The Rainbow Connection: 
An Image Database for the 
Faber Birren Collection of Books on Color

By JAE JENNIFER ROSSMAN

A new tool to assist in the use of the Faber Birren Collection of Books on Color was introduced in August 2005. A Web site with a personality to match the collection and an image database to facilitate virtual browsing increase accessibility for researchers at Yale and around the world. The Library Gazette published two bibliographies of the collection written by Robert L. Herbert in 1974 and 1978. The database is a modern version of this work, providing a constantly updated bibliography along with images of many of the works.

Before the details of the database are discussed, a brief review of the interesting career of the collection's creator will provide useful background. For additional details, consult the resources used for this short summary: "A Biographical Note on Faber Birren" by Robert C. Kaufmann published in the Library Gazette in 1974, and the "Biographical Sketch" in The Guide to the Faber Birren Papers (Manuscript Group 1567) held in the Sterling Library's Manuscripts and Archives.

Faber Birren (1900-88) was born in Chicago to a noted landscape painter father and an accomplished pianist mother. After growing up in an artistic atmosphere, he took classes at the Art Institute of Chicago while still in high school. He entered the University of Chicago in 1919, but left after only two years to pursue his own course of study on color through reading and correspondence with physicists, ophthalmologists, psychologists, and others from whom he could gain knowledge about color and human interaction with it. His first articles on color were published in 1924. Then, in 1934, with a need to support his new family, he established his own consulting business, which was to become very successful. As most of his work was on the east coast, Birren moved

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his business and family to New York, eventually settling in Stamford, Conn. He consulted with such major companies as Du Pont, Disney, and General Electric, and worked with the U.S. Navy and Coast Guard during World War II. The applications of his theories on color in the workplace to reduce accidents and fatigue were so successful for the U.S. Government that his reputation was assured and this field became his specialty. Personally, Mr. Birren had a strong interest in the artistic and humanistic side of color, which is reflected in the collection's holdings. To promote his interest in the history of color theory, he oversaw the republication of major historical texts on color, often including his own annotations or introductory text. Over the course of his career, the prolific author published 254 articles and 40 books on color, as well as three novels under pseudonyms. In 1971, he established the Faber Birren Collection of Books on Color at the then Art Library of Yale University with a gift of 177 books and an endowment to keep the collection growing. Through gift and purchase, the collection now numbers over 2000 items and is one of, if not the, best of its kind in the world.

The Web site was developed to function as a point of entry and a facilitator of information for researchers. Working with NYM Design, one of the firms involved in the design of the Yale Library's front door, the Art+Architecture Library, part of the Arts Library, wished to have the Internet presence of the Birren Collection represent its character. The Web site is designed to provide succinct, easy to locate information about the history and the holdings, and how to access the materials. Each subsection of the Web site has its own color scheme and together they represent the spectrum, as seen in the navigation bar at the top of each page. The navigation bar also features a different image from the collection on each page. While these cropped pictures are used in a design enhancing way, they can be seen in full by clicking on the image, which results in a pop-up window with a complete image and information about its location in the Birren Collection. The front page features a rotating series of images so that the design feels fresh each time a researcher visits the page. In addition to the image database described at length in this article, the Web site provides a brief description of the collection, and gives directions on how to make a research appointment or contact the collection's caretakers; it also provides access to PDF-formatted versions of the Library Gazette articles mentioned above.

The core of the Web site is the image database, based on the work of Robert L. Herbert for the Library Gazette and for his bibliography of the
Birren Collection, published by the Yale University Library in 1982. In these works, he created and applied a “subject key,” which arranged the collection into related groups of material. These categories were maintained with a few changes and additions to reflect the modern aspects of the collection. The database also makes available one to three representative images of works that are heavily illustrated or contain diagrams.

The Library’s Web, Workstation, and Digital Consulting Services created the database and its Web-enabled search interface. The information about each book was extracted from the Library’s online catalogue, Orbis. Thus, any information found in the image database will match the information in the catalogue of record for the Yale University Library. The search interface, powered by a SQL database, has two components: Bibliographical Search and Subject Search. The Bibliographical Search facilitates the location of individual items and small groups through the use of searches by author, title, call number, or publication information. The Subject Search corresponds to the recently updated categories originally created by Herbert. Up to three categories are assigned to each record in the database. This project is based on technology developed at the Beinecke Rare Book & Manuscript Library in support of their digital collections.

