) *in order for it to print as intended* (right-reading). *Type was obviously not suited to lithography, and stones could only be used for a lithograph press.*

Lithography did not reach its full commercial and artistic potential until the nineteenth century.

Mezzotint, Wood Engraving, and Steel Engraving

Three reproduction methods added to the range and diversity of the printed piece: mezzotint, steel engraving, and wood engraving.

Mezzotint, *invented by the German Ludwig von Siegen in 1642, was perfected by the English graphic artists of the following century, who used it to make black-and-white reproductions of paintings. The mezzotint could then be tipped into books or framed, a forerunner of today's fine art reproductions.*

Steel engraving *was developed by an American, Jacob Perkins, late in the century. (This was the first major contribution to the graphic arts by an American.) Like mezzotint, steel engraving was an intaglio process in which the image to be reproduced is below the printing surface. The advantage of steel engraving is the number of excellent reproductions that can be pulled from a single plate: Where a copper plate will yield hundreds, a steel plate can produce thousands. Today, steel engraving is used almost exclusively for printing paper currency and postage stamps.*

Wood engraving *was perfected by an Englishman, Thomas Bewick, around the same time steel engraving was developed. Unlike woodcuts, wood engravings are cut on the end grain of the extremely hard boxwood. It is the denseness of the wood that permits great detail, as can be seen in the illustration above. Wood engravings are printed by letterpress, unlike mezzotint and steel engravings.*

Historical Events

1700 Population of England and Scotland about 8 million. Commode becomes popular.

1701 Captain Kidd hanged for piracy.

1703 Peter the Great builds St. Petersburg.

1705 Edmund Halley predicts return of comet.

1706 Benjamin Franklin born.

1709 First Copyright Act in Britain.

1711 The *Spectator* launched. Clarinet introduced into orchestra.

1712 Last execution for witchcraft in Britain.

1714 Gabriel Fahrenheit constructs mercury thermometer.

1718 First English bank note.

1719 First cricket match.

1720 Spain occupies Texas.

1721 Bach composes the *Brandenburg Concertos*. Madame de Pompadour born.

1724 Longman's, England's oldest extant publishing house, founded.

1725 Giovanni Giacomo Casanova de Seingalt born.

1726 Swift writes *Gulliver's Travels*. Vivaldi composes *The Four Seasons*.

1732 George Washington born.

1734 First horserace in America.

1735 John Peter Zenger trial in New York on freedom of the press.

1738 Joseph Guillotin, inventor of guillotine, born.

1740 Frederick the Great ascends throne of Prussia.

1742 Anders Celsius invents centigrade thermometer. Handel's *Messiah* first performed.

1751 Canada's first newspaper, *Halifax Gazette*, launched.

1752 Britain adopts Gregorian calendar. Franklin invents lightning rod.

1755 Samuel Johnson publishes dictionary. Lisbon earthquake kills 30,000.

1756 British soldiers die in Black Hole of Calcutta. Mozart born.

1759 British capture Quebec from French. Generals Wolfe and Montcalm killed. Voltaire writes *Candide*.

1760 Josiah Wedgwood founds pottery works. Rules of whist written according to Edmund Hoyle.

1762 Rousseau writes *The Social Contract*.

1764 Death of Madame de Pompadour. James Hargreaves patents spinning jenny.

1765 British pass Stamp Act.

1766 Mason-Dixon line surveyed.

1768 Royal Academy of London founded.

1769 James Watt patents steam engine.

1770 Boston Massacre. Thomas Gainsborough paints *Blue Boy*.

1771 First *Encyclopaedia Britannica*.

1773 Boston Tea Party.

1775 American Revolution begins.

1776 Declaration of Independence signed. James Gibbon writes *The History of the Decline and Fall of the Roman Empire*. Adam Smith writes *Wealth of Nations*.

1777 Stars and Stripes adopted as official flag of the United States.

1778 James Cook discovers Hawaii.

1779 First Derby run at Epsom.

1783 Montgolfier brothers' first balloon flight.

1786 Mozart composes *The Marriage of Figaro*. Robert Burns publishes poems.

1788 U.S. Constitution ratified.

1789 Mutiny on the *Bounty*. Washington inaugurated. French Revolution begins.

1791 James Boswell completes *Life of Samuel Johnson*. Bill of Rights adopted.

1793 Louis XVI and Marie Antoinette guillotined. Eli Whitney invents cotton gin.

1794 U.S. Navy created.

1795 Metric system adopted in France.

1796 Napoleon Bonaparte marries Josephine. Edward Jenner's first vaccination for smallpox.

1798 Thomas Robert Malthus publishes essay on population. Casanova dies.

1799 Beethoven composes first symphony. George Washington dies.

Literature

William Blake (1757-1827)
Robert Burns (1759-1796)
Daniel Defoe (1661-1731)
Henry Fielding (1707-1754)
Benjamin Franklin (1706-1790)
Edward Gibbon (1737-1794)
Johann Wolfgang von Goethe (1749-1832)
Oliver Goldsmith (1728-1774)
David Hume (1711-1776)
Thomas Jefferson (1743-1826)
Samuel Johnson (1709-1784)
Immanuel Kant (1724-1804)
Montesquieu (Charles-Louis de Secondat) (1689-1755)
Thomas Paine (1737-1809)
Alexander Pope (1688-1744)
Samuel Richardson (1689-1761)
Jean Jacques Rousseau (1712-1778)
Adam Smith (1723-1790)
Tobias Smollett (1721-1771)
Jonathan Swift (1667-1745)
Voltaire (1694-1778)

Music

C.P.E. Bach (1714-1788)
Johann Sebastian Bach (1685-1750)
Ludwig van Beethoven (1770-1827)
Luigi Boccherini (1743-1805)
Luigi Cherubini (1760-1842)
Domenico Cimarosa (1749-1801)
François Couperin (1668-1733)
John Gaye (1685-1732)
C. W. Gluck (1714-1787)
George Frederick Handel (1685-1759)
Joseph Haydn (1732-1809)
Wolfgang Amadeus Mozart (1756-1791)
Giovanni Pergolesi (1710-1736)
J. P. Rameau (1683-1764)
Domenico Scarlatti (1685-1757)
G. P. Telemann (1681-1767)
Antonio Vivaldi (ca. 1675-1741)

Fine Arts

Bernardo Belletto (1720-1780)
William Blake (1757-1827)
François Boucher (1703-1770)
Canaletto (Antoino Canale) (1697-1768)
Antonio Canova (1757-1822)
Jean-Baptiste Chardin (1699-1779)
John Singleton Copley (1738-1815)
Jacques-Louis David (1748-1825)
Jean Fragonard (1732-1806)
Thomas Gainsborough (1727-1788)
Louis Girodet (1767-1824)
Francisco Goya (1746-1828)
Jean-Baptiste Greuze (1725-1805)
Antoine-Jean Gros (1771-1835)
Francesco Guardi (1712-1793)
William Hogarth (1696-1764)
Giovanni Piranesi (1720-1778)
Pierre Prud'hon (1785-1823)
Sir Joshua Reynolds (1723-1796)
Thomas Rowlandson (1756-1827)
Gilbert Stuart (1755-1828)
Giovanni Tiepolo (1696-1770)
Antoine Watteau (1684-1721)
Benjamin West (1738-1820)

Graphic Arts

John Baskerville (1706-1775)
Thomas Bewick (1753-1828)
Giambattista Bodoni (1740-1813)
William Bowyer (1663-1737)
William Caslon (1692-1767)
Firmin Didot (1764-1836)
François Didot (1730-1804)
Brian Donkin (1768-1855)
Henry Fourdrinier (1766-1854)
Sealy Fourdrinier (d. 1847)
Pierre-Simon Fournier (1712-1768)
Benjamin Franklin (1706-1790)
Nicholas Louis Robert (1761-1828)
Aloys Senefelder (1771-1834)

1 Detail from *Napoleon in His Study,* painted by Jacques-Louis David in 1812.

The nineteenth century opened with the rise of Napoleon in his bid for world power. His fall came in 1815 with his defeat by Wellington at Waterloo. The ensuing peace created a political stability in Europe that, with a few exceptions, lasted until the First World War in 1914. This relative calm saw the European nations focus their attention on national unity, industrialization, and imperialistic expansion abroad.

Great Britain emerged as the major world power; by the end of the century it had created history's most extensive empire. Other European nations, such as France, Belgium, and Germany, followed suit, acquiring overseas territories.

It was a time of nationalism that fostered a desire for political unity in the Italian and German areas and lead to unification of Italy in 1860 and of Germany in 1870 by Bismark.

The United States, too, was expanding under the self-serving doctrine of Manifest Destiny, acquiring the Louisiana Territory, Texas, California, and Alaska.

The Industrial Revolution that had begun in the previous century continued to expand vigorously. Production of goods soared, fueled by the new sources of power: steam, oil, and electricity. Transportation became rapid, thanks to railroads, steamships, and some hard-surfaced roads. Communication kept pace with the telegraph and telephone.

However, economic growth was unpredictable. It led to periods of stagnation and unemployment. The resulting boom-and-bust economy created great uncertainties and hardships among the working class, which led in turn to labor unrest and the rise of new political ideologies, especially socialism, communism, and anarchism.

All these political theories claimed to explain the underlying economic problems and all offered surefire solutions. Perhaps the most famous example can be found in *Das Kapital*, written by Karl Marx in 1867.

Political and labor reform progressed slowly; voting rights were extended, and laws were passed to protect workers, particularly the women and children. People in the trades began to organize into labor unions, one of the earliest being the Printers and Typesetters.

Through all of this, the United States prospered, expanded westward, fought the Civil War, emancipated the slaves, absorbed millions of immigrants, and became a major industrial power.

In literature, the early part of the century was dominated by the Romantic Movement, which produced a second great outpouring of English poetry. Poets such as William Wordsworth, Samuel Taylor Coleridge, Lord Byron (George Gordon), Percy Bysshe Shelley, and John Keats celebrated the triumph of feeling over rational thought that had dominated the previous century during the Age of Reason. The Romantic trend continued during the long reign of Queen Victoria, who ascended the throne in 1837 and died in 1901.

While the poets sang of love and nature, novelists such as Charles Dickens decried the injustices created by the Industrial Revolution. American masterpieces also made a number of contributions to literature: Henry David Thoreau's *Walden*, Herman Melville's *Moby Dick*, Walt Whitman's *Leaves of Grass*, and Mark Twain's *Huckleberry Finn*. Edgar Allan Poe's short story "The Murders in the Rue Morgue" earned him the title of Father of the Modern Detective Story.

The intellectual bombshell of the mid-Victorian period came in 1859 with the publication of Charles Darwin's *Origin of Species*. This work set off a religious and scientific controversy concerning the origins of humans that continues even today. Another event that upset the Victorians during the latter part of the century was Sigmund Freud's announcement of his discoveries about dreams and human sexuality.

The center of the art world shifted in the beginning of the nineteenth century from Rome to Paris, where it was to remain well into the following century. Paris in the first quarter of the century was dominated by the *Neoclassic* and *Romantic* schools of painting, as reflected in the works of Jacques-Louis David (1), Jean Auguste Dominique Ingres (2), Théodore Géricault, and Eugène Delacroix (3).

By the 1830s, a group of landscape painters working near Barbizon in the forest of Fontainebleau emerged. The major artists of the *Barbizon school* were Jean-Baptiste Corot, Jean François Millet, and Charles-François Daubigny.

By midcentury a new school of painters concerned with subjects of everyday life were asserting themselves. These painters, referred to as *Realists*, found themselves in a position that would be familiar to future artists, that is, outside the establishment and without official patronage. Led by Gustave Courbet, this group included Honoré Daumier, Édouard Manet, and Edgar Degas.

The Realists were succeeded in the 1870s by the *Impressionists*, who included Claude Monet (4), Pierre Renoir, Camille Pissarro, Alfred Sisley, Berthe Morisot, and Mary Cassatt. The next generation of painters are referred to as the *Postimpressionists* and include Paul Cézanne (5), Paul Gauguin, Georges Seurat, and Vincent Van Gogh.

The century closed with a group called the *Nabis*, or prophets, including Pierre Bonnard, Édouard Vuillard, and Maurice Denis among others. Closely associated with the Nabis was Henri de Toulouse-Lautrec, the great poster artist.

The *English school* produced two great masters of landscape painting: J. M. W. Turner and John Constable. By the middle of the century, a group of young artists called the *Pre-Raphaelites* looked back to the Middle Ages for inspiration. The outstanding members of this group were Dante Gabriel Rossetti, William Holman Hunt, Sir Edward Burne-Jones, and the designer William Morris.

2 Ingres, a student of David, kept the Neoclassic tradition alive with paintings such as the portrait of *Madame Moitessier* painted in 1851.

3 Eugène Delacroix, the leader of the Romantic school, was best known as a painter of exotic and medieval subjects. He was also one of the first major artists to use lithography for book illustrations. Shown here is a scene from Goethe's *Faust* of 1827.

113

At the end of the century, the Norwegian painter Edvard Munch was producing a body of *Expressionist* work that delved into the subconscious.

In the United States, painters slowly began to free themselves from European traditions. Although many artists continued to study abroad, the American landscape and way of life began to influence their art.

The first half of the century saw such artists as Edward Hicks, Thomas Cole, and George Bingham. By the middle of the century, American-trained artists such as Winslow Homer (6) and Thomas Eakins were producing American images.

Two famous expatriates who chose to work abroad were James Abbott McNeill Whistler and John Singer Sargent.

4 It was one of Claude Monet's paintings, *Impression: Sunrise*, that gave its name to the art movement, called Impressionism, in 1872. *The Bridge at Argenteuil*, painted two years later, shows Monet's impressionistic approach to his subject matter

5 Cézanne's analytical and geometric approach to painting had a dramatic effect on twentieth-century art and design. He emphasized solid forms rather than surface beauty. This can be seen in his *Still Life with Peppermint Bottle* painted in 1894

6 Winslow Homer was one of the major American artists who also contributed to magazine illustration. This wood engraving, *Raid on a Sand-swallow Colony*, was cut for the June 13, 1874, issue of *Harper's Weekly*.

In the 1800s, science and technology were applied to the graphic arts, and changes were dramatic and far-reaching in all areas: printing, papermaking, and typesetting. The rise of the popular press helped create a new industry—advertising—and with it, demands for new typefaces, design concepts, and high-speed printing.

With the publication of popular newspapers and magazines came the rise of the professional illustrator.

The century ended with the Arts and Crafts Movement leading the crusade against poor-quality printing and a plethora of mediocre typeface designs.

Just before the beginning of the century there was a demand for better printing. This appetite was satisfied in part by the improvement of printing techniques required to reproduce the delicate linear qualities of wood engravings and the fine strokes of the modern typefaces.

The finest example of this new interest was the printing of the nine-volume illustrated edition of Shakespeare's work in 1810 by the publishers JOHN and JOSIAH BOYDELL and the printer WILLIAM BULMER (7). The text typeface, a transitional design showing modern tendencies, was designed by WILLIAM MARTIN, who learned his craft while working for John Baskerville.

THE

DRAMATIC WORKS

OF

SHAKSPEARE

REVISED

BY GEORGE STEEVENS.
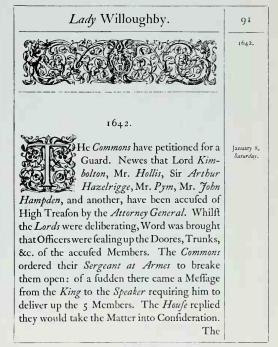
AS YOU LIKE IT

LONDON
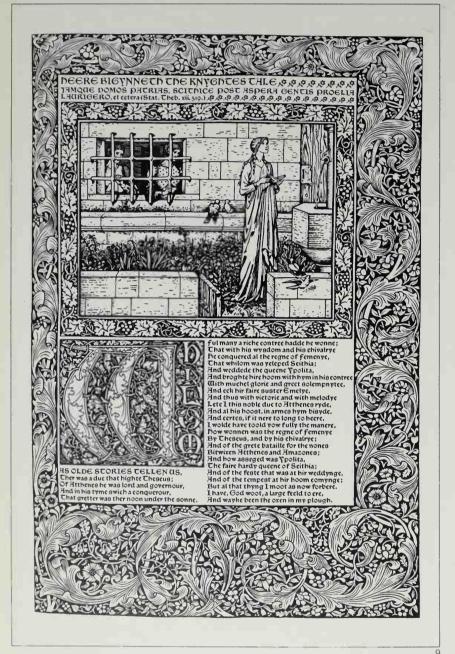
PRINTED BY W. BULMER & CO.
Shakspeare Printing Office,
FOR JOHN AND JOSIAH BOYDELL, GEORGE AND W. NICOL,

MDCCCII

Lady Willoughby.   91

1642.

1642.

THe *Commons* have petitioned for a Guard. Newes that Lord *Kimbolton*, Mr. *Hollis*, Sir *Arthur Hazelrigge*, Mr. *Pym*, Mr. *John Hampden*, and another, have been accufed of High Treafon by the *Attorney General*. Whilft the *Lords* were deliberating, Word was brought that Officers were fealing up the Doores, Trunks, &c. of the accufed Members. The *Commons* ordered their *Sergeant at Armes* to breake them open: of a fudden there came a Meffage from the *King* to the *Speaker* requiring him to deliver up the 5 Members. The *Houfe* replied they would take the Matter into Confideration.
The

January 8,
Saturday.

8

7 One of the first successful attempts to improve the quality of English printing in the early nineteenth century was the publication of Boydell's edition of Shakespeare's works in 1802.

8 William Pickering of the Chiswick Press published his elegant edition of *The Diary of Lady Willoughby* in 1844 in original Caslon type rather than accept poorly designed contemporary typefaces.

9

The first true British modern typeface was cut in Glasgow, Scotland, by RICHARD AUSTIN for John Bell's type foundry. Austin's design became a model for other modern typefaces, which are today called *Scotch Modern*.

By the 1840s, the quality of book production had deteriorated: Books were poorly designed, paper was of inferior quality, and the presswork and typefaces were no better. It would seem that much of the pride that early printers had taken in their craft had been lost with mechanization.

The first tentative step in reaction to this situation was taken in 1844 by WILLIAM PICKERING of the Chiswick Press when he decided to set *The Diary of Lady Willoughby* in original Caslon type, rather than accept the poorly designed English typefaces available (8).

Almost a half century later, WILLIAM MORRIS, a leader of the *Arts and Crafts Movement*, took the next important step. Inspired by the work of the Chiswick Press and influenced by medieval manuscripts and incunabula, Morris set up the Kelmscott Press and proceeded to design his own typefaces and print books.

For his first typeface, Morris turned in 1888 to Nicholas Jenson's *Eusebius* (see page 70) for inspiration and created a Venetian Old Style type, which he called *Golden* and used to print *The Golden Legend*. For an edition of *The Works of Geoffrey Chaucer*, Morris created a more gothic type called Chaucer (9, 10).

William Morris was an inspiration to an entire generation of like-minded designers. They followed his example by setting up their own presses and printing limited editions of fine books. This effort, known today as the *Private Press Movement*, led to a renewed interest in type design, book design, and fine printing. All this bore fruit in the following century.

9 This page from the Chaucer of 1896 with illustrations by Edward Burne-Jones, was designed by William Morris and printed at his Kelmscott Press. Morris' dedication to fine printing was an inspiration to designers and printers in Europe and America.

10 Three typefaces designed by William Morris. Today he is remembered as the force behind the movement for fine printing rather than as a type designer.

This is the Golden type.

This is the Troy type.

This is the Chaucer type.

10

Lord Stanhope's Iron Press and Stereotyping

Over the years, wooden presses similar to Gutenberg's were slowly being improved by the addition of metal parts, but the modifications were marginal at best.

The first major improvement came in 1800 with the introduction of the first all-iron press, the Stanhope, developed in England by Charles Mahon, third Earl of Stanhope (see page 125). One of the innovations was the replacement of the wooden screw by metal levers, allowing for a larger platen and greater, more uniform pressure.

The Stanhope was followed by other iron presses, such as the English Albion and the American-made Columbian and Washington.
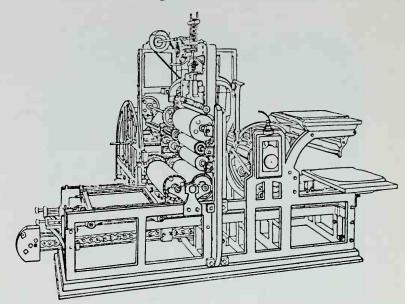
Besides sturdier presses, there were also improved inks and inking techniques. The old-fashioned method of inking with leather balls was replaced by inking with rollers, permitting a faster, more even application of ink.

Lord Stanhope is also credited with making a major contribution to stereotyping, that is, duplicating a forme of type and illustrations by making a mold and filling it with molten metal to create a plate called a stereotype, which is then used to print.

There are many advantages to stereotyping, especially if a job is lengthy or to be printed on more than one press. Stereotypes save wear on the original type, and there is no limit to how many plates can be made. They also save having to set duplicate type.

Although an early attempt at stereotyping was made during the early eighteenth century by William Ged, an Edinburgh goldsmith, his idea did not take hold. It was not until 1803 that Lord Stanhope introduced a workable process. This was further enhanced in 1846, when the introduction of papier-mâché made the casting of curved stereotypes for the rotary press possible.

Power Comes to Printing

The application of steam power to printing revolutionized the industry. Frederich Koenig, a German engineer working in England, redesigned the press to make it possible. He replaced the traditional flat platen with a revolving impression cylinder that not only carried the paper, but provided the necessary pressure for printing (above).

Koenig's press, first used for The Times of London on November 28, 1814, increased the number of possible impressions almost five-fold—to 1,100 per hour as compared to only 250 on the Stanhope.

The next important innovation came in 1846, when an American, Richard Hoe, built the first rotary press. The type was held on the cylinder rather than on a flat bed, as had been the case with Koenig's press. In 1861, the hand-set type was replaced by curved plates, or stereotypes.

The next refinement came in 1865, when another American, William Bullock, demonstrated web printing—printing on a continuous roll of paper rather than on individual sheets. Bullock's press was also a perfecting press capable of printing both sides of the web at the same time.

Just as these letterpresses were mechanized, so were the gravure and lithographic presses. Even the small job shops were undergoing mechanization.

In 1856 an American inventor, George P. Gordon, introduced the first clamshell press, so called because when operating it gave the impression of a clam closing its shell. The clamshell press was driven by a foot treadle. It was ideally suited to one- or two-man printing offices.

Seven years later another American, Merritt Gally, patented an improved clamshell known as the Universal. This was manufactured by Colt's Armory, in Hartford, Connecticut, the makers of the Colt .45 that won the West. After 1885, new models of the press were called Colt's Armory Presses.

The Popular Press and the Rise of the Illustrator

The popular press—novels, magazines, and newspapers appealing to a wide segment of the public—expanded rapidly during the nineteenth century. As the demand for printed matter grew, so did the opportunities for illustrators and fine artists.

During this time, there was little distinction between fine and commercial art, and as a result some of the world's leading artists created illustrations for books and magazines.

In England, Charles Dickens used the services of George Cruikshank and Habelot Browne, better known as Phiz. Lewis Carroll, or Charles Dodgson, called upon the talents of Sir John Tenniel in 1865 to illustrate Alice's Adventures in Wonderland (above) and later, Through the Looking Glass.

Other notable English illustrators were Charles Keane, George Du Maurier, and Aubrey Beardsley. Some of these artists achieved their first fame for their contributions to Punch, The London Illustrated News, and The Yellow Book.

In France, Eugène Delacroix illustrated Goethe's Faust, and Gustave Doré created immensely popular illustrations for the Bible and the works of Dante and Cervantes. Grandville created a fantasy world of animals and machines for Le Charivari magazine, while Honoré Daumier satirized bourgeois life in the daily press.

In the United States, John James Audubon became famous for his full-color etchings of his watercolors depicting American birds and mammals. Currier and Ives published inexpensive, hand-colored lithographs of Americana that were sold across the country by itinerant salesmen.

Later, magazines such as Harper's Weekly, Leslie's Illustrated Magazine, and The Saturday Evening Post gave American artists the opportunity to illustrate stories and current events. Some of the artists who gained fame through the weeklies were Howard Pyle, Winslow Homer (see page 114), Thomas Nast, and Frederic Remington.

Wood Pulp Paper

Traditionally, paper was made from rags. While rags made an excellent sheet of paper, it was not long before the demand for paper outran the available supply of rags. To satisfy this demand, a new supply of vegetable fiber was found—wood—and two new processes for making wood pulp; mechanical and chemical.

Germany is credited with developing the first successful mechanical process for producing inexpensive paper from wood pulp. In 1840, Friederich Keller created a machine that mechanically ground the wood into fibers, which were then mixed with water to form pulp.

Heinrich Vollter of Saxony bought the patent and began making ground-wood paper on a large commercial scale in 1846. The paper was inexpensive, short-lived, and of low quality, but suitable for newspapers and printed ephemera.

What publishers needed, however, was a good-quality paper that fell between the expensive pure rag paper and the inexpensive wood pulp paper. The first success came in England in 1851, when Henry Burgess and Charles Watt developed the alkali, or soda, process, which produced fibers by boiling the wood in caustic alkali under high pressure.

A second chemical process, using sulphite instead of alkali, was created by two Philadelphian brothers, Benjamin and Richard Tilghman, around 1857. They failed because their equipment was faulty. Their experiment was continued by a Swede, Carl Daniel Ekman, and an Englishman, George Fry.

Ekman and Fry set up a plant in England in 1872 and succeeded in perfecting the sulphite process. The first sulphite plant in the western hemisphere was established in Canada in 1885.

Unfortunately, both the alkali and the sulphite processes produced paper that had either a high alkaline or acid content, and as a result they discolor and self-destruct. Fortunately, today, these problems can be corrected.

The United States, like England and other industrial nations, experienced the dramatic effects of the Industrial Revolution. Along with the growth of manufacturing and commerce came a rapid expansion in population and the need for workers who could read and write.

As literacy increased so did the appetite for more-varied reading matter. This need was met to a large degree by the popular press, consisting of newspapers, illustrated magazines, cheap novels, and, by the end of the century, the comic strip. Manufacturers quickly realized that the popular press was the perfect vehicle for selling products to the masses. Out of this grew a new profession—advertising.

Advertising attempted to solve a major problem created by the Industrial Revolution—moving products off the shelf. Unlike the preindustrial practice of having products custom made, the Industrial Revolution created ready-made products to be sold in the marketplace without a specific buyer in mind.

A demand had to be created for all the new products that were coming out of the factories. More and more people learned to read, and it was only natural to sell goods through advertisements placed in the popular press and the numerous directories of commerce. Out of this grew the first advertising agency.

During the early nineteenth century, it was the general practice for individuals and firms interested in placing advertisements to buy space directly from newspapers or magazines. All this changed in 1841 when the Philadelphian VOLNEY B. PALMER had the brilliant idea of buying space wholesale and then selling it retail. In effect, Palmer had just created America's first advertising agency.

The first major agency was also started in Philadelphia when FRANCIS WAYLAND AYER, a young schoolteacher who had to leave college because of "family economics," as he put it, began his own agency in 1869 at the age of twenty-one.

Rather than use his own name, Francis named the agency after his father, Nathan Wayland Ayer, hoping to make his clients feel a little more secure about dealing with so young a man. N. W. Ayer & Son was a nineteenth-century success story. The agency began slowly by selling space in a group of religious weekly papers but quickly grew and prospered.
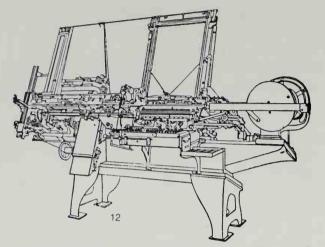
N. W. Ayer & Son was the first to represent the interests of the advertisers rather than of the publications, buying space for their clients and charging a fixed commission, a system still in effect today (11). It was also the first agency to hire copywriters and art directors, to engage in market research, and to install a public relations department.

With the increased demand for printed matter, constant pressure was put on typesetters to mechanize their operations, which had not changed since Gutenberg's time. The need was especially acute in the newspaper industry, where great amounts of type had to be set in short periods of time.

11

11 A self-promotion ad created during the latter part of the nineteenth century by the first major advertising agency, N. W. Ayer & Son, established in 1869.

12 The Paige typesetter in which Mark Twain invested over $200,000.

13 A youthful Mark Twain as a fifteen-year-old apprentice printer, or printer's devil. In the composing stick he set SAM, short for Samuel Clemens.

14 Illustration showing Ottmar Mergenthaler demonstrating the Blower model of his typesetting machine to his chief financial backer, Whitelaw Reid, owner of the *New York Tribune* newspaper. It was Reid who provided a name for the machine when he exclaimed, "Ottmar, you have done it, you have produced a line o' type."

13

14

Today, it is difficult to appreciate the urgency of the search; it seemed at the time that everything in the graphic arts except typesetting was being mechanized. Scores of inventors tried and failed. Even Mark Twain, who had been a printer in his youth, invested over $200,000 in the Paige typesetter, only to see it fail (12, 13).

The man who succeeded was OTTMAR MERGENTHALER, a German immigrant trained as a watchmaker (14). In 1886, he invented the first successful typesetting machine, called the *Linotype* because it set a line o' type.

The principle of Mergenthaler's machine was actually very simple. All previous machines had failed because their inventors had thought the solution lay in circulating pieces of type; Mergenthaler's linecasting machine succeeded because it circulated the molds instead.

After the initial breakthrough of the Linotype, other machines soon followed, the most successful being the *Monotype*, invented in 1887 by another American, TOLBERT LANSTON. While the Linotype cast complete lines of type, the Monotype cast and assembled individual pieces of type.

Both the Linotype and the Monotype were designed for setting text-size type; for the larger display sizes a machine called the *Ludlow* was developed. While the Ludlow became popular with newspapers for setting headlines and ads, not all display type was set by it; most was still cast in foundries and set by hand.

After 1886, all type, whether set by hand or machine, was cast in sizes based upon the new Anglo-American point system which standardized type sizes throughout the industry, just as Didot had done in France a century earlier.
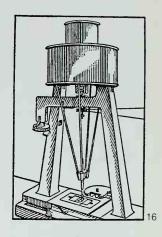
Besides the need for a mechanized typesetting method, there was also a demand for better-designed typefaces. Three outstanding American type designers who were influenced by William Morris in various ways were De Vinne, Benton, and Goodhue.

THEODORE LOWE DE VINNE is perhaps best remembered as the printer of *The Century Magazine* and the man who commissioned LINN BOYD BENTON in 1895 to cut the typeface we now call *Century* (15). Benton is also credited with the invention of the pantographic punch cutter (16), which revolutionized type production by eliminating the punch cutter.

The third designer was Bertram G. Goodhue, who designed *Cheltenham* for the Cheltenham Press of New York in 1896. The face was later expanded into a family of eighteen variations by M. F. Benton for American Type Founders (17).