Once researchers complete a search, they can click on any part of the record to open a new browser window with that individual record, including the categories and any available images. By opening a new browser window for each record, the original search results can easily be consulted without needing to use the “back” button or redo the search. On the individual listing page, a click on the thumbnail image (up to 192 pixels in size) will result in another pop-up window with a larger size (up to 1536 pixels) of that image. All images are 72 dpi.

An important feature of the image database is the categories created by Robert L. Herbert and recently augmented by Christine deVellet, Acting Director of the Arts Library, and Jae Jennifer Rossman, Special Collections Librarian of the Arts Library. The categories highlight the collection’s strengths and allow researchers to easily view groups of like materials for comparison. There are eighteen original and four new categories, described below, along with examples of materials.

**Major Statements of Scientific Theory**

This category focuses on works that treat color in a scientific manner (although not purely scientific in the modern sense) and are considered
influential to many others' work. The number of authors in this category is limited, yet there are many works because the Birren Collection contains multiple editions and translations of the major works. Authors include Aristotle, M. E. Chevreul, Wilhelm Ostwald, Robert Boyle, René Descartes, Sir Isaac Newton, and Johann Wolfgang von Goethe.

A recent addition to this category is Josef Albers's 1963 publication, *Interaction of Color*. While this work had been published at the inception of the Birren Collection and Herbert's two bibliographies, it was too contemporary for its impact to be understood. Now, over forty years later, one can see that Albers has joined the ranks of impressive names like Descartes, Newton, and Goethe in his importance to the field of color theory.

**Color Theory and Bibliography**

Originally called Histories and Bibliographies of Color Theory, this category has become more broad so that it now includes general statements about color theory that would not be included in the "major statements" category. As Herbert points out in his 1974 Gazette article, "Histories of color and color theory are remarkably rare" (4), and hence the need to expand this category to include general statements about color theory, as well as works with substantial bibliographies on the topic of color.

Richard Raskin's *Color: An Outline of Terms and Concepts* was published by Aarhus University Press in Denmark in 1986. Essentially, this is a crash course in basic concepts and terminology that are used by others to express their various theories. In clearly written prose, with many explanatory tables, Raskin gives a solid introduction to the terminology of color, relates the foundations of color theory, and provides a succinct bibliography. A more in-depth introduction is Rolf G. Kuehni's *Color: An Introduction to Practice and Principles* from 1997. As the author expresses in his preface: "Artists, craftsmen, designers, students of art and photography, or any other interested person will find first-level answers to many questions related to color. The book can be a stepping stone to more in-depth studies" (vii). This author spends chapters on what was covered in pages in Raskin's book. Kuehni provides more details about technical concerns, such as light waves and refraction, and helps us understand how color standards are developed, not just what the various standards are. Both texts provide an excellent overview of the world of color theory; the reader determines if a quick or longer introduction suits his or her needs.
The need to find standardized ways to communicate about color has only increased over time with the growth of applications using color. The Birren Collection excels in documenting systems proposed to describe color in a methodical and/or organized way, from the sixteenth century to the present, from popular expressions to number identified systems, from cultural to scientific.

Even the United States Government has invested in creating and documenting color standards and systems of nomenclature. The National Bureau of Standards (now the National Institute of Standards and Technology) produced The ISCC-NBS Method of Designating Colors and a Dictionary of Color Names in 1955 and 1965, as well as a variation in the mid 1970s. In these publications, multiple color nomenclature systems are documented and tables equate the systems with the “ISCC-NBS color designation with serial number.” These codes can then be applied so that the reader can determine that if they wish to call something Dark Purplish Gray the hue must fall between 9PB and 1R of the Munsell Color System, which supplies a range of number-coded color chips as its method of designation.

An unexpectedly beautiful book is another scientific application from 1886. Robert Ridgway produced his work, Nomenclature of Colors for Naturalists, when he perceived a gap in his ornithological studies. After a discussion of the general principles of color, the author provides detailed information about which pigments will be most useful to naturalists in rendering their subjects, as well as eighteen pages of tables comparing color names in English, Latin, German, French, Spanish, Italian, Norwegian, and Danish. The surprising beauty of this publication is the series of handpainted plates illustrating how to achieve the necessary hues for naturalistic description. With fifteen to twenty variations per page and a page for each of the six basic colors, plus gray and brown, the reader can appreciate the variety of colors in nature, right in the palm of his hand.

These are two separate categories that are intimately related. Because the collection is so strong in this area, the broad category has been divided into two: works that are more general and theoretical, and works
CHART 50
MIDDLE COLOR SCALES
Copyright, 1911, by A. H. Munsell

that specifically address techniques and material concerns. Modern texts include graphic design manuals and offset printing. Early works are also well represented, on topics from how to make oil paint and textile dyes to how to use tools such as the camera obscura. The range of materials over several centuries provides a view of how the use of color by artists has changed, from grinding pigments by hand, to the introduction of chromolithography, and now the application of color in digital venues.

But this category is remarkable in that it also documents how techniques have stood the test of time and remained relevant over many years. For example, Nathaniel Wood's 1828 London publication, *The Decorative Painters' and Glaziers' Guide*, contains over three hundred pages of directions on how to imitate wood and marble, create stained glass, as well as suggestions of decorative schemes for apartments employing these techniques. It is a veritable "do-it-yourself" manual, complete with an introduction intended to excite the novice artisans about their new adventure and reassure them that they will be successful when following these directions. "The Art of Staining and Painting on Glass, has hitherto been in the hands of a few who have profited too much by the exclusive practice of it, willingly to impart any of the secrets of the art to others; but in the present day, when the liberal spirit of the age calls for embellishments of every description, and when there are thousands of artizans [sic], who only require to have the mysteries of this elegant art thrown open to them, to practice it with honour to the profession and advantage to themselves, it was deemed a sufficient reason for publishing a complete compendium of information" (preface). The directions are very detailed, easy to follow, and in some cases include step-by-step illustrations, such as Plate IX, the three stages of creating "satin wood."

The description you have just read, with the substitution of a few details, could also describe the 1994 New York publication *Paint: Room to Room* by Kim Johnson Gross, Jeff Stone, and Todd Lyon. A book meant to fit easily into the hand, this paint primer covers tools and application techniques, develops palettes to create a mood, and entertains with many quotations and tidbits about color, including some from Faber Birren. The contemporary manual covers the same basic principles as the nineteenth-century one, but in a way that reflects the "modern" desire for efficiency, here interpreted as a short and to the point text without extra details.
Printing

Accurately printing color was, and still is, a serious issue, and the amount of literature that documents the trials and successes in this matter proves the amount of effort artists, scientists, and printers have put into producing the best results possible. In addition to manuals that would be included in the previous categories, this category also includes sample books, often showcasing some very fancy printing intended to attract customers. Histories and other documentations of color printing are also found here.

Birren expresses the spirit of this category well in the foreword to his book, *The Printer's Art of Color*: “The art of color in printing involves a number of principles that are unique to the craft and which differ essentially from many of the color laws of the artist, for examples, the interior decorator or the textile weaver. Thus no one set of rules has universal application in all crafts and color mediums.” He then provides the reader with eleven essays on the use of color in printing, along with samples of colors that printers can effectively use in combination with black and white. This printer’s manual is predominantly theoretical, yet contains some practical elements. On the other end of the scale of manuals would be the Pantone Company’s matching system, which is filled with pages of printed hues and tones, along with the specific percentages of the inks of the CMYK (Cyan, Magenta, Yellow, Black) four-color printing process needed to achieve an exact match.

*A Guide to Nineteenth Century Colour Printers*, by Geoffrey Wakeman and Gavin Bridson and published in 1975 by The Plough Press, offers an overview of the revolutionary developments and growth of the trade by compiling a list of printers active in Great Britain during this century. A brief history of the firms highlighting their major works and a timeline of the business and its locations as well as selected bibliographies for the major firms allows the reader to compare who was doing what when. This is a well-researched and concise documentation of a complicated industry and time period.

Color-Music

From the analogy of the seven prismatic tones to the notes in the musical scale, such as that proposed by Sir Isaac Newton, to more modern interpretations that use digital applications, ideas about the relationship between color and music have been contemplated for centuries. Color can provide a visual component to the auditory experience, and
many theories have been proposed about exactly how color and music relate. In 1980, John Whitney set out to prove his hypothesis about the relationship between color and music in his book *Digital Harmony: On the Complementarity of Music and Visual Art*. He feels that harmony, defined as the "physical fact of orderly ratio," exists graphically as well as musically, and has designed an instrument (software) that uses "differential motion patterns" to compose time-based visual compositions and music. Detailed explanations of this concept will make sense to those with a solid background in Pythagorean theory and differential dynamics. But in the end, Whitney comes back to the same idea as have many others, a way to make music visible. Another innovative color-music relationship was put forth by Louise Gros in the 1910s, *The Art of Teaching Music by Means of Colours*. In this case, the color is on thread that is sewn into the pages of the book. The first illustration assigns a colored thread to each note in the scale. Subsequent illustrations show exercises in color notation on the left and conventional notation on the right. From these, one can also decipher that the length of the stitches

corresponds to the timing of the notes, short stitches being quarter
notes, and so forth. While the book concludes with a series of lesson
plans to implement this system, it is unlikely that any teacher could
successfully employ it, because they would need to spend many hours
creating complicated needlepoint patterns before they could engage a
single student.