CUTTING THE CENTURY Oldstyle Was Influenced by Theodore Low DeVinne, who in 1895 persuaded L. B. Benton to draw the parent design, Century Roman. This was cut especially for use in setting the type of the Century magazine. About six or seven years later a design based upon the Century Roman, called "Century Expanded," was made up. The latter in turn provided the basis for another member of the Century family, cut in 1906 and called "Century Old Style." Though possessing the old style characteristics, the Century Old Style is much too mechanical to be classed as a typical old style letter.

Century

15

16

BEING A BIT CONDENSED In Form, And Fitting Closely As a result of its short serifs, this design permits of more copy being set in the line than do most types. Of monotone construction as a whole, there is still enough difference between light and heavy lines to give character to this letter. The lean formation and close set make Cheltenham Old Style very useful for narrower measures and also contribute to the desirability of close spacing.

Cheltenham

17

15 Century, designed by Linn Boyd Benton in 1894, has been a popular choice for children's books due to its large x-height and great legibility.

16 The pantographic punch cutter mechanized the punch cutting process.

17 Cheltenham, designed by Bertram G. Goodhue in 1896, became a popular book and advertising typeface.

The Rise of Advertising Typography

As the century progressed, book publishing lost its primacy to the printing of newspapers, periodicals, catalogs, broadsides, and other advertising matter. With this shift came the demand for typefaces that would attract the reader's attention and sell products and services.

Most of the typefaces that existed were book faces, the largest size being about one inch high. They were generally quiet and unobtrusive—exactly the opposite of what was now required. Advertisers wanted typefaces that were new, big, and eye-catching. The type designers rose to the challenge, producing the wildest assortment of typefaces ever seen—from condensed to expanded, from simple to elaborate.

Sans Serif Typefaces. In modern times the first sans serifs appeared in England around 1816 in the type specimen book issued by William Caslon IV. The specimen was all caps and was at first called Egyptian, no doubt because of the then-current rage for anything Egyptian.

Before long, the term Egyptian was dropped, and in 1832 the term sans serif first appeared in the type specimen book of the Vincent Figgins Foundry. Shortly afterward, the terms Grotesque and Gothic began to be used for sans serifs.

In 1835, the first lowercase sans serif type was cast by the Thorowgood Foundry in London. By the middle of the century, most foundries were offering sans serif types. It wasn't until 1870 that the first italic sans serif was introduced.

Although frowned upon in book typography, sans serif typefaces were extremely popular for advertising, signage, posters, and broadsides. Their popularity was due to their boldness and adaptability to rough, inexpensive printing surfaces.

Slab Serif Typefaces. The next typeface designed expressly for advertising purposes rather than book printing was the slab serif. Designed to attract attention, strokes and serifs were heavy and had little or no contrast. The first slab serif typeface was cast in 1817 by the Vincent Figgins Foundry in London. It was listed in the catalog as Egyptian, a name the style has retained to this day. Two other type styles closely related to the Egyptians and introduced around the same time were the Clarendons and Latins.

Decorative Typefaces. Along with sans serif and slab serif typefaces came a large assortment of decorative typefaces, all designed to grab the attention of the reader. By 1850, there were typefaces that were outlined, inlined, ornamented, three-dimensional, drop-shadowed, or drawn from natural forms such as flowers, vegetables, and even wooden logs. Some of the letterforms were so distorted as to border on illegibility, while others were very successful and are still popular today. Most decorative typefaces consisted only of caps. They were used solely for display purposes; seldom are they more than a few words long.

Wood Type. With the growth of advertising came the demand for larger and larger type sizes. Unfortunately, oversize type created a weight problem. Type of any size, being mostly lead, is heavy, and the larger the type, the heavier it is. To overcome this problem, a practical method of producing wood type was developed by the American Darius Wells in 1827. The creation of wood type removed all physical restraints from type sizes. It wasn't long before wood display type was being used for everything from handbills to circus posters.

CASLON
Sans serif, caps

moun
Sans serif, lowercase

ME
Slab serif

PRO
Clarendon

BCD
Latin

DIS
Decorative

M
Wood type

Photography and Printing

The invention of photography in the 1830s by Louis Jacques Daguerre in France, and William Henry Fox Talbot in England, led to dramatic changes in the way images were reproduced.

One of the first uses of photography in the graphic arts was as an aid to the wood engraver. The woodblock was coated with a photosensitive emulsion onto which a glass negative was exposed. After the image was developed, the engraver cut the block.

The next advancement was the adaptation of photography to lithography (photolithography) in 1852 by the French printer Rose-Joseph Lemercier. In this case the glass negative was exposed onto the lithographic stone, developed, and prepared for printing.

By 1870, copper and zinc plates were being coated, exposed, and then immersed in an acid bath that ate away the unwanted metal, leaving a raised image that could be printed by letterpress. This process, called photoengraving, eventually eliminated the need for the hand engraver.

The first successful use of photoengraving was limited to simple line art. It was not until 1882 that a German, George Meisenbach, developed a halftone process that permitted the reproduction of continuous tone art. This was improved in 1885 by the American Frederick Ives, who created the cross-line screen still used today.

In 1879, Karl Klič, a Czechoslovakian, was successful in adapting photography to gravure.

Lithography and Chromolithography

The lithographic process, patented in 1798 by the Bavarian Aloys Senefelder, came of age during the nineteenth century.

During the early part of the century, lithography was popular with such fine artists as Delacroix and Daumier. Printers found the process attractive for making black-and-white reproductions of maps, sheet music, and illustrations. The prints were then sold separately or bound into books with text printed by letterpress.

While letterpress was the process of choice for printing text and wood engravings in black and white, it left much to be desired when it came to printing more than one color. Lithography, on the other hand, was ideal because color separations and registration could be made with relative ease and little expense. By the middle of the century, color lithography, or chromolithography, had become extremely popular, with some deluxe editions using as many as thirty-two stones of different colors and tints.

Divan Japonais,
Henri de Toulouse-Lautrec, 1892.

Perhaps the most dramatic examples of chromolithography are the one- and two-sheet advertising posters printed from huge litho stones during the second half of the century. Among the better-known poster designers were the French artists Jules Chéret, Eugène Grasset, Théophile Steinlen, Alphonse Mucha, and Henri de Toulouse-Lautrec. In England, William Nicholson and James Pryde worked anonymously under the single name of Beggarstaff Brothers. The leading American designers were Louis Rhead, Edward Penfield, Will Bradley, Maxfield Parrish, and Ethel Reed.

1800-1900

PEOPLE AND EVENTS

Historical Events

1800 Napoleon proclaims himself first consul. Alessandro Volta identifies electric current.

1801 Union Jack becomes British official flag.

1803 Louisiana Purchase. Robert Fulton builds first successful steamboat.

1804 Beethoven composes Third Symphony, the *Eroica*. Napoleon proclaimed emperor.

1805 Battle of Trafalgar.

1812 United States declares war on Britain.

1813 Jane Austen writes *Pride and Prejudice*.

1814 Stephenson creates first effective steam locomotive. Battle of Waterloo.

1816 Rossini composes *The Barber of Seville*.

1818 United States/Canada border established at 49th parallel. Mary Shelley writes *Frankenstein*. Franz Guber composes "Silent Night, Holy Night." First iron steamship launched.

1819 Grimm Brothers' first edition of fairy tales published.

1820 Sir Walter Scott writes *Ivanhoe*. Percy Bysshe Shelley writes *Prometheus Unbound*. Washington Irving's "Rip Van Winkle" published. *Venus de Milo* discovered.

1821 Jean François Champollion deciphers Egyptian hieroglyphics.

1822 Schubert composes his Eighth Symphony, the *Unfinished*.

1823 Monroe Doctrine approved. R.S.P.C.A. founded in London.

1825 First passenger railroad in England.

1827 John Walker invents friction matches. Ohm's law formulates electric currents.

1828 Noah Webster publishes *American Dictionary*.

1830 Delacroix paints *Liberty Guiding the People*. Stendhal writes *The Red and the Black*.

1831 Victor Hugo writes *The Hunchback of Notre Dame*.

1833 British Empire abolishes slavery.

1834 Louis Braille perfects reading method for blind.

1835 Hans Christian Andersen publishes first fairy tales. Talbot develops photographs from negatives.

1836 Davy Crockett killed at the Alamo.

1837 Queen Victoria begins her long reign. Samuel F. B. Morse invents a telegraph. Isaac Pitman invents shorthand.

1838 Dickens writes *Oliver Twist*.

1839 First Opium War between Britain and China. Abner Doubleday's first baseball game. Charles Goodyear produces rubber commercially. Louis Daguerre makes first daguerreotype.

1841 P. T. Barnum opens the American Museum. Adolphe Sax invents the saxophone.

1843 First Christmas card. Wagner composes *Tannhauser*. Alexandre Dumas writes *The Three Musketeers*.

1844 George Williams founds YMCA in England.

1845 Edgar Allan Poe writes "The Raven."

1846 United States declares war on Mexico. Elias Howe patents sewing machine. Irish potato famine begins.

1847 Emily Brontë writes *Wuthering Heights* and Charlotte Brontë, *Jane Eyre*. California Gold Rush.

1848 Marx and Engels publish the *Communist Manifesto*. First Women's rights convention in United States. The Pre-Raphaelite Movement begins.

1849 Amelia Bloomer fights to reform women's clothes; her name becomes associated with undergarment.

1850 Nathaniel Hawthorne writes *The Scarlet Letter*. Crystal Palace erected in London. Schooner *America* wins first America's Cup.

1851 Herman Melville's *Moby Dick* not well received. Isaac Singer manufactures first practical sewing machine. Verdi composes *Rigoletto*.

1852 Harriet Beecher Stowe writes *Uncle Tom's Cabin*.

1854 Thoreau writes *Walden*.

1855 Walt Whitman writes *Leaves of Grass*.

1856 Gustave Flaubert publishes *Madame Bovary*.

1857 Elisha Graves Otis installs first safety elevator.

1859 Charles Darwin publishes *Origin of Species*. First oil well drilled in Pennsylvania. Charles Blondin crosses Niagara Falls on tightrope.

1861 American Civil War begins. U.S. population around 32 million.

1862 Emancipation Proclamation frees slaves. Richard Gatling invents machine gun.

1863 Lincoln delivers Gettysburg Address. Manet paints *Le déjeuner sur l'herbe*. Tolstoy writes *War and Peace*. Louis Pasteur invents pasteurization.

1865 Lincoln assassinated. Lewis Carroll writes *Alice's Adventures in Wonderland*. George Pullman designs first railroad sleeping cars.

1866 Dostoevsky writes *Crime and Punishment*. Alfred Nobel invents dynamite.

1867 United States purchases Alaska from Russia for $7 million.

1869 Suez Canal opens. First college football game.

1870 Franco-Prussian War begins. Jules Verne writes *Twenty Thousand Leagues Under the Sea*. Heinrich Schliemann excavates Troy.

1871 Henry Morton Stanley meets David Livingstone in Ujiji.

1872 Whistler paints his mother.

1874 First Impressionist exhibition.

1875 Mark Twain writes *The Adventures of Tom Sawyer*. Bizet composes *Carmen*.

1876 Renoir paints *Le Moulin de la Galette*. Alexander Graham Bell invents telephone. Custer's Last Stand.

1877 Henry James writes *The American*. Thomas Edison patents the phonograph.

1878 Gilbert and Sullivan create *H. M. S. Pinafore*.

1879 Ibsen writes *A Doll's House*. Thomas Edison invents first practical electric light.

1881 Red Cross established.

1882 Robert Louis Stevenson writes *Treasure Island*. John L. Sullivan heavyweight boxing champion. First run of Orient Express.

1884 Cézanne paints *Mont Sainte-Victoire*. Greenwich Mean Time established.

1886 Seurat paints *La Grande Jatte*. Rodin sculpts *The Kiss*. Statue of Liberty unveiled.

1887 Sir Arthur Conan Doyle writes *A Study in Scarlet*. First contact lens made in Germany.

1888 Van Gogh paints *The Yellow Chair*. George Eastman creates Kodak box camera. J. B. Dunlop invents pneumatic tire. Jack the Ripper stalks London.

1889 A. E. E. Eiffel completes his tower.

1890 William James writes *The Principles of Psychology*.

1891 Judson invents zipper.

1892 Oscar Wilde writes *Lady Windemere's Fan*. Toulouse-Lautrec paints *At the Moulin Rouge*.

1892 Tchaikovsky composes *The Nutcracker*. Rudolph Diesel perfects engine. Henry Ford produces first car.

1894 Alfred Dreyfus arrested by French for treason. Rudyard Kipling writes *The Jungle Book*.

1895 Lumière brothers invent motion picture camera. H. G. Wells writes *The Time Machine*. Guglielmo Marconi invents radio telegraphy. Wilhelm Conrad Roentgen discovers X rays. King Camp Gillette invents safety razor.

1896 Anton Pavlovich Chekhov writes *The Seagull*. Giacomo Puccini composes *La Bohème*. First modern Olympics in Athens. Klondike gold rush.

1897 Sir J. J. Thomson discovers electron.

1898 Spanish-American War begins.

1899 Boer War begins. Scott Joplin composes "Maple Leaf Rag."

Literature

Jane Austen (1775-1817)
Honoré de Balzac (1799-1850)
Charles Baudelaire (1821-1867)
William Blake (1752-1827)
Charlotte Brontë (1816-1855)
Emily Brontë (1818-1848)
Lord Byron (1788-1824)
Lewis Carroll (1832-1898)
Anton Chekhov (1860-1904)
Samuel Taylor Coleridge (1772-1834)
Charles Dickens (1812-1870)
Emily Dickinson (1830-1886)
Feodor Dostoyevsky (1821-1881)
Sir Arthur Conan Doyle (1859-1930)
Alexandre Dumas (1802-1870)
George Eliot (Mary Ann Evans) (1819-1880)
Ralph Waldo Emerson (1803-1882)
Gustave Flaubert (1821-1880)
Nathaniel Hawthorne (1804-1864)
Thomas Hardy (1840-1928)
Victor Hugo (1802-1885)
Henrik Ibsen (1828-1906)
Washington Irving (1783-1859)
Henry James (1843-1916)
John Keats (1775-1821)
Rudyard Kipling (1865-1936)
Stéphane Mallarmé (1842-1898)
Herman Melville (1819-1891)
Edgar Allan Poe (1809-1849)
Aleksandr Puskin (1799-1837)
Arthur Rimbaud (1854-1891)
Sir Walter Scott (1771-1832)
Percy Bysshe Shelley (1792-1822)
Stendhal (1883-1842)
August Strindberg (1849-1912)
Alfred Tennyson (1809-1892)
William Thackeray (1811-1863)
Henry David Thoreau (1817-1862)
Count Leo Tolstoy (1828-1910)
Mark Twain (1835-1910)
Walt Whitman (1819-1892)
William Wordsworth (1770-1850)
Émile Zola (1840-1902)

Music

Vincenzo Bellini (1801-1835)
Hector Berlioz (1803-1869)
Georges Bizet (1838-1875)
Johannes Brahms (1833-1897)
Anton Bruckner (1824-1896)
Frédéric Chopin (1810-1849)
Gaetano Donizetti (1797-1848)
Antonin Dvořák (1841-1904)
Gabriel Fauré (1845-1924)
César Franck (1822-1890)
Mikhail Glinka (1804-1857)
Charles Gounod (1818-1893)
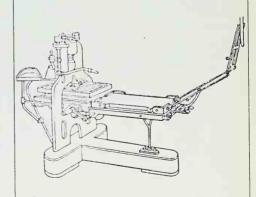
Edvard Grieg (1843-1907)
Franz Liszt (1811-1886)
Gustav Mahler (1860-1911)
Jules Massenet (1842-1912)
Giacomo Meyerbeer (1791-1864)
Modest Moussorgsky (1839-1891)
Jacques Levy Offenbach (1819-1880)
Nicolai Rimsky-Korsakov (1844-1908)
Gioacchino Rossini (1792-1868)
Camille Saint-Saens (1835-1921)
Franz Schubert (1797-1828)
Robert Schumann (1810-1856)
Aleksandr Scriabin (1872-1915)
Bedřich Smetana (1824-1884)
Johann Strauss II (1825-1899)
Richard Strauss (1864-1949)
Sir Arthur Sullivan (1842-1900)
Peter Ilyich Tchaikovsky (1840-1893)
Giuseppe Verdi (1813-1901)
Richard Wagner (1813-1883)
Carl Maria von Weber (1786-1826)

Fine Arts

George Caleb Bingham (1811-1879)
Pierre Bonnard (1867-1947)
Edward Burne-Jones (1883-1898)
Mary Cassatt (1845-1926)
Paul Cézanne (1839-1906)
Thomas Cole (1801-1848)
John Constable (1776-1837)
Jean-Baptiste Corot (1796-1875)
Gustave Courbet (1819-1877)
C.F. Daubigny (1817-1878)
Honoré Daumier (1808-1879)
Edgar Degas (1834-1917)
Eugène Delacroix (1798-1863)
Maurice Denis (1870-1943)
Thomas Eakins (1844-1916)
Paul Gauguin (1848-1903)
Théodore Géricault (1791-1824)
Edward Hicks (1780-1849)
Winslow Homer (1836-1910)
J.A.D. Ingres (1780-1867)
Édouard Manet (1832-1883)
Jean François Millet (1814-1875)
Claude Monet (1840-1926)
Berthe Morisot (1841-1895)
Samuel F. B. Morse (1791-1872)
Camille Pissarro (1830-1903)
Pierre Renoir (1841-1919)
John Singer Sargent (1856-1925)
Georges Seurat (1859-1891)
Alfred Sisley (1839-1899)
Henri de Toulouse-Lautrec (1864-1901)
J. M. W. Turner (1775-1851)
Vincent Van Gogh (1853-1890)
Édouard Vuillard (1868-1940)
James Abbott McNeill Whistler (1834-1903)

Graphic Arts

John James Audubon (1780-1851)
Richard Austin (fl. 1788)
Aubrey Beardsley (1872-1890)
John Bell (1745-1831)
Linn Boyd Benton (1844-1932)
Will Bradley (1868-1962)
Habelot Browne (Phiz) (1815-1882)
William Bullock (1813-1867)
William Bulmer (1757-1830)
Jules Cheret (1836-1933)
George Cruikshank (1792-1877)
Louis Jacques Daguerre (1789-1851)
Theodore Lowe De Vinne (1828-1914)
Gustave Doré (1832-1883)
William Henry Fox Talbot (1800-1877)
Charles Dana Gibson (1867-1944)
Bertram G. Goodhue (1869-1924)
Grandville (1803-1847)
Eugène Grassat (1841-1917)
Richard Hoe (1812-1886)
Charles Keane (1823-1891)
Frederich Koenich (b. 1833)
Tolbert Lanston (d. 1913)
William Martin (d. 1815)
George Du Maurier (1834-1896)
Ottmar Mergenthaler (1854-1899)
William Morris (1834-1896)
Alphonse Mucha (1860-1939)
Thomas Nast (1840-1902)
William Nicholson (1872-1949)
Maxfield Parrish (1870-1966)
Edward Penfield (1866-1925)
William Pickering (1796-1854)
James Pryde (1866-1941)
Howard Pyle (1835-1911)
Ethel Reed (1876-1898)
Frederick Remington (1861-1909)
Louis Rhead (1857-1926)
Lord Stanhope (1753-1816)
Théophile Steinlen (1859-1923)
John Tenniel (1820-1914)
Darius Wells (1800-1875)

Stanhope press

The twentieth century seemed to start well: The world was at peace; Britain ruled her empire, and Germany, Austria, France, and Russia maintained a balance of power in Europe.

The first two decades saw great innovations in science and technology: Electricity replaced gas for the lighting of homes and streets; in 1901 Guglielmo Marconi transmitted the first radio signal from England to America; in 1903 the Wright brothers made the first powered, heavier-than-air flight; and in 1908 Henry Ford produced the first of 15 million Model Ts. The automobile went from being a plaything for the rich to a serious means of transportation.

It was also during this period that Albert Einstein developed his specialized and general theories of relativity, Henri Bergson lectured on creative evolution, and Sigmund Freud formulated his theories on psychoanalysis. All of these theories had a profound effect on the visual arts, especially on Cubism and Surrealism.

The years preceding World War I saw many innovations in the popular arts that brought novel excitement into everyday life. Nickelodeons, which showed one-reelers to individuals, were replaced by movies for group audiences.

To satisfy the increasing demand for films, the industry moved from New York to Hollywood, where the studio system was established. Future stars such as Charlie Chaplin, Douglas Fairbanks Sr., and Mary Pickford began their careers.

Other popular forms of entertainment included seven-day bike races and long-distance automobile races. Ballroom dancing was the craze: The tango became socially acceptable and Vernon and Irene Castle introduced the Castle Walk.

Charlie Chaplin

In 1909, Sergei Pavlovich Diaghilev introduced Russian ballet to Paris and London, where the patrons were thrilled by the dancing of Waslaw Nijinsky and Anna Pavlova and shocked by the music of Igor Stravinsky.

The peace, which had been expected to last forever, ended abruptly with the outbreak of World War I on August 1, 1914. This war marked the end of an era that the English refer to as Edwardian and the French as La Belle Epoque.

The war was fought with a ferocity rarely witnessed in history, claiming more than 10 million lives and 20 million casualties. Germany surrendered on November 11, 1918. With the end of the war came the end of many illusions of the previous century, most significantly the dream of endless progress.

Perhaps the most far-reaching event of the period was the Russian Revolution of October, 1917, in which the Bolsheviks came to power under the leadership of Vladimir Ilyich Ulyanov, better known as Lenin. After a brief civil war with the czarist forces until 1920, the Communists consolidated their power and began building their new socialist state.

In literature, the French writer Marcel Proust extended the boundaries of the novel with his *Remembrance of Things Past*, while Guillaume Apollinaire was creating Cubist poetry. The Irish writer James Joyce and the expatriate American Gertrude Stein, experimented with language and form.

In England, the plays of George Bernard Shaw and the novels of D. H. Lawrence and Joseph Conrad gave the public something to think about. This time was also the heyday of the Bloomsbury group with such antiestablishment figures as Virginia Woolf and Lytton Strachey.

In America, the novels of Theodore Dreiser highlighted social injustices, while the poems of Carl Sandburg celebrated the American dream.

The early twentieth century was a time of experimentation and daring that expanded the limits of all the arts: painting, sculpture, architecture, music, literature, theater, dance, and film. The new century brought with it a spirit of revolution along with the anticipation of social change in which the arts were to be in the vanguard.

Uninhibited by traditions that reached back to the Renaissance, avant-garde artists experimented with form, color, and content to create a new visual vocabulary that would have a major impact on graphic design in the twentieth century.

Art Nouveau. Although Art Nouveau started at the end of the nineteenth century, it was not until the first decade of the twentieth century that it reached its peak. Primarily an architectural, decorative, and graphic arts movement, it had little influence on painting.

Art Nouveau's flowing lines, foliate forms, and sensuous shapes are evident in the typeface, page layouts, and poster designs of the period. It was strongly influenced by Japanese prints and the paintings of Gauguin and Munch (1).

Among the better-known practitioners were the architects and designers Antonio Gaudí, Henri van de Velde, Hector Guimard, Peter Behrens, and Charles Rennie Mackintosh. Perhaps the best examples of graphics were the posters of Mucha and Toulouse-Lautrec (see page 123).

Vienna Secession. On April 3, 1897, a group of Viennese artists led by Gustav Klimt broke with the academic art society, the Kunstlerhaus, over their refusal to allow foreign artists to exhibit (2). The group created a new organization called the Vienna Secession. Among the members were the painters Oskar Kokoschka and Egon Schiele, the architects Josef Hoffmann and J. J. Olbrich, and the designers Koloman Moser and Alfred Roller.

Initially the Vienna Secessionists were influenced by Art Nouveau. However, it wasn't long before the painters started showing tendencies toward Expressionism. Meanwhile the designers and architects came under the influence of the Glasgow School, which led to increasingly geometric designs.

As with the English Arts and Crafts Movement, one of the goals of the Vienna Secession was the unification of fine and applied arts.

Fauvism. The first important French painting movement of the century was Fauvism. Fauve artists intensified colors while simplifying forms to heighten emotional expression. The leading painter of Fauvism was Henri Matisse (3), who was joined by André Derain, Maurice de Vlaminck, Raoul Dufy, Kees van Dongen, Georges Braque, Georges Rouault, Albert Marquet, and Henri Manguin.

Fauvism had no direct influence on graphic design; however, the movement did influence the German Expressionist painters, who in turn produced posters and other printed matter.
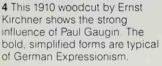
1 *The Cry* reflects Edvard Munch's highly emotional and neurotic art. Munch's work strongly influenced the German Expressionists.

2 This Gustav Klimt pen and ink drawing, published in *Ver Sacrum* in 1900, shows strong two-dimensional decorative tendencies.

3 *Pot of Geraniums* was painted by Henri Matisse toward the end of his Fauve period in 1912. The simplified forms and shallow space are characteristics that dominate much of his later work.

Collection The Museum of Modern Art New York

4

Collection The Museum of Modern Art New York

5

4 This 1910 woodcut by Ernst
Kirchner shows the strong
influence of Paul Gaugin. The
bold, simplified forms are typical
of German Expressionism.
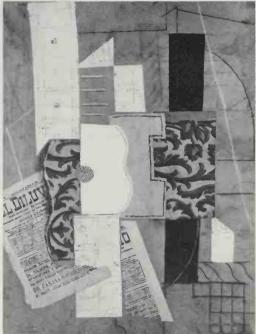
5 In Picasso's *Girl with a
Mandolin*, painted in 1910, the
forms are fragmented and shown
simultaneously from various
points of view, thus abandoning
traditional perspective.

6 Pablo Picasso, along with
Georges Braque, is credited with
creating a new art form, the
collage. In *Guitar*, created in
1913, the artist combined pieces
of torn printed matter with
drawing to create an ambiguous
relationship between reality and
illusion. Space is shallow and
fluctuates between two and three
dimensions.

7 *Dynamism of a Dog on a Leash*
was painted in 1912 by the Italian
Futurist painter Giacomo Balla. In
an attempt to show time and
motion, the artist created multiple
images of the legs and chain.

Collection The Museum of Modern Art New York

6

Expressionism. In Germany, the Expres-
sionist Movement started in 1905 with a
group called *Die Brücke* ("The Bridge")
consisting of Ernst Kirchner, Eric
Heckel, Karl Schmidt-Rottluff, and later
Emil Nolde (4). Their style, principally
influenced by Van Gogh, Gauguin, and
Munch, emphasized simplified forms,
heightened color, and the expressive use
of line.

A second group of Expressionists,
called *Der Blaue Reiter* ("The Blue Rider")
was formed in 1911 by Wassily Kan-
dinsky, Franz Marc, and Gabrielle
Munter. These artists were later joined by
Paul Klee and Alexei von Jawlensky.
While more diverse than the Brücke
group, they did adhere fundamentally to
an Expressionist attitude while tending
toward mysticism and romanticism.

For Kandinsky, the subject matter, or
objects to be painted, were not as
important as the composition and feeling
invoked by the color and form. This
ultimately led him to create the first
nonobjective paintings.

The Expressionists found woodcuts an
ideal medium for expressing their
graphic ideas in posters and books.

Cubism. Just before the First World War,
Pablo Picasso and Georges Braque initi-
ated a revolution in painting called
Cubism. This was an art form that
stressed abstract structure.

In the first phase of Cubism, called
Analytical, familiar objects were frag-
mented and shown simultaneously from
different points of view (5). This develop-
ment was influenced by the late works of
Cézanne and the simplified abstract
forms of African art.

The Analytical phase was followed by
Synthetic Cubism, in which stencil letter-
ing, newspapers, labels, and other
printed ephemera were introduced into

drawings and paintings to form collages (6). In these works the printed material was used primarily for texture. It was not important how the type was positioned; aesthetics, not communication, was the primary concern.

This radical use of printed matter eventually influenced artists, typographers, and designers around the world.

Futurism. In 1909 a group of Italian artists led by the poet Filippo Tommaso Marinetti founded the art movement called Futurism, which concerned itself with technology and the dynamic aspects of modern life. Rejecting classical concepts of harmony and order, the Futurists strove to express a sense of speed and movement in their paintings (7).

Inspired by the Cubist collages, the Futurists experimented with arranging type from newspapers and magazines to form poems depicting the sounds of modern life (8). They were also important for issuing a series of printed declarations of their artistic intentions, which they called manifestos. It was their free use of type in poems, posters, and manifestos that influenced artists and designers.

The major Futurists were Umberto Boccioni, Giacomo Balla (7), Carlo Carrà, and Gino Severini.
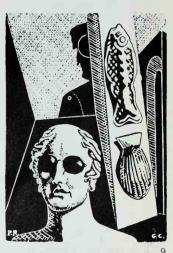
Metaphysical movement. Also Italian but quite different from Futurism, was the Metaphysical movement. Its aims were defined by its leading exponent, Giorgio de Chirico, as "constructing a new metaphysical psychology of objects by means of painting."

To accomplish this goal, de Chirico removed functional objects from their normal environment and painted them as isolated phenomena (9). Through isolation the objects acquired mysterious qualities and an enigmatic aura.

The only other painters associated with this movement were Carlo Carrà and Giorgio Morandi. Although short-lived, the Metaphysical movement prepared the way for the Surrealists.

7

8

9

8 Futuristic typographic poem of 1919 by Filippo Tommaso Marinetti uses the technique of collage to create a visual/aural experience. This radical use of typographic elements had a far-reaching effect on twentieth-century graphic design.

9 *Premonitory Portrait* of *Apollinaire* cut by Giorgio de Chirico in 1914. The arbitrary juxtaposition of everyday objects and harsh shadows combine to create an atmosphere of mystery, typical of Metaphysical art.

10 A 1918 cover of *de Stijl* magazine by Vilmos Huszár.

11 Mondrian took Cubism to its logical conclusion by reducing the subject matter to basic geometric forms, straight lines, and primary colors. This can be seen in *Diamond Painting in Red, Yellow, Blue* created around 1921.

12 In 1919 Casimir Malevich painted his *White on White* to assert the supremacy of pure form over representational art.

De Stijl. In 1917, during World War I, a group of Dutch artists, architects, and designers came together in neutral Holland with the purpose of refining the basic principles of Cubism and applying them to painting. Their movement, founded by Theo van Doesburg and Piet Mondrian, was called *de Stijl*, which means "the Style."