RELIGION, HERALDRY, SYMBOLISM, AND THE OCCULT

This category is a bit of a hodgepodge, grouping together non-
specific approaches to color theory and systems. Under the "occult"
heading, the category covers the pseudo-science of alchemy, as well as
superstitions or beliefs not associated with major religions. While not a
large portion of the Birren Collection, this category provides contrast to
the scientific texts, making the collection well rounded in documenting
all aspects of the human approach to color. This category is also interest-
ing because extensive research performed by respected scholars is placed
next to texts written for popular consumption. For instance, English Litur-
gical Colours, which was published by The Society for Promoting Chris-
tian Knowledge in 1918, was written by Sir William Henry St. John Hope
as a methodical study of the use of color in church vestments. While the
reader can assume that Linda Clark and Yvonne Martine had the same
serious authorial intent when they penned their work, somehow Health,
Youth, and Beauty Through Color Breathing from 1976, has not become a
valued historical resource (yet?). Yvonne Martine, "a model herself, and
the head of a modeling school" (3), discovered that breathing colors can
help you with a host of ailments: pink is for skin conditions like wrin-
kles and acne, dark blue mends bones, while sky blue will improve your
memory. The small paperback book comes with all the best tones of
colors for healing printed in a handy chart on the back cover.

PSYCHOLOGY OF COLOR

This category takes a scientific approach to documenting seemingly
non-scientific phenomena, human emotion and perception. Human reac-
tion to color provides a wealth of information that can be used to
change or improve our surroundings or actions. Living and working sit-
uations, marketing campaigns, personality and character issues, are all
strongly affected by color and have had numerous authors expand on
what to do and not to do.

Frank H. Mahnke devotes three chapters to the interaction of the
mind and color in his work *Color, Environment, & Human Response*. Mahnke asserts that “to perceive color means to ‘experience’” it. Each time we see color in an environment, natural or man-made, that color carries “visual, associative, synaesthetic, symbolic, emotional, and physiological effects.” What’s more, we are influenced by six layers of unconscious and conscious influence: biological, collective unconscious, conscious symbolic associations, cultural influences, current trends, and personal relationships. Thankfully, Mahnke interprets these many influences and effects for different environments, then suggests appropriate color combinations.

Dr. Max Lüscher developed a personality test with the use of eight colors in the 1940s. It is still a staple in many circles of psychology and pseudo-psychology. Through a selection exercise, the subject orders the colors by preference. Each color has a corresponding number assigned. The placement of the cards determines a prefix added to the number. Placement also determines how to group the prefix-number combination. Tables of the prefix-number combinations then allow easy interpretation of several categories: Desired Objectives, Existing Situation, Characteristics under Restraint, Rejected or Suppressed Characteristics, and the Actual Problem. Some editions also contain detailed background on the test, in-depth interpretation, and its significance. The author took this test while writing this article and, while the interpretations were on the generic side, they were certainly applicable, as well as entertaining.

**Perception and Vision**

While this category is related to psychology and also to the later category including optics, the physiology of the eye is the emphasis here. How does the eye see color or, perhaps, not see color? The Western fascination with color blindness shows in this category through the variety of tests to confirm its existence and to determine its type. Many books have small chapters on how the eye works when explaining their particular color theory, as if demonstrating that the author understands the amazing anatomical workings of this important part of the body somehow gives more weight or legitimacy to their theories and ideas. An unusual work in this category was produced in Philadelphia in 1949 by Jeanette Freed and Henry Singer. The book is found in only four libraries in WorldCat and from its physical appearance seems to have been made by the authors in limited numbers. The text is produced by typewriter
and embossing, as the text is in both our standard alphabet and Braille. In the introductory text, Freed explains that “as one of the blind” she feels that the technique for communicating color to the blind explained in this book could provide significant educational and entertainment value to reading materials for the blind.