Their artistic vocabulary consisted of simple geometric forms, straight lines, rectangles, and the primary colors—red, yellow, and blue—plus black and white. In their compositions de Stijl artists strove for dynamic asymmetry rather than static symmetry (11). Mondrian called this *neo-plasticism*; it was meant to express universal harmony.
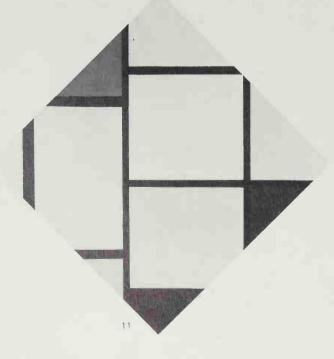
The group published a magazine called *de Stijl*, which was edited by van Doesburg and contained articles on art, architecture, film, and poetry (10). The magazine continued to be published until 1931, the year of van Doesburg's death. Other artists and designers who contributed to the magazine were Georges Vantongerloo, Gerrit Rietveld, J. J. P. Oud, Bart van der Leck, Vilmos Huszar, and Piet Zwart.

Suprematism and Constructivism. In Russia, prior to the outbreak of World War I, there was great artistic ferment. In 1913 Casimir Malevich, influenced by Cubism, created a movement called Suprematism, which emphasized the supremacy of pure form over representational art.

Malevich believed that simple geometric shapes—the circle, square, triangle, and cross—along with pure colors were capable of evoking feelings and emotions by themselves. In 1919, Malevich painted his now famous *White on White*, an angled white square on a white background (12). This work, from a Suprematist point of view, carried painting to its logical conclusion.

Around the same time that Malevich was creating his Suprematist paintings, there was another group of Russian artists, called Constructivists, who were producing abstract, geometric constructions from modern industrial materials such as glass, sheet metal, and cardboard. Among the early Constructivists were Vladimir Tatlin, El Lissitsky, and Alexander Rodchenko.

These were later joined by Naum Gabo and his brother Antoine Pevsner, who together in 1920 wrote a manifesto setting forth the principles of the Constructivist style.

By the end of the decade, many of the artists associated with both Suprematism and Constructivism, swept up in the enthusiasm of the Revolution, considered painting socially irrelevant and concentrated their energies on the more practical and socially relevant areas, such as textiles, furniture, photography, film, and industrial and graphic design.

Dadaism. Dadaism was basically an anti-art movement motivated by a revulsion for the First World War and a rejection of traditional values. It was made up of two groups of war resisters, one centered in Zürich and the other in New York City.

The Zürich group, consisting of Jean (Hans) Arp, Tristan Tzara, and Hugo Ball, held provocative demonstrations and issued poems along with political manifestos. All their publications exhibited radical typography.

The New York group included Marcel Duchamp, Francis Picabia, and Man Ray and was centered on Alfred Stieglitz's gallery at 291 Fifth Avenue. The gallery's address, 291, was used as the name for the magazine through which they disseminated their provocative ideology.

When the war ended, some of the Dadaists moved to Berlin and others to Paris. The Berlin Dadaists—George Grosz, Max Ernst, Hannah Hoech, Raoul Hausmann, John Heartfield, and Kurt Schwitters—published manifestos that featured experimental graphics (13), including a new technique called *photomontage* (14).

The Paris Dadaists, who included Tzara, Picabia, Man Ray, Duchamp, and the poet André Breton, carried out experiments in typography, issued manifestos, published magazines, and gave provocative Dadaist performances.

13

13 Prospectus for Club Dada printed in 1918 shows the Dadists' creative use of typography and their desire to shock. Note the disregard for typographic convention.

14 An early example of photomontage from 1919. In *Cutting with the Cake Knife* Hannah Hoech creates a new reality by combining parts of various photographs.

14

15

16

American Movements. At the beginning of the twentieth century, the American public was slow to accept the new European art; in fact, they were just coming to terms with Impressionism.

By 1908, the most adventurous American artists were a group known as *The Eight*. They consisted of Robert Henri, John Sloan (15), William Glackens, George Luks, Everett Shinn, Arthur R. Davies, Maurice Prendergast, and Ernest Lawson. The Eight organized to protest the restrictive exhibition policies of the National Academy of Design, preferring to paint scenes of contemporary American life, both fashionable and unfashionable.

Later, other artists, such as George Bellows, Edward Hopper (16), and Rockwell Kent, began to show with the original eight (17). They were collectively referred to, rather derogatorily, as the *Ashcan school*.

In 1913, just as the public was beginning to accept The Eight, the International Exhibition of Modern Art, more commonly referred to as the Armory Show, introduced the European, avant-garde art of Cézanne, Matisse, Picasso, Braque, Kandinsky, and Duchamp to the American public.

Although the critical and public response was one of outrage and deep shock, it proved an inspiration to many of the younger American artists.

15 John Sloan's choice of subject matter in his 1912 painting, *McSorley's Bar*, although controversial, inspired younger artists to see artistic potential in scenes from everyday life.

16 Edward Hopper was a Realist whose work imparted an atmosphere of loneliness and isolation. This can be seen in his etching of 1921, *Evening Wind*.

17 Rockwell Kent's 1919 wood engraving, *Bluebird*, is an early example of a medium he favored for illustrating books.

17

Although the first two decades of the twentieth century were a period of unparalleled creativity in the fine arts, very little had any immediate effect on graphic design. This was particularly true in the United States, where designers were primarily concerned with improving book design and creating better type-faces. They were continuing the efforts begun by William Morris and his American followers.

An interesting precursor of the *Bauhaus* school was the *Deutscher Werkbund*, founded in 1907 by design critics, architects, and representatives of industry. A leading figure was Hermann Muthesius, a writer on design greatly influenced by the English Arts and Crafts Movement.

The goal of the Deutscher Werkbund was to bring the arts, crafts, and industry closer together in an attempt to produce better-designed and more-functional products. Among the early members were PETER BEHRENS and WALTER GRO-PIUS: The latter would go on to found the Bauhaus in 1919 and put into practice the principles of the Deutscher Werkbund.

Peter Behrens began his career designing in the Art Nouveau style. His first major assignment was as design director for AEG, Germany's largest electrical manufacturer. Starting as a designer of graphics, he went on to design products, making him an early industrial designer (18, 19).

Later, Behrens acted as AEG's architect and became responsible for the design of many of their buildings. Some of the leading architects of this century received their early training in his office: Gropius, Ludwig Mies van der Rohe, and Le Corbusier.

18

19

18 Peter Behrens, as design director for AEG, Germany's largest electrical manufacturer, was responsible not only for graphics but also for products and architecture. Shown here is a brochure cover and logo, both designed in 1908.

19 As a graphic designer, Behrens was asked by foundries to design typefaces and ornaments. Shown here are a few of the characters from a titling face designed in 1901.

Austria's major contribution to the graphic arts was the work done by the designers of the Vienna Secession. This can be found in the posters issued for the Secession exhibitions and their magazine, *Ver Sacrum* ("Sacred Spring"), published from 1898 through 1903.

Ver Sacrum was a deluxe publication that permitted experimental graphics (20). The magazine strove for a graphic unity in which all elements, including advertisements, were related.

The early Secessionist posters reflect a strong Art Nouveau influence, while later posters show the influence of the Glasgow School, that is, they were geometric, with hand drawn lettering and flat areas of color (21, 22).

20

20 Cover for the magazine *Ver Sacrum* exhibiting a strong Art Nouveau influence. The publication was a showcase for the artists of the Vienna Secession and encouraged experimentation.

21 The designers of the Vienna Secession posters seemed to delight in the use of experimental, sometimes illegible typefaces, from simple sans serif to complex Art Nouveau forms. Tall, narrow posters were among their favorite formats, such as this 1902 example by Koloman Moser.

22 One of the early influences on the Austrian designers were the graphics from the Glasgow School as seen here in this 1895 poster. Note the interesting treatment of the designers' names.

21

22

William Morris' Kelmscott Press stimulated interest in fine printing and encouraged others to establish their own private presses. Although small in size and limited in production, these private presses influenced commercial publishers and printers with their great emphasis on fine typefaces, high-quality paper, and excellent presswork. Among the better-known private presses were the Doves Press, Ashendon Press, Vale Press (23), and Eragny Press.

The leading type designer in England was EDWARD JOHNSTON, a master calligrapher and letterer. Johnston is probably best known for his design in 1916 of the first modern sans serif typeface for the London Underground (24). The typeface, called *Johnston's Railway Type*, is still in use today.

Johnston was also an influential teacher who counted among his students two well-known English type designers and calligraphers: ERIC GILL and ALFRED FAIRBANK. Johnston was also the author of the best-selling *Writing and Illuminating and Lettering*, written in 1906 and still in print.

23

24

23 English private presses were responsible for some of the finest designs and typography. They were a model of excellence to both designers and printers. Shown here is the Vale Press' 1897 edition of Vaughan's *Sacred Poems*.

24 Johnston's Railway Type, designed by Edward Johnston in 1916 for the London Underground, was hailed as a typeface "truly of our time."

25 Bruce Rogers' handlettered title page for *Fra Luca de Pacioli* by Stanley Morison. Pacioli was a Renaissance mathematician and Humanist who created an alphabet based on geometric proportions.

26 Bruce Rogers' Centaur was originally designed as a titling font for the Metropolitan Museum of Art in 1914. The design was based on Jenson's roman type (see on page 70).

27 Frederick W. Goudy's popular typeface Goudy Old Style cut in 1911 and still widely used today. As the words "old style" suggest, the design was inspired by Renaissance typefaces.

28 Two famous typefaces by Morris Fuller Benton: News Gothic, designed in 1908, and Franklin Gothic, designed from 1903 to 1912. Both were popular with newspapers and advertising typographers.

FRA·LUCA
DE·PACIOLI
O͞F·BORGO·S·
SEPOLCRO
B͞Y·STANLEY
MORISON
❧THE·GRO-
LIER·CLUB
NEW·YORK
MCMXXXI͞I

25

Centaur
26

Goudy Old Style
27

Franklin Gothic

News Gothic
28

Three notable American designers shared William Morris' ideals: DANIEL BERKELY UPDIKE, FREDERIC W. GOUDY, and BRUCE ROGERS. Updike's reputation was founded on the printing of fine-quality books at his Merrymount Press outside Boston, and on his two-volume study, *Printing Types: Their History, Form and Use*.

Goudy is remembered as a prolific typeface designer and printer whose many typefaces are still in use today: *Goudy Old Style* (27), *Kennerley*, *Deepdene*, and *Copperplate Gothic*. Rogers' fame rests on his reputation as a typeface designer and internationally successful free-lance book designer (25). His best-known face, *Centaur*, was designed in 1914 (26).

By the turn of the century, the American Type Founders Company was very much in control of the production and distribution of foundry, or hand-set, metal type. The chief designer, Morris Fuller Benton, was responsible for the production of a long list of popular book and display typefaces. Among the better known are *Alternate Gothic*, *Broadway*, *ATF Bulmer*, *Clearface*, *Cloister Old Style*, *Franklin Gothic*, *ATF Garamond*, *Hobo*, *News Gothic* (28), and *Stymie* .

Around the same time, a development in lithography was taking place that would have a dramatic and far-reaching effect on the entire printing industry.

In 1905, Ira Rubel, an American, experimented with a new type of litho press in which the flat stone was replaced by a thin, zinc plate wrapped around a cylinder. Instead of the image being printed directly onto the paper, it was first transferred to a second, rubber-covered cylinder, which in turn printed, or *offset*, the image onto a third cylinder that held the paper

Among the major advantages of offset lithography were simpler press preparation and increased speed; however, it would be another half-century before it would replace letterpress as the major printing process.

PEOPLE AND EVENTS

Historical Events

1900 Theodore Dreiser writes *Sister Carrie*. Sigmund Freud writes *The Interpretation of Dreams*. Max Planck formulates quantum theory. Arthur Evans excavates Knossos, Crete. Count Zeppelin flies airship.

1901 Queen Victoria dies. President McKinley assassinated. Guglielmo Marconi transmits first trans-Atlantic radio message.

1902 Beatrix Potter writes *The Tale of Peter Rabbit*.

1903 Jack London writes *The Call of the Wild*. First Western movie, *The Great Train Robbery*. Wright brothers' first successful powered flight.

1904 J. M. Barrie writes *Peter Pan*.

1905 Cézanne paints *Les Grandes Baigneuses*. Debussy composes *La Mer*. Einstein formulates his Special Theory of Relativity. Ty Cobb begins baseball career.

1906 Ruth St. Denis introduces modern dance. San Francisco earthquake.

1907 Picasso paints *Les Demoiselles d'Avignon*. Daylight Saving Time proposed. First Ziegfeld Follies.

1908 Robert Baden-Powell creates Boy Scout movement. First Model T Ford produced.

1909 Matisse paints *The Dance*. Frank Lloyd Wright designs the Robie House. Diaghilev presents the *Ballets Russes* in Paris. Robert Peary reaches North Pole.

1911 Madame Curie receives Nobel Prize. Nestor Film Co. sets up Hollywood's first studio. Roald Amundsen reaches South Pole.

1912 *Titanic* sinks; 1,513 drowned. Proust begins *Remembrance of Things Past*. Girl Scouts founded.

1913 Armory Show introduces modern art to America. First federal income tax. Charlie Chaplin makes first movie. Stravinsky's *Le Sacre du printemps* shocks Paris. Henry Ford pioneers assembly line.

1914 World War I begins. Robert Goddard experiments with rockets. Last passenger pigeon dies. Edgar Rice Burroughs writes *Tarzan of the Apes*.

1915 D. W. Griffith directs film *Birth of a Nation*.

1917 Mata Hari executed as spy. Russian Revolution. Buffalo Bill dies.

1918 End of World War I. America adopts Daylight Saving Time. Worldwide influenza epidemic. U.S. population approximately 100 million.

1919 Jack Dempsey heavyweight champion. Bauhaus founded by Walter Gropius. Peace conference at Versailles. Volstead Act brings in Prohibition. Austro-Hungarian Empire dissolved.

Literature

Guillaume Apollinaire (1880-1918)
Hugo Ball (1886-1927)
Henri Bergson (1859-1941)
André Breton (1896-1966)
Collette (1873-1954)
Theodore Dreiser (1871-1945)
James Joyce (1882-1941)
D. H. Lawrence (1885-1930)
Filippo Tommaso Marinetti (1876-1944)
Marcel Proust (1871-1922)
George Bernard Shaw (1856-1950)
Upton Sinclair (1878-1968)
Gertrude Stein (1874-1946)
Tristan Tzara (Samuel Rosenstock) (1896-1945)

Music

Claude Debussy (1862-1918)
Edward Elgar (1857-1934)
Manuel de Falla (1876-1946)
Gustav Holst (1874-1934)
Charles Ives (1874-1954)
Leoš Janáček (1854-1928)
Carl Nielsen (1865-1931)
Giacomo Puccini (1858-1924)
Sergei Rachmaninoff (1873-1943)
Maurice Ravel (1875-1937)
Ottorino Respighi (1879-1936)
Erik Satie (1866-1925)
Arnold Schoenberg (1874-1951)
Jean Sibelius (1865-1957)
Igor Stravinsky (1882-1971)
Ralph Vaughan Williams (1872-1956)

Fine Arts

Jean (Hans) Arp (1887-1966)
Giacomo Balla (1871-1958)
Umberto Boccioni (1882-1916)
Constantin Brancusi (1876-1957)
Georges Braque (1882-1963)
Carlo Carrá (1881-1966)
Giorgio de Chirico (1888-1978)
Robert Delaunay (1885-1941)
André Derain (1880-1954)
Theo van Doesburg (1883-1931)
Kees van Dongen (1877-1968)
Marcel Duchamp (1887-1968)
Raoul Dufy (1877-1953)
Max Ernst (1891-1976)
Lyonel Feininger (1871-1956)
Antonio Gaudí (1852-1926)
Albert Gleizes (1881-1953)
Natalia Goncharova (1881-1962)
Juan Gris (1887-1927)
George Grosz (1893-1959)
Hector Guimard (1867-1942)
Eric Heckel (1883-1970)
Hannah Höch (1889-1978)
Alexei von Jawlensky (1864-1941)
Wassily Kandinsky (1866-1944)
Ernst Kirchner (1880-1938)
Paul Klee (1870-1940)
Oskar Kokoschka (1886-1980)
Frantisek Kupta (1871-1957)
Roger de La Fresnaye (1885-1925)
Michel Larinov (1881-1964)
Bart van der Leck (1876-1958)
Fernand Léger (1881-1955)
Jacques Lipchitz (1891-1973)
El Lissitsky (1890-1941)
August Macke (1887-1914)
Casimir Malevich (1878-1935)
Franz Marc (1880-1916)
John Marin (1870-1953)
Henri Matisse (1869-1954)
Jean Metzinger (1883-1956)
Piet Mondrian (1872-1944)
Giorgio Morandi (1890-1964)
Gabrielle Munter (1877-1962)
Emil Nolde (1867-1956)
J. J. P. Oud (1890-1963)
Francis Picabia (1878-1953)
Pablo Picasso (1881-1973)
Man Ray (1890-1976)
Gerrit Rietveld (1888-1965)
Georges Rouault (1871-1958)
Egon Schiele (1890-1918)
Karl Schmidt-Rottluff (1884-1976)
Gino Severini (1883-1966)
Vladimir Tatlin (1885-1953)
Henri de Toulouse-Lautrec (1864-1901)
George Vantongerloo (1886-1965)
Henri van de Velde (1863-1957)
Maurice de Vlaminck (1876-1958)

Graphic Arts

Peter Behrens (1868-1940)
Morris Fuller Benton (1872-1948)
Frederick W. Goudy (1865-1947)
Edward Johnston (1870-1966)
Hermann Muthesius (1861-1928)
Bruce Rogers (1870-1957)
Daniel Berkley Updike (1860-1941)
N. C. Wyeth (1882-1945)

By 1920 peace had come to Europe, and with it came an economic recession. Of all the European nations, Germany was the hardest hit; inflation soared, wiping out the savings of most German citizens. A general recovery began slowly and was well under way by 1924. It ended abruptly after the Wall Street Crash of 1929. The worldwide Great Depression began.

Politically, Italy and Germany had fallen under the Fascist dictatorships of Benito Mussolini and Adolph Hitler. Spain followed in 1936 with the rise of Francisco Franco.

In the U.S.S.R., Joseph Stalin consolidated power by eliminating his political rivals. It was during this period that the Fascists on the right and the Communists on the left proclaimed the doom of capitalism and liberal democracy.

Under Hitler's dictatorship the average German experienced prosperity, renewed pride, and a sense of national destiny as Hitler sought to reclaim territories lost as a result of the Treaty of Versailles.

Aided by an attitude of apathy and appeasement on the part of Britain and France, Germany succeeded not only in reclaiming lost territories, but in occupying the sovereign nations of Austria and Czechoslovakia. It was not until Germany invaded Poland that Britain and France declared war, on September 3, 1939, thus beginning World War II.

During the two decades between the world wars, the United States pursued a foreign policy of isolation and nonalignment. The twenties opened with a booming economy, prosperity, women's right to vote, and rising optimism, but it ended with the Great Depression, mass unemployment, and severe economic stagnation.

The 1932 elections swept the Democrats and Franklin Delano Roosevelt into power. Roosevelt began the New Deal, a series of unprecedented social programs designed to stimulate the economy. Ironically, full recovery was not achieved until the outbreak of World War II and its demand for war matériel.

In spite of the boom-and-bust economy, this was an era that saw a general rise in the American family's standard of living. Electricity, now available in most homes, brought with it the common use of electric appliances such as refrigerators, washing machines, vacuum cleaners, toasters, radios, and record players.

The demand for these products was stimulated by sophisticated advertising in newspapers, magazines, and the new media—radio. Purchase was made painless through the sales strategy of "Buy now, Pay later."

Modern packaging made the self-service supermarket feasible, and it slowly began to replace the small grocery store. Supermarkets, in turn, increased impulse buying and encouraged the marketing of national brands.

Movies, which had been silent, began to talk in 1927 with Al Jolson in *The Jazz Singer*, and Walt Disney introduced Mickey Mouse a year later. This was the era of long-distance trains, oceanliners, the first commercial airliners, and the automobile, which was now within the economic reach of the average family.

Other inventions and innovations that added to the quality of life were vitamin pills, toothpaste, rayon, nylon, cellophane, and other synthetic products.

In literature, Ernest Hemingway and F. Scott Fitzgerald epitomized the Lost Generation by taking up residence in Paris. In the United States, the plays of Eugene O'Neill and the novels of William Faulkner brought a new energy into American literature. The tragedy of the Depression was captured in the novels of John Steinbeck, and Thomas Wolfe struggled to document his childhood.

Buster Keaton

In the decade immediately following World War I, there was a retreat from extreme experimentation. Artists such as Picasso turned to a neoclassic treatment of the figure, while Matisse and Braque emphasized the more decorative elements of painting.

Art Deco. The style that dominated the period between the two world wars is now generally referred to as Art Deco. The name is derived from the great Paris fair of 1925 called the *Exposition Internationale des Arts Décoratifs et Industriels Modernes* (1).

The purpose of the fair was to give France the opportunity to prove that, despite the war, she still retained leadership in the decorative and luxury arts such as fashion, textiles, furniture, ceramics, and graphics.

Art Deco had an immediate impact on architects and designers on both sides of the Atlantic. Its influence can be seen in the posters of A. M. Cassandre and E. McKnight-Kauffer, *Vogue* magazine covers, the Chanin and Chrysler Buildings in New York City, Radio City Music Hall, the great trans-Atlantic oceanliner *Normandie*, and the 1936 Chrysler Airflow automobile.

The Art Deco style even pervaded the popular arts, as can be seen in the Busby Berkeley sets for Fred Astaire-Ginger Rogers dance numbers in the Hollywood musicals. Art Deco reached its culmination with the 1939 World's Fair in New York City, after which its influence slowly declined (2).

1

2
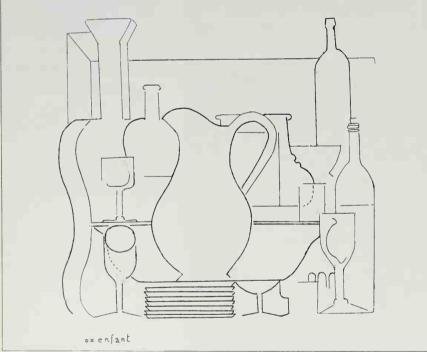
1 Poster by Robert Bonfils for the 1925 Paris Exposition Internationale des Arts Décoratifs et Industriels Modernes. It was this exposition that gave its name to the style Art Deco.

2 Poster for the 1939 New York World's Fair by Joseph Binder signaled the end of the Art Deco period.

3

ozenfant

4

3 *The Persistence of Memory* painted by Salvador Dali in 1931. Surrealism introduced the world of the subconscious into painting and created a new vocabulary of imagery that graphic designers were quick to adopt.

4 The goal of the Purists was to bring order to Cubism as seen in Amédée Ozenfant's 1924 etching, *Arrangement.*

Surrealism. In 1923, the Paris group of Dadaists, under the leadership of the poet André Breton, regrouped and became the Surrealists. Influenced by the writings of Sigmund Freud, they focused attention on the dreamworld of the subconscious and on irrational imagery.

Surrealism had a liberating effect on graphic designers of the thirties and forties, allowing them to deal with sexuality and other forbidden subjects through symbols and dreamlike imagery.

Surrealist concepts are still widely used in advertising, especially for women's fashions, perfumes, and cosmetics.

There were two diverse tendencies in Surrealist paintings: One leaned toward a "magic" realism, as exemplified by Salvador Dali (3), René Magritte, and Yves Tanguy, while the other utilized organic, or biomorphic, forms, as in the works of Joan Miró, Jean Arp, André Masson, and Roberto Matta Echaurren.

In photography, Man Ray created Surrealist images on photographic paper without the use of the camera. These were called rayographs but are better known today as *photograms*.

Purism. Purism was a French movement begun in the early twenties by Le Corbusier (Charles Édouard Jeaneret), Amédée Ozenfant, and later, Fernand Léger (4).

The goals of Purism were in many respects the same as those of de Stijl and the Constructivists: to create an art of order, clarity, and objectivity in harmony with the machine age.

The ideology of Purism was set forth by Le Corbusier and Ozenfant in their book *After Cubism* and their magazine, *L'Esprit nouveau*. The magazine, published between 1921 and 1925, was widely read; it influenced a generation of graphic designers. In 1928, Ozenfant wrote *Foundations of Modern Art*, which is credited with introducing contemporary art to a wide audience.

Die Neue Sachlichkeit. Also called the New Objectivity, Die Neue Sachlichkeit took its name from an exhibition of paintings held in Mannheim, Germany, in 1925. The artist's approach to his subject matter was one of extreme objectivity that resulted in matter-of-fact, sober portraits and a jaundiced view of life. Many of these paintings seem to possess a haunting quality that reflected the alienation and anonymity of modern urban life.

Some works, such as those of Max Beckmann, show overtones of Expressionism, while these of George Grosz and Otto Dix project social criticism (5).

American Movements. During the twenties, art in the United States was essentially conservative. The most important movement was *Precisionism*, in which urban and industrial scenes were rendered in a clean, precise manner. Among the artists who shared this vision were Charles Demuth, Charles Sheeler, and Georgia O'Keeffe.

During the thirties a group known as the *Regionalists* turned to Americana for their subject matter: The best-known of these artists were Thomas Hart Benton, Grant Wood, and John Steuart Curry.

Two independent artists of this period were Edward Hopper and Stuart Davis (6). Hopper's paintings of American life evoke feelings of nostalgia and loneliness, while the Cubist-inspired paintings of Davis celebrate America's vigor and vitality.

Three Mexican artists caught up in the Mexican Revolution were José Orozco, Diego Rivera, and David Siqueiros. They celebrated Mexican history and life by painting large frescoes on the walls of public buildings.

During the thirties these Mexican painters had an impact on artists working on Works Progress Administration (WPA) projects in U.S. schools, housing projects, and government buildings.

5

Collection, The Museum of Modern Art, New York

5 The closely observed, unsentimental portrait of Dr. Mayer-Hermann, painted by Otto Dix in 1926, is an example of the New Objectivity.

6 Stuart Davis, unlike most American artists of this period, experimented with his own particular form of Cubism and popular imagery. This can be seen in his *Lucky Strike* of 1924.

6

GRAPHIC ARTS

For some designers, the period between the wars represented a time of excitement and challenge, while for others it was a period of alienation and outrage against what they saw as a loss of traditional design values. Art movements came at dizzying speeds, and the more adventurous designers absorbed these new ideas, applying them where possible.

7 Oscar Schlemmer's Bauhaus seal designed in 1922.

8 Bauhaus poster from 1923 by Joost Schmidt integrates elements from de Stijl and Constructivism.

9 Cover design by László Moholy-Nagy for one of the Bauhaus books.

Graphic Design in Germany

It was the Germany of the twenties that did much to revolutionize graphic design in this century. The architect WALTER GROPIUS was largely responsible. In 1919 he was invited by the grand duke of Weimar to integrate the local art academy with the arts and crafts school. The new institution was called Das Staatliche Bauhaus Weimar, or more simply, the *Bauhaus* (7, 8).

In 1925, because of a change in the political climate in Weimar, the Bauhaus was forced to move to the industrial city of Dessau (now in East Germany). To house the school, Gropius designed a building that has become a twentieth-century classic.

Walter Gropius recruited some of the finest and most creative minds of the day: PAUL KLEE, WASSILY KANDINSKY, LIONEL FEININGER, JOHANNES ITTEN, OSKAR SCHLEMMER, LASZLO MOHOLY-NAGY, JOSEF ALBERS, MARCEL BREUER, and HERBERT BAYER. Gropius also called upon a visiting faculty drawn from the leading avant-garde movements.

By putting their theories into practice, the Bauhaus faculty created innovative books, posters, catalogs, exhibitions, and typefaces, plus a series of publications called *Bauhausbücher* (9).

In 1928, Gropius resigned as the director and was succeeded by HANNES MEYER, who in turn was replaced by LUDWIG MIES VAN DER ROHE two years later. Once again the deteriorating political situation forced the Bauhaus to relocate, and in 1932 they set up temporary quarters in Berlin. Unfortunately, the Bauhaus program was perceived as a threat to the Nazi Party and the school was closed in 1933.

After the closing of the Bauhaus, the faculty and students dispersed all over Europe and America, carrying with them the Bauhaus philosophy. Kandinsky went to Paris, Klee went to Switzerland, Feininger returned home to America, and Albers headed the art department at Black Mountain College in North Carolina.

Walter Gropius and Marcel Breuer joined the faculty at Harvard, and Mies van der Rohe was appointed head of the architecture school at the Armour Institute (Illinois Institute of Technology). In 1937 Moholy-Nagy was invited to Chicago to establish the New Bauhaus, now known as the Institute of Design.
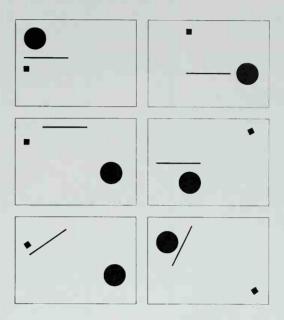
Although the Bauhaus was in existence for only fourteen years, its philosophy and teaching methods have had a major impact on twentieth-century design.

One of its major goals was to bring art and industry together. Bauhaus designers believed that the machine was capable of producing objects as aesthetically pleasing as anything made by hand. To accomplish this, however, the designer had to have both technical and theoretical training.

Students were not only taught the traditional disciplines of graphic design, such as lettering and layouts, but also how to exploit the latest innovations in photography, typesetting, and printing technologies. Though common in art schools today, in the twenties this was a radically new approach.

While the Bauhaus did much to revolutionize graphic design, there were also many individuals who made major contributions. Perhaps the most outstanding was JAN TSCHICHOLD, prophet of the *New Typography*. Although not affiliated with the Bauhaus, Tschichold did more than anyone else to influence modern typography through his works and his writing (see right).

Jan Tschichold and the New Typography

Jan Tschichold was born in Leipzig in 1903 and studied book design at the Leipzig Academy. Soon after establishing a career as a graphic designer, he became aware of the need for a new approach to typography.

Traditionally, typography was based on the principle of centering type, using ornaments to give pieces a sense of individuality. This approach led to what Tschichold called the box or block style of typography, a style that was not only visually uninteresting, but predictable. Tschichold's goal was to free design from restrictive rules and thereby grant designers greater freedom and flexibility.

Tschichold believed that information had to be clearly laid out or else it would be ignored. He proposed a "new" typography, one strongly influenced by both the Bauhaus and the Constructivists. Among the major tenets of the New Typography were the asymmetric arrangement of design elements based on their relative importance, the preference for sans serif over serif type, and the creative use of white space. Jan Tschichold summed up this philosophy in Die neue Typographie *published in 1928, and in* Typographishe Gestaltung *in 1935.*

In 1933 Tschichold was arrested by the Nazis and forced to flee to Basel, Switzerland, where he continued his career. In 1947 he spent two years in London overseeing the redesign of Penguin books. Although he preached a revolutionary gospel in his youth, he later mellowed; until his death in 1972 he embraced both symmetric and asymmetric typography as well as serif and sans serif typefaces.