An image of a painter’s palette, drawn in raised ink, introduces the colors and textures. The various textural materials are colored (for the seeing) and labeled in both text and Braille. The textures are achieved from different-sized granules glued to the paper in either solid, dashed, or dotted applications. The palette includes the three primaries and the three secondaries: brown, white, and black. The format of the book is one page of text describing the image and then the image on the facing page. The authors attempt to communicate abstract ideas such as shadows and stars in the night sky. Other more literal pages include colorful birds on a tree branch and a cat warming itself by a coal stove. The images are drawn as if for a seeing person, except that they are rendered with the colored textural elements.

**CHILDREN AND COLOR**

The study of children and how they learn became a distinct field in the eighteenth century, then exploded in the nineteenth century. The two major innovators and competitors in the field of color education at this time were Louis Prang and Milton Bradley. In 1893 the Prang Educational Company published *Suggestions for a Course of Instruction in Color for Public Schools*. Prang and his co-authors stress two primary concepts: that color must be taught referencing “the ideal color unit,” a man-made color wheel of twelve hues; and that incorporating the perception of the child is the best way to start color instruction. The teachers are directed to make sure that the “impression or sensation” of the color must be understood before teaching nomenclature. It is recommended that objects of the same color and their associations be the starting point for learning about the twelve hues.

Milton Bradley published, through his namesake company, *Elementary Color* in 1895. We learn on the title page that he is also the author of *Color in the Schoolroom* and *Color in the Kindergarten*. His stance seems to be directly in opposition to Prang’s. Bradley advocates that color nomenclature must be taken more seriously and taught to children at an early age, just as they are taught their geometric terms (circle, triangle, sphere, cube). Predictably, both of these educational systems work best with
the materials and supplies created especially for them by the respective companies. Prices for the various packets of materials are included in the back of the volumes.

**Medicine and Biology**

Primarily a way to corral the texts with a focus on the structure of the eye, this is not a large category within the collection. Most texts are strongly scientific and focus very specifically on the function of the eye in a mechanical way, such as *Retina: The Anatomy and the Histology of the Retina in Man, Ape, and Monkey* and *Vertebrate Photoreceptors*. One surprising inclusion is a translation of the famous Egyptian medical text, the *Papyrus Ebers*. This work was a joint publication of Levin & Munksgaard in Copenhagen and Oxford University Press in 1937. An entire chapter was written on diseases of the eye. Of interest are the recipes for medicine, which often include pigments, to treat various maladies. For instance yellow ochre, a well-known pigment for paint, is included in the treatment for discharge, and malachite is used to treat cataracts. Lapis lazuli and red ochre are also often employed.

**Optics, Physics, Chemistry**

This category is also populated with technical tomes, as well as works that touch on the subjects, such as the history of dyes or paints. A recent addition to the collection in this category is a 1694 publication on optics by Dutch scientist Nicolaas Hartsoeker. *Essay de Dioptrique* was published in Paris and technically predates the 1704 first edition of Newton's famous *Opticks*, although Newton's ideas were known before he published. Hartsoeker explores the anatomy of the eye, the physics of refraction and how rays of light travel, as well as long sections on how to make various optical lenses. The book is filled with diagrams interspersed with the text. Each chapter is divided into articles, the start of which is marked by its title in the margin. Chapter four contains a long discussion on color, with articles on "the cause of the appearance" of red, yellow, white, blue, violet, green, and black. He also offers some thoughts on why certain colors are more "beautiful and sharp" than others. This work adds to the collection's representation of the range of scientific thought on color at the turn of the eighteenth century. Additionally, it makes an excellent companion to the color theory in the artist's treatise, also published in Paris only ten years earlier, *Art de Peinture* by Charles-Alphonse Dufresnoy.
NATURE

The study of plants and animals has contributed significantly to the study of color. As was discussed in the Nomenclature category, naturalists and scientists use color as an important part of identification. The Splendor of Iridescence: Structural Colors in the Animal World, written and illustrated by Hilda Simon, explains the technical details of the metallic, glittering wings of birds, butterflies, and beetles. The hand-drawn illustrations elucidate the scientific jargon necessary to describe the phenomena that is so appealing to the human eye. The artist-author has also created lively, yet precise, drawings that record the many variations in the creatures that sport iridescent colors.