Sans Serif Comes of Age

aaɑɑbbᵇbc dd efgᵍghij klm
ⁿoⁿᵒppqq ɪrʃstuvwxx yz

Original design for Futura

ABCDEFGHIJKLMNO
PQRSTUVWXYZ
abcd efghijklmnopqrʃstuvwxyz

Final design for Futura

Although sans serif typefaces were available during the nineteenth century, their role was generally limited to display advertising. It was not until this century that sans serif typefaces were seen also as text faces, thanks to the efforts of the avant-garde artists and designers in Germany, Holland, and Russia.

German designers had become tired of the black letter—their traditional text type since Gutenberg's time. It had become associated with the outdated values and traditions of the defeated kaiser.

They searched for a new typeform that would symbolically reject the past and express a twentieth-century sense of modernism. Of all the alternatives considered, the sans serif, rather than the roman serif, seemed to be the perfect choice as a functional, readable letterform.

Sans serifs were not new in Germany. They had been used successfully as a contrasting type style to the black letter. Two popular sans serifs were Akzidenz Grotesk, *cut in 1898 by the Berthold Foundry, and* Venus, *cut in 1907 by the Stempl Foundry. These were followed in the twenties by Jacob Erbar's* Erbar *and Rudolph Koch's* Kabel.

The United States was also finding new uses for sans serifs, particularly for newspaper headlines and classified ads. In 1903 the American Type Founders commissioned Morris Fuller Benton to design both Franklin Gothic *and* Alternate Gothic, *followed by* News Gothic *five years later.*

Perhaps the single most influential sans serif design of this century was Futura, *created by Paul Renner in 1927 for the Bauer Type Foundry. Futura was originally conceived as a completely geometric typeface to be drawn with T-square, triangle, and compass. The original design, proved unsuccessful, however, and had to be modified before it was accepted and cast. Futura was eventually offered in a full range of sizes, widths, and weights in both roman and italic.*

By the thirties Futura had become the designer's sans serif of choice. It was imitated by every type. Futura was the first sans serif to be used successfully for both text and display in advertisements, catalogs, posters, and even some books. The universal acceptance of Futura helped prepare the way for other successful sans serif typefaces, such as Gill Sans, Helvetica *and* Univers.

Photomontage

It was during the twenties that the Dadaists George Grosz, Raoul Hausmann, and John Heartfield first realized that photographic images could be manipulated in the same way Cubists put together graphic elements in their collages. They found that by combining two or more photographic images while altering their size and position it was possible to create a new reality. This technique of combining photographic images, called photomontage, *has become a basic tool of contemporary graphic design.*

Although George Grosz quickly abandoned photomontage as a means of artistic expression, John Heartfield (pseudonym of Helmut Hertzfeld) went on to exploit its full potential—both artistically and commercially. After a brief career as a Dadaist, Heartfield became a successful graphic designer, using photomontage effectively throughout his career. Heartfield's most powerful photomontages were his statements of the late twenties and early thirties condemning Hitler and the rising Nazi Party. These savage attacks eventually forced him to leave Germany and take up residence in England, where he remained during the war. In 1950, Heartfield returned to Germany, where he continued to work as a graphic designer until his death in 1968.

By the early twenties, a number of the leading Constructivists had abandoned fine arts to apply their energies to the creation of posters, books, magazines, and exhibitions in an effort to advance the cause of the Russian Revolution both at home and abroad.

These artist-designers brought to their graphic tasks the Constructivist principles of geometric order and simplicity along with ideas borrowed from de Stijl and the New Typography.

Soviet graphics from this period are typified by strong asymmetric layouts, the dynamic use of white space, heavy rules, bold photography, sans serif type, and photomontages. Red was often used as a second color.

Among the more influential Constructivist designers were EL LISSITSKY, ALEXANDER RODCHENKO, and VLADIMIR TATLIN (10, 11, 12, 13). El Lissitsky was especially influential, as he was often sent to the West to carry out government projects.

While in Germany Lissitsky worked with such people as Kurt Schwitters, Theo van Doesburg, and Jean Arp. Lissitsky also influenced Jan Tschichold, László Moholy-Nagy, and through him, the Bauhaus.

11

12

13

10 El Lissitsky's cover design combines the Russian and German title to create a dynamic typographic composition.

11 Page layout by El Lissitsky from 1925 uses sans serif type and rules to divide the page into three columns, one for each language.

12 Alexander Rodchenko used type to heighten a dramatic photograph of literary critic and poet Osip Brik.

13 El Lissitsky's 1927 Constructivist cover for an architecture magazine used type to complement the action of the hand and the compass.

10

14 Piet Zwart's personal mark is also a visual pun on his name; Zwart is Dutch for black.

15 Typographic advertisement done by Piet Zwart in 1926 repeats the *Hot Spots* logo to create contrast and visual interest. The ad reflects the strong influences of both the de Stijl and Constructivist philosophies

16 Cover for last issue of *The Next Call* designed by H. N. Werkman, who as a printer enjoyed working with wood type and furniture.

While Germany was in the forefront of the New Typography, Holland, too, was making contributions to graphic design. It was primarily through the magazine *de Stijl* that various designers promoted their ideas on graphic design. Under the editorship of THEO VAN DOESBURG, BART VAN DER LECK introduced heavy rules into the layouts, and VILMOS HUSZAR began using sans serif types. Asymmetric layouts were composed, often on a grid.

In the early twenties, El Lissitsky was invited to design an issue in which he introduced the Constructivist principles.

Three other outstanding Dutch designers were PIET ZWART, H. N. WERKMAN, and JAN VAN KRIMPEN. Piet Zwart, who started his career as a furniture designer and an architect's assistant, became a graphic designer at the age of thirty-six (14, 15). Influenced by de Stijl and the Dadists, Zwart's work was completely uninhibited by the traditional rules of typography.

H. N. Werkman, a printer by trade, experimented with asymmetric compositions directly on the bed of his press, using type, rules, and wood furniture (16). In 1923 he started a small magazine, *The Next Call*, in which he exhibited many of his experiments.

The third important figure was Holland's outstanding typeface designer, Jan van Krimpen, the chief designer for the Enschede Foundry in Haarlem. In 1924 van Krimpen created *Lutetia*, a popular book typeface.

In France, the outstanding figure was A. M. CASSANDRE, who typified the Art Deco approach to graphic design. Cassandre, whose real name was Adolphe Jean-Marie Mouron, was born in the Ukraine in 1901 but moved as a youth to Paris, where he studied fine art at the École des Beaux Arts.
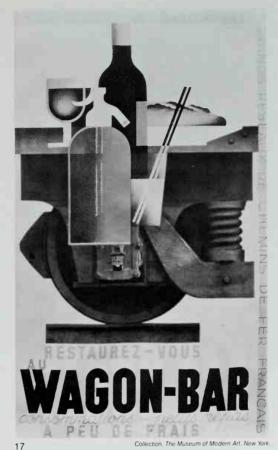
To cover expenses, Cassandre began working as a designer for Hachard et Compagnie, a lithographic printer, where he learned the commercial techniques of producing posters. He produced his first important poster in 1923. Cassandre's posters are strongly influenced by the Synthetic Cubists and Purists (17).

In 1937, Cassandre came to the United States, where he did work for *Harper's Bazaar*, the Container Corporation of America (CCA), and N. W. Ayer. He returned to France in 1939 and spent the remaining years of his life primarily in painting, theater, and ballet design.

While Cassandre is best remembered for his posters, he was also the designer of several typefaces, the most popular being *Peignot*.

Two other graphic designers noted for their posters were PAUL COLIN and JEAN CARLU. Colin, who was also trained as a painter, began his career in 1925 when he was asked to create posters and set design for the Théâtre des Champs-Elysées. From there, he went on to produce a wide range of posters, mainly of theatrical or entertainment figures (18).

Carlu was born in 1901. He was studying architecture but he tragically lost his right arm. While convalescing, Carlu taught himself to paint with his left hand and succeeded in becoming one of the major designers of the period (19). Carlu went to the United States in 1940 to work at the New York World's Fair and remained for thirteen years working for the U.S. Office of War Information and CCA, among others.

17

PEIGNOT

19

18

17 A. M. Cassandre was one of the major poster artists of the century. His classic poster *Wagon-Bar* of 1932 incorporates elements of Cubism, Purism, and photomontage. At right can be seen his most popular typeface, Peignot.

18 Paul Colin's posters were an instant success and reflected his philosophy that a poster should be "a telegram to the mind." This is evident in his 1927 poster *Lisa Duncan*.

19 Jean Carlu's 1927 poster promoting a popular toothpaste, Dentifrice Gellé, reduces the head to a minimum in a Purist manner and focuses the viewer's attention on the bright white teeth.

Graphic Design in Switzerland

20

Collection. The Museum of Modern Art, New York

20 Herbert Matter's 1935 poster for the Swiss Tourist Office combines three photographs to create a single powerful image that draws the viewer deep into the landscape.

21 Once again Matter's poster uses photomontage to heighten reality and dramatize air travel to Switzerland.

21

One of Switzerland's major designers was HERBERT MATTER, who went to Paris in 1928 to study painting with Fernand Léger. While there, Matter became interested in photography and typographic design, which he was able to practice while working at the French typefoundry Deberny et Peignot. During this time, Matter had the opportunity to assist Cassandre and in doing so became interested in poster design.

At age twenty-five Matter returned to Switzerland, where he began to design the posters for the Swiss National Tourist Office, which helped him achieve an international reputation (20, 21). Matter's posters reflect his understanding of photomontage, collage, and typography.

In 1936 Matter came to the United States, where he did photographic assignments for *Vogue*, *Harper's Bazaar*, and *Fortune*. During the war he did free-lance designs for the Container Corporation of America, and in 1946 began a twenty-five year relationship with Knoll Associates as photographic and design consultant. Matter also did corporate graphics for the New Haven Railroad and the Boston and Maine Railroad.

Other Swiss designers of this period were Ernst Keller, Théo Ballmer, Richard P. Lohse, Max Huber, and Max Bill (see page 186).

ADRIANO OLIVETTI, the son of the founder of the international typewriter and business machine company, decided to create what would today be called a corporate design program.

In 1933, Olivetti hired a Bauhaus graduate, XANTI SCHAWINSKY, as a graphic designer, and three years later appointed GIOVANNI PINTORI to oversee all aspects of design: graphic, product, and architecture (22, 23, 24). Together they created striking posters, corporate graphics, and the first "styled" typewriter.
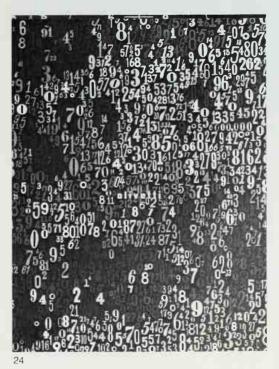
Schawinsky left Olivetti in 1936 and went to America, where he taught at Black Mountain College with Joseph Albers. Pintori stayed on for thirty-one years, during which time the company achieved an international reputation for excellence in graphic and industrial design.

Among other companies influenced by the Olivetti experiment were the Container Corporation of America, IBM, Knoll International, CBS, and Xerox.

23

22

24

22 Xanti Schawinsky's 1934 poster combines a boldly shaped detail of a typewriter keyboard with a mechanical drawing to emphasize the precision of the Olivetti product.

23 Xanti Schawinsky's unusual 1935 poster in which the only copy was the manufacturer's name on the typewriter, Olivetti.

24 Giovanni Pintori's poster, consisting entirely of numbers, is appropriate given Olivetti's interest in office calculators and billing machines.

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

25

25 Stanley Morison's 1931 typeface designed for the exclusive use of *The Times* of London. Below is shown the old and new mastheads. The typeface, Times New Roman, was released to Monotype Corporation in 1932 for general distribution and has become one of the most widely used text typefaces.

26 Page from *The Four Gospels* lettered and illustrated by Eric Gill in 1931. Although an excellent example of fine English typography, it is in sharp contrast to the more experimental graphics being designed on the Continent.

26

An outstanding figure in English graphic design was STANLEY MORISON, who in 1922 became typographic adviser to the English Monotype Corporation. One of his first efforts was to improve the quality of the typeface library by commissioning new faces and recutting old ones. One of the most successful typefaces was the *Times New Roman*, which was designed by Morison for the exclusive use of *The Times* of London in 1930 (25).

Stanley Morison also served as the editor of *The Fleuron*, a highly influential typographic journal. He was an adviser to the Cambridge University Press and the author of *First Principles of Typography*.

The leading English designer of the period was ERIC GILL, a modern Renaissance man who practiced sculpture, inscription cutting, woodblock engraving, printing, calligraphy, and type design (26). He wrote with wit on many of the above topics and is best known today for his three popular type designs: *Perpetua*, *Joanna*, and *Gill Sans Serif* (27).

One of the most innovative poster designers working in England was E. McKNIGHT-KAUFFER, an expatriate American (28, 29). Among his better-known works were series of posters for the London Underground Transport, Shell Oil, and British Railways. McKnight-Kauffer returned to America at the outbreak of the Second World War, where he continued his career working for such clients as CCA, American Airlines, and the *New York Times*.

27 Although Eric Gill's book designs were traditional, his typeface designs were very much of the period. Gill Sans, designed in 1929 for the Monotype Corporation, was quickly accepted and became one of the first widely used sans serif typefaces in England.

28 Edward McKnight-Kauffer's 1930 poster for the London Underground reflects his European experience and understanding of modern art. Here he has reduced a complex concept into a forceful visual image.

29 During the mid-thirties McKnight-Kauffer created a series of memorable posters for the Shell Oil Company which drew heavily on Cubism and Purism.

30

31

30 M. F. Agha, art director of
Vogue magazine, believed that
layouts should be logical, legible,
and luxurious. This practice was
evident in the covers he
designed or art directed for
Vogue.

31 This spread from a 1934
Vogue magazine highlights two
innovations pioneered by M. F.
Agha: the use of sans serif types
and bleed images.

Generally speaking, graphic design in America between the wars was not particularly innovative. Alarmed by the Russian Revolution, the American public was suspicious of all revolutionary or avant-garde European art movements, whether in the fine or graphic arts.

Most movements, with the exception of Art Deco, had little immediate effect on American graphic design. It was not until the thirties that things began to change, when a small group of pioneering designers introduced new ideas based on fine art concepts.
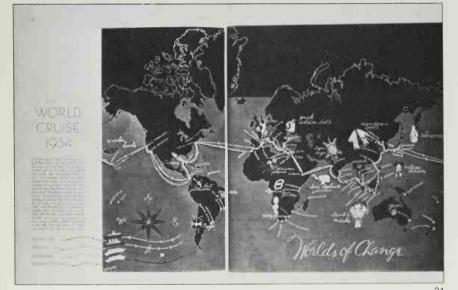
The majority of these forward-looking designers were born and educated in Europe but made their names in America, especially in New York City, which was then, as now, the media center.

Although their careers were launched in the thirties, it was years before their work received wide public recognition and acceptance. Here are some of the more influential designers:

M. F. AGHA, born and trained in Europe, was brought to the United States in 1929 as art director of *Vogue* magazine by its publisher, Condé Nast. Educated as an economist and a linguist, Agha was also a designer, a photographer, and a typographer (30, 31). He insisted from the beginning that the art director participate in every stage of design and production.

He was one of the pioneers in the use of sans serif typefaces, full-color reproductions, and innovative photography. Among the better-known photographers commissioned by him were Edward Steichen, Cecil Beaton, P. Horst, George Hoyningen-Huene, and Charles Sheeler. Condé Nast was so impressed with the new *Vogue* that he gave Agha two other magazines to art direct: *Vanity Fair* and *House and Garden*. In 1943, Agha left Condé Nast to become a free-lance consultant on the graphic arts.

HERBERT BAYER, as a student at the Bauhaus, soon discovered that his major interest was typography. At age twenty-five, Bayer was appointed the master of the typographic workshop, where he not only taught but found time to design Bauhaus publications and a typeface called *Universal* (35). In 1928, Bayer left for Berlin to set up a free-lance practice but was forced to leave by the deteriorating political situation (32, 33, 34).

Bayer arrived in the United States in 1938 and began a new, distinguished career in advertising, first as a consultant to J. Walter Thompson and later as art director for Dorland International. Bayer enjoyed a long association with the Container Corporation of America, first as a design consultant for advertising (36, 37). He was also a founder of the Aspen Design Conference held annually in Colorado.

33
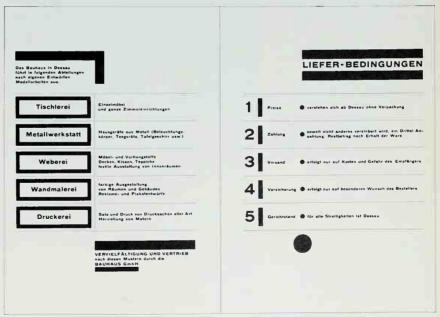
32 Herbert Bayer's photomontage, called *The Lonely Metropolitan*, was created in 1932 and shows a strong Surrealist influence.

33 Still-life photograph for a 1928 cover of the *Bauhaus* magazine creates the illusion of a photomontage.

34 This spread for a 1925 Bauhaus catalog shows Bayer's command of the new typography in his effective use of type, rules, boxes, bullets, space, and the grid.

35 Universal typeface designed by Bayer in 1925 was an experiment in creating a single sans serif alphabet to replace the traditional uppercase and lowercase alphabets.

32

34

abcdefghijklmno
pqrstuvwxyz

35

36

36 This 1939 illustration for CCA, *Strength Out of Straw*, dramatizes the use of straw as a fiber substitute for making cartons.

37 In *Destiny of an Old Directory* Bayer graphically shows how waste paper is recycled into corrugated cartons.

37

The Container Corporation of America

For more than fifty years, the Container Corporation of America, better known simply as CCA, has been a pioneer in the use of graphic design and fine art as an integral part of their corporate program.

This all began in 1936 when Walter Paepcke, the founder's son, set out to distinguish CCA from its competitors. One of his first steps was to hire Herbert Bayer as a design consultant to oversee a comprehensive design program that would involve the talents of such famous designers and artists as Cassandre, Kepes, Léger, Man Ray, and Moholy-Nagy. From the beginning a policy of combining precise copy with powerful images was initiated, resulting in CCA's being seen as a company of daring and excellence.

The CCA program continued during World War II and into the postwar years. One of their most successful campaigns was Great Ideas of Western Man, *which showcased the talents of such giants as Paul Rand, René Magritte, Richard Lindner, Leo Lionni, and George Giusti. The advertising pundit David Ogilvy claimed that the* Great Ideas *series was "the best campaign that has ever appeared in print."*

CCA is credited with establishing the first serious corporate design program in America. Furthermore, in its effort to promote excellence in design, CCA has offered design services to its clients through the much heralded Design Laboratory and Center for Advanced Research and Design. The Container Corporation of America has proven over the years that it is possible to combine graphic excellence with success.

LESTER BEALL was born in Kansas City in 1903. He was educated in Chicago, where he earned a doctorate in art history. Beall was virtually self-taught as a graphic designer. His first job was the design of exhibits and a mural for the 1933-1934 "Century of Progress" World's Fair in Chicago.

A year later, Beall set up his own studio in New York City, where he created a series of award-winning posters for the Rural Electrification Administration program (39).

During his career Beall did packaging, ads, advertising promotion, and corporate identity programs for such corporations as International Paper and Martin Marietta (38, 40).

39

38

40

38 Lester Beall, although self-taught as a graphic designer, had an understanding of Surrealism and Dadaism that is evident in this 1937 cover design.

39 One of a series of posters for the Rural Electrification Administration designed in 1936 reflects Beall's knowledge of Purism and Bauhaus principles.

40 In this cover design Beall combines photography with converging lines to create an effect of space and time.

41

41 Alexey Brodovitch's invitation to the 1924 Bal Banal in Paris is an early example of his ability to dramatize an event.

42 Illustration in the Art Deco style for the International Printing Ink Company, one of Brodovitch's first American assignments.

42

ALEXEY BRODOVITCH, like M. F. Agha, began his career in Europe (41). Brodovitch came to the United States in 1930 and set up the advertising department at the Philadelphia Museum Art School. He did free-lance work for the N. W. Ayer advertising agency and other clients (42).
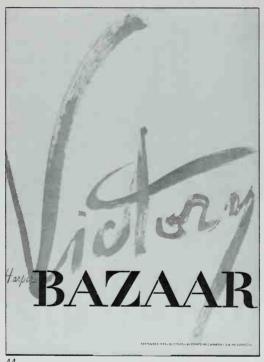
In 1934, Brodovitch was persuaded by Carmel Snow, the editor of *Harper's Bazaar*, to become the art director, a position he held for twenty-five years. During these years, Brodovitch raised the level of editorial graphics through the use of innovative photography, dynamic layouts, and bold typography (43, 44, 45). Many of his pages reflect his love of large-bleed photographs, white space, and the modern typeface *Bodoni*.

Besides art directing *Harper's Bazaar*, Brodovitch created many striking ads for Saks Fifth Avenue and I. Miller. He also designed the large-format magazine *Portfolio* in 1950, which, although not a commercial success, was a tour de force of visual invention.

Throughout his career Brodovitch was a charismatic and inspiring teacher whose "design labs" produced some of the finest graphic designers and photographers working today, such as Irving Penn, Richard Avedon, Norman McGrath, Art Kane, Henry Wolfe, and Robert Gage.

43

44

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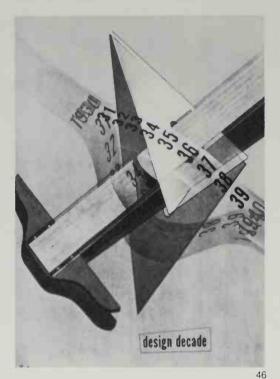
43 *Harper's Bazaar* cover featuring the 1939 New York World's Fair in a Surrealistic setting where the trylon and perisphere become a mask with two mysterious eyes.

44, 45 Brodovitch spent the greater part of his career as art director for *Harper's Bazaar*. It was there that he experimented with new ways of combining photography with type. Figure 44 shows Brodovitch's simple and exuberant cover celebrating the end of World War II.

design decade

46

47

WILL BURTIN was born in Cologne, Germany, in 1909. He studied typography and design at the Cologne Werkschule. After finishing his studies, Burtin practiced graphic design before coming to the United States in 1938. Among his first jobs as a free lance was the development of new graphic and exhibition designs for the U.S. Army Air Force.

In 1945, Burtin became the art director for *Fortune* magazine, a position he held for four years before again opening his own design office. Among his clients were such corporations as Upjohn Company, Union Carbide, Eastman Kodak, McGraw-Hill, and the Smithsonian Institution (46, 47).

Burtin had a genius for being able to visualize complex material in science and technology. He created many award-winning exhibitions that utilized the latest technologies, such as film, television, audiovisuals, and holography. Burtin was also one of the first advocates of corporate identity programs.

WILLIAM ADDISON DWIGGINS was not only a fine book and type designer, but is also credited with being the first to use the term *graphic designer* to describe his work. Although Dwiggins initially coined the term during the early twenties, it was not until after the Second World War that the term was widely adopted.

Dwiggins established his reputation as a trade book designer for publishers such as Alfred A. Knopf Inc. and Random House and did much to raise the quality of book production through his association with the American Institute of Graphic Arts (AIGA) (48, 49).

Dwiggins was also responsible for the design of such popular typefaces as *Caledonia* (50), *Eldorado*, and *Electra*.

LAYOUT
in *Advertising*

W. A. DWIGGINS

A splendid desk manual for all copy-writers. It contains an abundance of practical suggestions on advertising layout. The text is copiously illustrated with sketches by the author, who is widely known in the advertising and typographical world.

HARPER & BROTHERS · ESTABLISHED 1817

48

47   Lilliput

water within the Precincts of the Palace. But I was a little comforted by a Message from his Majesty, that he would give Orders to the Grand Justiciary for passing my Pardon in Form; which, however, I could not obtain. And I was privately assured, that the Empress conceiving the greatest Abhorrence of what I had done, removed to the most distant Side of the Court, firmly resolved that those Buildings should never be repaired for her Use; and, in the Presence of her chief Confidents, could not forbear vowing Revenge.

CHAPTER VI
OF THE INHABITANTS OF LILLIPUT; THEIR LEARNING, LAWS, AND CUSTOMS. THE MANNER OF EDUCATING THEIR CHILDREN. THE AUTHOR'S WAY OF LIVING IN THAT COUNTRY. HIS VINDICATION OF A GREAT LADY.

LTHOUGH I intended to leave the Description of this Empire to a particular Treatise, yet in the mean time I am content to gratify the curious Reader with some general ideas. As the common Size of the Natives is somewhat under six Inches, so there is an exact Proportion in all other Animals, as well as Plants and Trees: For Instance, the tallest Horses and Oxen are between four and five Inches in Height, the Sheep an Inch and a half, more or less; their Geese about the Bigness of a Sparrow; and so the several Gradations downwards, till you come to the smallest, which, to my Sight, were almost invisible; but Nature hath adapted the Eyes of the Lilliputians to all Objects proper for their View: They see with great Exactness, but at no great Distance. And to show the Sharpness of their Sight towards Objects that are near, I have been much pleased with observing a Cook pulling a Lark, which was not so large as a common Fly; and a young Girl threading an invisible Needle with invisible Silk. Their tallest Trees are about seven Foot high; I mean some of those in the great Royal Park, the Tops whereof I could but just reach

49

Caledonia
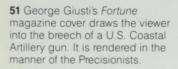
50

48 W. A. Dwiggins' handlettered title page for his 1928 book, *Layout in Advertising*.

49 Page from *Gulliver's Travels* designed for the Peter Pauper Press and set in his text type, Electra, with handdrawn initials.

50 Caledonia, one of the most popular book faces of the period, was designed by Dwiggins in 1938 for Mergenthaler Linotype Company.

51

52

51 George Giusti's *Fortune* magazine cover draws the viewer into the breech of a U.S. Coastal Artillery gun. It is rendered in the manner of the Precisionists.

52 A 1940 defense poster sponsored by *Fortune* magazine creates a surreal sense of urgency and terror.

53 Poster created for The Museum of Modern Art competition in 1942 positioned planes to create the Air Corps emblem in the sky.

53

GEORGE GIUSTI was born in 1908 in Milan, where he attended the Royal Academy of Fine Arts at the Brera. After working as a graphic designer in Milan, Giusti decided to set up his own design studio in Zürich, where he did general graphics for seven years.

A visit to the United States turned into permanent residence when Giusti was invited to collaborate with Herbert Matter on the design of the Swiss Pavilion at the 1939 New York World's Fair. Since then Giusti's career has shown great versatility: He has worked in publishing, advertising, packaging, corporate graphics, and illustrating (51, 52, 53). He has created posters for the United States Information Agency and served as the design consultant for Geigy Pharmaceuticals.

Giusti's strength as a designer comes from his conviction that there should be no distinction between fine and commercial art: He believes art is art, whatever its purpose. Now in his seventies, he is as active as ever in discovering new means of visual communication.
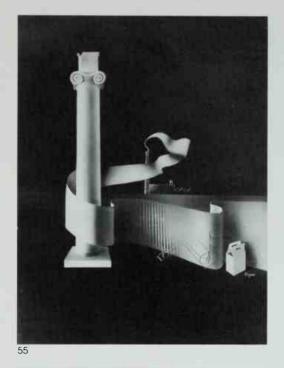
GYORGY KEPES was born in Selyo, Hungary, in 1906. Trained as a painter and filmmaker, Kepes worked during the early thirties as an exhibition and graphic designer in Berlin, where he met Moholy-Nagy (54).

Kepes moved to London in 1936 to work for Moholy-Nagy, an association that continued when both emigrated to the United States a year later. When Moholy-Nagy was recruiting faculty for the New Bauhaus in Chicago, he invited Kepes to become head of the Color and Light Department.

In 1946, Kepes moved on to the Massachusetts Institute of Technology (MIT), where he taught until 1974; it was during this time that he set up the Center for Advanced Visual Studies. Kepes continued his career as a free-lance graphic designer and, like many of his peers, did work for CCA (55, 56).

Perhaps Kepes will be best remembered for having written *Language of Vision*, a text that did more to spread the Bauhaus philosophy than any other book. Kepes went on to write and edit the *Visual and Value* series of books for designers and architects.

55

56
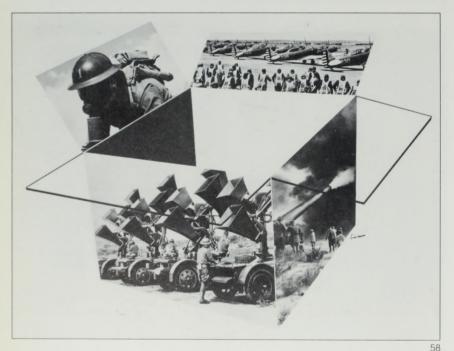
54 Gyorgy Kepes' cover for a 1937 *Cahier d'Art* combines a photogram with type and linear elements to create a surrealistic, avant-garde look.

55 In *Responsibility*, Kepes has created a surrealistic illustration in which smoke from a paper mill becomes a web of corrugated cardboard. The Greek column in the foreground suggests the excellence of CCA products.

56 In *Nautilus* from 1937, Kepes enhanced a photograph of a chambered nautilus shell with gouache and airbrushing to suggest a parallel between the strength of a shell and the products of CCA.

54

57

LEO LIONNI was born in Holland in 1910. When he was fourteen, the family moved to Philadelphia but stayed only a short while before moving to Genoa, Italy. As a young man interested in painting, Lionni became involved in the second wave of Futurism. As a graphic designer, however, his major influences were de Stijl and the Bauhaus.

Lionni began his career as a graphic designer in Milan, creating ads for the magazines *Domus* and *Casabella*. During the midthirties, because of the growing threat of fascism, Lionni returned to Philadelphia, where he became an art director for the N. W. Ayer agency.

In 1947 Lionni moved to New York City, where he opened his own studio and became art director of *Fortune* magazine, a position he held for fourteen years. During these years Lionni also did work for CCA, Olivetti, and the Museum of Modern Art (57, 58).

In 1960, at the age of fifty, Lionni retired. He now divides his time between the United States and Italy, where he continues to paint, design, teach, and write children's books.

58

57 Leo Lionni combined two photographs to create *Press the Button*, a photomontage of a bombing mission of B-17s.

58 With great economy of means, Lionni communicated CCA's contribution to the war effort.

LÁSZLÓ MOHOLY-NAGY was born and educated in Hungary; he fought and was wounded in the First World War. Although he graduated from law school, he soon became a fulltime artist. In 1923 Moholy-Nagy was invited to teach printing and graphic design at the Bauhaus, where he remained for five years editing Bauhaus publications (59, 60).