Another beautifully illustrated text is Johan Peter Westring’s Svenska Lafvarnas Färghistoria: eller Sättet att Använda dem till Färgning och Annan Hushållsytta (The Color of Swedish Lichens: or the Way to Use Them for Dyeing or Other Household Purposes). The multivolume work was published in Stockholm from 1805 to 1809. For each lichen, a detailed picture of its structure aids with identification, and a color chart shows what dyes can be made from it. After a brief introduction to the particular variety, recipes for the dyes are given.

TEXTILES, DYES, ORNAMENT

The dyeing of cloth, yarn, and thread has been a major occupation around the world for many centuries. The Birren Collection mainly documents Western dyeing techniques and trends, but does venture into the East, especially the importance of indigo. In 1842, George Perrottet published Art de l’Indigotier or The Art of the Indigo Producer. He was the director of the Colonial Agriculture Department in Senegal. In the preface he explains that this book documents the knowledge he gained about the growing of indigo and how to prepare and use it as a dye. The various chapters cover the choice of growing environments, the tools needed, and a history of the plant, as well as details about indigo from other parts of the world, including Asia and South America.

Along with histories and technical manuals, the Birren Collection has many sample books, which often function as simple recipe books as well. For instance, the Berlin Aniline Works company produced a sample book Substantive Colours on Loose Cotton circa 1910 with 312 samples, which peek through small windows cut into cardstock. The structure of the sample books allows the viewer to see the full range of colors.
From Johan Peter Westring, *Svenska Läsfornas Färghistoria: eller Skattet att Använda dem till Färgning och Amann Hushållsnytta* (Stockholm: Tryckt hos C. Delén, 1805-[1809]).
For 10 kilos loose cotton:

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<td>300 grs. Diamine Red B</td>
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From *Substantive Colours on Loose Cotton* (New York: Berlin Aniline Works, [1911]).
at once, then to neatly fold this display down to a manageable 4 x 8 x 1.5 inches. Once the dyer has selected the desired color, simply flip to the handy directions on the first flap and learn that to create a shade of brilliant lavender combine 50 grams of the Berlin Aniline Works dye heliotrope with 10 to 20 grams of Glaubersalt crystals and one-half to two grams of soda crystals in a boiling bath.

FASHION, DECORATION, INDUSTRY

The focus of this category is on the use of color in the trends of fashion, interior and exterior decoration (and hence architecture in general), and in industrial settings. The publications that document these trends often overlap with other categories, most often Textiles, Dyes, Ornament and Psychology of Color. The Birren Collection copy of Robert F. Wilson's Colour in Industry Today: A Practical Book on the Functional Use of Colour from 1960 is inscribed from Wilson's son, who finished the book upon his father's early death, to Birren, who wrote the introduction. After a thorough explanation of the basics of color science, the mechanisms of vision, and the psychology of color, Wilson gives recommendations for the use of color to promote safety and productivity in factories and to create therapeutic settings in hospitals. He provides set color schemes and discusses how to work with a lighting engineer to further enhance the color.

A very methodical work in this category was published only ten years ago by the Yale University Press for The Paul Mellon Centre for Studies in British Art. Ian C. Bristow's Interior House-Painting Colours and Technology 1615-1840 provides the technical data and information he collected while researching another publication, Architectural Colour in British Interiors 1615-1840, also in the Birren Collection. Bristow provides great detail about what types of materials were available to house painters and how they were used, both in the creation of the paint and how it was applied. In part one, he devotes a separate chapter to white, blue, green, yellow, red, brown, and black pigments, as well as the various mediums and solvents. Part two covers manufacture and application, including faux effects and gilding. An extensive glossary and notes section rounds out the work, including a pull-out color sample chart.

ART, FILM, PHOTOGRAPHY

This category was not part of the original 1974 Color Bibliography Gazette article, but was included in the 1978 version. According to Herbert,
can compare and contrast time periods and cultures. As each explanation contains a representative color image, the effect of the palette is still evident even without the labeled swatches. For instance, the section on William Morris with an image of a room decorated with his fabrics can be compared to palettes from the Medieval Era, by which Morris was influenced.

**MISCELLANY**

The major component of this category is trade catalogues advertising a variety of products, as well as items that do not fit into the other categories. Birren enjoyed collecting catalogues for art materials so the collection has a good showing, especially from the nineteenth century. As the topics covered are so varied, the newsletter of the Inter-Society Color Council and the journal *Color Research and Application* are also classed here.