After leaving the Bauhaus, Moholy-Nagy went to Berlin, where he created stage sets and experimental films. With the rise of Hitler, he left Germany, first going to London and in 1937 to the United States, where he founded the New Bauhaus in Chicago, now the Institute of Design. He continued to direct the school until his untimely death from leukemia in 1946 at the age of fifty-one.
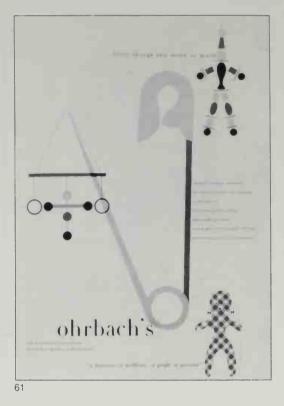
Moholy-Nagy's greatest contribution was to import to America the Bauhaus philosophy, which he set forth in his book *Vision in Motion*. Although the major thrust of his career was in education, he found time to create striking designs for clients such as the Container Corporation of America and *Fortune* magazine.

59

60

59 László Moholy-Nagy's 1923 prospectus for the Bauhaus shows his understanding of the principles underlying Constructivist design.

60 Bauhaus book on painting, photography, and film written in 1925 and designed by Moholy-Nagy.

61
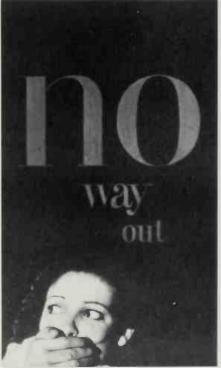
ERIK NITSCHE was born in Lausanne, Switzerland, in 1908. He began his studies there and later completed them in Munich and Paris. In 1929, Nitsche started his career with Maximilian Vox, a printing firm in Paris, a position he held for three years before becoming free lance for various other European publications.

In 1934, Nitsche arrived in New York City and immediately became involved in many aspects of graphic design. He created covers for fashionable magazines, ads for department stores and advertising agencies, jackets for records, book jackets, and corporate designs (61, 62, 63). Nitsche's best-known work was for the General Dynamics Corporation; he became its art director in 1955.

Nitsche has concentrated almost exclusively on book design since 1960, completing multivolume histories of both science and music. Most recently, he has been responsible for designing a number of postage stamps for the West German government.

61 Erik Nitsche, in this advertisement for Ohrbach's department store, enlarged the common safety pin to create a strong design element.

62 For a record jacket of Georges Bizet's "Carmen," Nitsche combined Spanish lace with a closeup of a woman's eye to create a sense of mystery and passion.

63 In this promotion piece the type grows smaller to suggest a stifled scream.

62

63

PAUL RAND was born in Brooklyn and educated at Pratt Institute, Parsons School of Design, and the Art Students League under George Grosz. He enjoyed early success. In 1937, at the age of twenty-three, Rand became art director of both *Esquire* and *Apparel Arts* magazines, for which he created a series of now-classic covers. These early works reveal Rand's genius for adapting the concepts of modern art to his own graphic ends (64, 65, 66).

In 1941, Rand left the world of publishing for the more competitive challenges of advertising. As the art director for the William H. Weintraub Advertising Agency, he created a series of innovative campaigns for Coronet brandy, Dubonnet aperitif, El Producto cigars, and Orbach's department stores. Many of these ads anticipated the trend toward the integration of art and copy, a development that would change advertising in the postwar years.
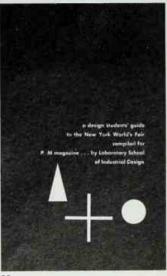
Rand left the agency in 1954 and established his own design firm, specializing in corporate communications. Among the many corporations that have sought his services are IBM, Westinghouse, Cummins Engine Company, ABC, and United Parcel Service. In spite of his heavy design schedule, he has found time to write and to teach; two of his most influential books for the design profession have been *Thoughts on Design* and *Paul Rand: A Designer's Art*.

Through his work, his writings, and his teaching, Rand has educated and inspired generations of graphic designers both in the United States and abroad. He is considered by many to be the most important and influential American graphic designer of all time, a view supported by the award, in 1987, of the Florence (Italy) Prize for Visual Communication—a first in the field of graphic design.

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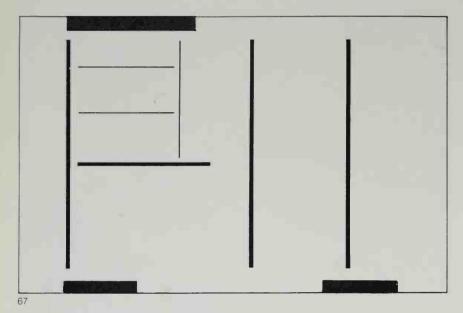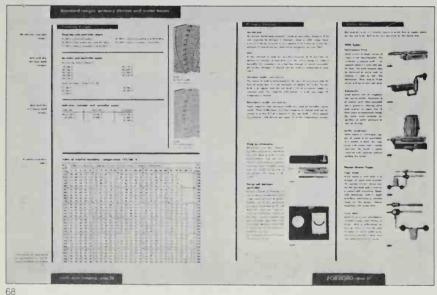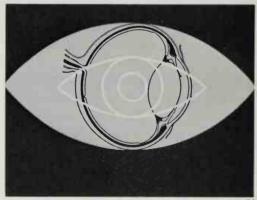
64 Paul Rand's 1938 title page for an *Esquire* brochure.

65 This cover for *Direction* magazine illustrates Rand's playful approach to design.

66 In this 1939 cover for a student's guide to the New York World's Fair, Rand combines simple geometric shapes with type to create a timeless design.

67

68

69

LADISLAV SUTNAR already enjoyed a successful career as a designer in Czechoslovakia before coming to the United States in 1939 at the age of forty-two. While he was executing designs for the Czech Pavilion at the New York World's Fair, the Germans invaded his homeland, forcing him to remain in the United States.

From 1941 until 1960 Sutnar was the art director for the Sweet's Catalogues Services, where he popularized the use of the grid for organizing complex technical information (67, 68, 69). Whether books, magazines, or products, Sutnar's work reflects his complete understanding of the Bauhaus philosophy. While in the United States he wrote a number of books on design (70), and he remained active until his death in 1976.

70

67, 68, 69 Ladislav Sutnar, in the process of organizing the diverse products and information necessary for architects and designers, created a grid for the Sweet's File catalogs. Shown here is the cover design and an example of how one of the grids was applied to a typical page.

70 Sutnar, as a versatile graphic designer, created many interesting illustrations for the books he wrote on design.

BRADBURY THOMPSON, a graduate of Washburn College in Topeka, Kansas, his home town, received his training early as editor and designer of the college yearbook. Also while at college he had the opportunity to develop his drafting skills while working with civil engineers on their plans for roads and bridges.

Thompson came to New York City in 1938, where he became designer and editor for the West Virginia Pulp and Paper Company's graphic arts magazine, *Westvaco Inspirations* (71). Other early clients were trade organizations and the New York World's Fair (72, 73).

Bradbury Thompson's work not only achieved international recognition but raised the aesthetic awareness of both designers and printers. He has also inspired students from all over the world through his more than thirty years of teaching design at Yale University. Over the years he has designed many major magazines—*Art News*, *Mademoiselle*, and *Smithsonian*—and numerous postage stamps for the U.S. Postal Service.

Among his more recent accomplishments has been the design of the highly acclaimed Washburn Bible (see page 211).

71

72

73

71 Bradbury Thompson, as designer and editor of *Westvaco Inspirations*, was able to create many award-winning designs.

72 A bird's-eye view of a wooden soldier combined with three-dimensional lettering and oblique lighting all combine to give this 1935 Christmas cover a festive mood of anticipation.

73 On the cover for the Official Guide Book to the New York World's Fair, Thompson uses symbols to underscore the Fair's dedication to world peace and freedom.

PEOPLE AND EVENTS

Magazines and Illustrators

During the twenties and thirties, family magazines such as The Saturday Evening Post *and* Colliers *provided a showcase for the works of America's finest illustrators. Among the more popular were Howard Chandler Christie, J. C. Leyendecker, James Montgomery Flagg, John Held, T. M. Cleland, and Norman Rockwell.*

The period also saw the introduction of many innovative magazines. In 1923, Henry Luce and Briton Hadden, recent graduates of Yale University, launched the first news weekly: Time *magazine. This was soon followed by* Newsweek *and other imitators around the world. Other successful magazines created by Luce were* Fortune, *founded in 1930, and the large-format photographic weekly* Life, *founded in 1936.*

First cover of Fortune magazine, designed by T. M. Cleland.

Historical Events

1919 Prohibition enacted.

1920 First American radio station, KDKA, Pittsburgh. Expressionist film *The Cabinet of Dr. Caligari.*

1921 Luigi Pirandello writes *Six Characters in Search of an Author.*

1922 Benito Mussolini marches on Rome. T. S. Eliot writes "The Waste Land." James Joyce publishes *Ulysses.* Tutankhamen's tomb discovered. Emily Post writes *Etiquette.* Sinclair Lewis publishes *Babbitt.*

1923 Adolf Hitler's beer-hall putsch in Munich. Henry Luce founds *Time* magazine. Sarah Bernhardt dies. Hit songs: "Barney Google" and "Yes, We Have No Bananas."

1924 J. Edgar Hoover appointed director of FBI. Constantin Stanislavsky writes *My Life in Art.* First Winter Olympics.

1925 Sergei Eisenstein's masterpiece, *The Battleship Potemkin.* Hitler writes *Mein Kampf.* F. Scott Fitzgerald writes *The Great Gatsby.* Franz Kafka's *The Trial* published. John T. Scopes "Monkey" trial.

1926 Rudolph Valentino dies. Ernest Hemingway writes *The Sun Also Rises.* A. A. Milne writes *Winnie-the-Pooh.* Gertrude Ederle first woman to swim English Channel.

1927 The first "talkie" *The Jazz Singer.* Ivan Petrovich Pavlov writes *Conditioned Reflexes.* Charles Lindbergh flies nonstop from New York to Paris. Babe Ruth hits sixty home runs. Nicola Sacco and Bartolomeo Vanzetti executed. Lizzie Borden dies. Isadora Duncan dies. Jerome Kern's "Ol' Man River" becomes hit.

1928 U.S.S.R.'s first Five-Year Plan. Mickey Mouse's first film. D. H. Lawrence publishes *Lady Chatterley's Lover.* Alexander Fleming discovers penicillin. Amelia Earhart flies Atlantic. Geiger counter invented.

1929 William Faulkner writes *The Sound and the Fury.* Stock market crashes on Black Friday, October 28. Erich Maria Remarque writes *All Quiet on the Western Front.* St. Valentine's Day Massacre in Chicago. Sergei Diaghilev dies. Hoagy Carmichael composes "Stardust."

1930 Noel Coward writes *Private Lives.* Dashiell Hammett writes *The Maltese Falcon.* Grant Wood paints *American Gothic.*

1931 Boris Karloff stars in *Frankenstein.* Charlie Chaplin releases *City Lights.* Pearl Buck writes *The Good Earth.* Salvador Dali paints *The Persistence of Memory.* Empire State Building completed. "Star-Spangled Banner" becomes U.S. national anthem.

1932 Aldous Huxley writes *Brave New World.* Shirley Temple stars in first movie. Erskine Caldwell writes *Tobacco Road.*

1933 Hitler appointed chancellor. *King Kong* abducts Faye Raye. United States abandons gold standard. Louis Comfort Tiffany dies.

1934 Joseph Stalin begins purge of Communist Party. France launches *S.S. Normandie.* Arnold Joseph Toynbee begins *A Study of History.* John Dillinger shot by FBI.

1935 Alfred Hitchcock directs *The Thirty-nine Steps.* President Roosevelt signs Social Security Act. George Gershwin composes *Porgy and Bess.* Alcoholics Anonymous founded.

1936 King George V dies; King Edward VIII abdicates. Dale Carnegie writes *How to Win Friends and Influence People.* Margaret Mitchell writes *Gone with the Wind.* Jesse Owens wins four Olympic gold medals. Spanish Civil War begins. Frank Lloyd Wright designs Falling Water.

1937 Picasso paints *Guernica. Hindenburg* dirigible burns at Lakehurst, N.J. John D. Rockefeller dies at 98. Duke of Windsor marries Wallis Simpson. Jean Renoir directs *La Grande Illusion.* Walt Disney releases *Snow White and the Seven Dwarfs.*

1938 (Arthur) Neville Chamberlain seeks peace with Hitler at Munich. Daphne Du Maurier writes *Rebecca.* "Flat Foot Floogie with a Floy Floy" becomes hit song.

1939 Hitler signs nonaggression pact with Stalin. John Steinbeck writes *The Grapes of Wrath.* World War II begins. Edwin Armstrong develops FM broadcasting. Sigmund Freud dies.

Literature
W. H. Auden (1907-1973)
Jorge Luis Borges (1899-1986)
Berthold Brecht (1898-1956)
Pearl Buck (1892-1973)
Agatha Christie (1891-1976)
Noel Coward (1899-1973)
Hart Crane (1899-1932)
T. S. Eliot (1888-1965)
F. Scott Fitzgerald (1896-1940)
William Faulkner (1897-1962)
C. S. Forester (1899-1966)
E. M. Forster (1879-1970)
André Gide (1869-1951)
Maxim Gorky (1868-1936)
Graham Greene (b. 1904)
Ernest Hemingway (1889-1961)
Herman Hesse (1877-1962)
Aldous Huxley (1894-1963)
Christopher Isherwood (1904-1986)
James Jones (1921-1977)
Franz Kafka (1883-1924)
Sinclair Lewis (1885-1951)
Thomas Mann (1875-1955)
H. L. Mencken (1880-1956)
Anaïs Nin (1903-1977)
John O'Hara (1905-1970)
Eugene O'Neill (1888-1953)
Dorothy Parker (1893-1967)
John Dos Passos (1896-1970)
Ezra Pound (1885-1972)
John Steinbeck (1902-1968)
Arnold Toynbee (1889-1975)
Evelyn Waugh (1903-1966)
P. G. Wodehouse (1881-1975)
Thomas Wolfe (1900-1938)
Virginia Woolf (1882-1941)

Music
Béla Bartók (1881-1945)
Alban Berg (1885-1935)
Marc Blitzstein (1906-1964)
Benjamin Britten (1913-1976)
Aaron Copeland (b. 1900)
George Gershwin (1898-1937)
Paul Hindemith (1895-1963)
Arthur Honegger (1892-1955)
Aram Khachaturian (1903-1978)
Zoltán Kodály (1882-1967)
Gian-Carlo Menotti (b. 1911)
Oliver Messiaen (b. 1908)
Darius Milhaud (1892-1974)
Francis Poulenc (1899-1963)
Sergei Prokofiev (1891-1953)
Dmitri Shostakovich (1906-1975)
Robert Stolz (1882-1975)
Virgil Thompson (b. 1896)
Heitor Villa-Lobos (1887-1959)
William Walton (b. 1902)
Kurt Weill (1900-1950)
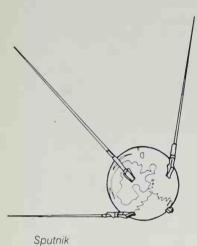
Fine Arts
Josef Albers (1888-1976)
Balthus (b. 1908)
Max Beckmann (1884-1950)
Thomas Hart Benton (1889-1975)
Marcel Breuer (1902-1981)
Alexander Calder (1898-1976)
Le Corbusier (Charles Édouard Jeaneret) (1887-1965)
John Steuart Curry (1897-1946)
Salvador Dali (b. 1904)
Stuart Davis (1894-1964)
Paul Delvaux (b. 1897)
Charles Demuth (1883-1935)
Otto Dix (1891-1969)
Arthur Dove (1880-1946)
Walter Gropius (1883-1969)
Karl Hofer (1878-1955)
Edward Hopper (1882-1967)
Johannes Itten (1888-1967)
René Magritte (1898-1967)
André Masson (b. 1896)
Roberto Matta Echaurren (b. 1912)
Ludwig Mies van der Rohe (1886-1969)
Joan Miró (1893-1983)
László Moholy-Nagy (1895-1946)
Henry Moore (1898-1986)
Georgia O'Keeffe (1887-1986)
José Orozco (1883-1949)
Amédée Ozenfant (1886-1966)
Diego Rivera (1886-1957)
Oscar Schlemmer (1888-1943)
Kurt Schwitters (1887-1948)
Charles Sheeler (1883-1965)
David Siqueiros (1896-1974)
Yves Tanguy (1900-1955)
Grant Wood (1892-1942)

Graphic Arts
M. F. Agha (1896-1978)
Herbert Bayer (1900-1986)
Lester Beall (1903-1969)
Joseph Binder (1898-1972)
Robert Bonfils (1886-1972)
Alexey Brodovitch (1898-1971)
Will Burtin (1908-1972)
Jean Carlu (b. 1900)
A. M. Cassandre (Adolphe Jean-Marie Mouron) (1901-1968)
Howard Chandler Christie (1873-1952)
Thomas M. Cleland (1880-1964)
Paul Colin (1892-1986)
Theo van Doesburg (1883-1931)
D. W. Dwiggins (1880-1956)
James Montgomery Flagg (1877-1960)
Eric Gill (1882-1940)
George Giusti (b. 1908)
Raoul Hausmann (1886-1971)
John Heartfield (Helmut Herzfeld) (1891-1968)
John Held (1889-1958)
Vilmos Huszar (1884-1960)
Gyorgy Kepes (b. 1906)
Rudolph Koch (1876-1934)
Jan van Krimpen (1892-1958)
Bart van der Leck (1876-1958)
J. C. Leyendecker (1874-1951)
Leo Lionni (b. 1910)
Herbert Matter (1907-1984)
E. McKnight-Kauffer (1890-1954)
László Moholy-Nagy (1895-1946)
Stanley Morison (1889-1967)
Erik Nitsche (b. 1908)
Giovanni Pintori (b. 1912)
Paul Rand (b. 1914)
Paul Renner (1878-1956)
Alexander Rodchenko (1891-1956)
Norman Rockwell (1894-1978)
Xanti Schawinsky (b. 1904)
Ladislav Sutnar (1897-1976)
Bradbury Thompson (b. 1911)
Jan Tschichold (1902-1974)
H. N. Werkman (1882-1945)
Piet Zwart (1885-1977)

In 1940, France had fallen to the Nazis, England was under siege, and the United States was trying to steer a course of strict neutrality. By June 1941, Europe and North Africa were occupied by the German army and Hitler turned east to invade the Soviet Union. It was not until Japan attacked Pearl Harbor on December 7, 1941, that the United States was catapulted into the war. America mobilized overnight and found itself fighting on two fronts, Europe and the Pacific. After three years of hard-fought battles, the final phase of the European war started with the Allied invasion of Normandy on June 6, 1944, and ended with Germany's defeat on May 8, 1945.

The war against Japan was brought to a sudden end on August 6, 1945, when the first atomic bomb was dropped on Hiroshima. The formal Japanese surrender took place on September 2, on the foredeck of the battleship *Missouri* in Tokyo Bay.

Two nations emerged from the Second World War as super powers: the United States and the Union of Soviet Socialist Republics (U.S.S.R.). As representatives of differing political and economic ideologies, they found themselves competing for the allegiance of the newly emerging Third World nations. By 1949, both powers had the atomic bomb and were bogged down in a cold war.

A third power, China, which, like the Soviet Union, had been an American ally during the war, embraced Communism under Mao Zedong and aligned itself with the Soviet bloc.

The fifties witnessed one serious conflict between East and West, the Korean War, which lasted three years was ended by President Dwight Eisenhower in 1953. Otherwise, the decade enjoyed a general worldwide economic boom spearheaded by U.S. economic aid. The most spectacular recoveries were those of Japan and West Germany.

It was also during this period that television changed the American lifestyle. TV revolutionized communication and home entertainment and redefined the role of radio, movies, books, magazines, and newspapers.

Other innovations that helped to define the period were FM radio broadcasting, radar, long-playing records (LPs), tape recorders, Polaroid cameras, transistors, lasers, xerography, frozen food, and a whole range of plastic and synthetic fibers.

Perhaps the most significant development for business and communication was the dramatic growth and use of computer technology. In transportation, oceanliners and trains were replaced by jet airplanes that radically shortened the time required to reach a destination.

In 1957, the year Detroit introduced the Edsel, the Soviets shocked the American public by launching the first earth satellite, *Sputnik I*, thus ushering in the space age and forcing the United States to reevaluate its priorities.

An American rebellion against conformity was led by "Beat" novelist Jack Kerouac and poet Allen Ginsberg. The theater witnessed a postwar surge of creativity in the plays of Tennessee Williams and Arthur Miller. In England, George Orwell speculated about life under the watchful eye of Big Brother in *1984*, while the Welsh poet Dylan Thomas wrote about life in Wales. In France, Jean-Paul Sartre and Albert Camus explored Existentialism through their novels and plays.

Sputnik

Before the United States entered the Second World War, a large number of artists came to America. European painters such as Léger, Mondrian, Masson, Dali, and Ernst created an atmosphere of inspiration and support for young American artists and helped shift the center of art from Paris to New York City.

The first group of American artists to achieve international fame were the *New York School* of Abstract Expressionists, who flourished during the postwar years.
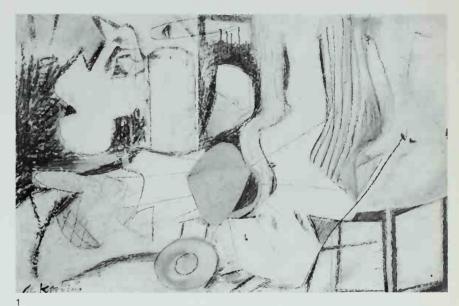
These painters were determined to find their own particular form of expression through the physical act of painting. Their canvases were generally large and undertaken with few or no preliminary sketches, the final form being determined by the act of painting. This heuristic approach to painting permitted the artist to incorporate accidental or chance events into the image.

Within the New York school there were two distinct tendencies. First, there were the Action painters, who emphasized spontaneous expression with vigorous brushstrokes: Hans Hofmann, Bradley Walker Tomlin, Adolph Gottlieb, Arshile Gorky, Willem de Kooning (1), Lee Krasner, Franz Kline, Jackson Pollock (2), Philip Guston, and Robert Motherwell.

The second group concentrated more on painting large areas of flat color with less aggressive brushwork. The major artists of this group were Mark Rothko, Clyfford Still, Barnett Newman, William Baziotes, and Ad Reinhardt.
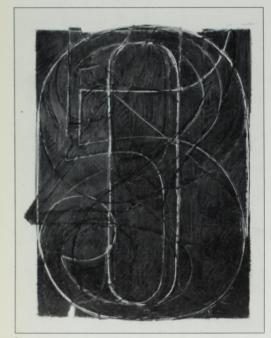
By the midfifties, a second generation of Abstract Expressionists had come of age. The major artists of this group were Joan Mitchell, Grace Hartigan, Alfred Leslie, Michael Goldberg, and the two major artists of this generation, Jasper Johns and Robert Rauschenberg (3, 4).

Both Johns and Rauschenberg attempted to combine the energy and spontaneity of Abstract Expressionism with popular imagery. Johns painted numbers, targets, flags, and maps, while Rauschenberg used photographs and printed matter to create collages and combines. The work of these two artists most influenced the art of the sixties.

1

1 Willem de Kooning's *Secretary* of 1948 is an early example of Abstract Expressionism. The surface is animated by highly subjective nonfigurative shapes.

2 Jackson Pollock's *Number 3, 1949: Tiger* is characteristic of his mature style of action painting in which paint was thrown and dripped to create the impression of violent energy.

3

4
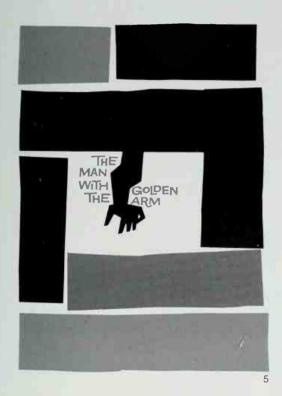
3 *Numbers 0 to 9* created by
Jasper Johns in 1962 with pastel,
crayon, and ink wash on paper. In
reaction to the extreme
subjectivity of the Abstract
Expressionist, Johns chose the
neutral subject matter of
numbers from which to work.

4 Robert Rauschenberg's *Dam* of
1959 is typical of his mixed-
media paintings that borrow
freely from Abstract
Expressionism and Cubist
collage techniques. Both
Rauschenberg and Johns helped
lay the groundwork for Pop Art.

The postwar years saw an explosion of creativity in graphic arts. It was a time of optimism and challenge, as more and more designers abandoned traditional solutions for new graphic design concepts. This new approach was aided by the public's growing acceptance of modern art, which in turn encouraged publishers and advertisers to be more adventurous.

The new climate contributed to a virtual revolution in international graphic design, especially in the United States and Switzerland, two nations that had been spared the ravages of war.

The years between 1940 and 1960 saw the American-born and trained graphic designer achieve prominence and international recognition. Along with the prewar designers, they radically changed the direction of graphic design and advertising in America.

A great deal of design activity took place in New York City, which, as the center of advertising and publishing, attracted talent from all over the United States and the world.

SAUL BASS was born in New York City in 1920 and studied at the Art Students League and Brooklyn College with Gyorgy Kepes. After working in New York City for a number of years, Bass moved to Los Angeles in 1946, where he established himself as an innovative designer of film titles and promotional pieces. His first popular success was in 1955 for the Otto Preminger film *The Man with the Golden Arm* (5).

Bass' talent lies in his ability to create memorable graphic images that are often integrated into the opening sequences of the film, a technique that has had an influence on the entire film industry. Later he directed sequences in major feature films, such as the terrifying shower scene in Hitchcock's *Psycho*.

Bass has also found success in corporate design programs as his list of clients attests: AT&T, Celenese Corporation, Exxon, Quaker Oats, and Warner Communications (6, 7).

5

AT&T

QUAKER

WARNER COMMUNICATIONS

6
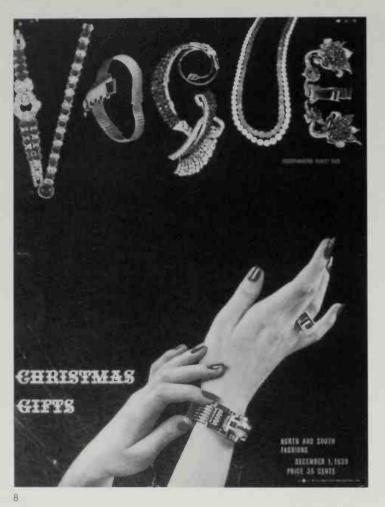
5 Saul Bass' first successful graphic image was for the 1955 film, *The Man with the Golden Arm*. This was followed by *Bonjour Tristesse*, *Anatomy of a Murder*, *Exodus*, and others.

6 Three of the many memorable logos created by Saul Bass for major corporations.

7 Saul Bass' personal mark reflects not only his design abilities but also his graphic humor.

7

8

CIPE PINELES BURTIN, one of the first successful women in graphic design, was born in Vienna and educated in the United States. She began her career with *Contempora*, one of the first industrial design studios, where she learned the business from the ground up.

Cipe Burtin's first breakthrough came in 1932, when she was hired as an assistant to M. F. Agha, the art director of Condé Nast Publications, and over the years she contributed to the design success of *Vogue* (8). In 1947 she became art director of *Seventeen*, where she commissioned such artists as Ben Shahn, Andy Warhol, and Richard Lindner to do editorial illustrations (9).

In 1961 she became an independent designer and illustrator. Among her more important assignments were design consultant to Lincoln Center and director of publication design at Parsons School of Design. She was married to two well-known graphic designers: William Golden, and, after his death, Will Burtin. Cipe Burtin remains active as a designer.

8 Cipe Pineles Burtin created this striking cover for the 1939 Christmas issue of *Vogue* while working as an assistant to M. F. Agha.

9 Cipe Pineles Burtin, when art directing, felt free to draw upon the talents of major film artists and photographers such as Robert Frank, whose photographs were used in this first issue of *Charm*

9

LOU DORFSMAN was born in New York City in 1918 and was educated at The Cooper Union. He began his career as a designer for the 1939 New York World's Fair and went on to do training films for the U.S. Navy. From 1943 to 1946, Dorfsman served in the U.S. Army as art director for a service newspaper and later, as chief designer of traveling exhibits.

In 1946, after a brief term as art director for the Reiss Advertising Agency, Dorfsman was hired by William Golden as assistant art director and staff designer for CBS radio's advertising and sales promotion. Upon Golden's sudden death in 1959, Dorfsman became the creative director for the CBS Television Network, where he has carried on Golden's tradition of excellence in TV graphics, promotion, and advertising (10, 11, 12).

In 1964, he became design director for the entire CBS corporation and took on the responsibility for all the lettering and graphics of the new headquarters designed by the architect Eero Saarinen. Today, after forty years at CBS, Dorfsman is vice president and creative director of CBS Inc.

10

11
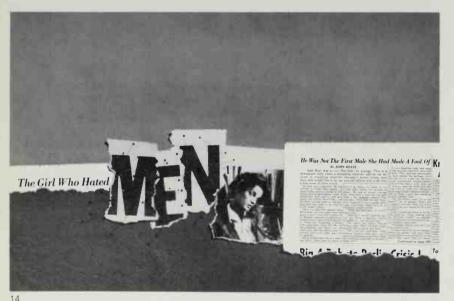
10 Lou Dorfsman combined visual wit and typography to capture the advertisers' attention and persuade them to become a part of the CBS Radio Network.

11 Lou Dorfsman's clean, strong sense of design is evident in this 1951 advertisement for the CBS Radio Network. The illustration was by the then unknown illustrator, Andy Warhol.

12 During the early fifties, when television was expanding, Dorfsman created this ad to remind advertisers of the unique qualities of radio.

12

13

GENE FEDERICO was born in New York City in 1918. Between 1936 and 1938, he studied at Pratt Institute with Tom Benrimo and took evening courses with such notable instructors as Howard Trafton and Herbert Bayer. Federico's career was interrupted by the war, during which he spent over four years in the U.S. Army.

In 1946 Federico became associate art director for *Fortune* magazine, but left after one year to become art director for Grey Advertising. During the next decade he gathered experience from several agencies before becoming a partner in his own agency, Lord, Geller, Federico, Einstein (13, 14, 15).

Federico has survived for more than forty years in an industry not famous for longevity. His success comes in part from his ability to grow and change with the times while creating ads and designs that are unique and forceful.

14

15

13 Gene Federico playfully combined type and photography to dramatize the message in this 1951 ad for *Woman's Day*, which ran in *The New Yorker*.

14 In this double page spread for *The Saturday Evening Post*, Federico has underscored the girl's hostility through the use of torn paper and straight pins.

15 This call for entries was designed in 1956 for the American Institute of Graphic Arts (AIGA). Here Federico uses type to make a bold visual statement.

BOB GAGE, graphic designer, and WILLIAM BERNBACH, copywriter, helped change the look of advertising as members of the Doyle, Dane, Bernbach Agency. William Bernbach, one of the founders in 1949, and Bob Gage, vice president and head art director, introduced a new concept to advertising, that is, a much closer link between copy and the image than ever before.