The Japanese Water Color Company expanded their market about 1930 to include the food industry, as evidenced from a display poster in the collection. The Peerless Color Laboratories, a subsidiary in Rochester, N.Y., offered a line of thirty food colors "for the hostess who seeks beauty in color." A fan showcases the range possible from the expected, like Cherry Red, to the surprising, like Peacock Green and Orchid Mauve. Not to worry, even these brilliant jewel tones are "certified as pure and harmless by [the] U.S. Government."

Several new categories were added to the database to reflect more recent trends in collecting and in the study and application of color, as well as to better reflect one of the strengths of the Birren Collection: actual examples of pigments on various media from a wide range of time periods.

**ARTISTS' BOOKS**

A basic definition of an artist's book is that it is conceived by an artist and intended as an independent work of art, and its format is the book, as compared to a painting or a sculpture. The collection has a growing number of artists' books that have a strong color component. *Pink Story: Sinistral/Dextral*, a collaborative work from artists Marlene MacCallum and Barb Hunt, was published in 2004. Composed of two volumes that complement and mirror each other formally and conceptually, the work explores both stereotypes and the reality of life as a contemporary Western woman. After viewing Hunt's wall installation of pink paint chips collected from stores, MacCallum proposed the idea to translate Hunt's
installation into a book along with a photographic response from MacCallum. The colors of the original paint chips were matched meticulously to create the book version.

The two volumes are housed in a black cloth chemise with button closures and they are covered in cloth of complementary colors: green for Dextral and red for Sinistral. The pages of each volume unfold in the form of a spiral, first creating the outer edge and then circling inward as the story progresses. *Volume I: Dextral* is an “artificially constructed narrative of a stereotypical woman’s life.” Pink-colored paint chips tell the story with names that reflect the expected stages of life as a woman. The sweet pinks that represent a female baby (Baby Dreams, Pink Innocence) get brighter through early childhood (Pink Popsicle, Bubblegum) and then become soft and pastel when becoming a young woman (Sweet 16 Pink, Sweetheart Rose). As the woman enters the world of romance, the colors get rich again (Lipstick, Lover’s Knot), fan into a wide range of tones representing marriage (Champagne Fizz, Blushing Bride), and then deepen as she rounds the final curve into the fairytale ending (Heart’s Afire, Bed of Roses). *Volume II: Sinistral* unfolds in the same spiral manner, although the spiral reaches away from the reader, the opposite of the other volume. Photogravure images of interior architectural spaces and extreme close-ups of flowers represent the stages of a woman’s life in a more intimate way. As the woman progresses through life, the interior spaces become larger or more public, but also less ornamented, and may even seem lonely or barren to some. Subtle touches of hand-colored pink in meaningful places (the glowing windows of a dollhouse, light falling on a bed) remind us of the connection that each individual woman has to the stereotypical life presented in the other volume.

**Electronic Media**

Works included in this category are books that have an electronic or digital component, such as a CD-ROM, and texts that deal with aspects of electronic media, such as designing with computers. For example, in 2004 Harper Design International published Chris Linford’s *The Complete Guide to Digital Color: Creative Use of Color in the Digital Arts*. This very detailed manual begins with an introduction to the history of the study of color and the basic phenomena of color vision. With abundant illustrations, the author succinctly explains important color theory, such as additive vs. subtractive color, hue and tone, and color harmony. The book then progresses to technical standards currently used to com-
municate about and correctly reproduce color. Lastly, the specifics of various digital input and output devices are detailed, so that designers fully understand that their work will have a different look and feel depending on the delivery medium.

**Paint Chips**

The principal function of this category is to designate that pigments, not merely reproductions, are contained inside. Many of the works in this category are advertisements for paint companies or art suppliers, yet hand-painted illustrations for theory books are also represented. The paint may be on card stock and tipped in (a "chip") or it may be applied directly to the page. For instance, the advertising packet/selection tool distributed about 1890 by the Eagle Paint and Varnish Works in Pittsburgh allows you to see large samples of its "Dutch process lead white paint" with two complimentary colors per paint chip. Additionally, a preview of the new paint color for your home can be seen by overlaying drawings of interiors printed on clear acetate. The depictions of bathrooms, living rooms, and bedrooms are drawn in such a way that the paint chip shows through only in the appropriate places to "apply" the paint to the walls. An example of true pigment not in a sample book is Ignaz Schiffermüller's 1772 publication *Versuch eines Farbensystems* (An Attempt at a Color System), which contains a hand-painted table illustrating the nuances of blue, described in detail in the accompanying chart.

**Sample or Swatch Book**

While similar to the Paint Chips category in that the works in this grouping often contain pigment samples, this category is broader and includes printed examples of colors. Two types of materials are heavily represented in this category: textiles and paper. A lovely example is Canson & Montgolfier's 1928 publication *23 Examples of the Use of Color in Modern Advertising*. Measuring 10 by 6 inches, each two-page spread provides a large sample of a different color of Ingres brand paper. Art deco-influenced imagery for perhaps imagined, perhaps real advertising campaigns showcase the strength of each color. Black and white ink printed on "Heron Gray" paper make an elegant image of a piano for Wickson and Company, "specialist in harmony." Metallic gold printed on "Plum" paper is a striking combination to advertise Modern French Brocades. One irony in this category is modern paint sample books,
color was not addressed as a separate subject (except in manuals) for artists until the twentieth century when exhibitions focusing on the use of color came into vogue. From this trend, studies of the use of color in the arts became more frequent.

A Half Century of Color by Louis Walton Sipley, director of the American Museum of Photography, was written in connection with an exhibition of the same name at his institution. Documenting the technology that turned color photography into a mass market medium, the book and the exhibition cover materials from the late nineteenth century through 1950 (the publication date is 1951). The exhibition also covers printing and its importance to the reproduction of photographs. The book presents popular culture uses of color photography, like fashion and travel, along side images of the equipment, for a comprehensive exploration of a medium that is ubiquitous today.

Identifying and codifying the palettes of cultures and time periods became increasingly popular in the twentieth century. Using a structured palette for decoration or in the studio gave legitimacy to color choices, especially when the colors were “chosen” by whoever was respected at the time: Roman, Victorian, Bauhaus, etc. An early effort in this arena was highlighted by Herbert in his first bibliography, Elizabeth Burris-Meyer’s Historical Color Guide: Primitive to Modern Times with Thirty Plates in Color from 1938. Each two-page spread for the thirty palettes consists of a one-page summary of what the term encompasses facing five representative color samples. The colors have names that reflect their association and are also coded according to the Munsell system. Additionally, each color chip is a different size, representing the importance of that color in the scheme by way of proportion. Of note is that the author’s definition of “modern” does not enter into the century in which she lived. Her modern palettes are derived from the nineteenth-century artists Van Gogh and Gauguin. An interesting contemporary comparison to Burris-Meyer’s work was published in 1995, Living Colors: The Definitive Guide to Color Palettes Through the Ages, written by Margaret Welch and Augustine Hope. Employing the French-door format, the book is spiral bound on both the right and left sides, with the pages opening from the center out. The intellectual format of the work is the same as Burris-Meyer’s with a description of the culture or time period paired with the palette. But the modern format allows an additional function not possible in a traditionally bound volume. As the pages of the palette section operate independently from the descriptions, one
such as the circa 1960 sample book for the Dutch Boy paint line, which contain printed representations of the actual paint colors.

In June 2006, the Birren Collection moved from one section of the Arts Library to another, as part of the multi-year preparation for the consolidation of three parts (Art+Architecture, Drama, Arts of the Book Collection) of the Arts Library into a new building, scheduled for late 2008. For many years, the Art+Architecture Library has been the home of the Birren Collection. The collection is now accessible through the Arts of the Book Collection, which is also the Arts Library Special Collections reading room. Much of the Birren Collection remains on site, but certain works, especially those containing delicate textile samples, will now reside in the ideal environmental conditions at the Library Shelving Facility. Researchers can consult the image database to develop a clear understanding of which materials they need to consult before arranging a research appointment. The database is scheduled to be fully populated with images by the end of the academic year 2006-07. The Arts Library staff hopes that the database and the application of the categories to all materials in the collection will make exploratory research by local and distant researchers more productive, and look forward to working with them in the use of the Faber Birren Collection of Books on Color.

Greer Allen was former Yale University Printer and faculty member and designer of many Yale publications including this journal. In the last volume of this publication, the editorial headnote to his obituary mentioned that the Gazette would reproduce the keepsake designed by present University Printer John Gambell for the Memorial Service at the full-to-overflowing Law School Auditorium. It was also available to visitors at the exhibition of Greer Allen work in design on display at Sterling Memorial Library.

That elegant publication was printed with color illustrations in a generous large-paper format with wide margins. It is reproduced here redesigned by John Gambell and with most of the original illustrations to give this enchanting essay an extended readership and to create a permanent journal record.