Traditionally, copywriters controlled the look of the ad; copy was lengthy and visually weak. Bernbach and Gage brought the copywriter and art director together to work as a team: Copy was to be brief and focused on the product, and the image was to be strong and believable. The completed ad was designed to grab the viewer's attention, entertain, and sell the product.

Among Doyle, Dane, Bernbach's award-winning campaigns were Ohrbach's, Volkswagen, and Levy's Bread (16, 17).

16

17

16 Bob Gage's advertising philosophy was simple: find a basic truth about a product and then present it artfully without resorting to visual tricks. A good example of this can be seen in his 1958 Ohrbach's ad where a snobbish cat comments on her neighbor.

17 In this ad for Levy's bread, Gage reinforced the message by having the bread gradually disappear.

18

WILLIAM GOLDEN was perhaps the first graphic designer to make a name for himself in television. Born in 1911 on New York's Lower East Side, Golden attended a vocational high school where he studied commercial design and photoengraving.

After graduation Golden moved to California and found work first with a photoengraver and later with the *Los Angeles Examiner*, where he did advertising layouts. He returned to New York City in 1936 when M. F. Agha invited him to work on a special project devoted to the history of Condé Nast Publications. It was during this year with Agha that Golden's talents blossomed.
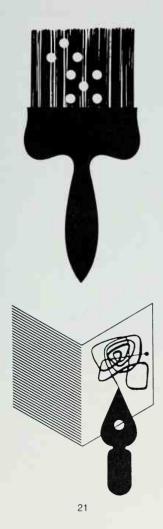
In 1937, he joined the CBS Radio Network and soon became art director. His career was interrupted by World War II. After the war, he returned to CBS, where he created many award-winning promotion pieces, using the talents of some of the top illustrators and fine artists of the time (18, 19).

Perhaps Golden's most unique creation was the corporate logo "eye" for CBS television, first aired on November 6, 1951 (20). Golden was honored by the New York Art Directors Club as the art director of the year in 1959, several months before his death at the age of forty-nine.

18 William Golden's 1949 ad for a television program on mental institutions effectively combines a Ben Shahn illustration with simple typography to create a feeling of hopeless incarceration.

19 In this ad, Golden used another Ben Shahn illustration to establish the theme of the drama. Once again, typography complements the illustration.

20 Golden's legacy will probably be the design of the CBS eye; first aired in the early fifties, it's as fresh now as when first shown.

19

20

MORTON GOLDSHOLL was born in Chicago in 1911 and studied at the Chicago Institute of Art and the Institute of Design. Among his early clients were the Chicago publisher Paul Theobald and the Martin-Senour Paint Company, for which he designed award-winning color charts, packages, and point-of-sale displays (21, 22, 23).
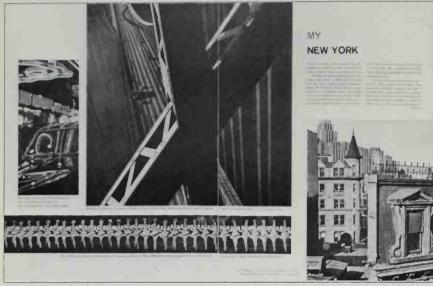
Goldsholl has designed corporate identity programs for the Kimberly-Clarke Paper Company and the H.U.H. Hoffman Company, as well as producing corporate films and TV commercials. Today he is a design consultant heading his own firm, Goldsholl Associates, in Northfield, Illinois.

22

21

23

21 Two trademarks designed by Morton Goldsholl during the late forties. Above is shown his design for the Martin-Senour Paint Company, a paintbrush with dots of color. Below is the trademark for Paul Theobald, a publisher of books on design.

22 In 1955 Goldsholl designed this "integrated packaging system" for Hillman's gourmet food store chain.

23 Symbol designed by Goldsholl for the U.S. Peace Corps in 1961.

24

25

ALLEN HURLBURT graduated from the University of Pennsylvania with a degree in economics at the height of the Depression in 1932. While at college he supplemented his major by taking courses in rendering, drawing, and psychology; he was also the editor and designer of a college magazine.

For the first couple of years after college, Hurlburt supported himself as a free-lance cartoonist until he was hired as a designer by the publisher of eight business magazines. Within one year he was art director of all eight. His career was interrupted by the Second World War. Upon his return in 1946, Hurlburt became art director for NBC, where he was responsible for some early television graphics and promotion.

In 1951, Hurlburt worked for Paul Rand at the Weintraub Agency, but left in 1953 to join *Look* magazine, where he remained until 1971 (24, 25).

Hurlburt was both a teacher and a writer on design education. Among his better-known books are *Publication Design*, *Layout*, and *The Grid*. He spent the last years of his life teaching and writing in London and died in 1983.

24, 25 Allen Hurlburt's reputation rests primarily on his long association with *Look* magazine. Shown here are two spreads from the early sixties that illustrate his editorial design strength.

ART KANE was born in the Bronx, New York, in 1925 and was drafted into the army during Second World War after his first semester at The Cooper Union. After the war he continued his education and graduated in 1950. At the age of twenty-six he became art director for *Seventeen*, where he remained for six years (26, 27, 28). During this time Kane took an interest in photography and began studying design with Alexey Brodovitch. As his passion for photography grew, he quit *Seventeen* and became a fulltime photographer.

27

26

28

26 Art Kane's 1956 ad for I. Miller was photographed by Bert Stern and communicates a feeling of romantic eroticism.

27 Double page spread from 1954 issue of *Seventeen* brings humor to the teenage ritual of dating and the problem of wearing glasses.

28 During his tenure as art director at *Seventeen* Art Kane used the services of many famous illustrators. Ben Shahn was one of them.

29

ALEXANDER LIBERMAN was born in Kiev, Russia, in 1912 and fled with his family to England after the revolution. In the early thirties Liberman studied in Paris at the École des Beaux Arts. Later he became the design editor of the magazine *Vu*. In 1937 Liberman won a gold medal for magazine design at the Paris International Exhibition.

In 1941, he escaped to the United States and began working for *Vogue*, where three years later he succeeded M. F. Agha as art director. In 1961 Liberman became editorial director of all Condé Nast publications worldwide, a position he continues to hold (29, 30, 31).

30

31

29, 30 These Alexander Liberman magazine spreads express his artistic preference for minimalism and a hard edge. Whether he is working with models or shoes, Liberman manages to capture the essence of the subject and presents it in an elegant manner. His designs are further enhanced by his exquisite use of typography.

31 This 1953 cover for the March issue of *Vogue* combines fashion illustration and photography to create a new reality.

HERB LUBALIN, according to Lou Dorfs-
man, was "the quintessential typogra-
pher" and certainly one who believed in
the innovative use of typography. His
most successful pieces are heavily ty-
pographical. They reflect his preference
for tight setting, bold use of display
type, and combined letterforms.
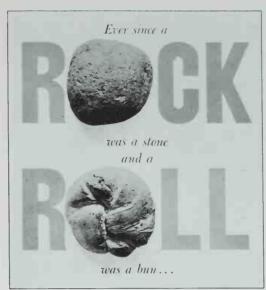
Lubalin began his career at Reiss
Advertising in the early forties and later
went to Sudler & Hennessey, where he
was art director for twenty years
(32, 33, 34). In the early sixties, Lubalin
set up his own studio, where he took on
a wide range of assignments.

Very much in demand as a magazine
designer, Lubalin was responsible for
Eros, *Avant Garde*, and *Fact* and the
redesign of *The Saturday Evening Post*. He
also created, with Tom Carnase, a
number of popular typefaces; the best
known being *Avant Garde*, which
Lubalin designed initially for the maga-
zine.

Lubalin was one of the first designers
to understand and exploit the design
potential of phototypography: squeezing,
overlapping, and blowing up letters for
expressive purposes.

He was also one of the original
founders of the International Typeface
Corporation (ITC) and designed their
publication *U&lc* ("Upper and lower
case").

33

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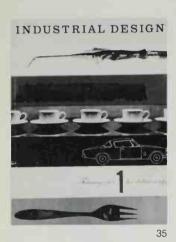
32 Herb Lubalin's simple, eye-
catching self-promotion piece for
Sudler & Hennessey.

33 This cover for a 1957 brochure
is an excellent example of
Lubalin's ability to discover a
fresh way to make a simple
phrase memorable.

34 This house ad for Sudler &
Hennessey exemplifies Lubalin's
economy of both copy and
design.

32

INDUSTRIAL DESIGN

35

36

35 Alvin Lustig was the first art director for *Industrial Design,* which began publication in 1954. For the cover of the premier issue, Lustig graphically illustrated what was inside.

36, 37 Lustig had a talent for creating dramatic and memorable book jackets, many for authors such as Franz Kafka and Federico García Lorca. Shown here are two jackets he designed for New Direction Publishers.

37
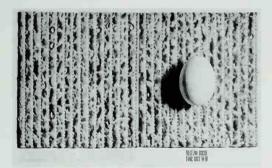
ALVIN LUSTIG was born in Denver, Colorado, in 1915, but as a youth moved to Los Angeles, where he attended the Art Center School. Flirting with the idea of becoming an architect, Lustig studied with Frank Lloyd Wright for a short while before giving up the dream and opening his own design studio in 1936.

Lustig spent 1945 to 1946 in New York City as visual design director at *Look* magazine and moved there permanently in 1951 to specialize in book, corporate, and magazine design. Some of Lustig's finest work can be seen in the many book jackets he designed for New Direction Books and Noonday Press (36, 37) and the striking layouts and covers for the magazines *Art Digest* and *Industrial Design* (35).

One of Lustig's unique qualities as a designer was his desire not only to serve his clients, but to educate them. This commitment to design education led him to establish the graphic design program at Yale University in 1951. Tragically afflicted with a progressive disease, Lustig was totally blind by 1954. Nevertheless, he continued to design with the aid of his wife, Elaine Lustig Cohen, until his early death in 1955.

OTTO STORCH was a student and disciple of Alexey Brodovitch. Storch was born and educated in Brooklyn, New York. He began knocking on doors for work during the Great Depression. His first break was a temporary position with Dell Publishing, which eventually led to his becoming a fulltime art director. On the advice of Brodovitch, Storch left Dell and began a seven-year odyssey of free-lance jobs that covered all aspects of the graphic design field.

After the war Storch accepted the position as assistant art director of *Better Living* and, later, art director for its parent magazine, *McCalls*, where he was given the opportunity to redesign the magazine (38, 39, 40). Later, when the management of the magazine changed hands, Storch decided to open his own studio in hope of finding greater creative freedom. Since then, Storch and his wife, Dolores, have worked together in both photography and art direction.

39

38

40

38, 39, 40 Otto Storch's magazine layouts are an excellent example of what can be achieved when a creative art director and an imaginative, risk-taking editor (Herbert Mayes and John Mack Carter) join forces. Storch was given a free hand, which allowed experimentation with often stunning results.

Graphic Design in Switzerland

41

42

41 Max Bill was one of the pioneers of Swiss design. In this 1945 poster Bill used a dynamically angled grid to organize the space into a series of complex rectangles, each containing a carefully selected image. In spite of the complexity, Bill managed to create a strong unified design.

42 Max Huber's 1946 poster celebrating the Italian Resistance movement combines photomontage with type placed at an angle to reinforce the action.

During the First World War, Switzerland became a haven for the Dadaists and other avant-garde artists seeking asylum. With the onset of the Second World War, Switzerland again provided shelter for artists and graphic designers fleeing war-torn Europe. Most settled in the German-speaking cities of Basel and Zürich.

Graphic design in Switzerland was already well established before the war, having benefited from the examples of de Stijl, Constructivism, the Bauhaus, and the works of Jan Tschichold. Among the pioneers of the prewar Swiss designers were Ernst Keller, Theo Ballmer, Max Bill, and Emil Ruder (41, 42).

These designers were followed by a group of younger ones who came into their own during the postwar years: MAX HUBER, JOSEF MÜLLER-BROCKMANN, ARMIN HOFMANN, and KARL GERSTNER (43, 44).

Perhaps the most significant Swiss contribution of this period was the design approach called *Swiss Style*, or, more appropriately, *International Style*.

The major characteristics of the International Style are the use of a grid, sans serif typefaces, asymmetric arrangement of design elements, and the preference for unjustified type. This organizational approach imparts a strong sense of logic and order.

The Swiss design ethic was spread throughout the world by such publications as *Graphis*, founded in 1944 (45), and *New Graphic Design*, published by, Müller-Brockmann, among others, in 1959 (46).

43

44

**Neue Grafik
New Graphic Design
Graphisme actuel**

8

45

46

43 This Josef Müller-Brockmann concert poster was designed in 1955 and reflects the fully developed Swiss style. The bold, rhythmically placed elements suggest the music of the composers.

44 Armin Hofmann's poster for an exhibition of lace. Hofmann dramatically combined two elements to create a single, self-contained image. By breaking the single line of type, Hofmann kept the viewer's attention within the rectangle of lace.

45 *Graphis* was first published in 1944 by Walter Herdeg. Since its inception *Graphis* has been a major force in promoting Swiss design and the work of designers around the world.

46 *New Graphic Design*, first published in 1959, was a showcase for the work of Switzerland's leading graphic designers.

47

47, 48 Willem Sandberg's work is easily recognized by his use of bold type, textured papers, rough edged forms, and strong figure ground designs.

49 One of Sandberg's most often reproduced designs is this study in figure ground from his book *Experimenta typographica* of 1956.

48
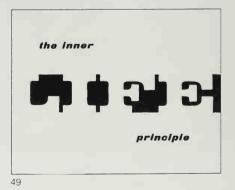
During the First World War, Holland was a neutral nation. Led by the de Stijl group, it was one of the most active centers of experimental graphic design.

But with the Second World War, when Holland was overrun by the German Army, Dutch designers went underground and could only show their work privately. Some paid with their lives: H. N. Werkman was shot by the Nazis in 1945 a few days before Holland was liberated.

The postwar years saw Holland continue its strong typographic tradition, especially in the works of WILLEM SANDBERG, who started his career by studying psychology and art history.

Sandberg was greatly influenced by the work of H. N. WERKMAN, particularly his use of bold typography, large wood types, and torn paper to create interesting shapes. In his official position as director of the Municipal Museum, and later the Stedlijk Museum in Amsterdam, Sandberg planned and produced exhibition catalogs and posters having strong typographic and visual impact (47, 48, 49). These printed pieces were seen and imitated by museums around the world.

49

Postwar Type Design

After the Second World War, there was a great demand for new typefaces, especially sans serif. In 1954, Adrien Frutiger, a Swiss designer living in Paris, created the Univers *family of type, available in a wide range of weights and widths.*

In 1957, Edouard Hoffman, another Swiss, took an old typeface, Neue Haas Grotesk, *and had it redrawn by Max Miedinger. The result was* Helvetica, *which became the favorite typeface of the Swiss designers and many others around the world.*

In Italy, Aldo Novarese created two rather unique sans serif typefaces: Microgramma *and* Eurostyle.

In Germany, one of the finest graphic designers, and certainly the most productive type designer, was Hermann Zapf. Among his many widely used typefaces were Palatino, Melior, *and* Optima, all designed in the fifties.

In the United States, Freeman Craw designed three typefaces during the fifties that found great popularity as display faces: Craw Clarendon, Craw Modern, and Ad Lib.
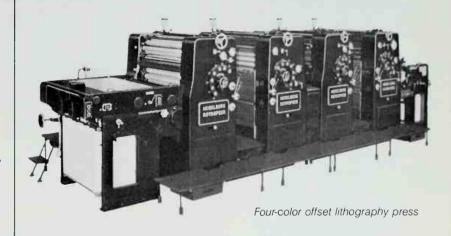
Helvetica

Univers

MICROGRAMMA

Eurostile

Palatino

Melior

Optima
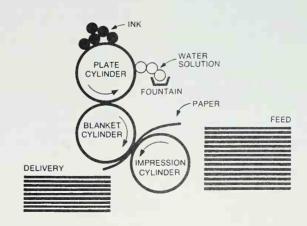
Craw Clarendon

Craw Modern

Offset Lithography Comes of Age

With the end of the Second World War, letterpress began to lose its primacy over the printing industry. For the first time since Gutenberg, another printing process, photooffset lithography, began its dominance.

The advantage of offset is flexibility: Instead of giving the printer a layout to follow, the designer is responsible for creating a mechanical, *or* paste-up, *to be photographed and made into a printing plate. As everything is done photographically, the designer has complete freedom and control over the design of the printed piece.*

Four-color offset lithography press

PEOPLE AND EVENTS

Packaging

Packaging is one of the major fields for designers. It has become especially important in the years since the Second World War with the explosion of products and merchandising techniques.

Although graphic design studios are called upon to design packaging, many jobs are handled by industrial design companies, which are capable of designing the physical packaging as well as graphics.

An industrial design firm assigns a product designer to create the package—which may be a bottle, box, or carton made from paper, plastic, metal, or glass. Once the shape and material are determined, the graphics are added by staff designers.

Among the major industrial design firms involved in packaging have been Raymond Loewy Associates, George Nelson, Walter Dorwin Teague, and Harold van Doren.

Designed by Raymond Loewy

Historical Events

1938 Chester Carlson invents xerography.

1940 Lascaux caves discovered in France. Winston Churchill becomes prime minister. Evacuation of Dunkirk. Battle of Britain begins. Leon Trotsky assassinated in Mexico. Orson Welles directs *Citizen Kane*. F.D.R. elected to third term. Walt Disney releases *Fantasia*.

1941 Germany invades Soviet Union. Japanese bomb Pearl Harbor. "Chattanooga Choo-Choo" becomes hit song. Manhattan Project under way. Dacron invented. Joe DiMaggio hits safely in fifty-six consecutive games.

1942 Battle of Midway. Marines land at Guadalcanal. Irving Berlin composes "White Christmas." *Casablanca* wins Oscar.

1943 Fall of Mussolini. Jackson Pollock has first one-man show. *Oklahoma* opens on Broadway. Zoot suit popular among jitterbuggers. Penicillin introduced as antibiotic.

1944 Allies invade Europe on D-Day, June 6. Germans hit London with V-2 rockets. F.D.R. elected to fourth term.

1945 F.D.R. dies. United Nations founded. VE Day on May 8 ends war in Europe. Atomic bomb dropped on Hiroshima on August 6. VJ Day on August 14 ends war in Pacific. Sergei Eisenstein directs *Ivan the Terrible*. Tennessee Williams writes *The Glass Menagerie*. Sartre writes *No Exit*.

1946 Nuremberg war trials held. Dr. Benjamin Spock publishes *Baby and Child Care*. O'Neill writes *The Iceman Cometh*. "Zip-a-dee-doo-da" becomes hit song.

1947 India and Pakistan achieve independence. *The Diary of Anne Frank* published. Dead Sea Scrolls discovered. Le Corbusier's Marseille Apartment Block built. First supersonic flight. Transistor invented at Bell Labs. Thor Heyerdahl sails *Kon-Tiki* across Pacific. Jackie Robinson becomes first black man in major leagues. Al Capone dies.

1948 Gandhi assassinated. United States inaugurates Marshall Plan. Israel established. Berlin airlift. Vittorio De Sica directs *The Bicycle Thief*. Peter Goldmark invents the LP record. Kinsey report published. Babe Ruth dies.

1949 NATO established. George Orwell writes *1984*. Miller writes *Death of a Salesman*. "Rudolph, the Red-Nosed Reindeer" becomes hit. Apartheid established in South Africa. People's Republic of China established.

1950 Korean War begins. Al Jolson dies. *Rashomon*, first major Japanese film, shown in the United States.

1951 J. D. Salinger writes *The Catcher in the Rye*. William Randolph Hearst dies. Electric power produced from atomic energy in Acron, Idaho.

1952 George VI dies; Elizabeth II crowned. First H-bomb exploded. Samuel Beckett writes *Waiting for Godot*. Contraceptive pill developed. Rocky Marciano wins heavyweight boxing crown. Agatha Christie writes *The Mousetrap*.

1953 Stalin dies. Sir Edward Hillary and Tenzing Norkay scale Mt. Everest. Ethel and Julius Rosenberg executed as spies. Korean War ends. DNA structure discovered.

1954 U.S. Supreme Court rules against segregated schools. McCarthy hearings begin. Federico Fellini directs *La Strada*. J. R. Tolkien writes *The Lord of the Rings*. Dylan Thomas' *Under Milk Wood* published. Dr. Jonas Salk develops polio vaccine. Roger Bannister runs mile in 3:59.4. U.S.S. *Nautilus* becomes first atomic sub.

1955 Kay Thompson writes *Eloise*. Paddy Chayevsky's *Marty* wins Oscar. Albert Einstein dies. Bill Haley's band records "Rock Around the Clock." Charlie "Bird" Parker dies.

1956 Khrushchev denounces Stalin period. Leonard Bernstein composes *Candide*. Ingmar Bergman directs *The Seventh Seal*. Egypt seizes Suez Canal, war erupts. Hungarian uprising smashed by Soviets. Elvis Presley records "Blue Suede Shoes." John Osborne writes *Look Back in Anger*.

1957 Soviets launch Sputnik to begin space age. Arturo Toscanini dies. Humphrey Bogart dies. Jack Kerouac publishes *On the Road*.

1958 Treaty of Rome begins European Common Market. Little Rock, Arkansas, closes schools over desegregation. Lorraine Hansberry writes *A Raisin in the Sun*. Vladimir Nabokov writes *Lolita*.

1959 Fidel Castro becomes premier of Cuba. De Gaulle becomes president of France. Hawaii becomes fiftieth American state. Frank Lloyd Wright dies. Alain Renais directs *Hiroshima, Mon Amour*. Billie Holiday dies. Eugène Ionesco writes *Rhinoceros*.

Literature

Simone de Beauvoir (1908-1986)
Samuel Beckett (b. 1906)
Albert Camus (1913-1960)
John Cheever (1912-1982)
Jean Genet (1910-1986)
Allen Ginsberg (b. 1926)
Lillian Hellman (1905-1984)
William Inge (1910-1973)
Eugène Ionesco (b. 1912)
Jack Kerouac (1922-1969)
Robert Lowell (1917-1977)
Norman Mailer (b. 1923)
André Malraux (1901-1976)
Marianne Moore (1897-1972)
Arthur Miller (b. 1915)
Alberto Moravia (b. 1907)
Vladimir Nabokov (1899-1977)
George Orwell (1903-1950)
Jean-Paul Sartre (1905-1980)
Dylan Thomas (1914-1953)
Tennessee Williams (1911-1985)

Music
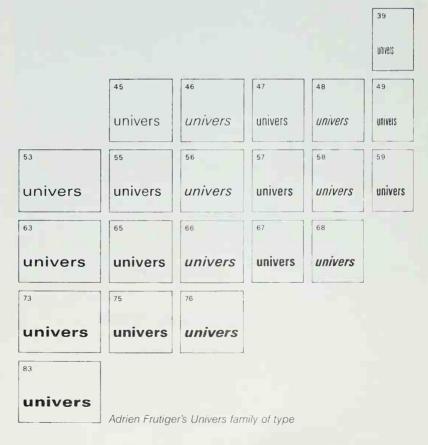
Samuel Barber (1910-1981)
Luciano Berio (b. 1925)
Leonard Bernstein (b. 1918)
Benjamin Britten (1913-1976)
Pierre Boulez (b. 1925)
Elliott Carter (b. 1908)
Alberto Ginastera (b. 1916)
Aram Kachaturian (1903-1978)
Francesco Malipierro (1882-1973)
Gian Carlo Menotti (b. 1911)
Oliver Messiaen (b. 1908)
Luigi Nono (b. 1924)
Gunter Schuller (b. 1925)
William Schuman (b. 1910)
Stefan Wolpe (1903-1972)

Fine Arts

Karl Appel (b. 1921)
Francis Bacon (b. 1910)
William Baziotes (1912-1963)
Willem de Kooning (b. 1904)
Jean Dubuffet (1901-1985)
Michael Goldberg (b. 1924)
Arshile Gorky (1905-1948)
Adolph Gottlieb (1903-1974)
Philip Guston (1913-1980)
Grace Hartigan (b. 1922)
Hans Hofmann (1880-1966)
Jasper Johns (b. 1930)
Franz Kline (1910-1962)
Lee Krasner (1908-1984)
Alfred Leslie (b. 1927)
Joan Mitchell (b. 1926)
Robert Motherwell (b. 1915)
Barnett Newman (1905-1971)
Ben Nicholson (1894-1982)
Isamu Noguchi (b. 1904)
Jackson Pollock (1912-1956)
Robert Rauschenberg (b. 1925)
Ad Reinhardt (1913-1967)
Mark Rothko (1903-1970)
David Smith (1906-1955)
Clyfford Still (1904-1980)
Graham Sutherland (1903-1980)
Bradley Walker Tomlin (1899-1954)

Graphic Arts

Theo Balmer (b. 1923)
Saul Bass (b. 1920)
Max Bill (b. 1908)
Aaron Burns (b. 1922)
Cipe Pineles Burtin (b. 1911)
Tom Carnase (b. 1939)
Lou Dorfsman (b. 1918)
Gene Federico (b. 1918)
Adrien Frutiger (b. 1928)
Bob Gage (b. 1921)
Karl Gerstner (b. 1930)
William Golden (1911-1959)
Morton Goldsholl (b. 1911)
Armin Hofmann (b. 1920)
Max Huber (b. 1919)
Allen Hurlburt (1910-1983)
Art Kane (b. 1925)
Ernst Keller (b. 1891)
Alexander Liberman (b. 1912)
Herb Lubalin (1918-1981)
Alvin Lustig (1915-1955)
Josef Müller-Brockmann (b. 1914)
George Nelson (1907-1986)
Emil Ruder (1914-1970)
Willem Sandberg (b. 1897)
Bert Stern (b. 1929)
Otto Storch (b. 1913)
Hermann Zapf (b. 1918)

Adrien Frutiger's Univers family of type

The sixties opened with a sense of optimism and a desire for change but ended in a mood of disillusionment and frustration. In 1960, John F. Kennedy was elected president of the United States. He brought with him a spirit of youthful energy and new solutions to domestic and international problems.

On the U.S. domestic front, gains were made in civil rights through sit-ins and Supreme Court rulings; war was declared on poverty and disease; and the National Aeronautics and Space Administration (NASA) was created and charged with the goal of putting a man on the moon.

By the end of the decade, President Kennedy, his brother Robert, and civil rights leader Martin Luther King Jr., had been assassinated. The continuing undeclared and unpopular Vietnam War discouraged President Lyndon Johnson from running for a new term in 1968; Richard Nixon was elected president and the nation was divided.

In the early seventies, the United States was still bogged down in the Vietnam War, and the youth of America—the so-called baby boomers, who swelled the population after the Second World War—led the nation in civil rights, anti-war demonstrations, ecological concerns, and the sexual revolution. Women asserted themselves and recommenced their fight for equal rights.

In 1973, the Vietnam War ended; the Watergate scandal forced President Nixon from office; and OPEC, the international oil cartel, cut production, causing higher prices and the first of many shortages.

By 1976, America slowly began the return to normalcy. Jimmy Carter was elected president, and the Bicentennial celebration helped Americans regain their sense of identity and patriotism.

Then, at the end of the decade, Carter saw his presidency falter as inflation soared and the Iranian hostage crisis dragged on.

The sixties and seventies witnessed a bewildering number of social changes inspired and driven by the generation born after World War II. Much of their philosophy was expounded in the rock music of their idols, including Bob Dylan, Joan Baez, the Beatles, the Rolling Stones, the Who, the Doors, Jimi Hendrix, Janis Joplin, and Simon and Garfunkle.

Hippies and flower children were told to "Drop out, tune in, and turn on," with marijuana, LSD, and mescaline. If psychedelic trips didn't work, people sought self-awareness through gurus, Esalen, encounter groups, love-ins, wife-swapping, or primal screaming.

In fashion, it was the miniskirt, hot pants (shorts), topless bathing suits, see-through blouses, body painting and afro hairdos. In film, the "New Wave" included Jean-Luc Godard, Alain Renais, and François Truffaut, while the underground movies brought Pop Art into film. In literature, among the notables were Edward Albee, James Baldwin, Günter Grass, Joyce Carol Oates, Aleksandr Solzhenitsyn, Philip Roth, John Updike, and Kurt Vonnegut.

By the end of the seventies, the times had mellowed and baby boomers were raising families and working their way up the corporate ladder. Meanwhile, a new generation was discovering John Travolta, the BeeGees, disco dancing, *Star Wars*, and R2D2.

On the consumer front, Japan began its invasion of America by flooding the market with high-quality, low-priced cars, cameras, calculators, color televisions, and video recorders.

By the early sixties, the Abstract Expressionist movement had lost much of its energy and a new generation of artists began to explore new directions. The movements were numerous, some lasting only a few years. Among the more important were Pop, Color Field, Op, Minimalism, Hard Edge, Conceptual, and Kinetic. The seventies saw a return to various forms of realism, such as Photorealism and Superrealism.

Pop Art was a reaction against the extreme emotionalism and high seriousness of Abstract Expressionism. Inspired by the ideas of Jasper Johns and Robert Rauschenberg, Pop artists created works with images from popular culture, such as Roy Lichtenstein's comic strip paintings and Andy Warhol's Campbell's soup cans (1, 3). Other Pop painters were James Rosenquist (2), Jim Dine, Tom Wesselman, and Robert Indiana.

Many Pop artists, such as Warhol and Rosenquist, had supported themselves in the graphic arts and therefore did not hesitate to use commercial printing, sign painting, and advertising techniques. Other manifestations of Pop Art were the soft sculptures of Claes Oldenburg, the plaster casts of George Segal, the wooden and canvas figures of Marisol, and the neon constructions of Chryssa. Pop artists also enjoyed creating spontaneous performances called *Happenings*.

In *Color Field* painting the artist emphasized the surface of the canvas by creating two-dimensional forms with flat color, thus eliminating both drawing and brushstrokes. The paint could be applied in various ways: with brush, sponge, or rags, or it could be poured. The artists of this school were Morris Louis, Kenneth Noland, Jules Olitsky, and Helen Frankenthaler.

During the same period, another group of artists experimented with the optical effects created by contrasting or vibrating color and geometric forms. This movement, called *Op Art*, was short-lived and did not attract a wide number of adherents. The best known Op artists were Victor Vasarely, Bridget Riley, Richard Anuszkiewicz, and Larry Poons.

Another group of painters, referred to as either *Minimalists* or *Hard Edge* had as their object the reduction of form to flat colors or simple shapes. Examples of Hard Edge painting are the works of Ellsworth Kelly, Al Held, and Jack Youngerman.

Collection, The Museum of Modern Art, New York

1

1 Roy Lichtenstein chose the comic strip as a source of inspiration for his art. By blowing up individual frames he was able to parody the romance and adventures of the comic strip characters, such as is found in his *Drowning Girl* of 1963.

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2

3

Conceptual artists moved away from painted canvases and traditional art objects and created instead events or situations, which were then photographed. Some Conceptual art was done on a grand scale, for example, Robert Smithson's earth works, and Christo's wrappings of buildings, bridges, and islands. Other artists, such as Joseph Kosuth, worked with language as a means of expressing aesthetic ideology.

The *Kinetic* artists were sculptors who worked in the tradition of Alexander Calder. Some Kinetic pieces, such as those of George Rickey, were moved by the wind, while others were motorized. Examples of the latter were the works of Len Lye and Jean Tinguely. Other Kinetic artists created the illusion of movement by using neon or fluorescent lights. This effect can be seen in the works of Dan Flavin.
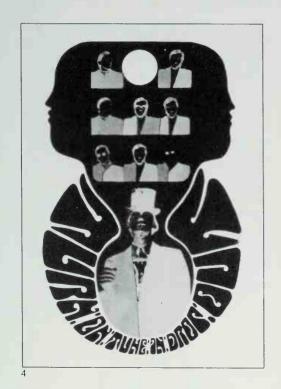
The period between 1960 and 1980 in the graphic arts, like the fine arts, was a time of innovation and experimentation. Ideas and images flowed freely back and forth between the fine arts and the graphic arts. Rauschenberg, Warhol, Lichenstein, and Rosenquist borrowed images and techniques from the commercial world, while designers continued to turn to the fine arts for inspiration.

The early sixties saw a continuation of the postwar renaissance. Designers such as Paul Rand, Saul Bass, Bradbury Thompson, and Gene Federico had become the new Establishment and were now sought by major agencies and corporations.

By the midsixties a new energy was sweeping the country. The baby boom generation was coming of age and asserting its own taste. Psychedelic art, with its bizarre or distorted images, was widely used for youth-oriented posters, magazines, and records (4, 5). But it had little influence on mainstream design.

The serious work of graphic design was being produced by a new generation of designers.

4

5

4, 5 The psychedelic art of the midsixties and early seventies gave visual expression to the counter-culture of rock music and mind-expanding drugs. Images and type were distorted and printed in Day-Glo colors to create hallucinatory effects. The posters were designed to be experienced rather than read.

6 Ivan Chermayeff and Tom Geismar established themselves with the design of this unique and memorable logo for the Chase Manhattan Bank in the early sixties.

7 This 1970 poster is a refreshing relief from the traditional cluttered travel poster. Its bold image and minimal typography is in the Swiss design tradition.

8 Ivan Chermayeff's illustration creates a striking poster for the 1973 television dramatization of Tolstoy novel, *War and Peace*.

9 A prestigious commission for Chermayeff and Geismar was the design of the official symbol for the U.S. Bicentennial.

A dramatization of the Tolstoy novel presented on PBS-TV

Beginning November 20 Made possible by matching grants from

National Endowment for the Humanities & Mobil Oil Corporation

WAR AND PEACE

CHERMAYEFF AND GEISMAR ASSOCIATES are certainly one of the most successful and best-known graphic design firms operating today. They have applied their talents to everything from shopping bags to corporate identity programs.

IVAN CHERMAYEFF and TOM GEISMAR met while students in the graphic design program at Yale University. After graduating in the midfifties, they joined the already established graphic designer, ROBERT BROWNJOHN. In 1960 Chermayeff and Geismar formed their own firm and almost immediately attracted attention with their successful corporate identity program for the Chase Manhattan Bank (6). Since then they have completed over two hundred corporate programs, including those for Mobil, Xerox, and Burlington Industries (7).

They also excelled in exhibition design—small museum exhibits to international expositions. For example, they designed the U.S. Government pavilions for Expo '67 in Montreal and Expo '70 in Osaka and the "A Nation of Nations" exhibit for the Smithsonian.

For the Bicentennial Commission, they were responsible for the graphic design program and the official symbol (9). Another exhibit of note was for the John F. Kennedy Memorial Library.

Besides excelling as a designer of corporate graphics, Chermayeff is also a successful illustrator whose work can be seen in his many posters and advertisements for the Public Broadcasting System (PBS), Mobil Corporation, and New York's Museum of Modern Art (8).
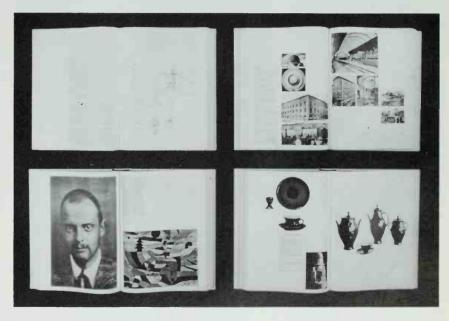
MURIEL COOPER is another outstanding designer of this period. For more than thirty years she has been associated with the Massachusetts Institute of Technology (MIT), one of the first institutions to believe in the importance of fine design as a communicator of excellence.
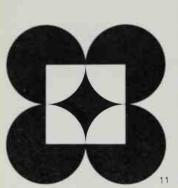
In 1951, Cooper was hired by MIT as a fulltime designer instructed to improve the design of their publications. Eight years later, Muriel Cooper became the first art director of the MIT Press, where she developed what is now known as the MIT look (10). Perhaps the outstanding example of this look can be seen in the 1969 catalog, the definitive history of the Bauhaus, published on its fiftieth anniversary.
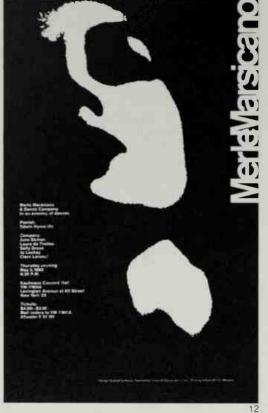
Cooper holds the rank of associate professor of visual studies at MIT. She is cofounder and director of the Visual Language Workshop, where she continues to teach and investigate the characteristics of the new graphics in an electronic environment.

10

10 Muriel Cooper, while art director for the MIT Press, designed this volume, *Bauhaus*. The book was published in 1969 on the fiftieth anniversary of the school's founding.

11

12

RUDOLPH DE HARAK was born in Culver City, California, in 1924. A self-taught designer, he began his career on the West Coast and in 1950 moved to New York, where he established himself as an influential graphic designer.
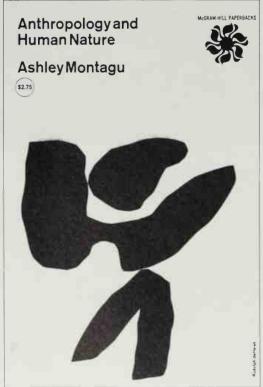
In addition to numerous illustrations for *Esquire* magazine, covers for Columbia Records, and various logos and posters, he designed 350 strikingly successful book jackets for McGraw-Hill (11, 12, 13, 14). It was at this time that he began a career as a teacher, which has lasted for more than thirty-five years. He is the Frank Stanton Professor of Design Emeritus at The Cooper Union School of Art and Architecture in New York City.
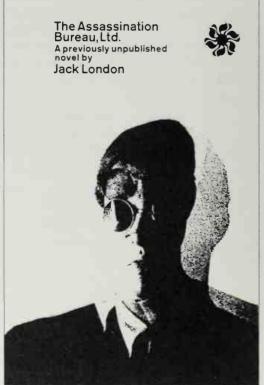
On a much larger scale de Harak has become famous for his exhibition designs and architectural graphics. Among his accomplishments are exhibits for Expo '67 in Montreal, Canada, and Expo '70 in Osaka, Japan.

11 Rudolph de Harak's 1959 logo for the Versen Lighting Company's corporate identity program.

12 For the Merle Marsicano & Dance Company poster of 1962, de Harak chose a high contrast closeup of the dancer's face to express emotional intensity.

13, 14 Two book covers designed by de Harak in 1963 for McGraw-Hill trade paperbacks. As part of a series the covers were designed on a grid using the same sans serif typeface. The challenge for de Harak was to create a strong symbol to express the uniqueness of each book. The logo, a sunburst or opening flower, was conceived as a positive symbol.

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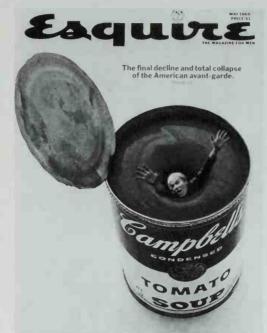
GEORGE LOIS was typical of a new breed of advertising art director. Born into a Greek immigrant family in 1931, Lois was educated at Pratt Institute in Brooklyn. He was by his own description the *enfant terrible* of the advertising world.

In the fifties, the advertising business had been dominated by a White Anglo-Saxon Protestant "WASP" ethic, and the advertisements reflected this bias: They were staid and safe. Lois shook up this cozy world by creating ads that were irreverent, outrageous, humorous—and successful (17). Lois brought the same brash spirit to the magazine world when he was asked to design *Esquire* magazine covers (15, 16).

Before he was thirty, Lois became the first art director to head his own agency, PAPERT KOENIG LOIS, where he remained until 1967. Since then Lois has gone on to form other agencies. He is the author of *The Art of Advertising*.

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15, 16 George Lois' ability to make a memorable visual statement was never more evident than in the series of covers he created for *Esquire* magazine during the sixties.
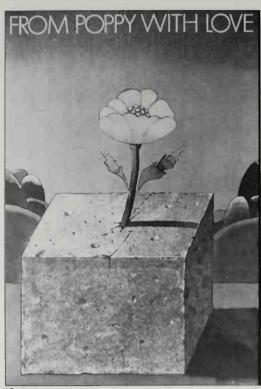
17 One of Lois' greatest assets was his sense of humor. Here he brings wit to an essentially bland product.
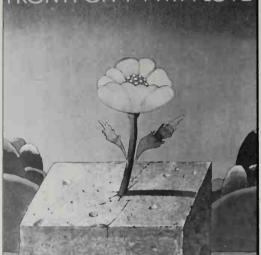
199

FROM POPPY WITH LOVE

18

18 Milton Glaser, trained as a fine artist, had the ability to work in many different styles. This was one of the greatest talents he brought to the Push Pin Studio. The poster shown here is one of many posters created over the years.

19 Seymour Chwast's whimsical alphabet for the Elektra Films, an animation studio.

20 The *Push Pin Graphic* was created by the studio as a self-promotion piece to showcase for its many talented illustrators and designers. Shown here is the cover by Seymour Chwast for the 1983 issue.
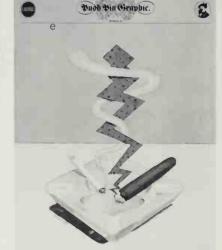
PUSH PIN STUDIO was a successful enterprise formed in 1954 by three graduates of The Cooper Union: MILTON GLASER, SEYMOUR CHWAST, and ED SOREL. Starting modestly as illustrators and book jacket designers, before long they were offering a wide range of graphic design services.

The Pushpin look was immediately recognizable. It turned away from the strict dictates of the Swiss school toward a more eclectic approach that drew inspiration from all art periods, fine and commercial. In its many forms, the Pushpin look has influenced designers and illustrators around the world (18, 19).

To publicize their work, the studio created the *Push Pin Graphic*, a periodical that permitted the various artists affiliated with the studio to experiment and promote their talents (20). The artists included some of America's top illustrators: REYNOLDS RUFFINS, BARRY ZAID, JOHN ALCORN, JAMES McMULLAN, and PAUL DAVIS.

As a measure of their success, in 1970 Pushpin Studio was the first American studio to have an exhibition at the prestigious Musée des Arts Décoratifs in Paris. In 1975, Sorel left the partnership to pursue his own career. Glaser left next to establish his own firm. Today Chwast directs the Pushpin Group.

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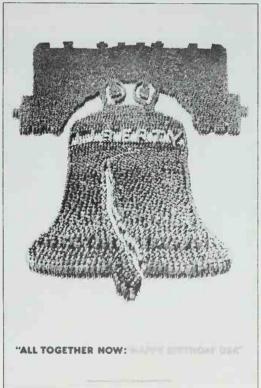
GEORGE TSCHERNY was born in 1924 in Budapest, but his family soon moved to Berlin and later immigrated to the United States in 1941. After serving in the U.S. Army, Tscherny attended Pratt Institute in Brooklyn, where he studied graphic design. After graduating, his first position was as a staff designer for Donald Deskey Associates, and later, George Nelson, both highly respected industrial designers.

In 1955, George Tscherny established his own free-lance firm and began to work on a wide range of assignments: corporate graphics, annual reports, postage stamps, posters, and exhibitions (21, 22, 23). Among the many corporations Tscherny has done work for are Texasgulf, W. R. Grace Company, Rockwell International, IBM, RCA, and Burlington Industries. George Tscherny's style could best be described as classic. He has avoided the clichés of the various movements over the past twenty-five years.

22

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23

21 George Tscherny chose handlettering to capture the spontaneity of the creative process for this 1962 Museum of Modern Art catalog cover.

22 In this poster for the German Cultural Center, Tscherny carefully selected evocative images to represent music, technology, literature, painting, science, and mathematics.

23 For a Bicentennial poster, Tscherny combined a strong graphic image from the First World War with simple typography to celebrate the occasion.

24
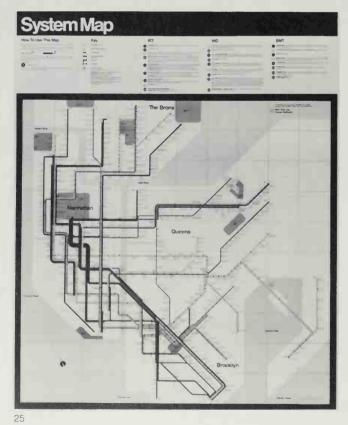
MASSIMO VIGNELLI was born and educated in Italy, where he started his career as an architect. Vignelli first came to America in 1957 on a fellowship to the Institute of Design in Chicago, after which he returned to Milan, where he set up an office to practice graphic, industrial, and architectural design.

In 1965, Vignelli returned to the United States, cofounding UNIMARK INTERNATIONAL in Chicago and beginning work for such clients as Knoll International (24). Among Vignelli's better-known commissions were the signage and maps for the New York subway system in 1966 (25, 26) and for the Washington Metro in 1968.

In 1971, he established VIGNELLI ASSOCIATES in New York City, where he and his wife, Lella, continue to create award-winning designs.

24 Massimo Vignelli, who started his career as an architect, quickly established himself as a major graphic designer. Shown here are a few pieces that he designed for Knoll International.

25, 26 One of Vignelli's major challenges was redesigning the graphics and signage for the New York City subway system. The signage was a success; the map, however, proved to be controversial. The Transit Authority abandoned Vignelli's map in favor of one of its own after a few years.

25

26

In Switzerland, a younger generation of graphic designers, weary of a design philosophy based on absolute order, began searching for alternative solutions. They felt that Swiss design had become too formalized, and while designs had a clean, well-organized look, they were often predictable.

To counteract this tendency and breathe new life into their work, designers such as WOLFGANG WEINGART, SIEGFRIED ODERMATT, and ROSEMARIE TISSI broke with this tradition and began placing design elements in a more playful and unexpected manner (27, 28, 29). Intuition as well as reason determined where elements would be placed: Type and illustrations were placed at random, giving the page a dynamic look. This look has been referred to as *New Wave* and has captured the imagination of many young designers.

Weingart carried his experiments the furthest, creating tours de force of visual effects involving overlapping images, enlarged halftone dot patterns, reversed type blocks, rules, bars, and other design elements that would increase visual excitement.

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27 Wolfgang Weingart was one of the first Swiss designers to break away from the classic Swiss graphic design in search of a new visual vocabulary. Free of rigid dogma, Weingart expanded the boundaries of Swiss design.

28, 29 These two pieces represent the work of Siegfried Odermatt and Rosemarie Tissi, who have worked together since 1969. In Odermatt's design for the Union Safe Company, type was handled in a totally free manner, even turned upside down. In Tissi's design, the letters of the word "tips" have been overlapped or reversed to create a strong logo effect.

**Bertrand Russell
An Inquiry into Meaning
and Truth**

DOG

30

30 From the beginning, Pentagram Design's approach has been eclectic, reflecting the individual talents of the partners rather than a particular school. One of the studio's many commissions was the design of book jackets for Penguin Books.

31 An early greeting card drawing upon the talents of the three designers: Colin Fletcher, Alan Forbes, and Bob Gill.

32 Humor played a prominent role in many of the early assignments. Here an ad for Perelli slippers completes the unseen figures of the passengers.

31

32

Like America, England experienced the effects of the postwar generation: It was a time of youth, high energy, rock music, protests, and antiestablishment sentiments. It was also the perfect time for designers with talent to offer something new.

Three such designers were COLIN FORBES, ALAN FLETCHER, and BOB GILL, an expatriate American, who came together in 1962 to form the studio of Fletcher, Forbes and Gill. Their style was eclectic and did not conform to any particular philosophy; the results were ads that were different and noticed (30, 31, 32). After three years, Bob Gill left the studio and was replaced by THEO CROSBY.

Over the years the partnership flourished, took on new members, expanded its services, and changed its name in 1971 to Pentagram Design. Seven years later they opened an office in New York City. Today Pentagram Design offers a wide range of architectural, graphic, and industrial design services to major corporations around the world. Other design firms of note are Omnific Ltd., Wolff Olins Ltd., and Minale Tattersfield Provinciale Ltd.

While design firms such as Pentagram were creating "fine" graphic design, there were other designers who were more interested in a new, more aggressive and provocative form of design called *Punk*.

Punk styles in music, fashion, and design grew out of the life-style of England's disaffected and unemployed youth. Punk graphics, like psychedelic design in the sixties, were meant to shock. They were quickly picked up by the media as an effective way of reaching an affluent youth market and were ideally suited for promoting and selling records, fashion publications, and posters.

The Japanese, in modernizing themselves at the end of World War II, attempted to blend the Western techniques of collage, montage, airbrush, and the International Typographic Style with traditional Japanese symbols, calligraphy, and aesthetics.
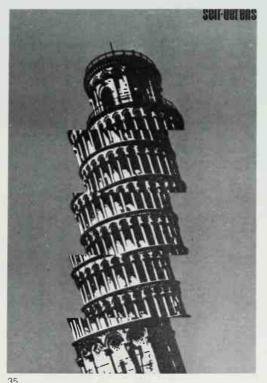
The results appear highly eclectic to Western eyes; at times the results are an uneasy marriage of two diverse cultures, but more often the designs reflect a highly sophisticated fusion of Eastern elegance and serenity with Western diversity and energy.

Perhaps the Japanese designer most responsible for this new direction is YUSAKU KAMEKURA who is probably best known abroad as the designer of the posters for the 1964 Summer Olympic Games at Tokyo (33). Among the other leading Japanese graphic designers are IKKO TANAKA (34), SHIGEO FUKUDA (35), MAKOTO NAKAMURA, KASUMASA NAGEL, and MITSUO KATSUI.

34

33

35

33 Yusaku Kamekura is considered by many to be the dean of Japanese graphic design and one of the first to integrate Western ideas into his work. Shown here is one of his popular posters for the 1964 Tokyo Olympic Games.

34 Ikko Tanaka's 1976 poster combines a dramatic image, Japanese calligraphy, and white space to make a powerful statement.

35 Shigeo Fukuda's 1974 poster, *Self-defense*, uses the leaning tower of Pisa to make a subtle point about the importance of balance in self-defense.

Phototypesetting

Although the first patents were taken out during the 1890s, it was not until the thirties that a few individuals, such as Edward Rondthaler of Photo-Lettering, Inc., became serious about the potential of phototypesetting. This was primarily for display type. Text type was still being set in metal.
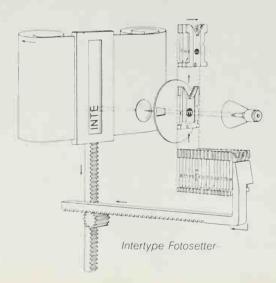
The first generation of practical phototypesetting systems began in the late forties with the Intertype Fotosetter. The Fotosetter was simply the old Intertype linecasting machine converted into a photo-composing system by substituting a camera for the metal pot and a film negative for the casting matrix. From two basic fonts and an assortment of lenses, the Fotosetter could set from 4- to 36-point type.

By the sixties a second generation of machines was making its way into the market. These systems had fewer moving parts, were electronically controlled, and were faster and more reliable. Characters to be set were not held on individual matrices but on discs or film strips.

An excellent early second-generation system was the Photon. Electronically controlled, a xenon light flashed through a spinning disc containing several alphabets and exposed characters onto a roll of light-sensitive paper or film held in a cassette to be developed later. To speed output, the Photon was operated by a perforated paper tape.

The seventies saw the introduction of third-generation systems, which were entirely electronic and which used a cathode ray tube as a means of generating characters. No longer were entire letters projected onto paper; now information concerning their makeup was stored digitally in a computer and the characters generated, or set, as a series of small dots or closely spaced vertical lines. Once set, they appeared to be solid letters. Among the features of the third-generation systems were output speeds of 1,000 to 10,000 characters per second: the slower the speed, the higher the quality. By manipulating the dots or lines, type could be condensed, expanded, italicized, back-slanted, and made thin or heavy.

Since the early eighties, digital typesetting, or imaging, has completely taken over the traditional industry to the point where every major manufacturer has ceased to make anything but digital equipment.

ITC

The International Typeface Corporation (ITC) has been responsible for a far-reaching typeface development program similar to the one carried out earlier in the century by the English Monotype Corporation. Founded in 1970 by Aaron Burns, Herb Lubalin, and Ed Rondthaler, ITC has commissioned the redrawing of many standard typefaces, such as Garamond, Caslon, Baskerville, Century, and Cheltenham. Originally designed for handsetting and linecasting, these classics had to be reinterpreted and unitized for the newer phototypesetting and digital systems.

ITC also commissioned new designs from some of the world's leading typeface designers, including Hermann Zapf, Matthew Carter, Aldo Novarese, and Ed Benguiat. For the first time, many of these designers received royalties for their efforts.

Intertype Fotosetter

Historical Events

1960 John F. Kennedy elected president of the United States. Laser developed. Alain Renais directs *Last Year at Marienbad*. Mack Sennett dies. Twist becomes popular dance. U.S. nuclear sub circumnavigates globe under water.

1961 Ernest Hemingway commits suicide. Grandma Moses dies at 99. Yuri Gagarin first man in space. Alan Shepard first American in space. Ty Cobb dies. Thalidomide causes birth defects in newborns.

1962 Rachel Carson writes *Silent Spring*. Marilyn Monroe dies. Cuban Missile Crisis. Aleksandr Solzhenitsyn writes *One Day in the Life of Ivan Denisovich*. Edward Albee writes *Who's Afraid of Virginia Woolf*.

1963 Martin Luther King Jr. delivers famous "I Have a Dream" speech at Washington rally. Edith Piaf dies. President Kennedy assassinated by Lee Harvey Oswald. Stanley Kubrick directs *Dr. Strangelove*. Barbie doll introduced.

1964 Cole Porter dies. Elizabeth Taylor marries Richard Burton. Cassius Clay wins heavyweight crown. General Douglas MacArthur dies. Beatles give first American concert. Martin Luther King Jr. receives Nobel Peace Prize.

1965 Winston Churchill dies. The Great Northeast Blackout. Malcolm X assassinated.

1966 Dr. Michael DeBakey uses artificial heart during operation. Jim Ryan runs mile in 3:51.3. Indira Gandhi becomes prime minister of India.

1967 Six-Day War between Israel and Egypt. "Che" Guevara shot. Twiggy and miniskirt popular. Woody Guthrie dies. Dr. Christiaan Barnard performs first successful heart transplant.

1968 Martin Luther King Jr. and Robert F. Kennedy assassinated. Olympic Games held in Mexico City. Czechoslovakia invaded by U.S.S.R.

1969 Neil Armstrong first man on moon. Charles Hall invents modern water bed. *The Saturday Evening Post* ends after 148 years. Judy Garland and Boris Karloff die.

1970 Kent State University shooting of four students by National Guard. General Charles De Gaulle dies.

1971 Louis Armstrong dies. Sylvia Plath's *The Bell Jar* published in the United States. Twenty-Sixth Amendment to U.S. Constitution gives eighteen-year-olds the vote.

1972 Watergate break-in. J. Edgar Hoover dies. Marlon Brando stars in *The Godfather*.

1973 Great Britain enters Common Market. U.S. Supreme Court permits abortions. Pablo Picasso dies.

1974 Patty Hearst kidnapped by radicals. President Nixon resigns. Henry Aaron hits record 714 home runs. Charles Lindbergh and Duke Ellington die.

1975 U.S. and Soviet spacecrafts link up. *Jaws* first film to top $100 million at box office. Generalissimo Francisco Franco and Chiang Kai-shek die. End of American involvement in Vietnam.

1976 United States celebrates Bicentennial. Chairman Mao Zedong dies. Alex Haley writes *Roots*.

1977 Anwar Sadat visits Israel. *Star Wars* launches space age epic. Charlie Chaplin dies. United States tests "clean" neutron bomb.

1978 A Gutenberg Bible sells for $2 million. First "test-tube" baby born in England. Norman Rockwell dies. Anwar Sadat and Menachem Begin sign Camp David Accords. 911 die in James Jones cult mass suicide. John Paul II becomes first Polish pope.

1979 Margaret Thatcher becomes Britain's first woman prime minister. Three-Mile Island nuclear reactor accident. Iranian militants take Americans hostage at embassy. Soviets invade Afghanistan.

Literature

Edward Albee (b. 1928)
James Baldwin (b. 1924)
Donald Barthelme (b. 1931)
Truman Capote (1924-1984)
Athold Fugard (b. 1932)
Günter Grass (b. 1927)
Bernard Malamud (1914-1986)
Iris Murdoch (b. 1919)
Joyce Carol Oates (b. 1938)
Harold Pinter (b. 1930)
Sylvia Plath (1932-1963)
Philip Roth (b. 1933)
Isaac B. Singer (b. 1904)
Aleksandr Solzhenitsyn (b. 1918)
Tom Stoppard (b. 1937)
John Updike (b. 1932)
Kurt Vonnegut (b. 1922)

Music

Luciano Berio (b. 1925)
George Crumb (b. 1929)
Philip Glass (b. 1937)
Hans Werner Henze (b. 1926)
Krzysztof Panderecki (b. 1933)
Luigi della Piccola (1904-1975)
Steve Reich (b. 1936)
Karlheinz Stockhausen (b. 1928)
Michael Tippett (b. 1905)

Fine Arts

Carl André (b.1935)
Richard Anuszkiewicz (b. 1930)
Chuck Close (b. 1940)
Jim Dine (b. 1935)
Richard Este (b. 1936)
Audrey Flack (b. 1931)
Helen Frankenthaler (b. 1928)
Al Held (b. 1928)
Robert Indiana (b. 1928)
Donald Judd (b. 1928)
Allan Kaprow (b. 1927)
Ellsworth Kelly (b. 1923)
Joseph Kosuth (b. 1945)
Saul Lewitt (b. 1928)
Alexander Liberman (b. 1912)
Roy Lichtenstein (b. 1923)
Morris Louis (1912-1962)
Len Lye ((1901-1980)
Agnes Martin (b. 1912)
Kenneth Noland (b. 1924)
Claes Oldenberg (b. 1929)
Jules Olitsky (b. 1922)
Larry Poons (b. 1937)
George Rickey (b. 1907)
Brigitte Riley (b. 1931)
James Rosenquist (b. 1933)
George Segal (b. 1924)
Richard Serra (b. 1939)
Frank Stella (b. 1936)
Jean Tinguely (b. 1925)
Victor Vasarely (b. 1908)
Andy Warhol (1925-1987)
Tom Wesselman (b. 1931)
Jack Yongerman (b. 1926)

Graphic Arts

Robert Brownjohn (b. 1925-1970)
Ivan Chermayeff (b. 1932)
Seymour Chwast (b. 1931)
Theo Crosby (b. 1925)
Muriel Cooper (b. 1925)
Paul Davis (b. 1938)
Alan Fletcher (b. 1931)
Colin Forbes (b. 1928)
Tom Geismar (b. 1929)
Bob Gill (b. 1931)
Milton Glaser (b. 1929)
Rudolph de Harak (b. 1924)
George Lois (b. 1931)
Siegfried Odermatt (b. 1928)
Herb Lubalin (b. 1918-1981)
Ed Sorel (b. 1929)
George Tscherny (b. 1924)
Rosemarie Tissi (b. 1937)
Massimo Vignelli (b. 1931)
Wolfgang Weingart (b. 1941)

The eighties opened with the election of a conservative, Ronald Reagan, as President of the United States. The mood of the country was dramatically to the right of where it had been and away from liberalism and social programs. During Reagan's first term, Reaganomics brought inflation under control but doubled the national debt.

In 1982, the United States successfully launched the *Columbia* to start the NASA Space Shuttle Program, but in 1986 the *Challenger* exploded, killing the crew of seven and destroying the space craft. The Pentagon, with Reagan's support, continued to push its "Star Wars" missile defense research program. By the middle of the decade, the problem of illegal drug abuse had become so pervasive that the government was forced to seek drastic solutions.

Other concerns in the United States were the increase of illegal aliens into the United States, the shift in jobs from manufacturing to service industries, the loss of jobs and markets to foreign imports, the effects of pollution on both the earth and space, the steep rise in the homeless populations, and the spread of Acquired Immune Deficiency Syndrome (AIDS).

The world continued to experience a rise in the number of terrorist activities: Egyptian president Anwar Sadat was assassinated; 237 American marines were killed in Beirut; and numerous innocent bystanders were killed in airports, refugee camps, and city streets. Limited wars continued to erupt: Soviet troops remained in Afghanistan; Iraq invaded Iran; Argentina seized the Falkland Islands, precipitating war with Britain; Israel invaded Lebanon; and the United States intervened in Grenada. Meanwhile, civil strife continued in Northern Ireland, South Africa, Nicaragua, and El Salvador, to name but a few of the hot spots. To reduce international tensions between East and West, the two superpowers agreed to continue talks.

On a more positive note, on Wall Street, the Dow Jones Industrial Average hit all-time highs, but in 1987 public confidence was momentarily shaken by the inside-trading scandal.

In science, genetic engineering opened an entirely new area of research into the basic structure of life, possibly leading to the elimination of birth defects and genetic diseases. In astronomy, space probes sent back information about the outer planets of the solar system, which one day may help explain the origins of the universe.

In medicine, the transplanting of human organs and the use of artificial organs held out hope for many. Surrogate mothering promised to be the answer for many childless couples, but for some it was a choice fraught with moral and legal complications.
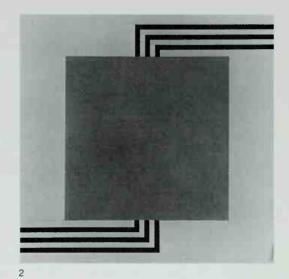
Miniaturization of radios and TVs continued. The introduction of personal computers, word processors, digital compact discs, VCRs, and digital instant cameras changed the way many lived and worked.
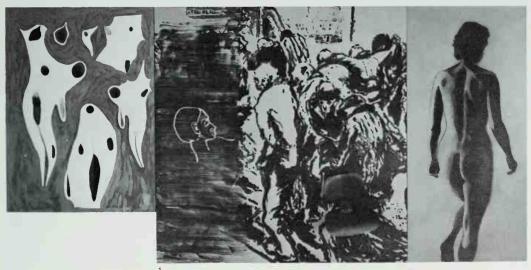
Many of the art movements that were popular in the sixties and seventies still found adherents in the eighties. The only new movement—if it can be called new—was *Neoexpressionism*, which was strongly influenced by the German Expressionists and aspects of the American Abstract Expressionists and Pop.

What made Neoexpressionism different from previous movements was that it seemed to have erupted worldwide rather than in a single city or country. In the United States the Neoexpressionists included Julian Schnabel, David Salle (1), Neil Jenney, Jon Borofsky, and Eric Fischl.

No sooner had Neo-Expressionism achieved acceptance when a group of painters, reacting to Neoexpressionistic excesses, became part of a resurgence of geometric painting. Among the prominent Neo-Geo painters were Ross Bleckner, Peter Halley (2), Philip Taaffe, and Michael Young.

2

1

1 David Salle is one of the major Neo-Expressionists. Shown here is his 1982 painting, created in three sections, *Poverty is No Disgrace*.

2 Peter Halley is one of the leading figures in a group of young painters whose work has been described as Neo-Geo. Seen here is his *Blue Cell with Triple Conduit*, painted in 1986.

GRAPHIC ARTS

The eighties saw the continuation of the technological revolution in the graphic arts as industry produced faster and more-efficient systems for designing, typesetting, and reproduction.

There is no question that graphic design moved into the digital age with much of the technology either in place or on the drawing board.

The role of pencil and paper will be greatly diminished in the future as we move more and more into computer-aided design (CAD). Designers will work at makeup terminals where all design needs—from typeface selection to illustrations—will be drawn from a central bank by the touch of a key. Once chosen, images can be cropped, silhouetted, distorted, color corrected, and so on. Design possibilities will be limited only by human imagination.

Once a job is approved, the designer will simply strike a key and the design will be electronically stored or transmitted by satellite anywhere in the world for reproduction.
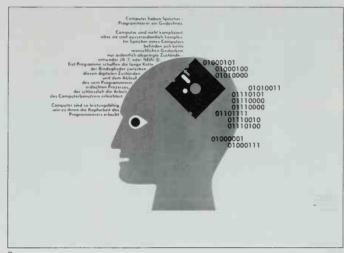
Printing or imaging will no longer involve metal plates and inking, but will be a sophisticated form of electronic imaging and laser technology instead.

Will all these technological innovations change the role of the graphic designer? Not really; in spite of more sophisticated systems, the designer's primary function is still visual communication. While the images may be more varied, type still has to be read. What Jan Tschichold wrote in 1935 will still be true in 2035: "Readers want what is important to be clearly laid out; they will not read anything that is troublesome to read."
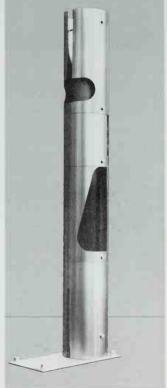
If the past is an indication, new technology will not replace graphic designers. They will continue to learn new skills and adjust to each change in technology. In fact, there will be more opportunities for graphic designers than ever before.

3

4

5

6

Computer haben Speicher -
Programmierer ein Gedächtnis

Computer sind nicht kompliziert,
aber sie sind ausserordentlich komplex.
Im Speicher eines Computers
befinden sich keine
menschlichen Gedanken,
nur ordentlich abgelegte Zustände
entweder JA 1 oder NEIN 0.
Erst Programme schaffen die lange Kette
der Bindeglieder zwischen
diesen digitalen Zuständen
und dem Ablauf
des vom Programmierer
erdachten Prozesses,
der schliesslich die Arbeit
des Computerbenutzers erleichtert.

Computer sind so leistungsfähig
wie es ihnen die Kopfarbeit des
Programmierers erlaubt.

01000101
01000100
01010000

01010011
01110101
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01101111
01110010
01110100

01000001
01000111

Genesis

7

10

3 Wolfgang Weingart
4 Rosemarie Tissi
5 Pentagram Design
6 Siegfried Odermatt
7 Bradbury Thompson
8 Armin Hofmann
9 Gene Federico
10 George Giusti

J. Brahms Ein Deutsches
REQUIEM

8

The girl with dark hair was coming toward him across the field. With what seemed a single movement she tore off her clothes and flung them disdainfully aside. Her body was white and smooth, but it aroused no desire in him, in deed he barely looked at it. What overwhelmed him in that instant was admiration for the gesture with which she had thrown it clothes aside. With its grace and carelessness it seemed to annihilate a whole culture, a whole system of thought, as though Big Brother and the Party and the Thought Police could all be swept into nothingness by a single splendid movement of the arm.

1984
JFMA
MJJA
SOND

9

12

11

The sign of
the NeXT generation
of computers...
for Education

13

Aesthetics of Progress

14

11 Art Kane
12 Erik Nitsche
13 Paul Rand
14 Jacqueline Casey
15 Seymour Chwast
16 Milton Glaser
17 Warren Lehrer
18 Martin Pedersen
19 April Greiman
20 George Lois
21 George Tscherny

15

Surface. Texture.
Form. Line. Color.

Only Words,
Until an Artist
Uses Them.

School of Visual Arts

16

17

42 YEARS OF GRAPHIS COVERS

18

19

A lot of media people are saying **USA TODAY** is neither fish nor fowl.

They're right!

THE ADVERTISING MIGHT OF

USA TODAY

To our readers, we're a newspaper—
bold, exciting, colorful and unique.
To many of our advertisers,
we're a newsmagazine—bold,
exciting, colorful and unique.
The truth is, we don't much care
what you call us.
Just as long as you call us.

20

Swim for Breath

swim

win great prizes, help combat Cystic Fibrosis

21

Historical Events

1980 Ronald Reagan defeats President Carter. United States boycotts Moscow Olympics. Iran-Iraq War begins. John Lennon shot. Mae West dies.

1981 Anwar Sadat assassinated. Sandra Day O'Connor first woman justice of the U.S. Supreme Court. Iran frees American hostages. Prince Charles of Great Britain marries Lady Diana Spencer. Joe Louis dies. Assassination attempt on Reagan fails. Space shuttle *Columbia* makes inaugural flight.

1982 Britain defeats Argentina in Falklands War. Queen Elizabeth gives Canada its constitution. Princess Grace (Kelly) of Monaco dies. Leonid Brezhnev dies and is replaced by Yuri Andropov. Barney Clark receives artificial heart. Israel invades Lebanon.

1983 Brooklyn Bridge one hundred years old. United States invades Grenada.

1984 AT&T broken up. George Orwell's *1984* is bestseller once again. Yuri Andropov dies and is replaced by Konstantin Chernenko. Soviets boycott U.S. Olympic Games. Geraldine Ferraro runs for vice president of the United States.

1985 Coca-Cola introduces new formula after 99 years. Divers find Spanish treasure worth $400 million. Fortieth anniversary of first atomic bomb. Marc Chagall and Jean Dubuffet die. François Truffaut dies. Chernenko dies and is replaced by Mikhail Gorbachev.

1986 *Challenger* space shuttle explodes, killing crew. Statue of Liberty Centennial celebration. U.S.S. *Titanic* found. AIDS becomes epidemic.

1987 Reagan administration shaken by Iran-contra scandal. Surrogate mothering on trial in Baby M case. Mikhail Gorbachev, U.S.S.R. party chairman, implemented the policy of "glasnost."

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CREDITS

Art Resource, New York City
Alinari:
30/9 detail, *Tomba detta dei Leopardo*, Tarquinia. 39/2 mosaic, ca. 547, Church of San Vitale, Ravenna. 44/11 tempera on panel, Uffizi, Florence. 44/12 1285, tempera on panel, Uffizi, Florence. 48/1 Spanish chapel, church of S. Maria Novella, Florence. 49/2 fresco, the Arena Chapel, Padua. 49/3 tempera on panel from the *Maestà*, rear face, Museo dell' Opera del Duomo, Siena. 53 detail of fresco, Museo Nazionale, Florence. 54 Pinturicchio, detail of fresco 1492-4, Borgia Apartments, Vatican Palace, Rome. 55/2 ca. 1485, Sassetti Chapel, Church of Sta. Trinità, Florence. 56/4 *Trinity with Donors*, north aisle, Church of S. Maria Novella, Florence. 80/1 oil on panel, Musée National du Louvre, Paris. 81/2 detail of fresco in *Stanza della Segnatura*, Vatican, Rome. 82/4 oil on panel, 1549, Galleria Corsini, Rome. 92/1 oil on canvas, 1701, Musée National du Louvre, Paris. 93/2 oil on canvas, ca. 1596-1600, Longhi Collection, Florence.
Giraudon:
50/4 *Enfants dans la fournaise*, on vellum, completed by Jean Colombe, from the *Très Riches Heures of Jean, Duc de Berry*, 1413-16, by Herman, Jean, and Pol de Limbourg, Musée Conde, Chantilly. 57/6 Jan and Hubert Van Eyck, detail of upper central section of *The Ghent Altarpiece*, oil and tempera, St. Bavo, Ghent.
Marburg:
81/3 oil on canvas, Accademia, Venice.
Scala:
82/5 detail, fresco, Sistine Chapel, Vatican, Rome. 85/9 *Vitruvian Man*, ca. 1490, ink on paper, Accademia, Venice.
SEF:
17/7 clay tablet from Telloh, Iraq, Musée National du Louvre, Paris.

British Museum, London
21/11 *The Final Judgment* from the *Book of the Dead*, written on papyrus by the royal scribe Ani, ca. 1420 B.C., Thebes. Department of Egyptian Antiquities. 22 The Rosetta Stone, basalt stele, inscription dates from ca. 197-6 B.C. Department of Egyptian Antiquities. 52 Diamond Sutra, woodblock print on paper, Chinese, May 11, 868, printed for Wang Chieh. The British Library. 61/9 Thirty-line indulgence issued April 29, 1455, by Paulinus Chappe, Proctor-General of the King of Cyprus, to contributaries to the war against the Turks. Printed

by Johann Gutenberg. The British Library.

The Folger Shakespeare Library, Washington, D.C.
97/10 Engraved title page, the Holy Bible, known as the King James Version, First Folio edition, printed by Robert Barker, 1611, London (STC 2216). 98/13 Opening of the Book of Genesis, the Holy Bible, King James Version, First Quarto edition, printed by Robert Barker, 1612 (STC 2219, c.). 98/14 *Mr. William Shakespeares Comedies, Histories & Tragedies*, known as the First Folio, printed by Isaac Jaggard and Edward Blount, 1623, London (STC 22273).

Hirshhorn Museum and Sculpture Garden, Smithsonian Institution, Washington, D.C.
141/6 Stuart Davis, *Lucky Strike*, 1924, oil on paperboard. Museum purchase, 1974 (HMSG 74.228). 171/1 Willem de Kooning, *Secretary*, 1948, oil and charcoal on paper mounted on fiberboard. Gift of Joseph H. Hirshhorn, 1966 (HMSG 66.1193). 171/2 Jackson Pollock, *Number 3, 1949: Tiger*, oil and enamel on canvas mounted on fiberboard. Gift of Joseph H. Hirshhorn, 1972 (HMSG 72.235). 172/3 Jasper Johns, *Numbers 0 to 9*, 1962, pastel, crayon, and ink wash on paper. Gift of Joseph H. Hirshhorn, 1966 (HMSG 66.2599). 172/4 Robert Rauschenberg, *Dam*, 1959, oil, paper collage, cloth, and metal on canvas. Gift of Joseph H. Hirshhorn, 1966 (HMSG 66.4187). 194/2 James Rosenquist, *The Light That Won't Fail, I*, 1961. Oil on canvas. Gift of Joseph H. Hirshhorn, 1966 (HMSG 66.402).

Library of Congress, Washington, D.C.
70/16 Eusebius Pamphili, *De evangelica praeparatione*, printed by Nicholas Jenson, Venice, 1470. 89/13 *Das Allte Testament deutsch*, translated into German by Martin Luther, printed by Melchior Lotther, Wittenberg, 1523. 99/15, 16 *The Whole Booke of Psalmes*, printed by Stephen Day, Cambridge, Massachusetts, 1640. 100/17 The Holy Bible, known as the Eliot Indian Bible, in the Algonquin language, printed by Samuel Green and Marmaduke Johnson, Cambridge, Massachusetts, 1663. 109/14 Benjamin Franklin, *A Dissertation on Liberty and Necessity, Pleasure and Pain*, printed by Franklin, London, 1725.

Rosenwald Collection:
51/6 Biblia Pauperum, Dutch or German origin, ca. 1465. 62 The *Giant Bible of Mainz*, ca. 1452. 65/10 Page from *Mainz Psalter* in

Latin, printed by Fust and Schoeffer, Mainz, 1457. 66/12 Thomas à Kempis, *De Imitatione Christi*, printed by Günther Zainer, Augsburg, 1473. 74/22,23 Francesco Colonna, *Hypnerotomachia Poliphili*, published by Aldus Manutius, Venice, 1499. 76/25 St. Augustine, *La Cité de Dieu*, printed by Jean Dupré, Abbeville, 1486. 77/26 Giovanni Boccaccio, *De la Généalogie des Dieux*, published by Antoine Vérard, Paris, 1499.

The Metropolitan Museum of Art, New York City
13/5 (Left) Ceramic vessel, Iranian, Tepe Sailk, ca. 3200 B.C. Acquired by exchange, Teheran Museum, 1948 (48.98.7). (Right) Ceramic vase, Tall-i-Bakun, Iran, ca. 4000-3000 B.C. Acquired by Exchange, Oriental Institute Museum, 1950 (51.25.22). 15/2 Standing male figure, white gypsum with bitumen from Mesopotamia, Tell Asmar, ca. 3000 B.C. Fletcher Fund, 1940 (40.156). 15/3 (Left) stone cylinder seal, shown with impression, Inanna Temple, Nippur, Iraq, ca. 3000-2600 B.C. Rogers Fund, 1962 (62.70.76). (Right) cylinder seal impression, Sumerian, ca. 2500-2350 B.C. Rogers Fund, 1956 (56.157.1). 21/12 Funerary Papyrus of Ensu-Amun, detail of scroll from Thebes, 21st Dynasty. Rogers Fund, 1926 (26.2.52). 26/2 Dipylon vase, Geometric, Greek Attic, ceramic, 8th century B.C. Rogers Fund, 1914 (14.130.14). 27/3 Detail of two warriors on amphora, Black Figure period, Greek Attic, ceramic, ca. 530-520 B.C. Fletcher Fund, 1956 (56.171.14). 27/4 Cithara player on amphora, Red Figure period, Greek Attic, ceramic, early 5th century B.C. Fletcher Fund, 1956 (56.171.38). 31/10 Toy jug in shape of a rooster. Bucchero ware. Etruscan, ceramic, 7th-6th century B.C. Fletcher Fund, 1924 (24.97.21). 32/12 Mosaic, Roman, 2nd century A.D. Purchase 1938, Joseph Pulitzer bequest (38.11.12). 33/13 Wall painting, Roman, 1st century A.D. Rogers Fund, 1903 (03.13.5). 33/14 Encaustic on wood panel, Fayum, Egypt, 2nd century A.D. Gift of Edward S. Harkness, 1918 (18.9.2). 42/8 Crucifixion, Champlevé enamel plaque, Mosan, 12th century. Gift of J. Pierpont Morgan, 1917 (17.190.431).

The Museum of Modern Art, New York City
128/5 Pablo Picasso, *Girl with a Mandolin*, 1910, oil on canvas. Nelson A. Rockefeller bequest. 128/6 Pablo Picasso, *Guitar*, 1913, charcoal, crayon, ink, and pasted paper. Nelson A. Rockefeller bequest. 140/3 Salvador Dali, *The*

Persistence of Memory, 1931, oil on canvas. Given anonymously. 140/4 Amédée Ozenfant, *Arrangement*, ca. 1924, etching. Purchase. 141/5 Otto Dix, *Dr. Mayer-Hermann*, 1926, oil and tempera on wood. Gift of Philip Johnson. 147/17 A.M. Cassandre, *Restaurez-vous au Wagon-Bar*, 1932, lithograph poster. Gift of Benjamin Weiss. 148/20 Herbert Matter, *All Roads Lead to Switzerland*, 1935, lithograph poster. Gift of Bernard Davis. 151/29 Edward McKnight-Kauffer, *Magicians Prefer Shell*, 1934, lithograph poster. Gift of the designer. 193/1 Roy Lichtenstein, *Drowning Girl*, 1963, oil and synthetic paint on canvas. Philip Johnson Fund (by exchange) and gift of Mr. and Mrs. Bagley Wright.

National Gallery of Art, Washington, D.C.
47 Anonymous 13th-century Byzantine artist, *Madonna and Child on a Curved Throne*, tempera on wood panel. Andrew W. Mellon Collection, 1937 (1937.1.1). 51/6 Petrus Christus, detail of *Portrait of a Female Donor*, ca. 1455, oil on wood panel. Samuel H. Kress Collection, 1961. 57/5 Leonardo da Vinci, *Genevra de'Benci*, ca. 1474, oil on wood panel. Ailsa Mellon Bruce Fund, 1967 (1967.6.1a). 57/7 Sandro Botticelli, *The Adoration of the Magi*, ca. early 1480s, oil on wood panel. Andrew W. Mellon Collection, 1937 (1937.1.22). 67/14 Albrecht Dürer, *The Four Horsemen*, from *The Apocalypse*, woodcut. Rosenwald Collection, 1964 (1964.8.1786, B-24.264). 68 Albrecht Dürer, *Erasmus of Rotterdam*, 1526, engraving. Rosenwald Collection (B-6, 578). 102/1 Gilbert Stuart, *George Washington (Vaughan portrait)*, 1795, oil on canvas. Andrew W. Mellon Collection, 1942 (1942.8.27). 103/2 Jean B.S. Chardin, *The House of Cards*, ca. 1735, oil on canvas. Andrew W. Mellon Collection, 1937 (1937.1.90). 103/3 Francisco Goya, *Los Caprichos: Self-Portrait* (Plate 1), 1798, etching and aquatint. Rosenwald Collection (B-7, 354). 112/1 Jacques-Louis David, detail of *Napoleon in His Study*, 1812, oil on canvas. Samuel H. Kress Collection, 1961 (1961.9.15). 113/2 Jean A.D. Ingres, *Madame Moitessier*, 1851, oil on canvas. Samuel H. Kress Collection, 1946 (1946.7.18). 113/3 Eugène Delacroix, *The Duel Between Faust and Valentin*, Plate 12 of Illustrations for Goethe's *Faust*, 1827, lithograph. Andrew W. Mellon Purchase Fund, 1976 (B-28, 753). 114/4 Claude Monet, *The Bridge at Argenteuil*, 1874, oil on canvas. Collection of Mr. and Mrs. Paul Mellon (1983.7.24). 114/5 Paul

Cézanne, *Still Life with Peppermint Bottle*, ca. 1894, oil on canvas. Chester Dale Collection, 1963 (1963.10.104). 114/6 Winslow Homer, *Raid on Sand-swallow Colony: How Many Eggs?*, from *Harper's Weekly* for June 13, 1874, wood engraving. Rosenwald Collection, 1958 (B-21, 844). 127/3 Henri Matisse, *Pot of Geraniums*, 1912, oil on canvas. Chester Dale Collection (1963.10.41). 130/11 Piet Mondrian, *Diamond Painting in Red, Yellow, Blue*, ca. 1921-25, oil on fiberboard. Gift of Herbert and Nannette Rothschild, 1971 (1971.51.1).

National Museum of American Art, Smithsonian Institution, Washington, D.C., Gifts of the Container Corporation of America

154/36 Herbert Bayer, *Strength out of Straw*, 1939, gouache and pencil on paper. 154/37 Herbert Bayer, *Destiny of an Old Directory*, 1939, photomontage, airbrush, ink, and gouache on paperboard. 161/55 Gyorgy Kepes, *Responsibility*, 1937-39, gouache and airbrush on paperboard. 161/56 Gyorgy Kepes, *Nautilus*, 1937-39, gelatin silver print, gouache, and airbrush on paperboard. 162/57 Leo Lionni, *Press the Button*, 1943, photomontage touched with white. 162/58 Leo Lionni, *Protecting America's Protection*, 1941, photograph, ink, and gouache.

Pierpont Morgan Library, New York City

40/4 Gospel from the Abbey of Saint Martin, Tours, ca. 857-862 (M.860 f.4v). 43/9 *Sacramentary*, Latin, 11th century, Poggibonsi (M.737 f.61v). 43/10 *Apocalypse-Moralized*, Latin, first half 13th century (M.240 f.8r). 63 Bible, Mainz, ca. 1455 (PML 13, Vol. 1, f.45). 67/13 Bible in vernacular Low German, Cologne, 1478 (PML33901-33902). 69/15 St. Augustine, *De civitate Dei*, Subiaco, 1467 (PML 240). 71/17 Cyril of Alexandria, *Epistola ad Acaceum*, calligraphy by Sigismundus de Sigismundi, Florence, 1488 (M.496 f.168v). 72/19 Virgil, *Opera*, Venice, 1501. 72/20 Rodericus Zamorensis, *Spiegel des meschlichen Lebens*, Augsburg, ca. 1476 (PML 139). 75/24 Geoffrey Chaucer, *Canterbury Tales*, Westminster, ca. 1478 (PML 674). 83/6 Orouce Finé, *Arithmetica Practica*, Paris, 1542 (PML 63690). 84/7 Bible in Latin, Paris, 1540 (PML 18238). 85/9 Geofroy Tory, *Champs Fleury*, Paris, 1529 (PML 16203). 86/10 Eusebius, *Ecclesiastical History* (Greek), Paris, 1544 (PML 1080). 87/12 Bible, Polyglot, Antwerp, 1569-72, page 22 (PML 51908-11). 88 Bible, Polyglot, Antwerp,

1569-72, title page (PML 51908-11). 89/14 Hans Holbein the Younger, illustrator, *Dance of Death*, Lyons, 1538 (PML 2112-13). 96/7 *Médailles sur les Principaux Événements du Règne de Louis le Grand*, Paris, 1702 (PML 61327). 96/8 Thomas à Kempis, *De Imitatione Christi*, Paris, 1640 (PML 61838). 97/11 The Holy Bible (King James Version), London, 1611 (PML 5460). 105/6 Juvenal and Persius, *Satyra*, Birmingham, 1761 (PML 2170). 105/7 Virgil, *Bucolica, Georgica, et Aeneis*, Birmingham, 1757 (PML 2169). 106/9 Pierre-Simon Fournier, *Manuel typographique*, Paris, 1764, title page (PML 23051-52). 106/10 Pierre-Simon Fournier, *Manuel typographique*, Paris, 1764 (PML 23051-52). 107/11 Jean Racine, *Oeuvres*, Paris, 1801 (Glazier Collection). 108/12, 13 Giambattista Bodoni, *Manuel tipografico*, Parma, 1818 (PML 33264-65). 115/7 Shakespeare, *The Dramatic Works*, London, 1792-1802 (PML 5218-5253). 116/9 Geoffrey Chaucer, *Works*, Hammersmith, 1896 (PML 23121). 136/25 Stanley Morison, *Fra Luca de Pacioli*, New York, 1933 (PML 38663). 150/26 *The Four Gospels*, Golden Cockerel Press, Waltham, St. Lawrence, 1931 (PML 63922).

Whitney Museum of American Art, New York City

132/16 Edward Hopper, *Evening Wind*, etching, 1921. Josephine N. Hopper bequest. 132/17 Rockwell Kent, *Bluebird*, wood engraving, 1919. Gift of Gertrude Vanderbilt Whitney.

Vatican Library, Rome

35/18 Virgil, *The Aeneid*, Vat. Lat. 3225, fvii, ca. 400. 35/19 Virgil, *Georgica*, Vat. Lat. 3256, f2r, Codex Augusteus, 4th century. 36/20 Manuscript, French, Vat. Lat. 7223 page 230, 5th century. 36/21 Manuscript, Southern Italy, Vat. Lat. 3375 page 71, 6th century.

Other sources

10/2 *Bison and Horses*, detail from "The Hall of Bulls" cave at Lascaux, France, Upper Palaeolithic Gravettian period, ca. 15,000 B.C. Centre National de Préhistorie, Périgueux. Photo N. Aujoulat. 13/6 Illustration by Alan D. Iselin. 14/1 *Scorpion-man and Gazelle*, shell plaque detail from "Bull's Head Lyre," ca. 2000 B.C., Sumerian, from the royal tomb of Ur. University Museum, University of Pennsylvania. 16/4 Clay tokens from Susa, Iran, ca. 3500 B.C. Département des Antiquités Orientales, Musée du Louvre, Paris. 16/5 Clay envelope from Susa, Iran, ca. 3300 B.C. Département des Antiquités Orientales, Musée du Louvre, Paris. 17/6 Clay

tablet from Uruk, Iraq, ca. 31-2900 B.C. Vorderasiatisches Museum, Berlin, DDR. 17 Stone tablet with pictographs, from Mesopotamia, ca. 2900 B.C. Walters Art Gallery, Baltimore, Maryland. 20/10 (Top) Scribe, detail of limestone carving from wall of Mastaba tomb of Akhethetep, Sakkara, Egypt, ca. 5th Dynasty. 20/10 (Bottom) Grid drawing, Plate 22 from *Canon and Proportions in Egyptian Art* by Erik Iversen in collaboration with Yoshiaki Shibata. Aris and Phillips Ltd., Warminster, U.K. 29/6 Greek lapidary inscription. Boustrophedon. 29/7 Greek lapidary inscription from Theangela, 3rd century B.C. 29/8 Greek wax tablet, Alexandria, Egypt, ca. 4th-5th century B.C. Translates as "the true beginning of life is writing" and was probably a student exercise. 34/15, 16 Inscription from base of column erected by the Emperor Trajan 106-A.D. 13. 39/3 St. Gregory, carved ivory plaque, French, ca. 960-80. Kuntsthistorisches Museum, Wien. 41/5, 6 The Book of Kells, vols. 247v and 248r and opening page of Gospel of St. Matthew, Island of Iona, ca. 800. Manuscripts Department, Trinity College Library, Dublin. 45/13 Bible manuscript, MS.1 f.397v, dated 1244 and signed by the scribe Guillelmus at Paris. Wadham College, Oxford. 45/14 Epistle Book, Italian, 1861, probably for Franciscan use connected with Assisi, 1368. MS25.i. Victoria and Albert Museum, London. 46/15 *Methuselah* from Ancestry of Christ window at Canterbury Cathedral, ca. 12th century, stained glass, Crown copyright. Victoria and Albert Museum, London. 52 St. Christopher, unknown illustrator, woodcut, 1423. Inscription reads "In whatsoever day thou seest the likeness of St. Christopher, in that same day thou wilt at least from death no evil blow incur." The John Rylands University Library of Manchester, U.K. 53 Two playing cards, handcolored woodcuts mae by Valery, Rouen, France, ca. 1540. The Playing Card Museum, U.S. Playing Card Co., Cincinnati, Ohio. 59/8 Fragment of printing attributed to Gutenberg from *Weltgericht (Sibyllenbuches)* or *World Judgment*, undated, probably before 1454. Gutenberg Museum, Mainz. 66/11 *Edelstein*, printed by Albrecht Pfister at Bamberg in 1461. The woodcuts were printed in a separate impression. Gutenberg Museum, Mainz. 95/5 Vergilius Maro, Publius, *Opera*, published and printed at Leyden, 1636 by Bonaventure and Abraham Elzevir. The Newberry Library, Chicago (case Y672.v866). 95/6 Engraved title page for 95/5. 103/4

Jacques-Lous David, *The Oath of Horatii*, 1786, oil on canvas. The Toledo Museum of Art (50.308). Gift of Edward Drummond Libbey. 109/15 Declaration of Independence, 1776, printed by John Dunlap of Philadelphia. Beinecke Rare Book and Manuscript Library, Yale University, New Haven. 115/8 *The Diary of Lady Willoughby* by Hannah M.R. Rathbone, published in 1844 by William Pickering, printed by Charles Whittingham the Younger at his Chiswick Press. St. Bride Printing Library, London. 119/11 N.W. Ayer & Son self-promotion house advertisement, 1891. N.W. Ayer, New York City. 120/13 Mark Twain (Samuel Langhorne Clemens), modern print from a Daguerreotype original, 1850. Mark Twain Papers, The Bancroft Library, University of California, Berkeley (1850.1). 128/7 Giacomo Balla, *Dynamism of a Dog on a Leash*, 1912, oil on canvas. Albright-Knox Art Gallery, Buffalo. Bequest of A. Conger Goodyear and gift of George F. Goodyear, 1964. 132/15 John Sloan, *McSorley's Bar*, 1912, oil on canvas. Founders Society Purchase, The Detroit Institute of Arts. 134/20 Cover for *Ver Sacrum*, 1899. The Houghton Library, Harvard University, Cambridge, Massachusetts. 152/30 *Vogue* magazine cover, February, 16, 1929, cover artist Benito. Courtesy Vogue, copyright © 1929 (renewed 1957) by The Condé Nast Publications, Inc. 152/31 *Vogue* double-page spread, December 15, 1933, pages 26-7. Courtesy Vogue, copyright © 1933 (renewed 1961) by The Condé Nast Publications, Inc. 167/71 *Westvaco Inspirations*, spread. Courtesy West Virginian Pulp and Paper Co. 182/29 Cover *Vogue*, December 1953, photographer Erwin Blumenfeld. 182/30 Double-page spread *Vogue*, July 1953, pages 72-73. Courtesy Vogue, copyright © 1953 (renewed 1981). 182-31 Cover *Vogue*, March 1, 1953, photographer Erwin Blumenfeld. Courtesy Vogue, copyright © 1953 (renewed 1981). 194/3 Andy Warhol, *Nineteen Cents*, 1960, oil on canvas. Collection Peter Brant. Courtesy Leo Castelli Gallery, New York City 290/1 David Salle, *Poverty is No Disgrace*, 1982, oil, acrylic, and chair on canvas. Courtesy Mary Boone Gallery, New York (MBG 1445). 209/2 Peter Halley, *Blue Cell with Triple Conduit*, 1986, acrylic on canvas, Courtesy International With Monument Gallery

INDEX

James Craig, a well-known author, was born in Montreal, Canada. He studied fine arts in Montreal and Paris before coming to the United States. Craig received his B.F.A. from The Cooper Union and his M.F.A. from Yale University. He is design director for Watson-Guptill Publications and a member of the New York Art Directors Club. Craig teaches graphic design at The Cooper Union and lectures widely.

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